



VOLVO CONSTRUCTION EQUIPMENT SERVICE BULLETIN

Language Code GB	Group 160	Product ART/ WLO	No. 36	Version 1	Date 2007-10-08	Page 1/8
Applies to models All Articulated Haulers, All Wheel Loaders						

Oil sampling, method



WARNING!

Please pay attention to the safety instructions in the Operator's and Service Manuals concerned.

This Service Bulletin is to be considered as technical information only and is not subject to any reimbursement programs outside normal warranty.

Cause and action

In order to achieve an oil analysis that is as correct as possible it is important that the oil is taken from the machine in a correct way (see also *Oil sampling, sampling points*) and that the form for the oil analysis is filled in correctly.

Form for oil analysis

Fill in the boxes for the respective samples with regard to oil brand, number of operating hours for the oil and the oil grade.

System Sampled	
	Engine (E)
Oil Changed	Yes / No <input checked="" type="checkbox"/>
Oil Brand	Volvo
Oil Hours	510
Oil Grade	15W40 JDS-3
V0013699	
V1057053	

Fig.1 Example of filled in boxes and attached label for engine oil sample

MORE CARE. BUILT IN.





V1057054

Fig.2 Oil-sample bottle with attached label

Attach identical labels in the intended box on the form and on the bottle with the oil sample.

Eskilstuna	100	<input checked="" type="checkbox"/>	C
Umeå	360	<input type="checkbox"/>	ε
Uppsala	430	<input type="checkbox"/>	\
Södertälje	470	<input type="checkbox"/>	ε
Skövde	530	<input type="checkbox"/>	J
Staffanstorp	570	<input type="checkbox"/>	

V1057055

Fig.3 Example of to where the test result is to be sent

Fill in to which workshop the test results should be sent.

Send off the sample immediate according to local procedures in order to get the test result as early as possible.

VOLVO CONSTRUCTION EQUIPMENT



Oil Analysis

Model	A40D	Sample Date	2007-01-10
Serial Number	120XX	Job Number	12345
Machine Hours	2038	Sample drawn by	N. Nilsson

Volvo Construction Equipment Laboratory
Conwy, North Wales
United Kingdom LL32 8FA

Customer	V. Dumper AB	Site / Location	Grustaget
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Machine Type (Please tick)				
Compact Wheel Loader	Backhoe Loader	Wheeled Excavator	Articulated Hauler	<input checked="" type="checkbox"/>
Compact Excavator	Wheel Loader	Crawler Excavator	Motor Grader	
Other (Please specify)				

Manufacturer (Please tick)		
Volvo	<input checked="" type="checkbox"/>	Volvo BM
Akerman		Samsung
Other (Please specify)		

System Sampled						
	Engine (E)	Transmission (T)	Drop box (D)	Front axle final drive (F)	Rear axle 1 final drive (O)	Rear axle 2 final drive (R)
Oil Changed	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Oil Brand	Volvo					
Oil Hours	510					
Oil Grade	15W40 VDS-3					
	V0013699	Affix label here	Affix label here	Affix label here	Affix label here	Affix label here
(Please tick)	Front (N) <input type="checkbox"/> Rear1 (P) <input type="checkbox"/> Rear2 (U) <input type="checkbox"/> axle left, hub reduction	Front (X) <input type="checkbox"/> Rear1 (Y) <input type="checkbox"/> Rear2 (Z) <input type="checkbox"/> axle right, hub reduction	Travel gearbox left (J)	Travel gearbox right (K)	Tandem left (L)	Tandem right (M)
Oil Changed	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Oil Brand						
Oil Hours						
Oil Grade						
	Affix label here	Affix label here	Affix label here	Affix label here	Affix label here	Affix label here
	Hydraulic (H)	Swing gearbox (S)	Swing gearbox 2 (G) only EC460 & EC700	Wet brakes (W)	Coolant (C), please specify:	Other (O), please specify:
Oil Changed	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Oil Brand						
Oil Hours						
Oil Grade						
	Affix label here	Affix label here	Affix label here	Affix label here	Affix label here	Affix label here

Reason for sampling (Please tick)	Routine	<input checked="" type="checkbox"/> Failure	Comments:
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Duxford	Volvo1	<input checked="" type="checkbox"/>	Barnsley	Volvo2		Stirling	Volvo3	Treforest	Volvo4	
Birmingham	Volvo5		Warrington	Volvo6		Newcastle	Volvo8	Woking	Volvo9	

Please tick as appropriate

V1057056

Fig.4 Example of a filled-in form for an oil sample

Instructions for vacuum pump

Use a new hose for each sampling.
Store the pump in a clean place, when it is not used.

