

Document Title: Valves, adjusting	Function Group: 173	Information Type: Service Information	Date: 2014/8/21
Profile: ART, A30F (37432) [GB]			

Valves, adjusting

Op nbr 214-012

This operation also includes the tools and times needed for required parts of the following actions:

- [191 Service positions](#)
- 1. Place the machine in service position, see [191 Service positions](#).
- 2. Lower the front grill and open the engine hood.
- 3. Remove the bolts for the expansion tank's bracket. Unhook the bracket and turn up the expansion tank to the right side. Secure the expansion tank with a tensioning strap in the hood.



V1076279

Figure 1

Rotate the engine

- 4. Remove the belt guard.

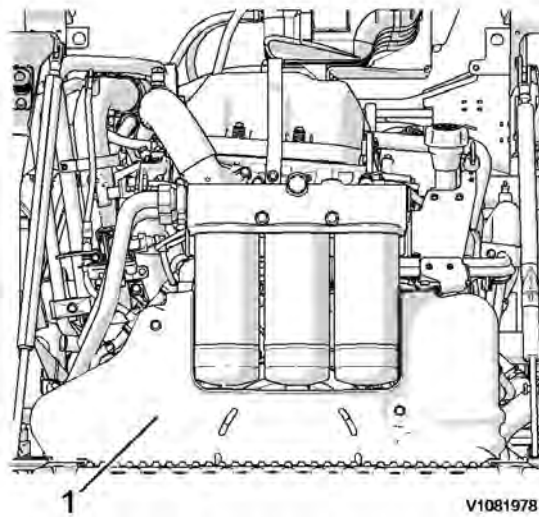


Figure 2

1. Belt cover

5. Install an extension with a 32 mm socket on the crankshaft's belt pulley. The extension should be at least 25 cm (10 in) long.

NOTE!

Use an extension for the handle to achieve smoother rotation.

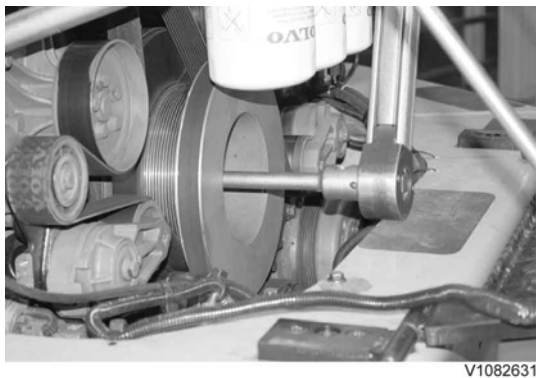


Figure 3

6. Remove the valve cover.
7. Rotate the engine in the rotational direction until the closest line marking on the camshaft stands between the marks on the bearing cap. (The camshaft is rotated counter-clockwise seen from the front).

NOTE!

Markings 1–6 are for adjusting inlet valves and unit injectors. Markings V1–V6 are for adjusting exhaust valves.

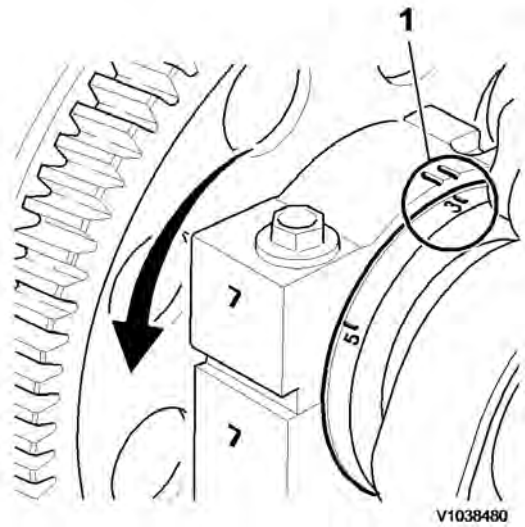


Figure 4

Camshaft marking

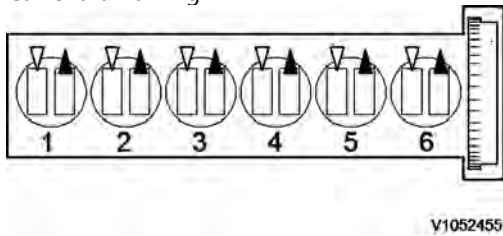


Figure 5

Cylinder number

Inlet valves, checking and adjusting

8. Check that the valve clearance between the yoke and rocker arm's thrust sleeve is according to [214 Valve system, specification](#). If needed, adjust as follows:
Adjust correct valve clearance for the inlet valves. Place a tool in adjusting screw B as counterhold and tighten lock nut A with a box-end wrench. See [214 Valve system, specification](#).
Recheck the valve clearance.

