



**HURLIMANN XL140 DCR**  
**Tractor**  
**Service Repair Manual**  
**(Serial No: 10010 and up;**  
**30000 and up)**



## Assembly and disassembly of the engine on the assembly stand (L3)

Commercially available tools:

- Lifting device
- Loading rope

Special tools:

- Assembly stand with adapter plates: 6066
- Clamping support: 6066/158

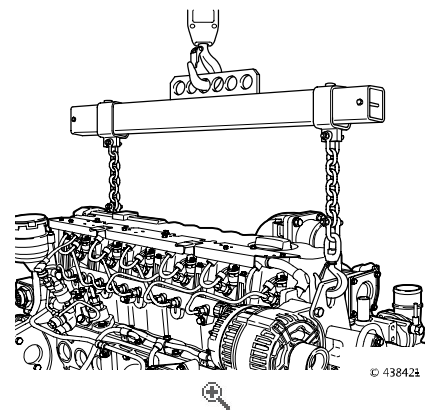


### Note

The repair process shown does not take specific customer equipment into account; components not included in the standard equipment are not shown.

### Assembly of the engine on the stand

- Hang the engine from a suitable workshop crane.  
See para. Test and adjustment data (L3)



1.

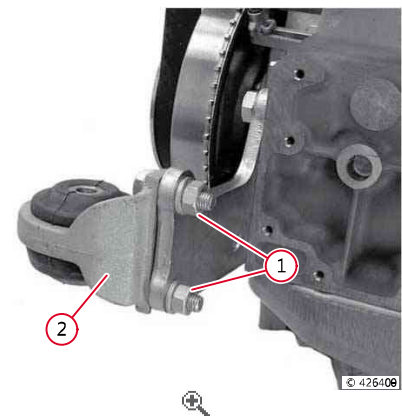
### Disassemble the installation feet

- Unscrew nuts (1).
- Remove the installation foot (2).



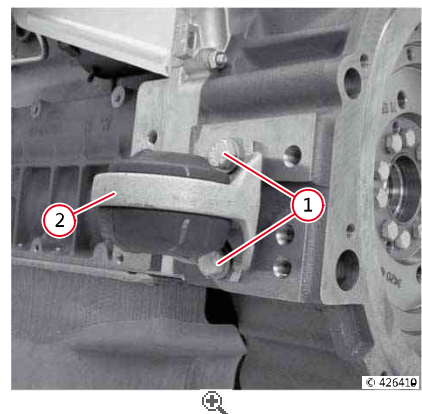
### Note

Disassemble all the feet.



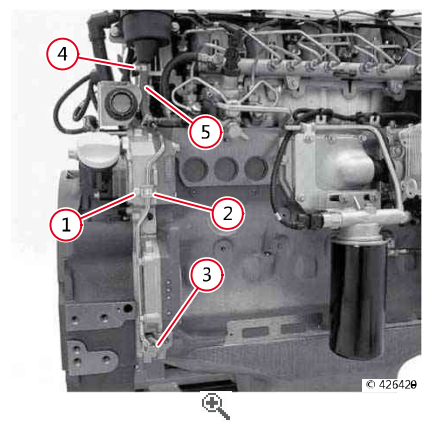
1.

- Remove screws (1).
- Remove the installation foot (2).



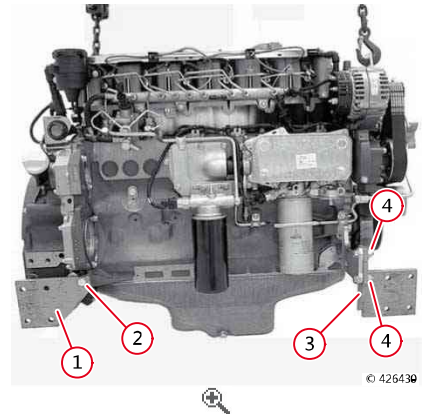
2.

- o Remove screw (1).
- o Loosen hose clip (2)
- o Unscrew banjo bolt (3)
- o Remove the seals.
- o Loosen hose clip (4),
- o Disconnect oil return pipe (5).
- o Remove the breather pipe.



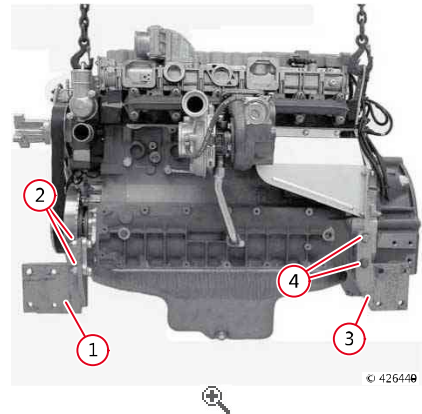
3.

- o Fit the clamping support 6066/158-3 (1) on the crankcase.
- o Tighten (2) the screw.  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine
- o Fit the tightening device 6066/158-1 (3) on the support.
- o Tighten nuts (4).  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine



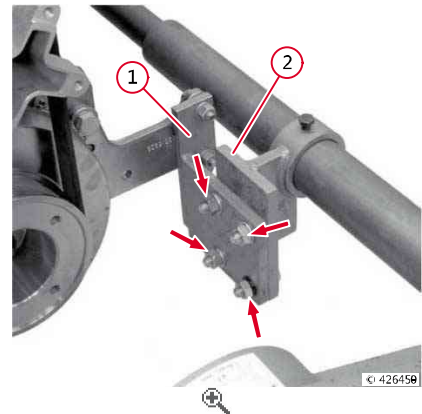
4.

- o Fit the clamping support 6066/158-2 (1) on the support.
- o Tighten nuts (2).  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine
- o Fit the tightening device 6066/158-4 (3) on the crankcase.
- o Tighten (1) the screws.  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine



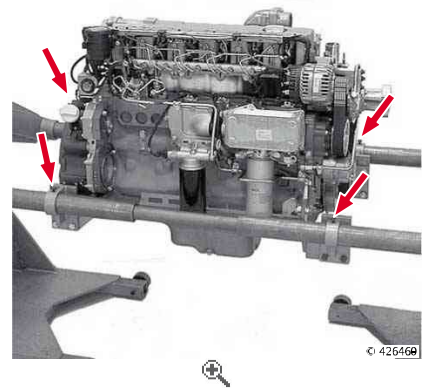
5.

- o Fit the engine on the assembly stand.
- o Align all the tightening devices (1) with the adapter plates (2) of the assembly stand.
- o Insert the screws.
- o Tighten the nuts (arrow).  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine



6.

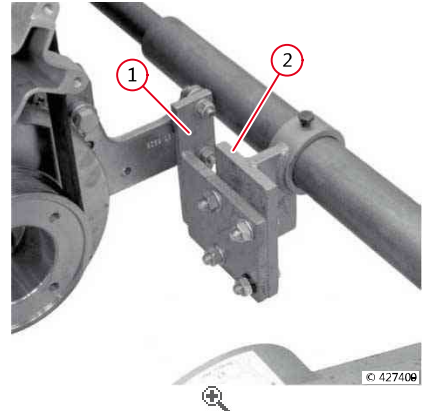
- o Align the engine on the assembly stand.
- o Tighten all the screws (arrow).
- o Hang the engine from the workshop crane.



