



Adjusting valve clearance

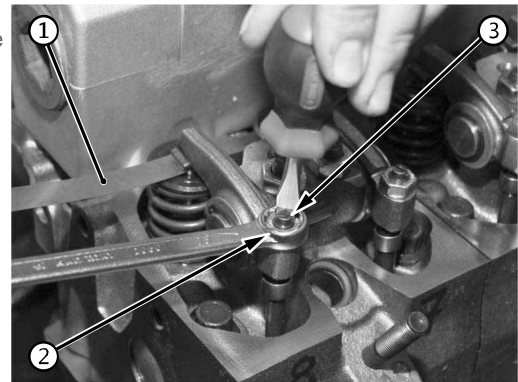
Adjusting valve clearance

Using feeler gauge (1) between valve and rocker arm, measure the valve clearance .

Valve clearances (intake and exhaust valves): 0.20 mm (0.008 in).

To set the valve clearance loosen nut (2) and turn set screw (3).

When the adjustment is completed, tighten nut (2).



1.

Valve clearance check

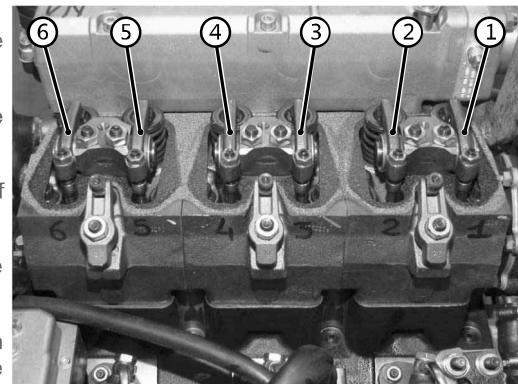
Number the rocker arms (from 1 to 6) starting from the rocker arm on the crankshaft pulley side.

Turn the crankshaft clockwise and bring rocker arms (1) and (4) to the maximum height position of the relative valves.

Check the clearance and adjust the valves of rocker arms (3), (5) and (6), if necessary.

Turn the crankshaft clockwise by 1 complete revolution and check the clearance and adjust the valves of rocker arms (1) and (4), if necessary.

Turn the crankshaft clockwise and bring rocker arm (3) to the maximum height position of the relative valve and check the clearance and adjust the valve of rocker arm (2).



1.



Adjusting valve clearance

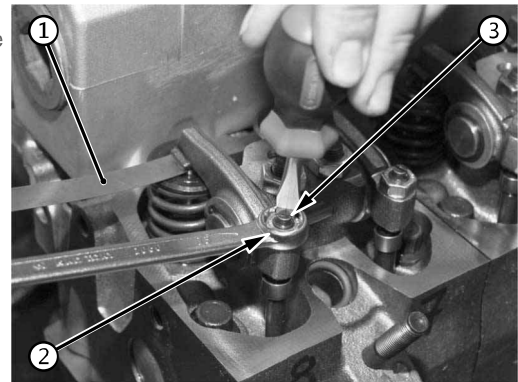
Adjusting valve clearance

Using feeler gauge (1) between valve and rocker arm, measure the valve clearance .

Valve clearances (intake and exhaust valves): 0.20 mm (0.008 in).

To set the valve clearance loosen nut (2) and adjust set screw (3).

When the adjustment is completed, tighten nut (2).



1.

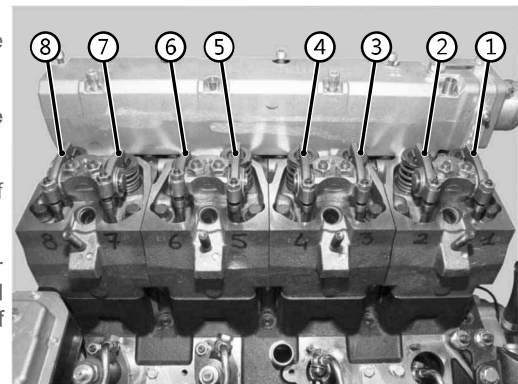
Valve clearance check

Number the rocker arms (from 1 to 8) starting from the rocker arm on the crankshaft pulley side.

Turn the crankshaft clockwise and bring rocker arms (1) and (4) to the maximum height position of the relative valves.

Check the valve clearance and adjust rocker arms (3), (5), (6), (7) and (8), if necessary.