NOTE!

Using a marking pen, mark each rocker arm when adjusting is done to keep track of which valves have been adjusted.

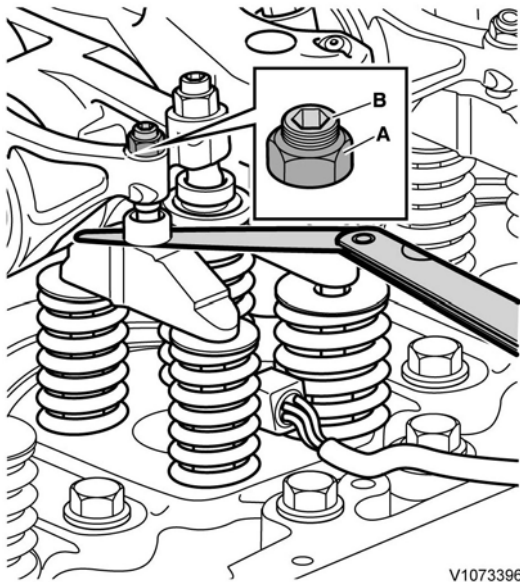


Figure 6

NOTE!

The unit injectors should only be adjusted if work has been done that involved removal of the rocker arm shaft.

The unit injectors are adjusted using the same camshaft marking as the inlet valves. See [237 Unit injector, adjusting pretension](#).

Unit injectors, adjusting

Exhaust valves, checking

9. Rotate the engine to the next marking V1–V6. Try to press down the rocker arm against the valve yoke. If it springs back there is still pressure in the piston.
10. Pull the rocker arm piston's spring outwards, at the same time as the rocker arm is pressed down to contact against the yoke. The oil film that may remain inside of the piston is punctured when the piston is lifted from its seat and the setting becomes more exact. Use a heavy gauge wire or hooked tool to pull out the spring.

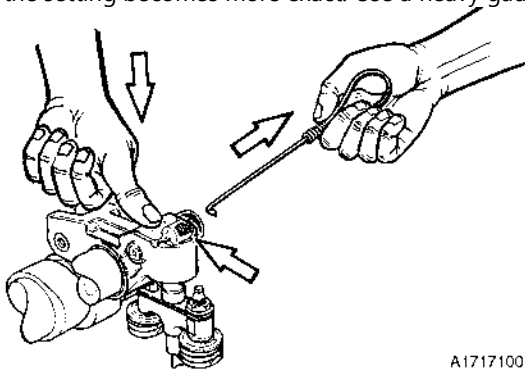


Figure 7

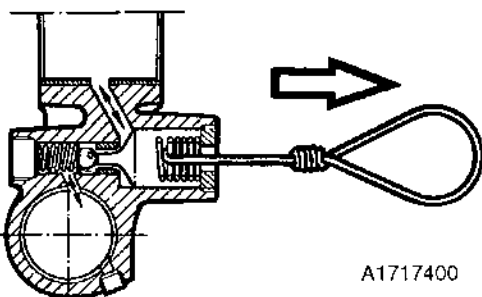
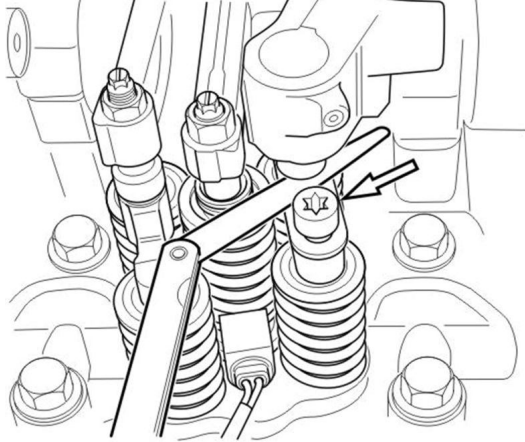


Figure 8

11. Check that the valve clearance between the yoke and rocker arm's thrust sleeve is according to [214 Valve system, specification](#).

Turn the sleeve so that it does not end up at an angle.