7.

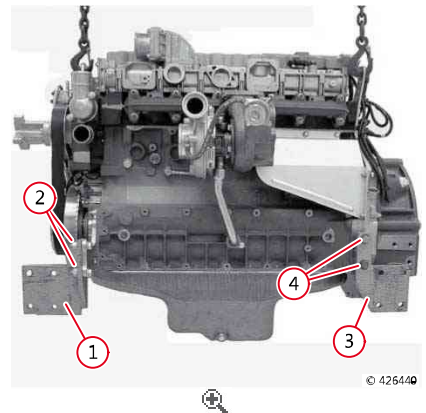
### Disassembly of the engine from the assembly stand

- Hang the engine from a suitable workshop crane.
- Disassemble all the tightening devices (1) from the adapter plates (2).
- Lift the engine.



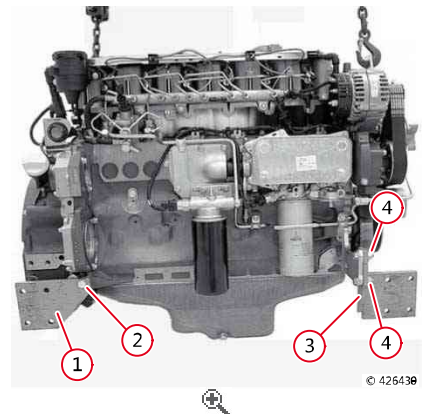
1.

- Unscrew nuts (2).
- Unscrew screws (4)
- Remove the clamping support (1).
- Remove the (3) tightening devices.



2.

- Unscrew nuts (4).
- Unscrew screw (2)
- Remove the clamping support (1).
- Remove the (3) tightening devices.



3.

- Fit the breather pipe.
  - Connect oil return pipe (5).
  - Tighten hollow screw (3).
- See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine

**Note**



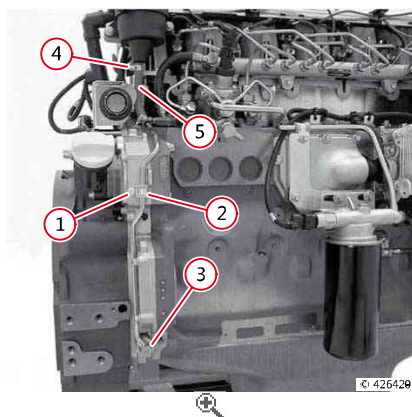
Use new seals.

- o Locate hose clip (2).
- o Tighten screw (1).  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine
- o Locate hose clip (4).



**Note**

Use pliers for hose clamps.



4.

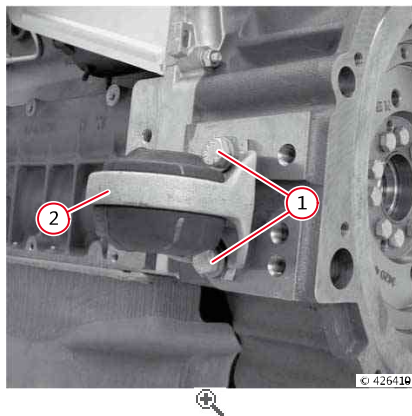
### Assembly of the installation feet

- o Assemble the installation foot (2).
- o Tighten screw (1).  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine



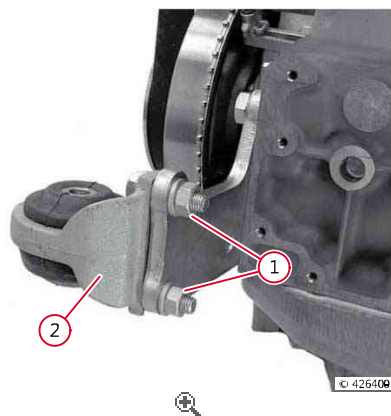
**Note**

Fit all the feet.



1.

- o Assemble the installation foot (2).
- o Tighten nuts (1).  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine
- o Release the engine.



2.





## Valve clearance adjustment (with the exhaust gas recirculation module absent or removed) (L3)

Commercially available tools:

- Rotation angle gauge: 8190
- Insertion tool with collet opening, wrench width 13: 8196
- Screwdriver insert for slot head screws: 8191
- Screwdriver insert for hexagonal pins (4 mm): 8194

Special tools:

- Rotation device: 100320
- 15 mm socket wrench insert: 103050

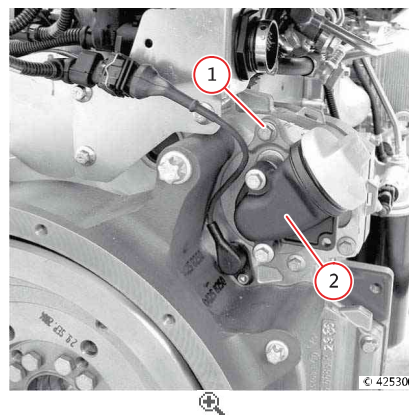


### Note

Before adjusting the valve clearances, allow the engine to cool down for at least 30 minutes. Engine oil temperature < 80 °C. After adjusting the valve clearances, it is necessary to adjust the clearances of the EGR control pistons. On engines without exhaust gas recirculation modules, the adjustment screw has a slotted head rather than a hex socket head.

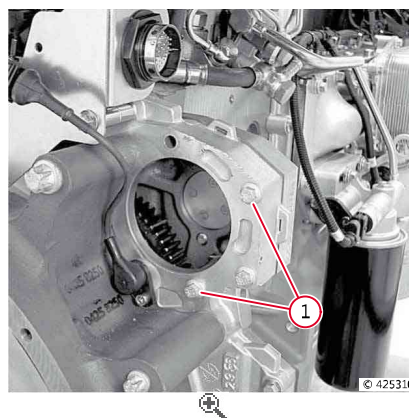
## Removal

- Remove screw (1).
- Remove cover (2).



1.

- Remove screws (1).



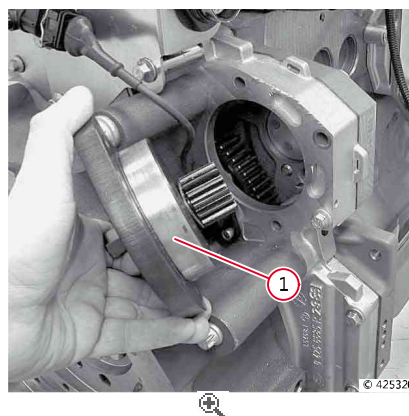
2.

- Insert rotation device (1).



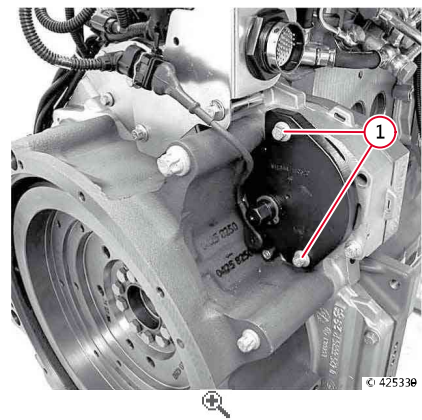
### Note

The toothed wheel of the rotation device must mesh with the teeth of the camshaft gear.