Turn the crankshaft clockwise by 1 complete revolution and bring rocker arms (6) and (7) to the maximum height position of the relative valves and check the valve clearance and adjust rocker arms (1), (2) and (4), if necessary.



1.

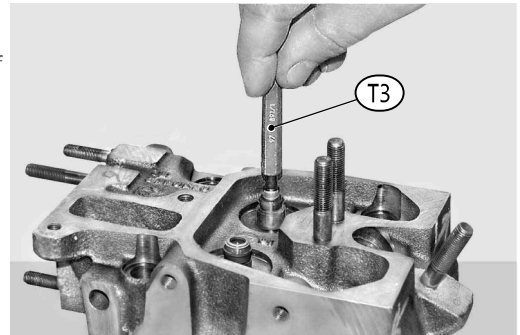


Valve guides check and replacement

Valve guides check

Check the valve guides for possible signs of seizure.

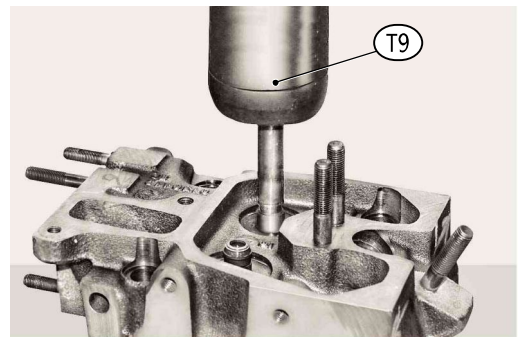
Check the diameter with plug gauge T3 (P/N 5.9030.020.0); if the NP side of the gauge is able to enter the guides, renew the valve guides.



1.

Replacing the valve guides

Position the head under a press on a perforated plate; use driving tool T9 (P/N 5.9030.850.0) to remove the valve guides.



1.

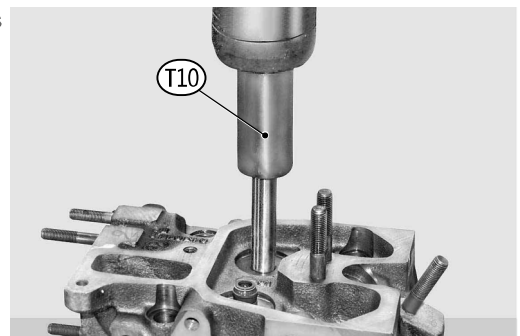
Clean the valve guide seats carefully, lubricate the guide external surfaces and fit the guides using driving tool T10 (P/N 5.9030.852.0).

Valve guide: engine oil



NOTE

The insertion measurement is provided by the pusher at its full stroke position. (See "TECHNICAL DATA AND DIMENSIONS").



2.



Inspecting the rocker arms and rocker shafts

Measure the inside diameters of the rocker bushes and the diameters of the rocker shafts.

Use a dial bore gauge and a micrometer.

If the wear exceeds the tolerance limits indicated in "TECHNICAL DATA AND DIMENSIONS", renew the bushes and shafts.



NOTE

When renewing rocker bushes, take great care to ensure that oil holes and grooves are correctly oriented (see "TECHNICAL DATA AND DIMENSIONS").



Cylinder heads

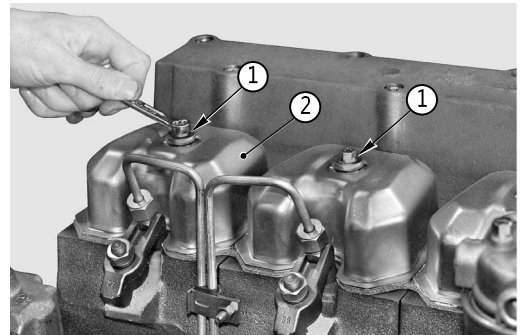
Removing the cylinder heads

Remove screws (1) and remove valve covers (2).



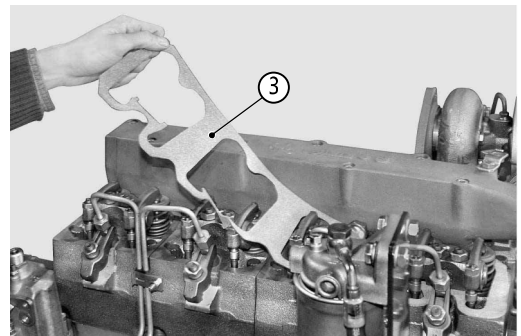
NOTE

Inspect the O-rings carefully.