V1093403

Figure 9

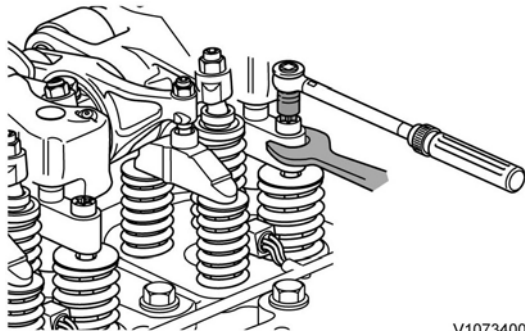
Exhaust valves, adjusting

12. If the valve clearance needs to be adjusted, remove the lock bolt and the shim. Using the measured value, calculate the thickness of the new shim. Install the shim and tighten the lock bolt with torque according to [214 Valve system, specification](#). Use shim, see parts catalogue.

Check the valve clearance.

NOTE!

Fixate the valve yoke when the lock bolt is loosened or tightened to avoid bending of the valve stems.



V1073400

Figure 10

13. Adjust the rest of the valves in the same way.
14. Install the valve cover.
15. Reinstall the expansion tank.
16. Remove the rotation equipment and install the belt guard.



Figure 11

17. Close the engine hood and raise the front grill.
18. Restore the machine from service position.
19. Start the engine and check its function.

Document Title: Suspension cylinder (GHS), rubber bearings, check	Function Group: 173	Information Type: Service Information	Date: 2014/8/21
Profile: ART, A30F (37432) [GB]			

Suspension cylinder (GHS), rubber bearings, check

Op nbr

This is part of other procedure.

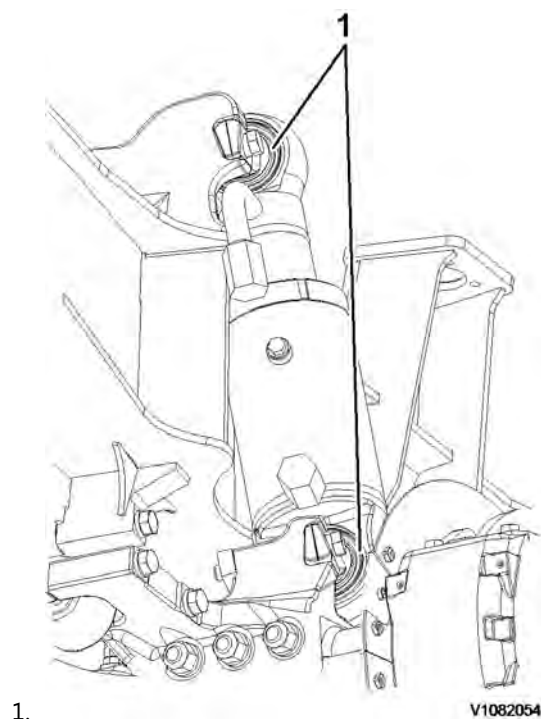


Figure 1

1. Rubber bushing

Visually check both cylinders' rubber bushings for wear or heavy crack formation.

NOTE!

Not checking the rubber bearings may result in damage to cylinders and shorten the machine's operating life.

Document Title: Suspension cylinder (GHS), function check	Function Group: 173	Information Type: Service Information	Date: 2014/8/21
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Suspension cylinder (GHS), function check

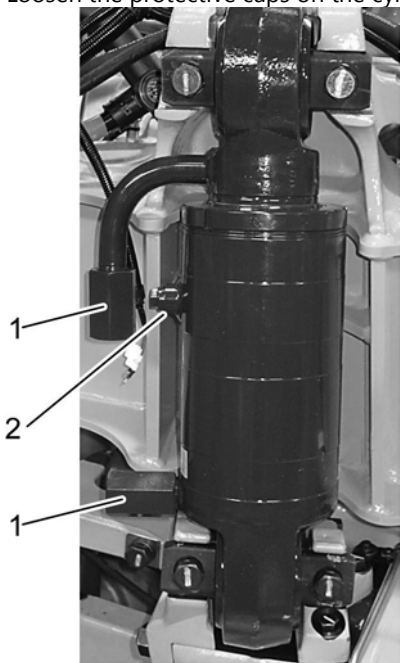
Op nbr 725-013

NOTE!

The machine must meet the following criteria to obtain correct values:

1. Diesel tank filled
2. Hydraulic oil tank filled to max. level
3. Level ground
4. Free from dirt
5. Body without load
6. Rock the machine by making a few small steering wheel movements to ensure that both cylinders have the same load.

1. Place the machine in service position, see section [191 Service positions](#)
2. Loosen the protective caps on the cylinders.