3.

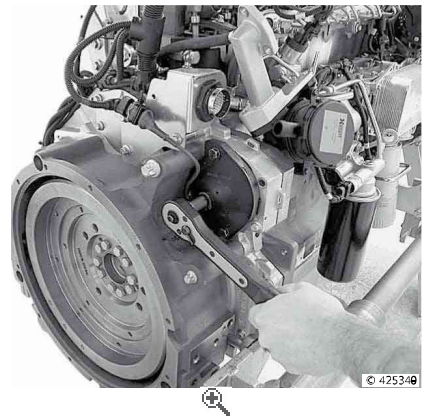
- Tighten (1) the screws.



4.

### Bring the engine to valve overlap position

- Using the rotation device, turn the crankshaft to obtain valve overlap on cylinder No. 1.  
See para. Test and adjustment data (L3).

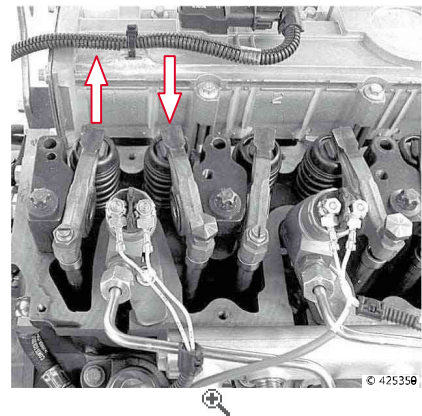


1.



#### Note

Valve overlap means that: the intake valve starts to open while the exhaust valve closes.



2.



#### Note

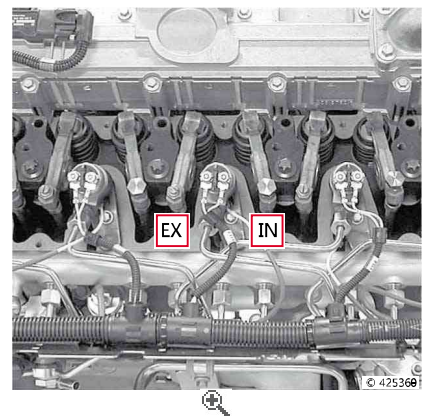
Positions of the intake and exhaust valves: IN = intake valve, EX = exhaust valve

See para. Test and adjustment data (L3)



#### WARNING

The adjustment screws are of different types: slot head, hexagonal and hex socket head screws.



3.

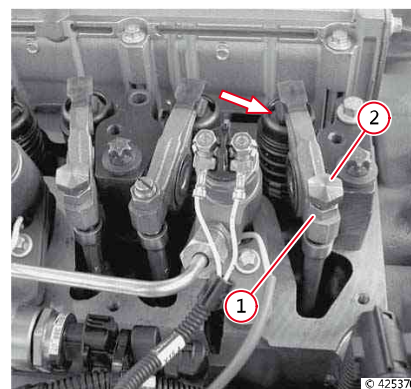
### Adjustment of the intake valve clearance

- Loosen locknut (1).
- Turn adjustment screw (2) to take up the clearance.



**Note**

The rocker arm should rest on the thrust washer of the collet (arrowed) with no clearance. On engines without exhaust gas recirculation modules, the adjustment screw has a slotted head rather than a hex socket head.

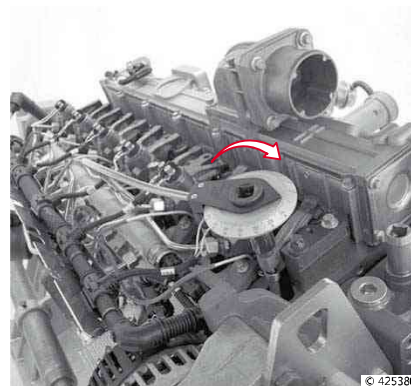


1.

- Locate the rotation angle gauge with the socket wrench insert on the adjustment screw.
- Fix the magnet of the rotation angle gauge to the cylinder head.
- Turn the rotation angle gauge in the direction of the arrow to "0".

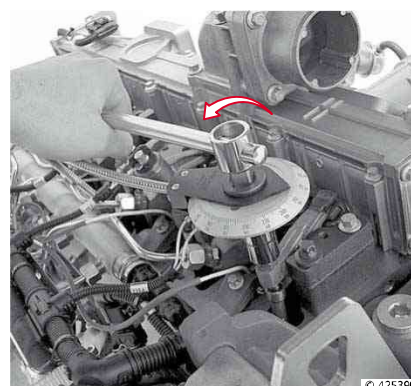
**Note**

Do not move the adjustment screw.



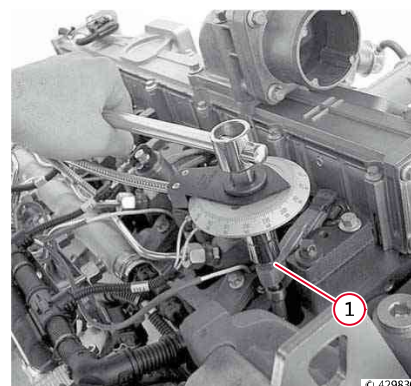
2.

- Turn the adjustment wrench 75° in the direction of the arrow. See para. Test and adjustment data (L3)



3.

- Hold the adjustment screw in this position.
- Tighten the check nut (1) using the open-ended wrench. See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine
- Remove the rotation angle gauge.



4.

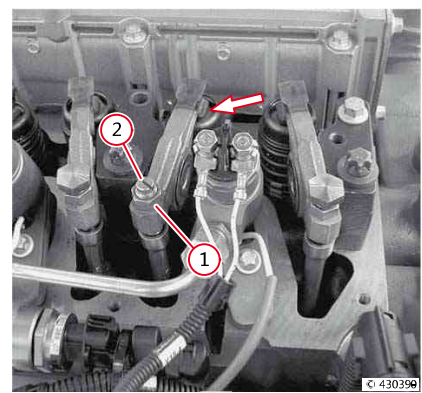
## Adjustment of the exhaust valve clearance

- Loosen locknut (1).
- Turn adjustment screw (2) to take up the clearance.

**Note**

The rocker arm should rest on the thrust washer of the collet (arrowed) with no clearance.





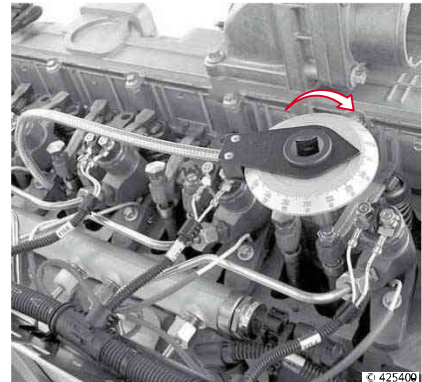
1.

- Place the rotation angle gauge with the slot head screwdriver insert on the adjustment screw.
- Fix the magnet of the rotation angle gauge to the cylinder head.
- Turn the rotation angle gauge in the direction of the arrow to "0".