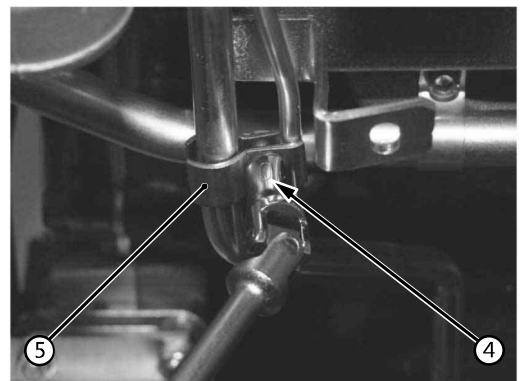
1.

Remove gasket (3) and discard.



2.

Undo bolt (4) and remove clamp (5).



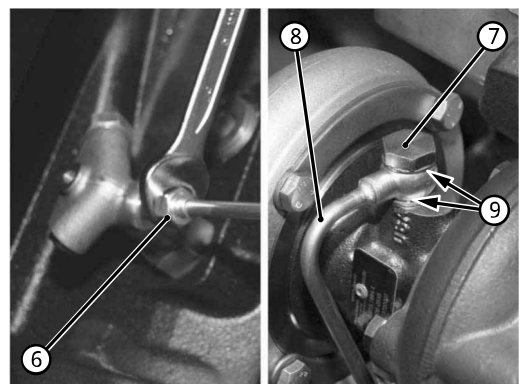
3.

Undo unions (6) and (7) and remove the turbocharger oil delivery pipe.



NOTE

Renew copper washers (9) on reassembly.

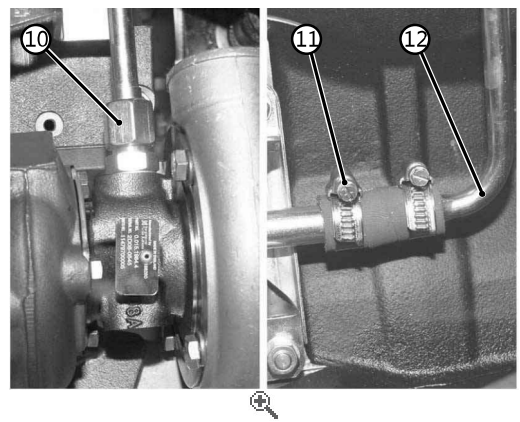


4.

Unscrew union (10).

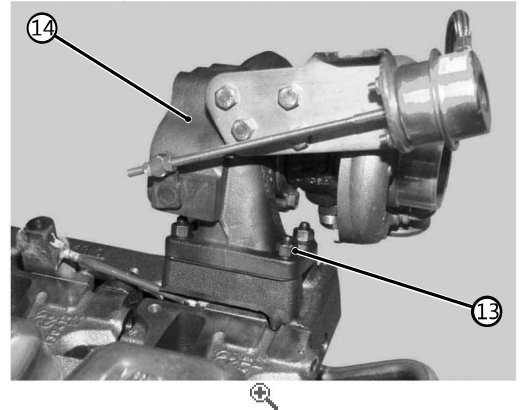
Slacken off strap (11).

Disconnect and remove turbocharger return pipe (12).



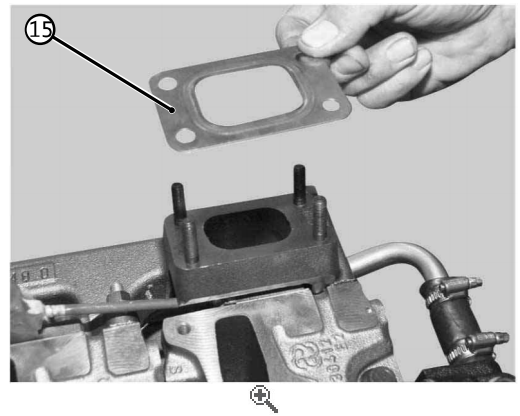
5.

Undo the four nuts (13) and remove turbocharger (14).



6.

Remove gasket (15).



7.

