Engine 110

Adjusting specifications in mm

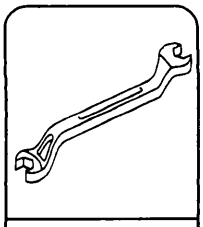
	Cold engine (approx. 20°C)	Warm engine (60°C ± 15°C)
Intake	0.10 [1]	0.15 [1]
Exhaust	0.25	0.30

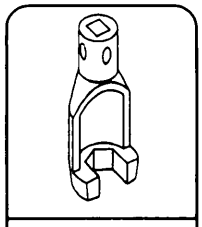
[1] 0.05 mm more during extended ambient temperatures below -20°C.

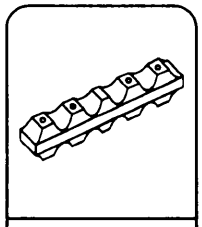
Torque specifications (Nm)

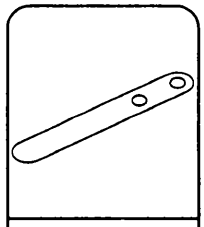
Cylinder head cover cap nuts and bolts	5
Valve adjusting screws	20-40

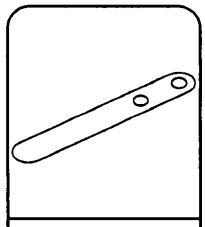
Special tools

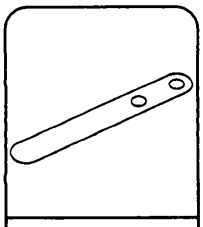

110 589 01 01 00

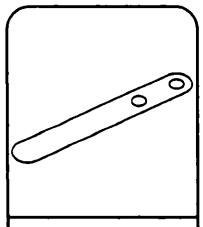

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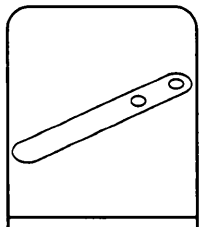

617 589 00 40 00

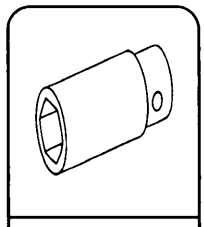

617 589 00 23 00

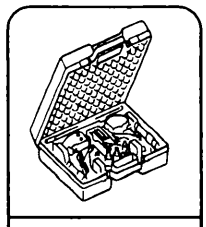

617 589 01 23 00


117 589 00 23 00


117 589 01 23 00


617 589 02 23 00

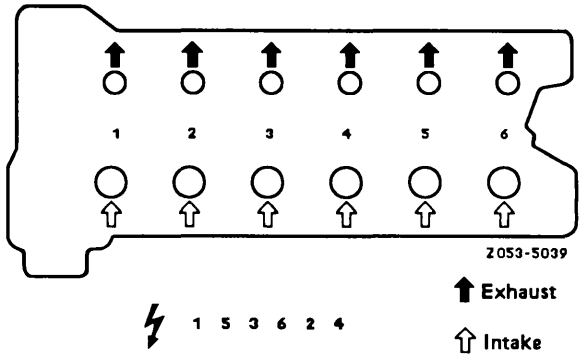

001 589 65 09 00


001 589 46 21 08

NOTE:

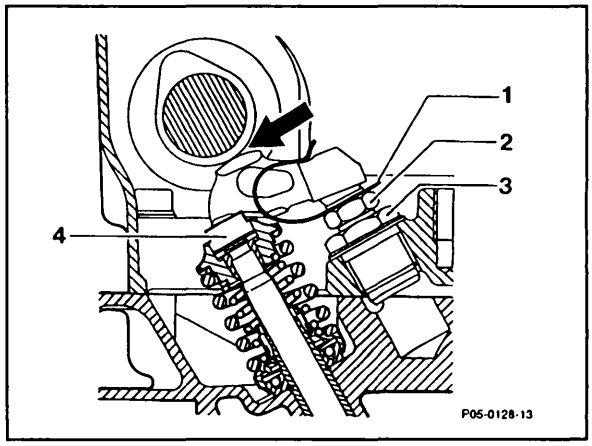
Check or adjust valve clearance with engine cold or warm.

