

Document Title: Transmission, check oil pressure	Function Group: 421	Information Type: Service Information	Date: 2015/9/30
Profile: GRD, G930 [GB]			

Transmission, check oil pressure

Op nbr 421-002

[11666052 Pressure gauge](#)

936445 Testing nipple

936446 Testing nipple

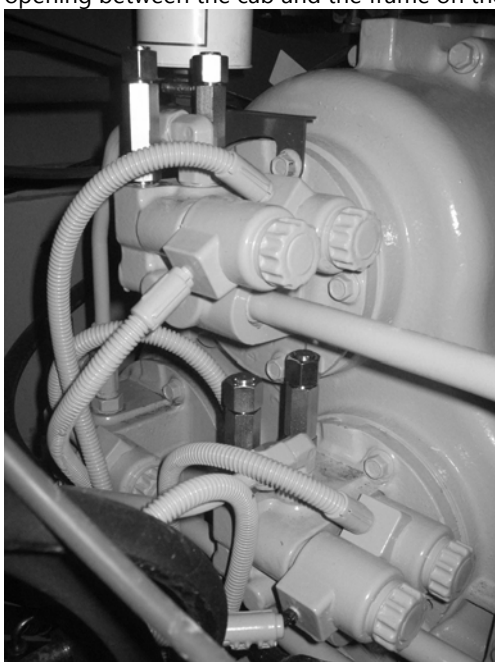
1. Park the machine on a firm level surface. Refer to the first 5 steps for placing the machine in the [191 Service position](#), but do not shut off the battery disconnect switch or allow the machine to cool down fully.

NOTE!

The engine, transmission and hydraulic systems should be at normal working temperature during the testing procedure.

Time for removing installed options such as cab skirts or lower front wipers, are not included in this procedure.

2. If the machine cannot be road tested to obtain the pressure readings, it will be necessary to raise the rear of the machine and support the tandem drive wheels elevated off the ground. This will allow you to engage the transmission and run the machine at the normal working temperatures while recording the working pressures. Refer to the Safety Section in the Service Manual and the instructions for: [191 Safety when lifting and supporting complete machine](#), [191 Safety rules when servicing](#).
3. Locate the test port attenuator nipples on the upper left side of the transmission. Access is gained through the opening between the cab and the frame on the left of the machine.



V1043767

Figure 1
Test ports — attenuator locations

4. Remove one of the attenuator nipples and install an appropriate size testing nipple into the valve block.



V1043768

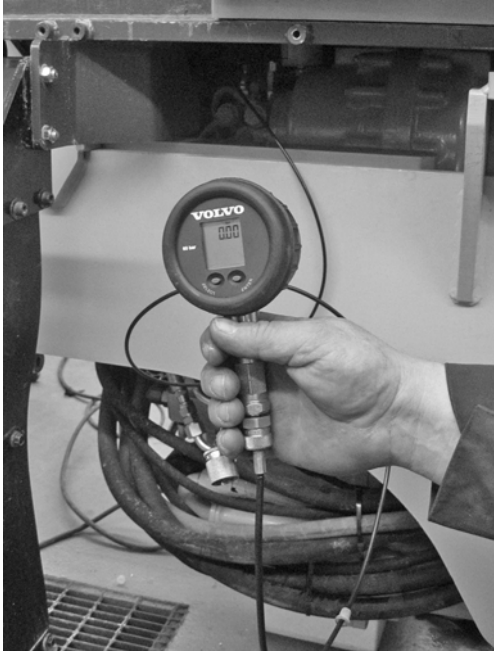
Figure 2
Test nipple with hose to gauge

NOTE!

Use nipple 936445 if connecting directly into the valve block.

Use nipple 936446 if connecting into the attenuator nipple.