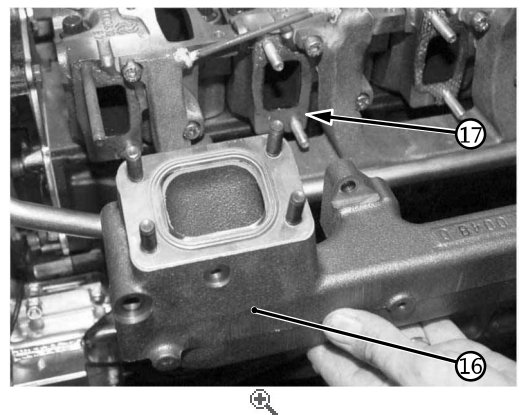
Undo the locknuts and remove exhaust manifold (16).

Remove seals (17).



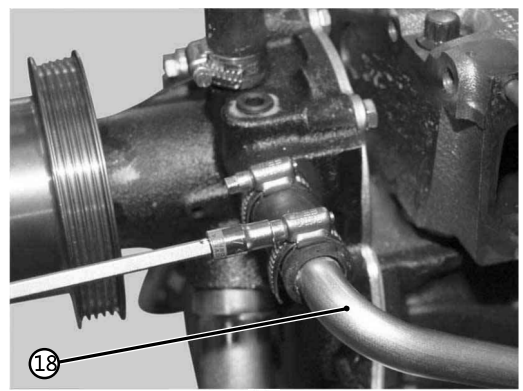
NOTE

Renew gaskets (17) on reassembly.



8.

Loosen the clamp and disconnect pipe (18) from the water pump.



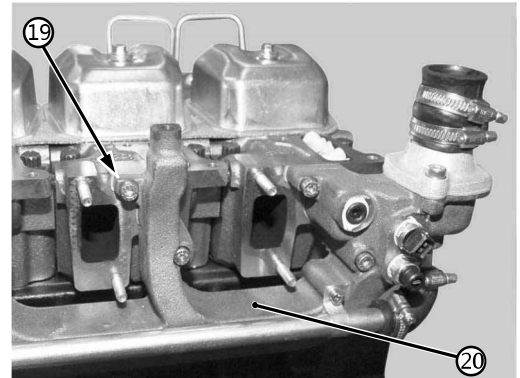
9.

Undo fixing screws (19) and remove manifold (20) from the cooling circuit, complete with thermostatic valve.



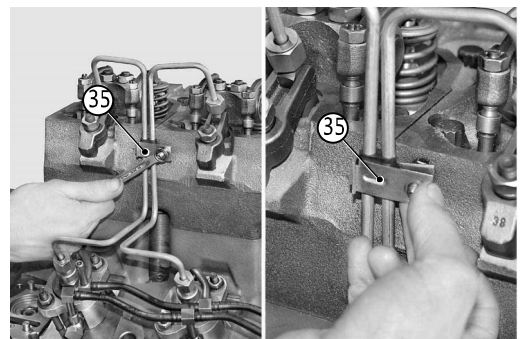
NOTE

Renew the gaskets on reassembly.



10.

Remove anti-vibration clamps (35).



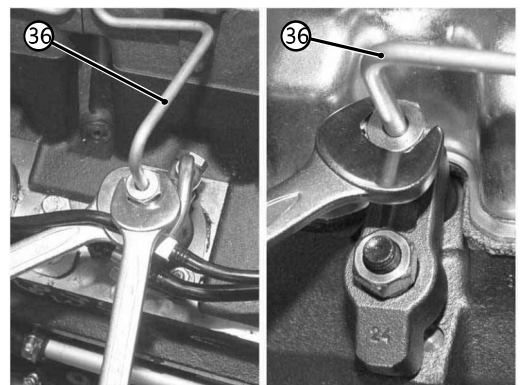
11.

Remove fuel delivery pipes (36) to the injectors.



NOTE

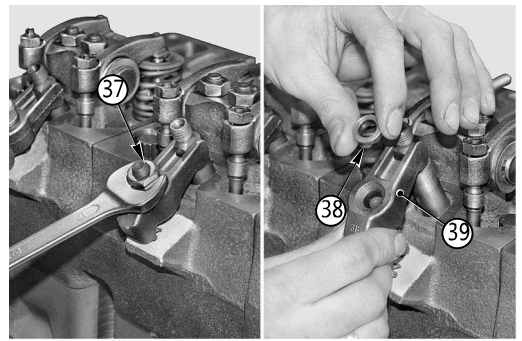
Holding the pump union loosen the pipe union.



12.

Remove nuts (37) and conical washers (38).