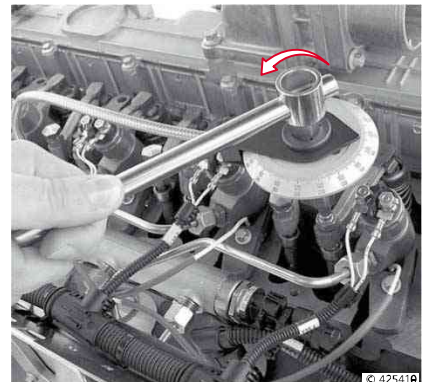
**Note**

Do not move the adjustment screw.



2.

- Turn the adjustment wrench 120° in the direction of the arrow. See para. Test and adjustment data (L3)



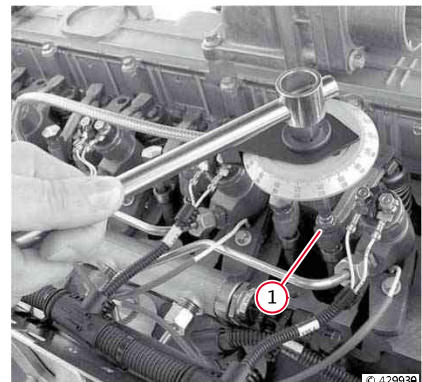
3.

- Hold the adjustment screw in this position.
- Tighten the check nut (1) using the open-ended wrench. See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine
- Remove the rotation angle gauge.



**Note**

Adjust all the other valves in according to the valve adjustment diagram T01 63.



4.

## Adjustment of the EGR control piston clearance

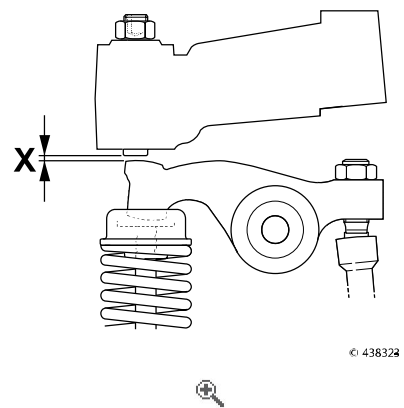
- Fit the EGR module. See para. Fitting and removing the exhaust gas recovery module (L3)



**Note**

After adjusting the valve clearances it is necessary to adjust the EGR control piston clearances. The valve

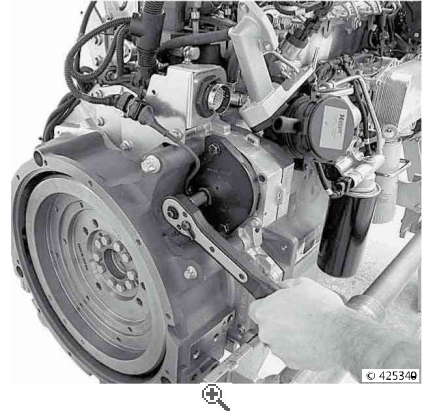
clearance adjustment procedure is indicated in the T01 63 valve adjustment diagram.



1.

### Bring the engine to valve overlap position

- Using the rotation device, turn the crankshaft to obtain valve overlap on cylinder No. 1.  
See para. Test and adjustment data (L3).

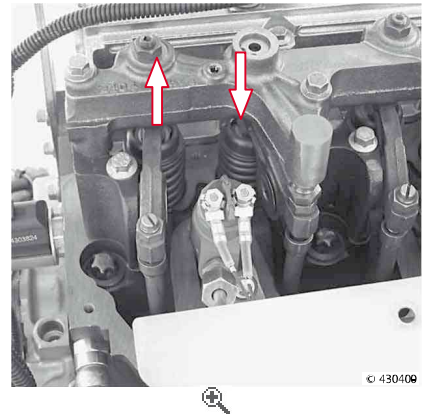


1.



#### Note

Valve overlap means that: the intake valve starts to open while the exhaust valve closes.

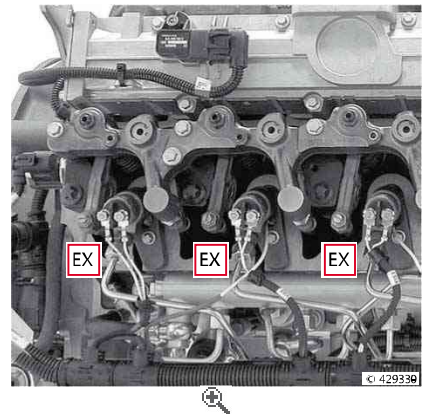


2.



#### Note

Arrangement of the exhaust valves: EX = exhaust valve.



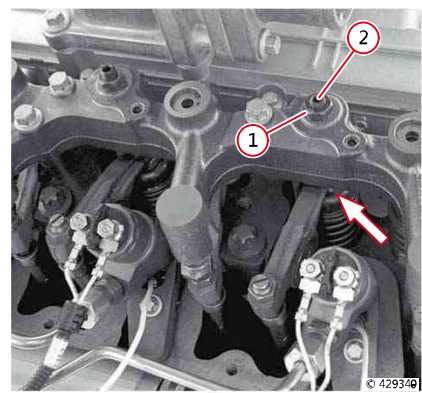
3.

- Loosen locknut (1).
- Turn adjustment screw (2) to take up the clearance.



#### Note

The rocker arm should rest on the thrust washer of the collet (arrowed) with no clearance.



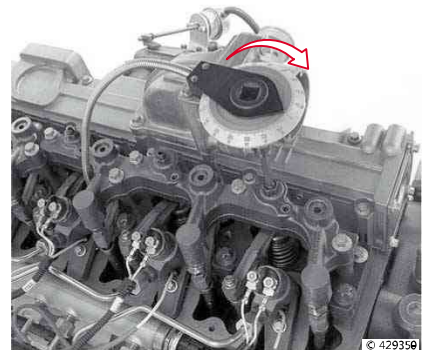
4.

- Locate the rotation angle gauge with the hex socket wrench insert on the adjustment screw.
- Fix the magnet of the rotation angle gauge to the cylinder head.
- Turn the rotation angle gauge in the direction of the arrow to "0".
- Turn the rotation angle gauge in the direction of the arrow to "0".



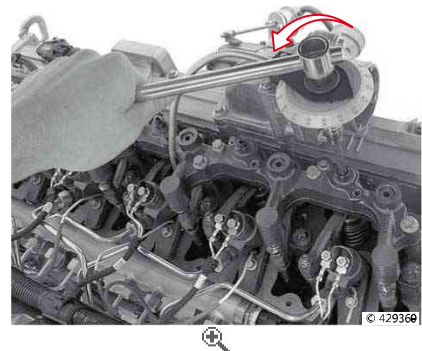
**Note**

Do not move the adjustment screw.



5.

- Turn the adjustment screw by 144° in the direction of the arrow. See para. Test and adjustment data (L3)



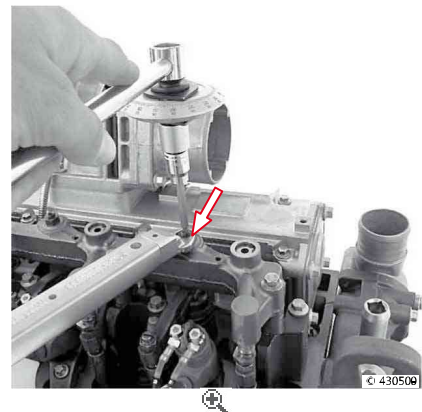
6.