Note layout of intake and exhaust valves.



Checking

- Remove rubber gaskets.
- Measure valve clearance between slide surface of rocker arm and cam base circle of camshaft (arrow).

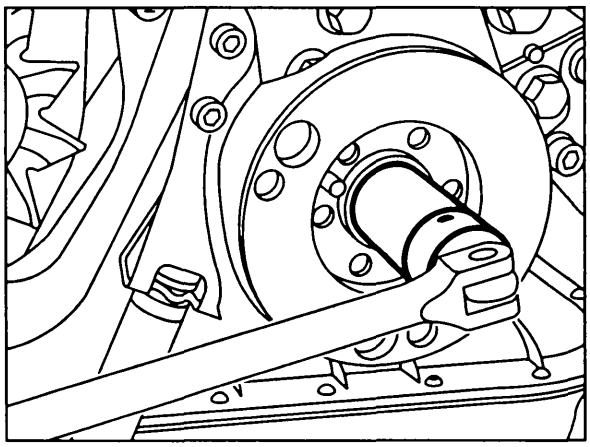


Rotating engine:

(a) With socket wrench on crankshaft balancer hex bolt.

⚠**CAUTION!**
Do not use **camshaft sprocket** mounting bolt to turn engine.

Do not rotate crankshaft **in reverse.**



(b) With starter:

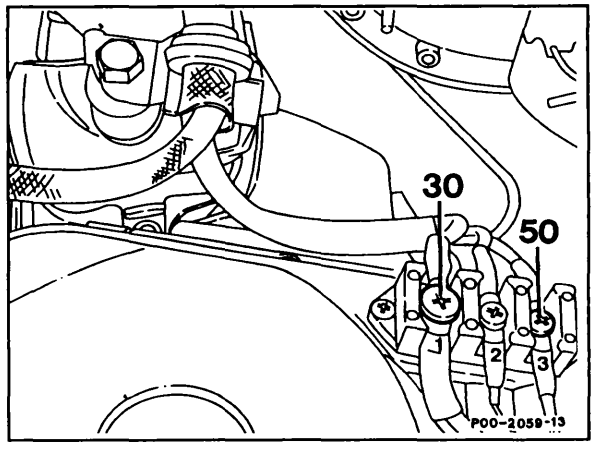
Switch off ignition and connect terminals as indicated.

Model 123

On cable connector to engine harness, disconnect cable terminal 16 (cable color red/purple), so that the ignition coil and the fuel pump are not activated.

Connect terminal 30 and terminal 50 on cable connector.

Instead of terminal 30, connection can also be made to battery +.



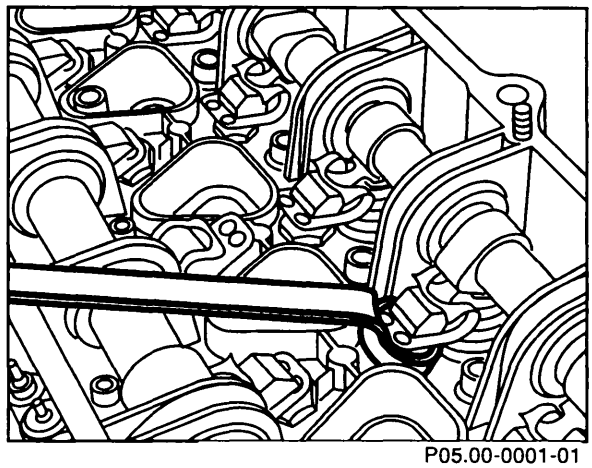
Adjusting

Adjust valve clearance by turning valve adjusting screw (2) with valve adjusting wrench.

The valve clearance is correctly adjusted if slip gauge requires tight pull.

NOTE: If adjustment is inadequate, replace plunger (4). Plungers are available in various sizes (refer to spare part documentation).