V1095631

Figure 1

1. Protective cap
 2. Bleed plug
3. Measure as shown in figure and see measurement table. Measure the cylinders on both sides.

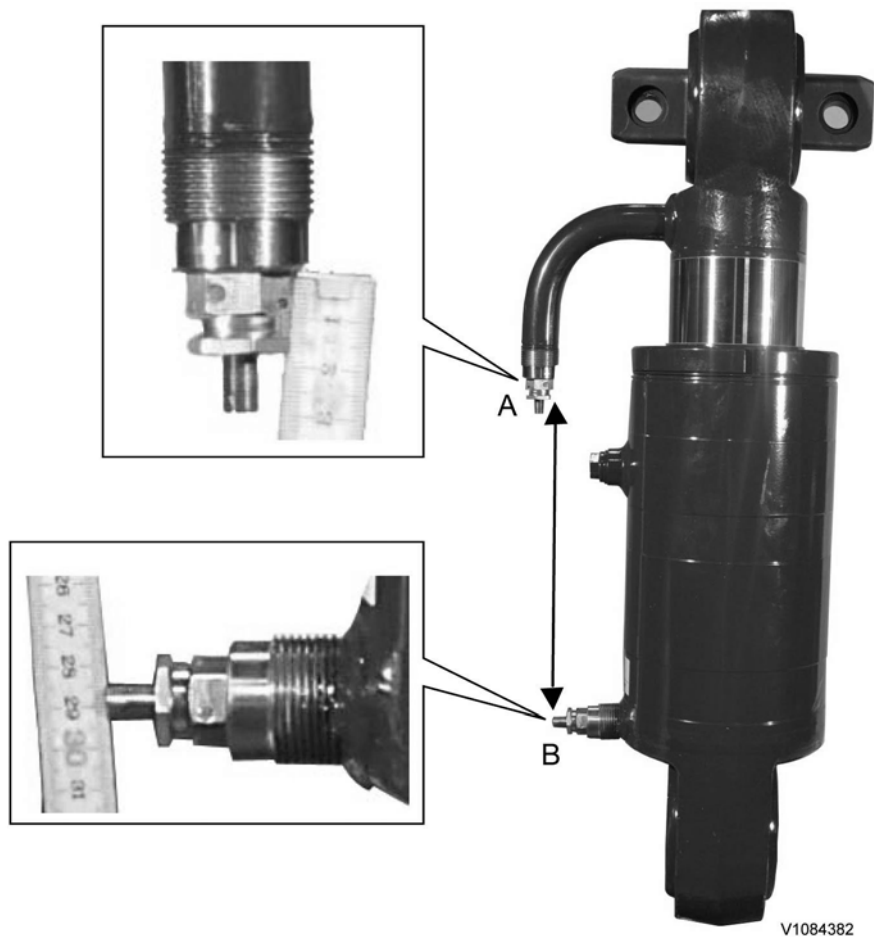


Figure 2

- A. Edge on pipe
- B. Centre of nipple

Temp (C)	(F)	Height (mm) ± 5.5 mm (± 0.22 in)
-30	-22	268
-20	-4	272
-10	14	275
0	32	279
10	50	282
20	68	286
30	86	289
40	104	293
50	122	296
60	140	300

Document Title: Suspension cylinder (GHS), oil changing	Function Group: 173	Information Type: Service Information	Date: 2014/8/21
Profile: ART, A30F (37432) [GB]			

Suspension cylinder (GHS), oil changing

Op nbr 725-010

[11666135 Gas filling kit](#)
[11666051 Pressure gauge](#)
[14290266 Hose](#)
[14290266 Hose](#)
[88830034 Adapter](#)
[11668007 Standard Jack Single](#)

936439 Nipple



Risk of injury when the machine sinks down when the cylinders are drained from oil.

This operation also includes required tools and times for applicable parts of the following operations:

- [191 Service positions](#)

NOTE!

The machine must meet the following criteria to obtain correct values:

1. Diesel tank filled
2. Hydraulic oil tank filled to max. level
3. Level ground
4. Free from dirt
5. Body without load

NOTE!

The underbody skid plates should be installed and fastened in place for this operation.

1. Place the machine in service position, see [191 Service positions](#).



Risk of injury when the machine sinks down when the cylinders are drained from oil.