- Hold the adjustment screw in this position.
- Tighten the locknut (arrowed) using the open-ended wrench. See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine
- Remove the rotation angle gauge.



**Note**

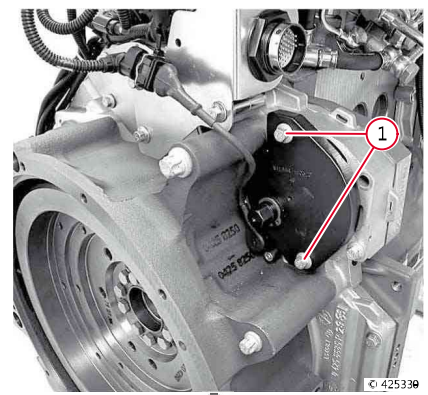
Adjust all the other cursors according to the valve adjustment diagram T01 63.



7.

## Installation

- Remove screws (1).
- Remove the rotation device.



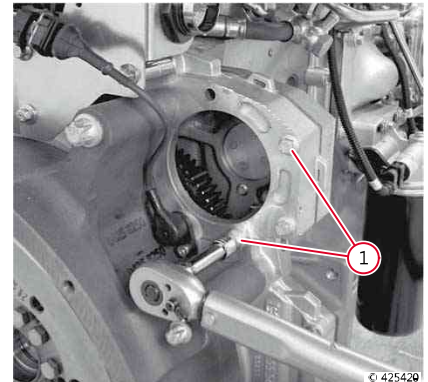
1.

- o Tighten (1) the screws.  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine



**Note**

Use M8 x 45 mm screws.



2.

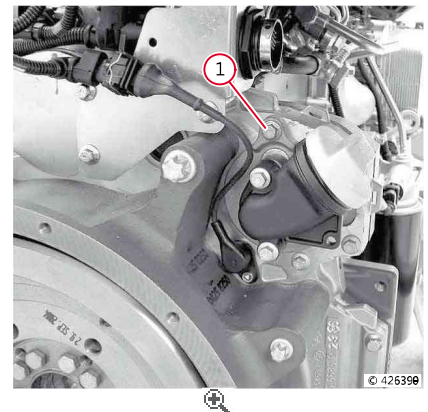
- o Clean the mating surfaces of the cover plate and the gearbox cover.
- o Tighten the new O-ring (arrow) on the closing cover.
- o Lightly lubricate the O-ring.



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3.

- o Push the cover firmly into place.
- o Tighten screw (1).  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine



4.





## Valve clearance adjustment (with the exhaust gas recirculation module installed) (L3)

Commercially available tools:

- Rotation angle gauge: 8190
- Insertion tool with collet opening, wrench width 13: 8196
- Crow's foot wrench, 15 mm: 8199
- Screwdriver insert for slot head screws: 8191
- Screwdriver insert for hexagonal pins (4 mm): 8194

Special tools:

- Rotation device: 100320

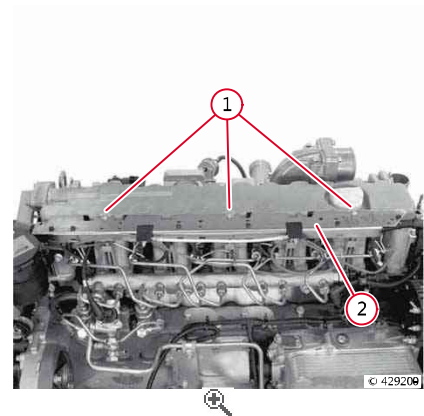


### Note

Before adjusting the valve clearances, allow the engine to cool down for at least 30 minutes. Engine oil temperature < 80 °C. After adjusting the valve clearances, it is necessary to adjust the clearances of the EGR control pistons.

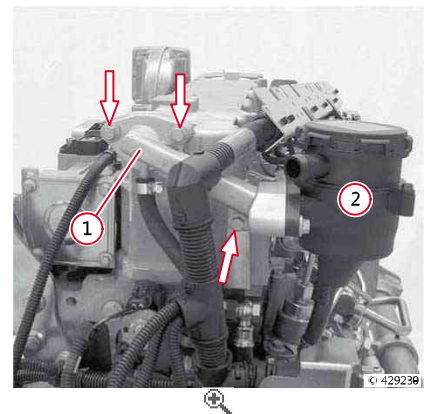
## Removal

- Remove screws (1).
- Remove cover (2)



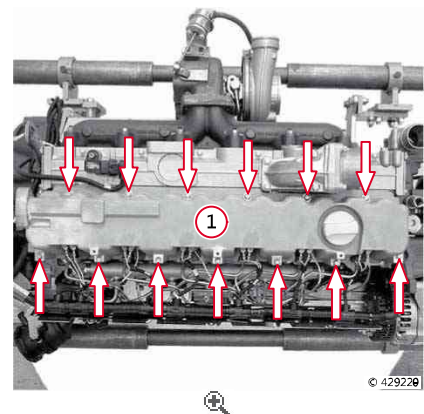
1.

- Unscrew the screws (arrowed).
- Remove and suspend to the side the bleeder channel (1) with the crankcase bleed screw (2).



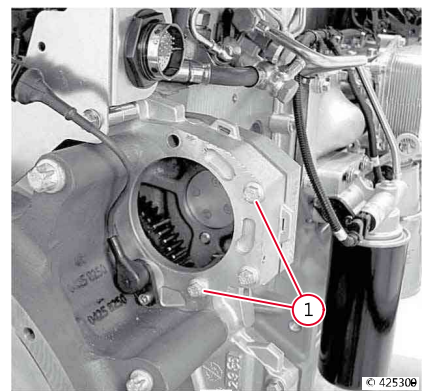
2.

- Unscrew the screws (arrowed).
- Disassemble the cylinder head case (1).
- Remove the gasket.



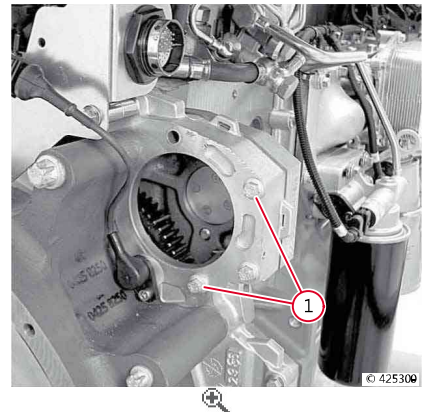
3.

- Remove screw (1).
- Remove cover (2).



4.

- Remove screws (1).



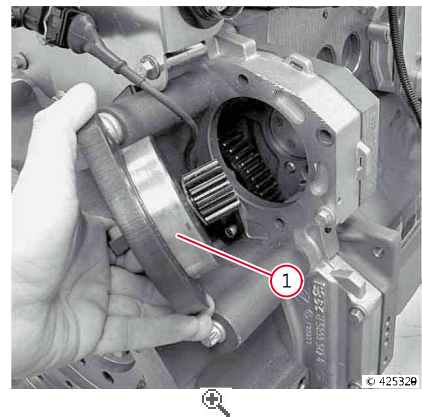
5.