5. Connect the Test Gauge 11666052 to the test nipple with the hose supplied with the gauge.

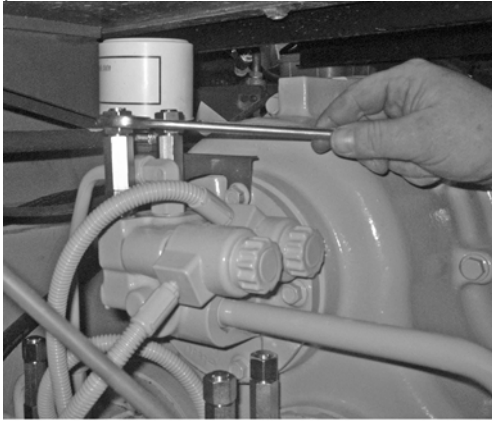


V1043769

Figure 3
Volvo pressure test gauge

6. Enter the cab and signal your intention to restart the machine.
When all bystanders are clear of the area around the tandem drive wheels, restart the machine and engage and differential lock.
7. Engage the transmission and run the machine at the normal working temperature in the specified gear while recording the working pressures at the test port according to the specification table.

8. Shut down the machine. Remove the test gauge nipple and hose line, then reinstall the attenuator into the test port.



V1043770

Figure 4
Attenuator installation

9. Repeat the procedure (steps 3 to 8) and record the pressure readings at all necessary test ports.
10. When testing is completed, carefully lower the machine to the ground and place it back into service.

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Document Title: Transmission, removing	Function Group: 421	Information Type: Service Information	Date: 2015/9/30
Profile: GRD, G930 [GB]			

Transmission, removing

Op nbr 421-070

Lifting eye bolts (16 mm)

1. Place the machine in the [191 Service position](#).
2. Remove the cab. Refer to [818 Cab, removing](#).
3. Remove the transmission guard. Refer to [715 Transmission guard, removing](#).
4. Drain the hydraulic oil from the transmission. Refer to [173 Transmission, changing oil and filter](#).

WARNING

Only use lifting devices with adequate capacity.

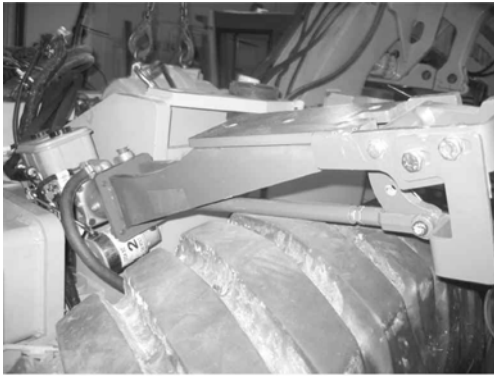
5. Install lifting eye bolts (16 mm) into the top of the transmission using chains and a safe lifting device.



V1039473

Figure 1
Lifting eye bolts and transmission

6. Disconnect the feed and return hose to the brake booster. Swing the brake linkage out of the way. Plug and cap the hoses to prevent contamination.



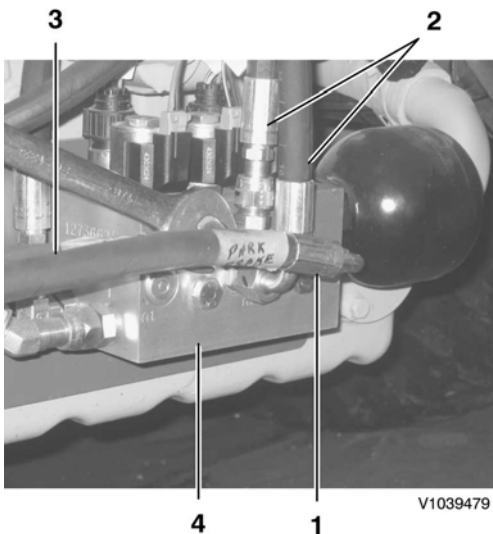
V1039475

Figure 2
Swinging the brake linkage out of the way

NOTE!

Do not disconnect the brake lines.