Oil draining

2. Loosen the protective caps on the cylinders.

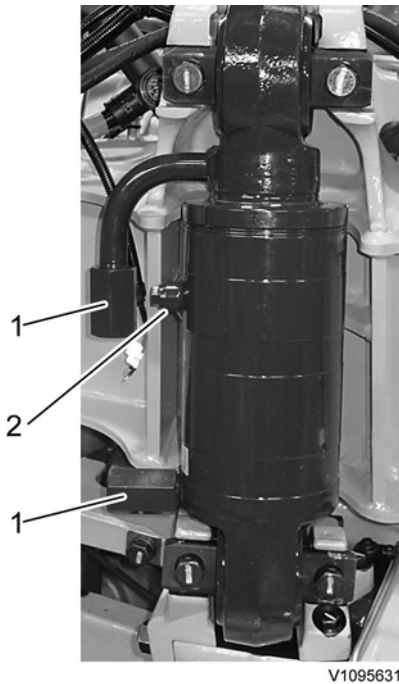


Figure 1

1. Protective caps
 2. Bleed plug
3. Connect a drain hose (length 1100 mm (43 in) thread M7) to the lower valve on the cylinder. Collect the oil in a suitable container.
 4. Open by loosening the lock nut on the valve.



Figure 2



Make sure it is at least 10 cm of space between you and the machine and that there are no objects that might get crushed when the machine is lowered.

5. Drain the oil until the cylinder is pressureless.
6. Connect the drain hose to the upper gas nipple to drain the oil pipe of oil.
7. Repeat the method on the other cylinder.

NOTE!

Handle the oil in an environment-friendly manner.

Filling oil

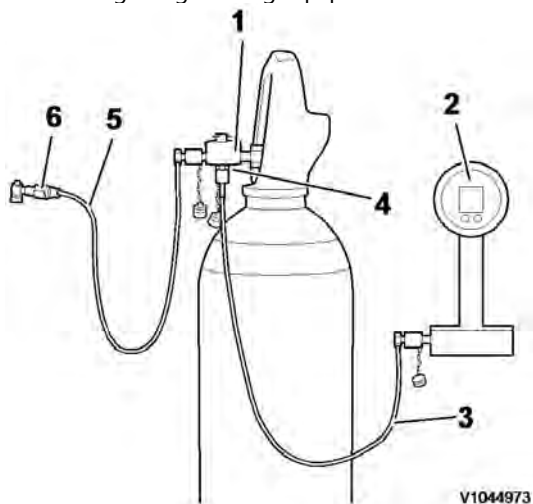
8. Fill with new oil in the upper connection by inserting a drain hose a (300 mm (12 in) with max. 10 mm (0.39 in) Ø) in the cylinder. Oil volume, see [720 Suspension cylinder \(GHS\), specifications](#)
 1. Fill with oil until it starts to run out from the breather plug.
 2. Wait awhile until the oil has stopped running.
 3. Close the breather plug.
 4. Top up with 150 ml (5.1 oz).
 5. Install the gas nipple for the upper connection.



V1083978

Figure 3

9. Repeat the method on the other side.
10. Connecting the gas filling equipment as shown in figure.



V1044973

Figure 4

1. 11666135 Gas filling kit
2. 11666051 Pressure gauge
3. 14290266 Hose
4. 936439 Testing nipple
5. 14290266 Hose
6. 88830034 Adapter

11. Connect 88830034 Adapter from the gas cylinder to the gas nipple on the upper connection. Open the gas nipple and fill gas. Measure elevation (mm/in) of the machine until the machine has reached correct height, see [725 Suspension cylinder \(GHS\) function check](#)



Figure 5

1. 88830034 Adapter
12. Repeat the method on the other cylinder.

Document Title: Diesel particulate filter, check and clean	Function Group: 173	Information Type: Service Information	Date: 2014/8/21
Profile: ART, A30F (37432) [GB]			

Diesel particulate filter, check and clean

Op nbr 254-001



WARNING

Risk of burns - stop the diesel engine and allow it to cool down before starting any work.

This operation also includes the tools and times needed for required parts of the following actions:

- [191 Service positions](#)
- 1. Place the machine in service position, see [191 Service positions](#).
- 2. Secure the exhaust pipe and the outlet end with two boards over the spill guard. Tighten together with a C-clamp. In the outlet end there is a sensor for temperature and differential pressure that is easy to damage unless the outlet end is secured adequately, see [254 Exhaust Aftertreatment System, description](#).



V1082097

Figure 1

- 3. Loosen the safety chain for the hydraulic hoses. Move the hose assembly aside.



V1084613

Figure 2

- 4. Install an M8 lifting eye in the hole on top of the heat shield. Secure the filter in an overhead crane with a shackle



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