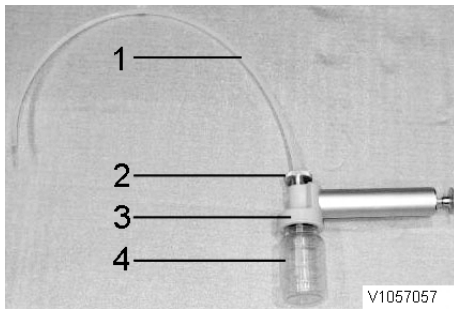


Fig.5

- 1 941363 Hose
- 2 Lock nut
- 3 11411003 Vacuum pump
- 4 Oil-sample bottle

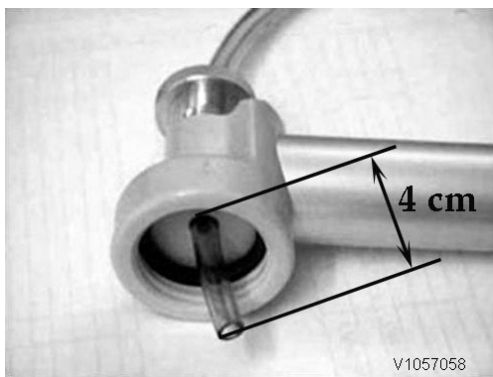


Fig.6 Installing hose

Installing hose

- 1 Cut a hose to a suitable length.
- 2 Insert the hose through the head of the vacuum pump.
The hose should protrude 4 cm (1.6 in) outside the base of the pump head.
- 3 Tighten the lock nut.



Fig.7 Removing hose

Removing hose

- 1 Loosen the lock nut.
- 2 Cut off the hose above the lock nut and pull the hose out of the pump.
NOTE! Check that the hose ends do not contaminate the pump head with oil.
- 3 Take care of the hose in an environmentally safe way.

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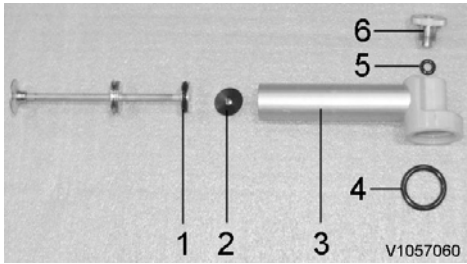


Fig.8 Vacuum pump

- 1 O-ring
- 2 Diaphragm
- 3 Cylinder
- 4 O-ring
- 5 O-ring
- 6 Lock nut

Cleaning vacuum pump

The vacuum pump must be cleaned after each sampling to prevent any residual oil in the vacuum pump from contaminating future oil samples.

- 1 Dismantle the vacuum pump.
- 2 Wipe the parts with a clean lint-free paper or rag. Apply a thin coat of silicone grease to the O-rings. When required, use compressed air for cleaning.
- 3 Assemble the vacuum pump and test its function.

NOTE! The vacuum pump must not be cleaned with diesel fuel, petrol or cleaning agent.

Oil sampling methods

The following applies to all methods:

- Make sure that oil-sample bottle is completely clean.
- Operate the machine until all systems have reached normal working temperature.

During the warming-up, all functions should be operated. It is important that all functions connected to the hydraulic system are operated to their respective end positions.

- Take the oil samples immediately after the warming up.
- Seal the oil-sample bottle thoroughly to avoid contamination and loss of oil during the transport.

A) Oil sample method with hose (pressurised system)

This method is used for engine, transmission and working hydraulics.

Tools:

14025152 Hose with nipple

- 1 Start the engine.
- 2 Connect the hose to the machine so that oil begins to run out into the hose.