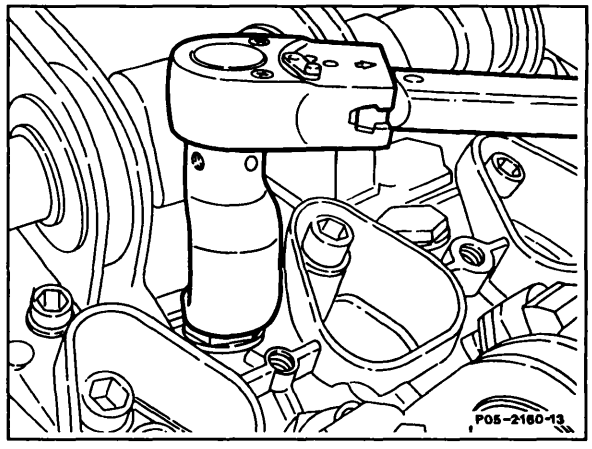
At end of adjusting jobs, check tension springs (1) for perfect seat.



P05.00-0001-01

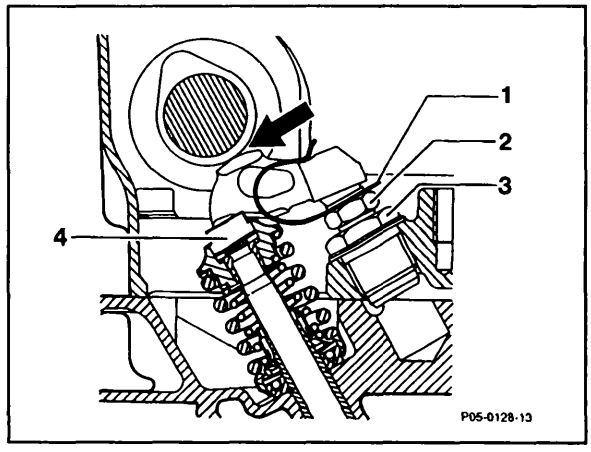
1 Valve adjusting wrench 100 589 01 01 00

NOTE: A torque check is required on loose valve adjusting screws. For this purpose, remove tensioning springs by means of a screwdriver and measure torque with valve adjusting wrench, part no. 110 589 00 01 00 and a torque wrench (e.g. part no. 000 589 27 21 00).



1 Valve adjusting wrench 110 589 00 01 00

If the torque of the valve adjusting screw is below 20 Nm, replace valve adjusting screw (2) or valve adjusting screw (2) together with threaded bushing (3).



Engine 616 617

Adjusting specifications in mm

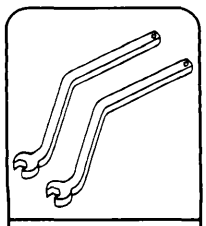
Engine		Cold engine (approx. 20°C)	Warm engine (60°C ± 15°C)
616, 617	**Intake**	0.10 [1]	0.15 [1]
616, 617.91	**Exhaust**	0.30	0.35
617.95	**Exhaust**	0.35	0.40

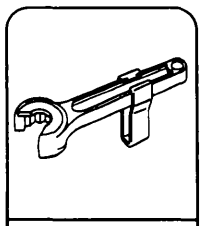
[1] 0.05 mm more during extended ambient temperatures below -20°C.

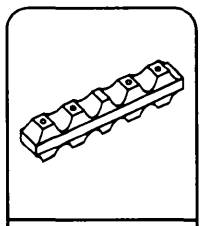
Torque specifications (Nm)