7. Remove the driveshaft bolts retaining the upper driveshaft to the transmission yoke and collapse the driveshaft.
 8. Remove the cushion bolts retaining the transmission on both sides of the machine. Refer to [426 Rubber cushion, changing](#).
 9. Remove the lower driveshaft. Refer to [451 Drive shaft, removing](#).
- NOTE!**
Mark all hydraulic hoses for identification.
10. Disconnect the parking brake, blade lock cylinder and differential lock hydraulic hoses from the combination valve located on the front of the transmission. Cap and plug the hoses to prevent contamination.



V1039479

Figure 3

1. Parking brake hydraulic hose
2. Blade lock hydraulic hose
3. Differential lock hydraulic hose
4. Transmission combination valve

11. Disconnect the two cooler hydraulic hoses at the pressure regulator valve. Cap and plug the hoses to prevent contamination.

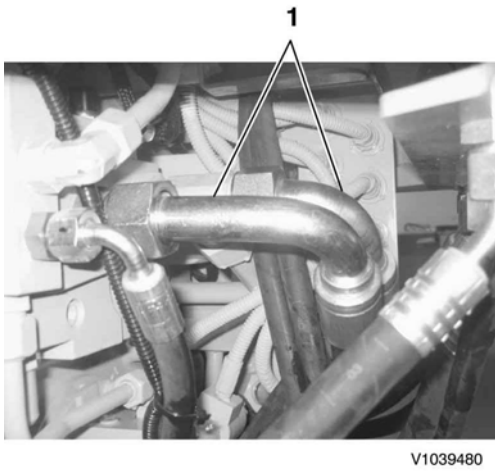


Figure 4

1. Hydraulic hoses - cooler
12. Disconnect the transmission lubrication hydraulic hose at the transmission manifold. Cap and plug the hose to prevent contamination.

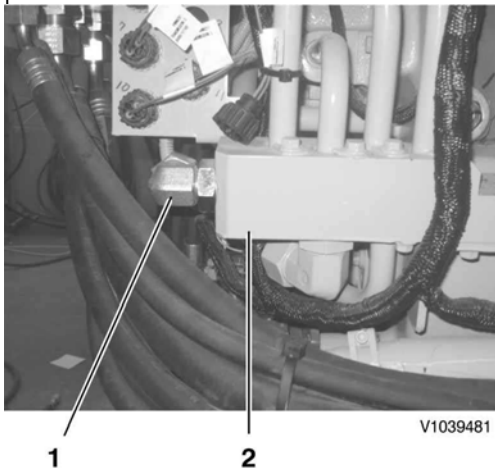


Figure 5

1. Hydraulic hose - transmission lubrication
 2. Transmission manifold
13. Disconnect the pump drive drain hydraulic hose. Cap and plug the hose to prevent contamination.

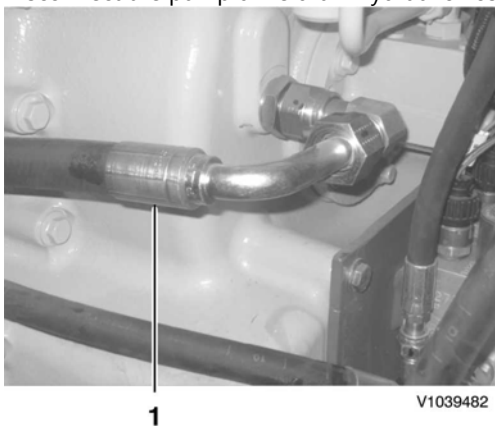


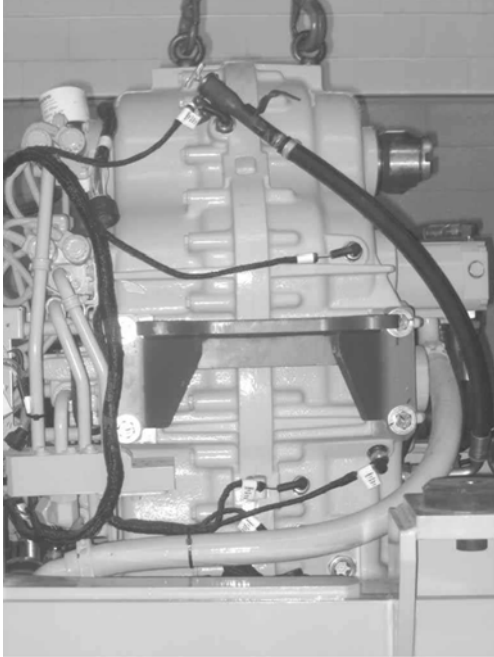
Figure 6

1. Hydraulic hose - pump drive drain
14. Disconnect the oil filler tube from behind the left rear cab mount.



Only use lifting devices with adequate capacity.