NOTE! Collect the oil that is running out in a suitable vessel. Drain off 2–4 dl (6.8–13.6 US fl oz) into the vessel.

- 3 Slacken the hose connection to stop the oil flow.
- 4 Remove the vessel with the oil and make sure that it is taken care of in an environmentally safe way.
- 5 Make sure that it is possible to collect oil in the oil-sample bottle.
- 6 Tighten the hose connection again and fill the sample bottle 3/4 full.
- 7 Put the cap on oil-sample bottle.
Attach one label to the bottle and one label to the form for oil analysis.
- 8 Remove the hose.
- 9 Stop the engine.



Fig.9 Example of sampling method with hose

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B) Oil sample method with vacuum pump

The same method is used for axles, engine, dropbox and hub reduction gears.

Tools:

11411003 Vacuum pump

941363 Hose

1 Cut the hose to a suitable length and connect it to the vacuum pump.

2 Install oil-sample bottle on the vacuum pump.

3 Insert the hose at the testing point.

NOTE! Make sure that the oil sample is not taken from the bottom, but rather in the middle or within the working range of the oil.

4 Draw up oil to flush out the hose.

5 Remove the oil-sample bottle and empty it. Make sure that the oil is taken care of in an environmentally safe way.

6 Install oil-sample bottle on the vacuum pump and fill the sample bottle 3/4 full.

7 Remove the oil-sample bottle and put on the cap.

Attach one label to the bottle and one label to the form for oil analysis.

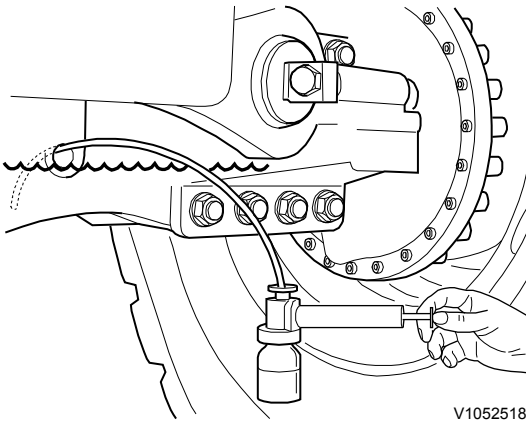


Fig.10 Example of test method with vacuum pump.

C) Oil sample method with quick-action coupling (pressurised systems), earlier machines

This method is used for engine, transmission and working hydraulics on earlier machines with TEMA-coupling.

Tools:

Snap-on coupling
941363 Hose

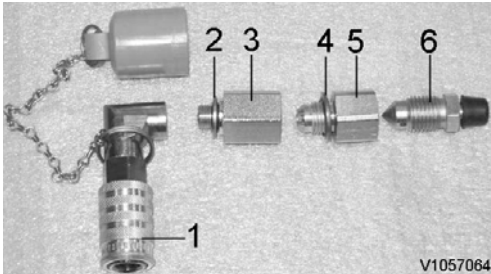


Fig.11 Snap-on coupling

- 1 9993522 Test nipple
- 2 947083 Gasket
- 3 963804 Nipple
- 4 976928 Gasket
- 5 4881092 Nipple
- 6 4871469 Air vent valve



Fig.12 Example of sampling method with quick-action coupling

- 1 Cut the hose to a suitable length and connect it to the quick-action coupling.
NOTE! A new hose should be used for each sampling.
- 2 Start the engine.
- 3 Connect the quick-action coupling to the machine and open the breather valve so that oil begins to run out into the hose.
NOTE! Collect the oil that is running out in a suitable vessel. Drain off 2–4 dl (6.8–13.6 US fl oz) into the vessel.
- 4 Close the breather valve to stop the oil flow.
- 5 Remove the vessel with the oil and make sure that it is taken care of in an environmentally safe way.
- 6 Make sure that it is possible to collect oil in the oil-sample bottle.
- 7 Open the breather valve again and fill the sample bottle 3/4 full.
- 8 Close the breather valve.
- 9 Put the cap on the oil-sample bottle.
Attach one label to the bottle and one label to the form for oil analysis.
- 10 Remove the quick-action coupling.
- 11 Stop the engine.