Remove injector retaining bracket (39).



13.

Extract out injectors (40) and O-rings (41).



NOTE

Renew the O-rings on reassembly.



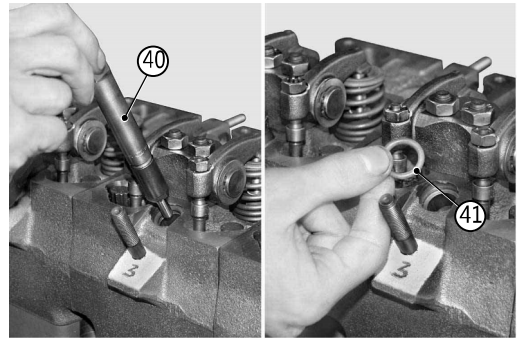
NOTE

Note which way round the injectors are installed.



DANGER

Plug the delivery bore and injector nozzle to prevent the ingress of contaminants.



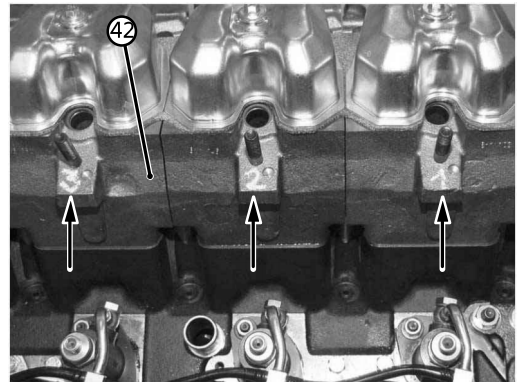
14.

Mark the cylinder heads (42) with respect to the engine block.



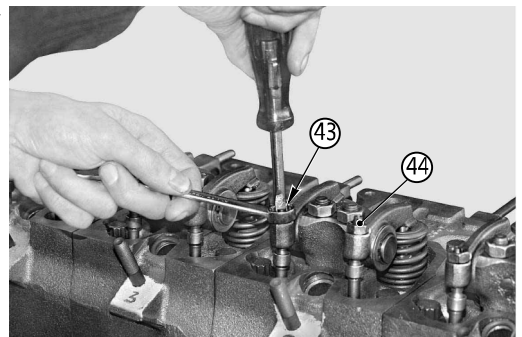
NOTE

Start numbering from cylinder 1 (side opposite flywheel).



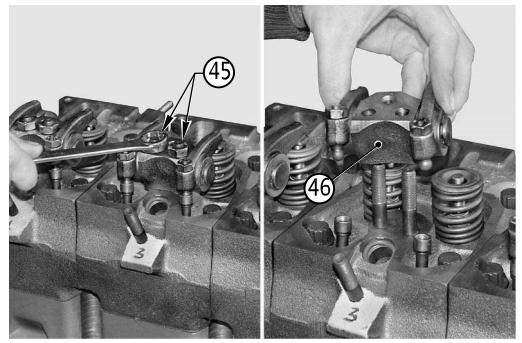
15.

Loosen nuts (43) of rollers (44) and unscrew the rollers to free the rocker arms.



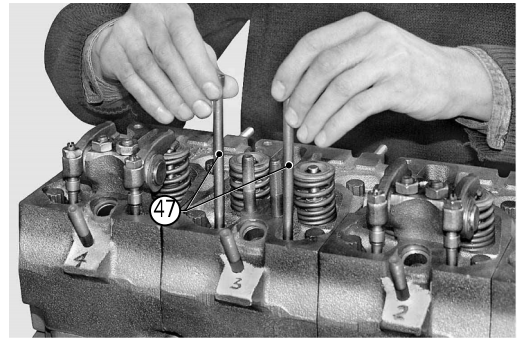
16.

Remove nuts (45) and remove rocker arm supports assembly (47).



17.

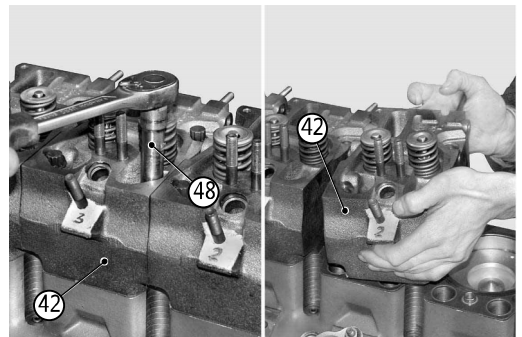
Remove rocker arm pushrods (47).