15. Safely lift the transmission out of the machine. **Weight 772 kg (1700 lbs)**



V1039483

Figure 7
Lifting the transmission out of the machine

NOTE!

Clearly identify wiring harness and hose locations prior to removal.

16. Remove all necessary parts from the transmission removed from the machine and install them on the replacement transmission.

Document Title: Transmission, installing	Function Group: 421	Information Type: Service Information	Date: 2015/9/30
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Transmission, installing

Op nbr 421-072

Lifting eye bolts, 16 mm

1. Install the necessary parts removed from the replaced transmission onto the new transmission. Refer to [421 Transmission, removing](#).



WARNING

Only use lifting devices with adequate capacity.

2. Attach lifting eyes and a safe lifting device to the transmission before installation. Lift and position the transmission into place using an alignment tool to line up the mounting plate with the mount on the frame.



Figure 1

1. Alignment tool
2. Transmission
3. Transmission mount

3. Install the cushion bolts, making sure the washers are in place, before completely lowering the transmission onto the mount.
4. Install the nuts and torque the cushion bolts to specification.
5. Reinstall the oil filler tube to the machine frame.
6. Reinstall the upper driveshaft to the input yoke on the transmission. Torque the bolts to specification. Refer to

[451 Drive shaft, installing.](#)

7. Reinstall the lower driveshaft to the output yoke on the transmission. Refer to [451 Drive shaft, installing.](#)

8. Reconnect all hydraulic hoses to the transmission.

NOTE!

Be sure to check all O-rings at the connections.

9. Set the brake assembly back into approximate position, prior to putting the cab back on. Reconnect the fittings back onto the brake assembly, but do not tighten, as an adjustment may later be required. When satisfied with the adjustments, tighten the fittings.

10. Fill the transmission with oil and change the transmission oil filter. Refer to [173 Transmission, changing oil and filter.](#) Check for any leaks.

11. Install the cab. Refer to [818 Cab, installing.](#)

12. Place the machine back in service.

Document Title: Transmission pump, removing	Function Group: 421	Information Type: Service Information	Date: 2015/9/30
Profile: GRD, G930 [GB]			

Transmission pump, removing

Op nbr 442-011

Container, 20 l (5 US gal.)

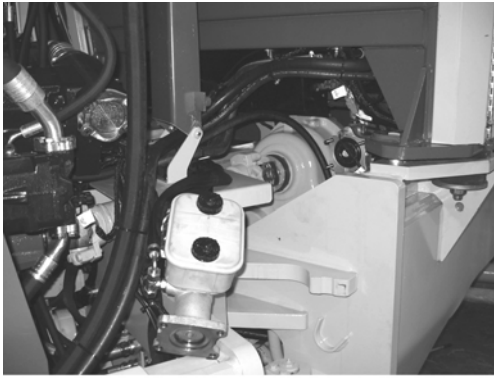
1. Articulate the machine to open up the right side.



V1038824

Figure 1
Machine articulated with right side open

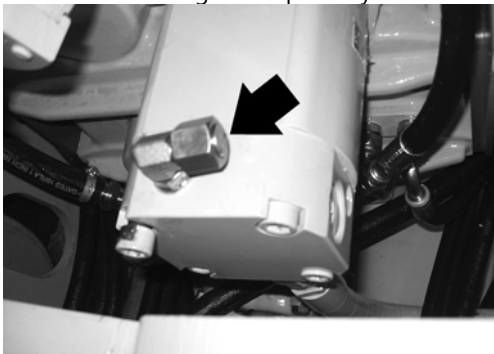
2. Place the machine in the [191 Service position](#).
3. Remove the transmission guard. Refer to [715 Transmission guard, removing](#).
4. Remove the lower front right hydraulic oil tank cover.
5. Drain approximately 20 litres (5 US gal.) of transmission fluid into a suitable container.
6. Remove the four nuts holding the brake master cylinder to the brake booster.