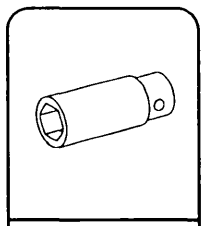
Cylinder head cover cap nuts	15

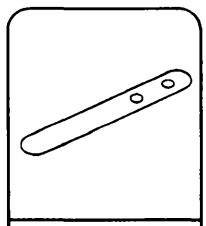
Special tools

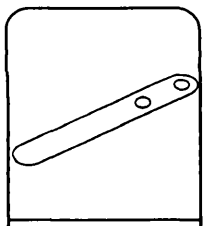

615 589 00 01 00

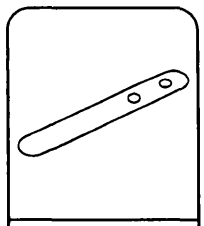

615 589 00 03 00

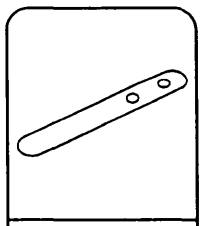

617 589 00 40 00

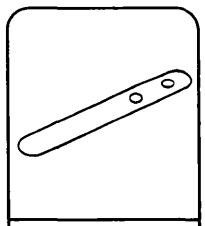

617 589 00 23 00

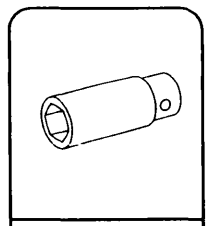

617 589 01 23 00

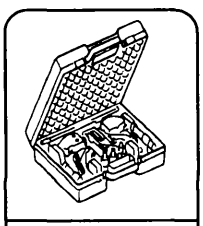

117 589 00 23 00


617 589 02 23 00


617 589 03 23 00


617 589 04 23 00

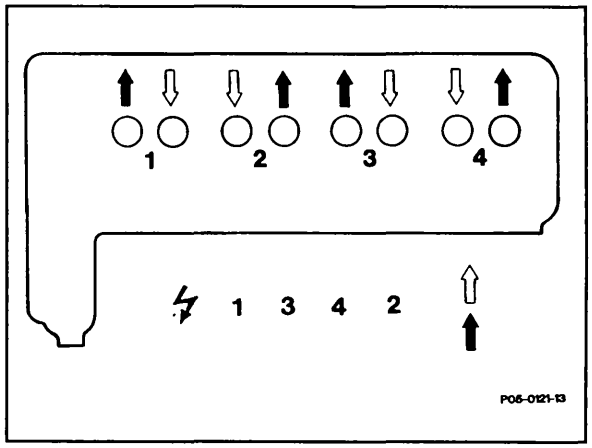

001 589 65 09 00

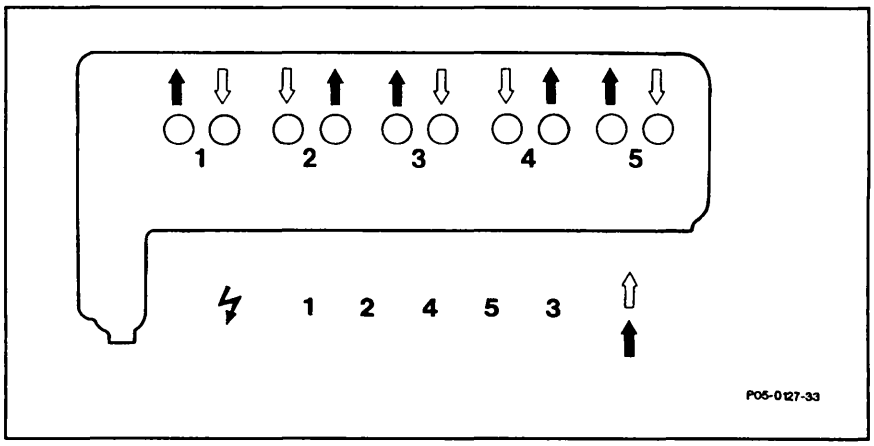

001 589 76 21 00

NOTE:

Check or adjust valve clearance with engine cold or warm.

Note layout of intake and exhaust valves.