18.


Unscrew and remove screws (48) responsible for fastening cylinder heads (42).

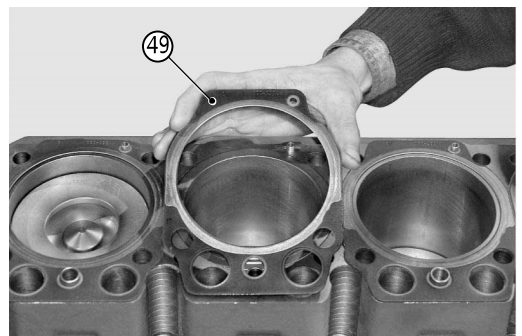
Remove complete cylinder heads (42).



19.

Remove cylinder head gaskets (49).

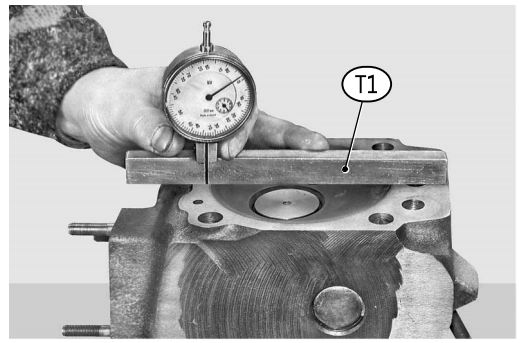
<p>NOTE</p>  <p>When the heads are to be refitted without renewing cylinder liners, make a note of the type of gasket installed under each head. The gaskets feature different thicknesses identified by the presence or absence of identification holes on the side with the centring hole on the oilway and the holes for the push rods.</p>
--



20.

Before proceeding with the disassembly, clean the surfaces of the heads and the valves.

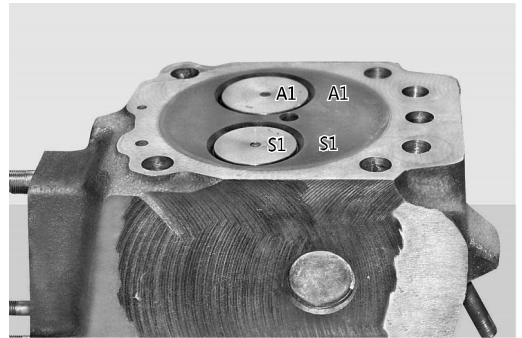
Check with tool T1 (P/N 5.9030.433.0) and a dial gauge that the recess of the intake and exhaust valves is within the range of permissible values (see "CHECKS AND TECHNICAL DATA").



21.

If the valves recess is within the limits, before removing the valves mark the positions with respect to the cylinder head so that, if undamaged, they can be refitted in their original positions.

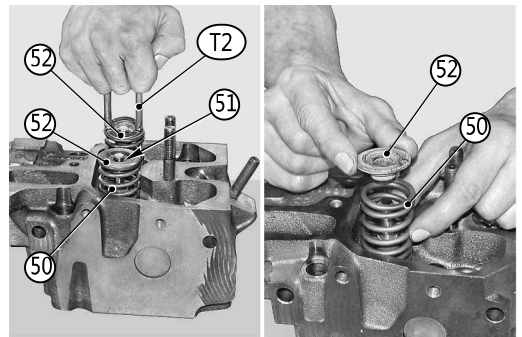
Example: Head 1 - A1 - S1, 2 - A2 - S2



22.

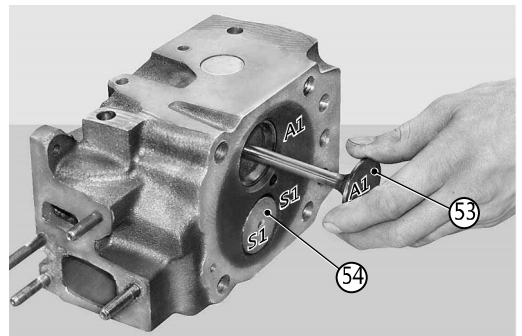
Using tool T2 (P/N 5.9030.012.0), compress springs (50) and remove valve retaining half cones (51).

Release and remove springs (50) and plates (52).



23.

Remove valves (53) and (54).



24.

Using a screwdriver or a lever, remove valve O-rings (55).

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