- Insert rotation device (1).



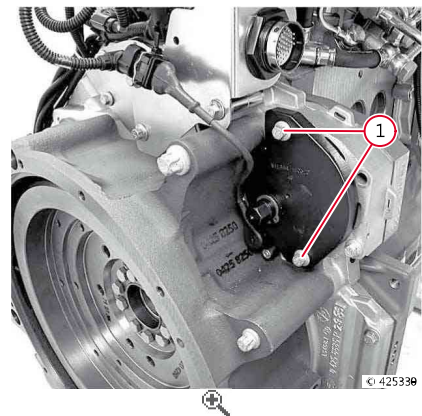
**Note**

The toothed wheel of the rotation device must mesh with the teeth of the camshaft gear.



6.

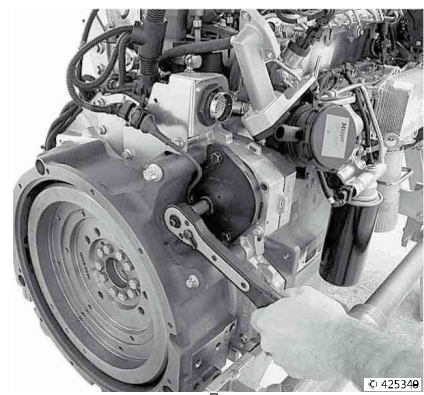
- Tighten (1) the screws.



7.


## Bring the engine to valve overlap position

- Using the rotation device, turn the crankshaft to obtain valve overlap on cylinder No. 1.  
See para. Test and adjustment data (L3).



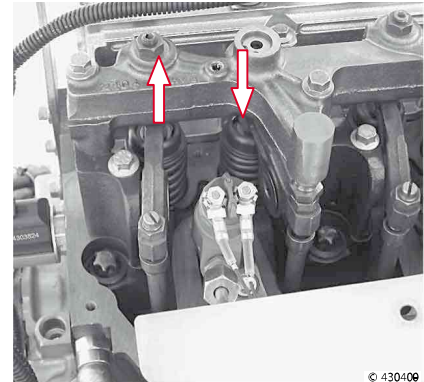
1.

**Note**




Valve overlap means that: the intake valves start to open while the exhaust valves close. Observe the valve clearance adjustment diagram.

See para. Test and adjustment data (L3)




2.

**Note**

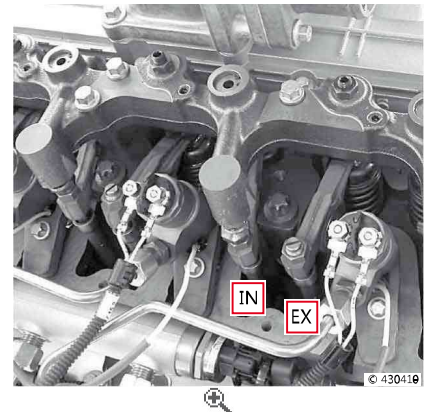


Positions of the intake and exhaust valves: IN = intake valve, EX = exhaust valve

**WARNING**



The adjustment screws are of different types: slot head, hexagonal and hex socket head screws.




3.

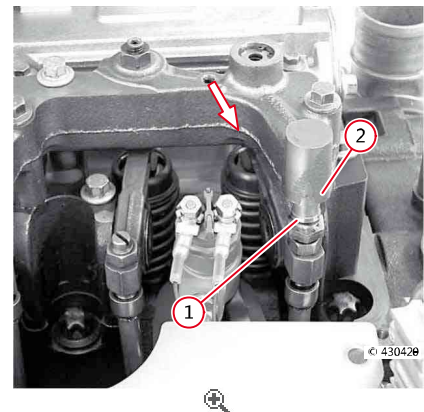
### Adjustment of the intake valve clearance

- Loosen locknut (1).
- Turn adjustment screw (2) to take up the clearance.

**Note**



The rocker arm should rest on the thrust washer of the collet (arrowed) with no clearance.

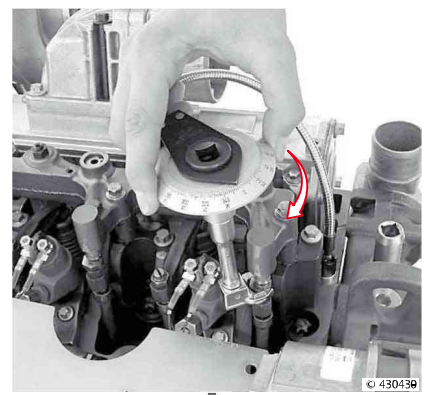


1.

- Locate the rotation angle gauge on the adjustment screw with the crows foot wrench.
- Fix the magnet of the rotation angle gauge to the cylinder head.
- Turn the rotation angle gauge in the direction of the arrow to "0".

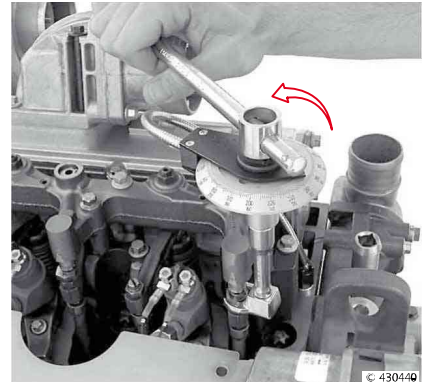
**Note**

Do not move the adjustment screw.



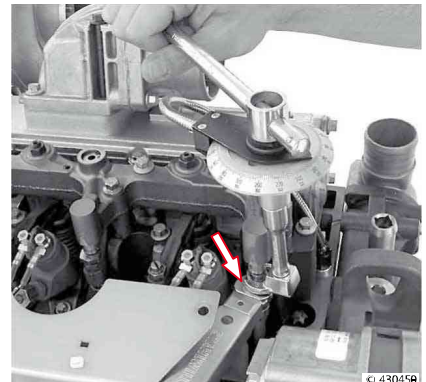
2.

- Turn the adjustment wrench 75° in the direction of the arrow.  
See para. Test and adjustment data (L3)



3.

- Hold the adjustment screw in this position.
- Tighten the locknut (arrowed) using the open-ended wrench.  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine
- Remove the rotation angle gauge.



4.

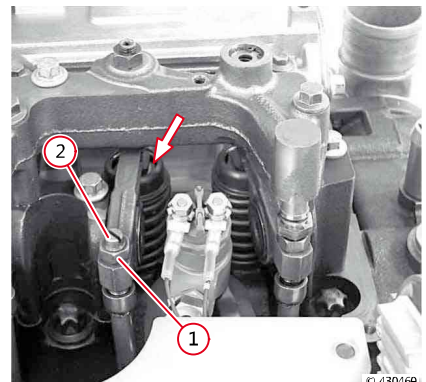
### Adjustment of the exhaust valve clearance

- Loosen locknut (1).
- Turn adjustment screw (2) to take up the clearance.



#### Note

The rocker arm should rest on the thrust washer of the collet (arrowed) with no clearance.