V1042572

Figure 2
Brake master cylinder and brake booster

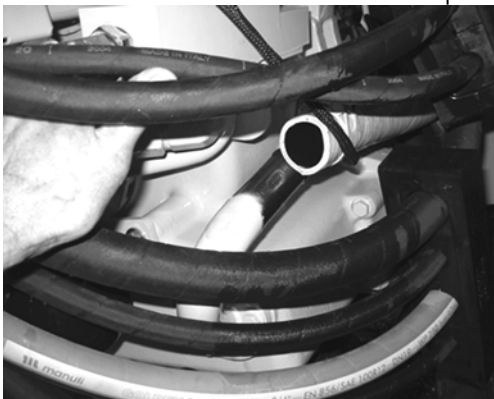
7. Remove the hydraulic hose from the top of the transmission pump. This hydraulic hose supplies oil pressure to the brake booster. Plug and cap the hydraulic hose immediately.



V1042573

Figure 3
Oil pressure hose location

8. Remove the hydraulic hose located under the rear of the transmission pump that connects to the transmission hydraulic filter. Plug and cap the hydraulic hose immediately.
9. Remove the transmission pump supply hose located at the lower right hand side of the transmission from the elbow connected to the transmission sump. Plug and cap the hydraulic hose and port immediately.



V1042574

Figure 4
Removing the transmission pump supply hose



Only use lifting devices with adequate capacity.

10. Support the transmission and remove the four transmission mounting bolts.



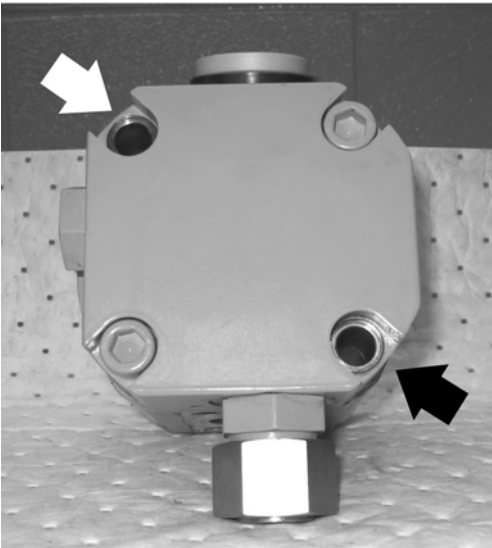
V1042575

Figure 5
Supporting the transmission

11. Move the transmission forward slightly in order to gain enough access to remove the two Allen head screws that mount the transmission pump to the transmission case.

NOTE!

Only remove the top left and bottom and bottom right Allen head screws.



V1042576

Figure 6
Allen head screws removed from the transmission pump

12. Remove the transmission pump with the supply hose still attached.

NOTE!

Be careful not to lose the drive coupling between the transmission pump and the transmission reverse shaft.

13. Remove and inspect the transmission pump drive coupling.
14. Remove the four retaining bolts that hold the supply hose to the transmission pump

Document Title: Transmission pump, installing	Function Group: 421	Information Type: Service Information	Date: 2015/9/30
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Transmission pump, installing

Op nbr 442-012

1. Install fittings into the new transmission pump.
2. Install a new O-ring in the supply hose flange. Reinstall the supply hose to the transmission pump with the four retaining bolts.

NOTE!

Orient the supply hose on the bottom of the transmission pump to face the left side of the machine when installed.