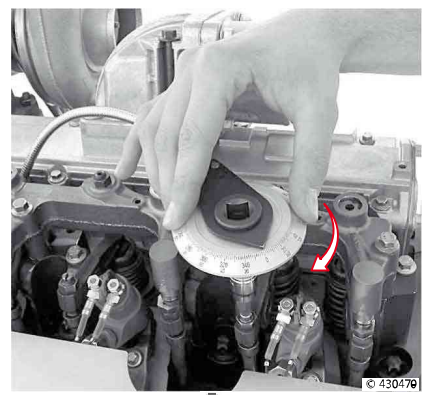
1.

- Place the rotation angle gauge with the slot head screwdriver insert on the adjustment screw.
- Fix the magnet of the rotation angle gauge to the cylinder head.
- Turn the rotation angle gauge in the direction of the arrow to "0".

#### Note

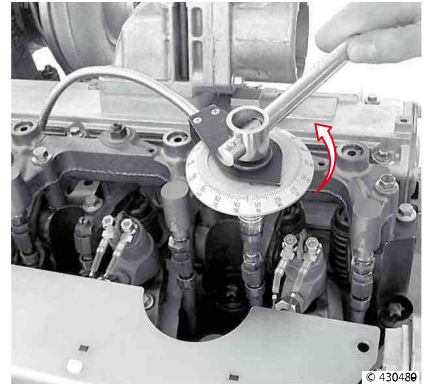
Do not move the adjustment screw.





2.

- Turn the adjustment wrench 120° in the direction of the arrow.  
See para. Test and adjustment data (L3)



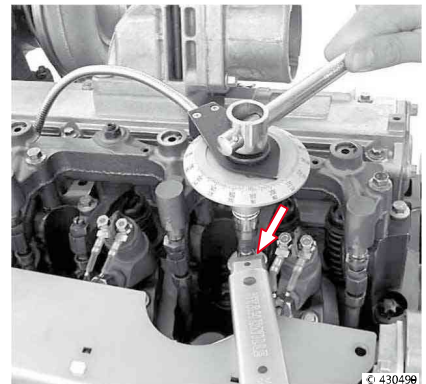
3.

- Hold the adjustment screw in this position.
- Tighten the locknut (arrowed) using the open-ended wrench.  
See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine
- Remove the rotation angle gauge.



**Note**

Adjust all the other valves in according to the valve adjustment diagram T01 63.



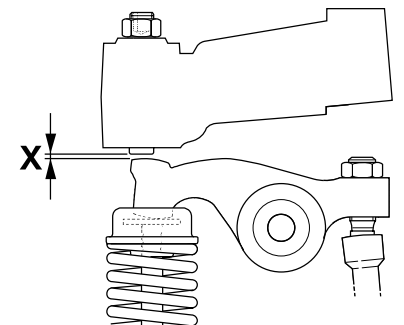
4.

## Adjustment of the EGR control piston clearance



**Note**

After adjusting the valve clearances it is necessary to adjust the EGR control piston clearances. The cursor clearance adjustment sequence is shown in the valve adjustment diagram T01 63.

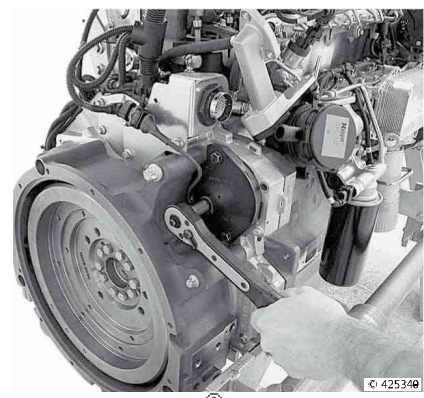


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1.

## Bring the engine to valve overlap position

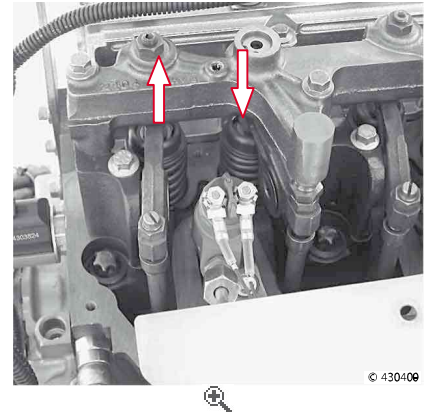
- Using the rotation device, turn the crankshaft to obtain valve overlap on cylinder No. 1.  
See para. Test and adjustment data (L3)



1.

**Note**

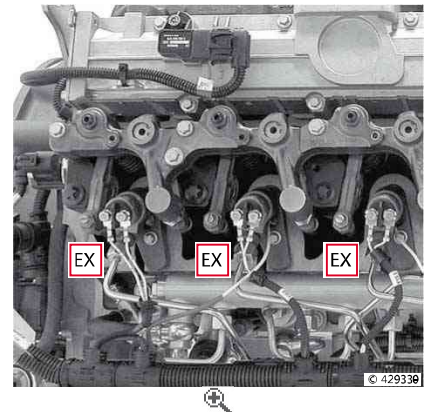
Valve overlap means that: the intake valves start opening while the exhaust valves are closing. Observe the valve clearance adjustment diagram.



2.

**Note**

Arrangement of the exhaust valves: EX = exhaust valve

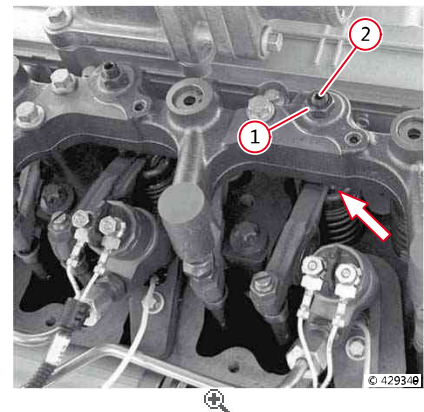


3.

- Loosen locknut (1).
- Turn adjustment screw (2) to take up the clearance.

**Note**

The rocker arm should rest on the thrust washer of the collet (arrowed) with no clearance.



4.

- Locate the rotation angle gauge with the hex socket wrench insert on the adjustment screw.
- Fix the magnet of the rotation angle gauge to the cylinder head.
- Turn the rotation angle gauge in the direction of the arrow to "0".

**Note**

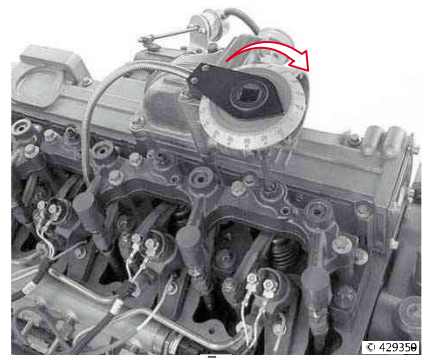
Do not move the adjustment screw.

**Thank you very much for  
your reading. Please Click  
Here. Then Get COMPLETE  
MANUAL. NO WAITING**



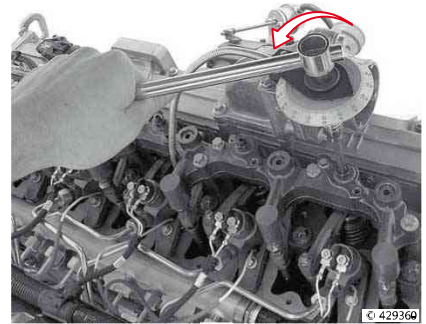
**NOTE:**

**If there is no response to  
click on the link above,  
please download the PDF  
document first and then  
click on it.**



5.