3. Install a new O-ring on the transmission pump pilot.
 4. Reinstall the transmission pump drive coupling into the transmission.
 5. Lower the transmission pump into place while guiding the supply hose to line up with the elbow from the transmission sump.
 6. Align the transmission pump drive to match the pump shaft. Install the transmission pump.
- NOTE!**
The transmission pump may have to be rotated slightly to line up the pump drive to the transmission coupling.
7. Install the transmission pump to the transmission case using the two Allen head screws. Torque the Allen head screws to specification.
 8. Reinstall the supply hose to the transmission sump elbow.
 9. Reinstall the transmission hydraulic filter hose to the bottom of the transmission pump.
 10. Reinstall the brake booster hose to the top of the transmission pump.
 11. Move the transmission back and line up the transmission mounts with the support brackets.

NOTE!

Place the large washers between the support brackets and the tops of the mounts.



V1042575



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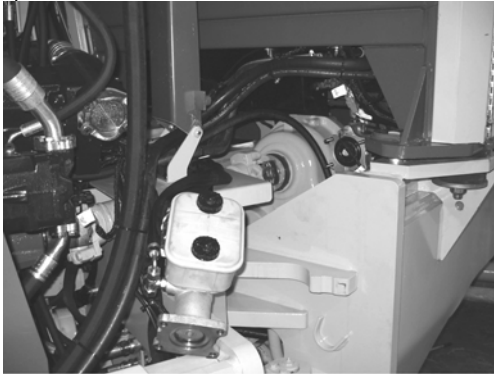
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Figure 1
Supporting the transmission

12. Reinstall the four transmission bolts. Torque to specification.
13. Reinstall the brake master cylinder assembly to the brake booster using the four mounting nuts. Torque to specification.



V1042572

Figure 2
Brake master cylinder and brake booster

14. Fill the transmission with oil to the proper level.
15. Place the machine back in service.
16. Check the operation of the machine. Ensure that there are no leaks.
17. Reinstall the hydraulic oil tank cover. Refer to [821 Engine hood, installing](#).
18. Place the machine back in service.

Document Title: Transmission temperature sensor, replacing	Function Group: 421	Information Type: Service Information	Date: 2015/9/30
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Transmission temperature sensor, replacing

Op nbr 386-004

Removing

1. Place the machine in the [191 Service position](#).
2. Lower the transmission guard. Refer to [715 Transmission guard, removing](#).
3. Disconnect the wiring harness connector from the temperature sensor SE4202.

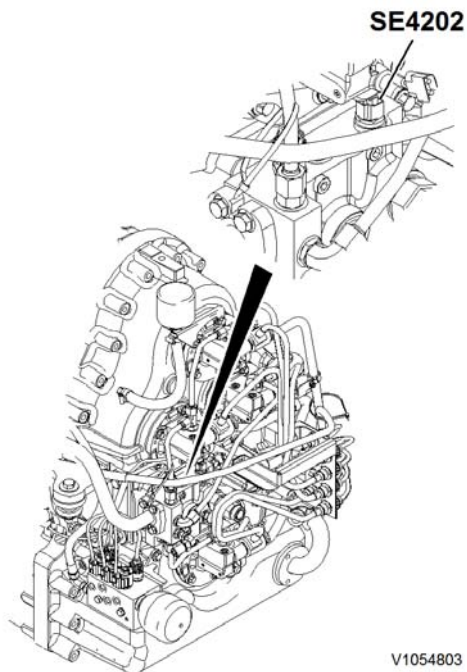


Figure 1
Transmission temperature switch location

4. Create a special wrench e tool measuring 152 mm (6 in.).

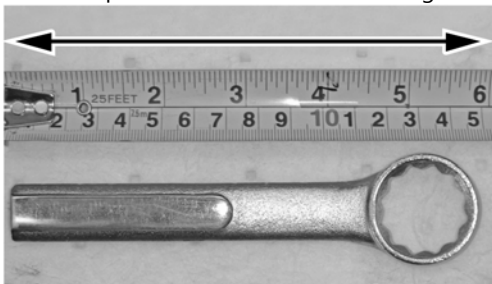


Figure 2

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