- Turn the adjustment screw through  $144^\circ$  in the direction of the arrow.  
See para. [Test and adjustment data \(L3\)](#)



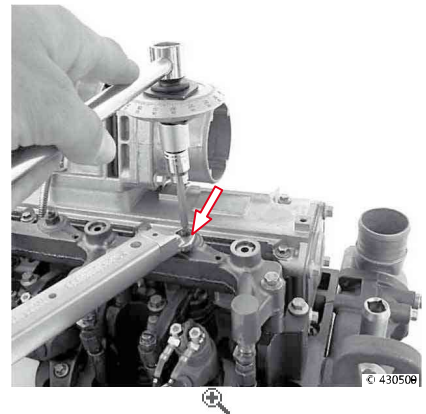
6.

- Hold the adjustment screw in this position.
- Tighten the locknut (arrowed) using the open-ended wrench.  
See para. [Tightening requirements TCD 2012 L04/L06 2V DCR engine](#)
- Remove the rotation angle gauge.



**Note**

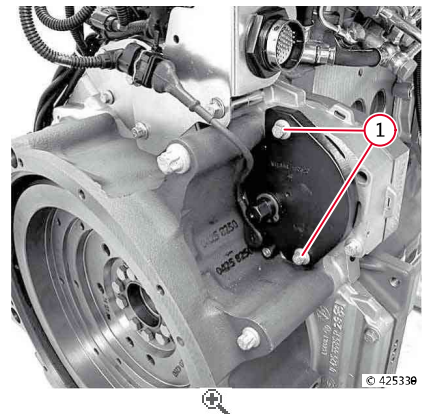
Adjust all the other cursors according to the valve adjustment diagram T01 63.



7.

## Installation

- Remove screws (1).
- Remove the rotation device.



1.

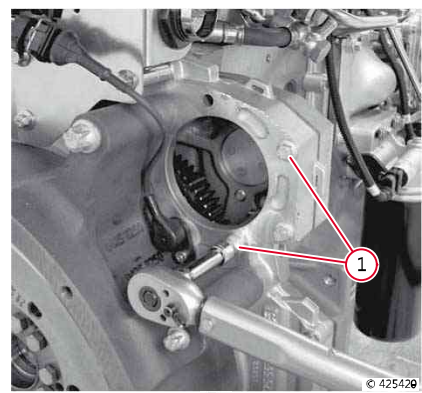
- Tighten (1) the screws.  
See para. [Tightening requirements TCD 2012 L04/L06 2V DCR engine](#)



**Note**

Use M8 x 45 mm screws.





2.

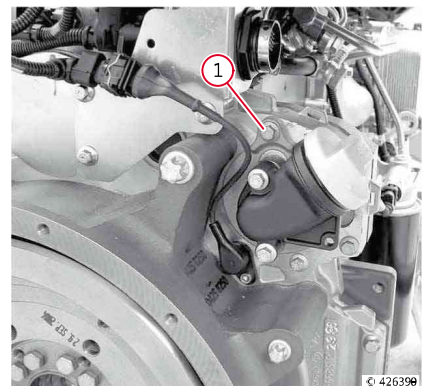
- o Clean the mating surfaces of the cover plate and the gearbox cover.
- o Tighten the new O-ring (arrow) on the closing cover.
- o Lightly lubricate the O-ring.



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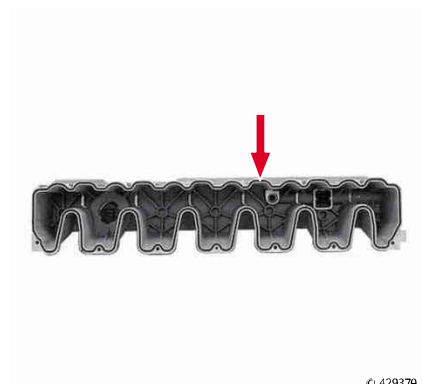
3.

- o Push the cover firmly into place.
  - o Tighten the screws (arrowed).
- See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine



4.

- o Clean the mating surfaces.
- o Fit a new gasket (arrowed).



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5.

- o Fit the cylinder head cover.
  - o Tighten the screws in alternate sequence.
- See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine

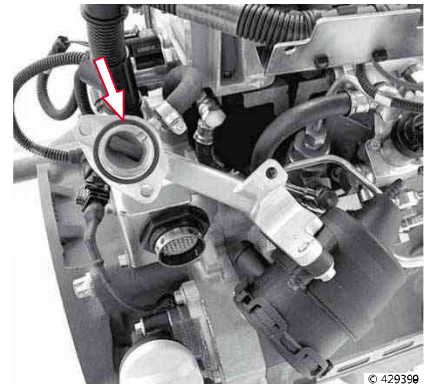
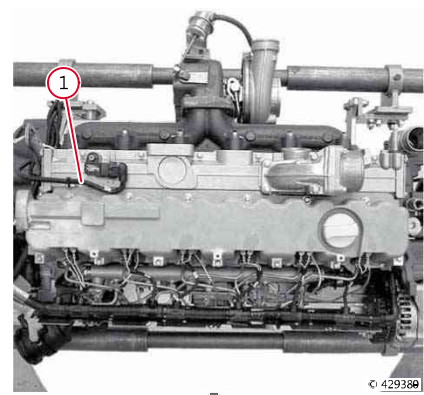


**WARNING**

Do not connect cable (1).

6.

- o Clean the mating surfaces.
- o Fit a new gasket (arrowed).



7.

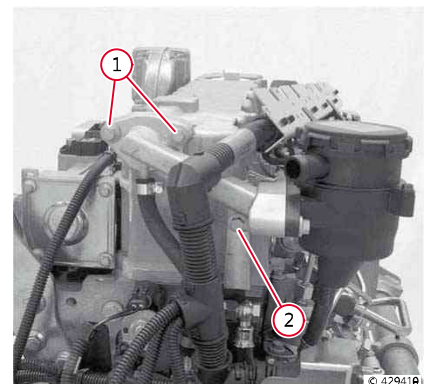
- o Position the bleeder channel with the crankcase bleed screw.
- o Fit the screws.



**Note**

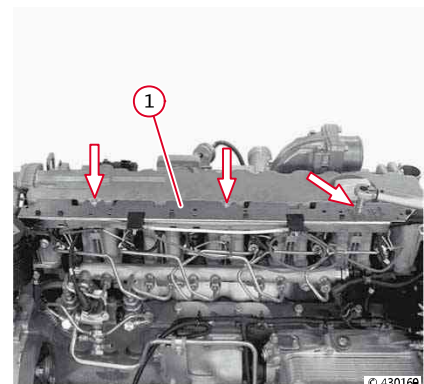
Note that the screws are of different lengths M8 x 25 mm (1), M8 x 20 mm (2)

- o Tighten the screws.



8.

- o Fit cover plate (2).
  - o Tighten the screws (arrowed).
- See para. Tightening requirements TCD 2012 L04/L06 2V DCR engine



9.