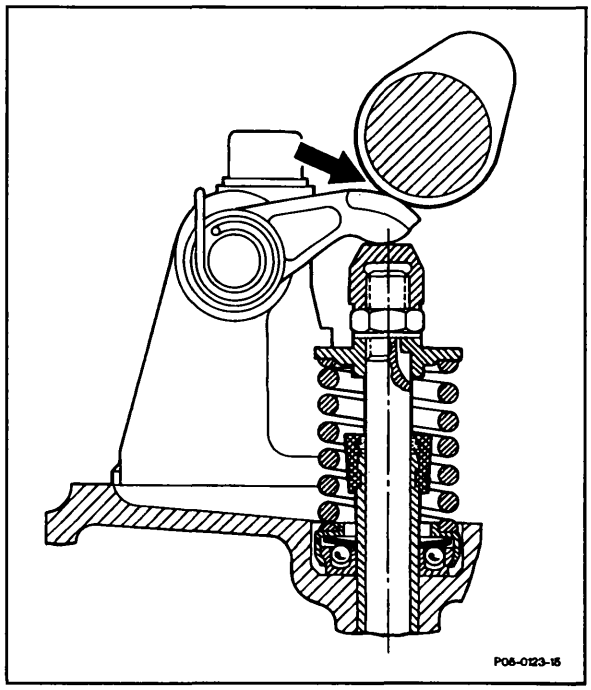


Adjusting

- Measuring valve clearance between sliding surface of rocker arm and cam base circle of camshaft (arrow), by positioning camshaft so that **tip of cam is vertical** relative to rocker arm.

Valve clearance is correctly adjusted if feeler gauge can be pulled through with some resistance.

- Position start and stop cable to "Stop" or turn starter key to "O".

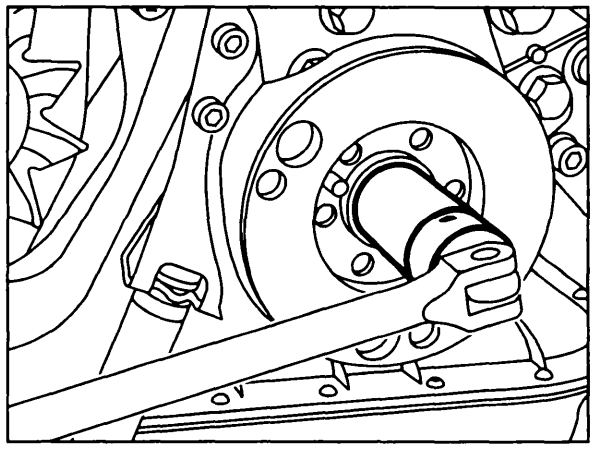


The engine can be cranked as follows:

a) With socket wrench on crankshaft balancer hex bolt.

⚠**CAUTION: Do not** use **camshaft sprocket** mounting bolt to turn engine.

Do not rotate crankshaft **in reverse.**

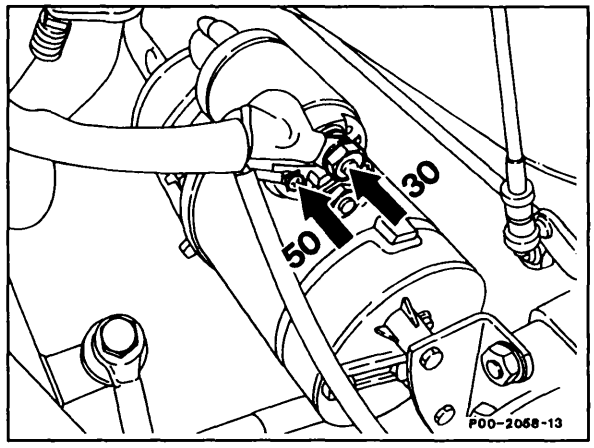


b) With starter

Model 123 with engine 616 and 617.912

Connect remote starter switch to terminal 30 and 50 at starter.

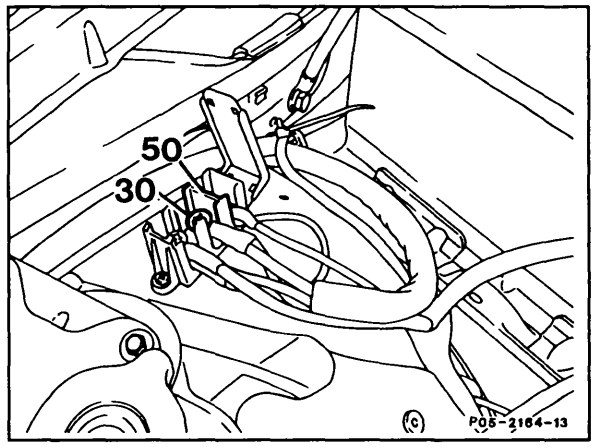
Remote starter switch may also be connected to battery + instead of terminal 30.



Model 123 with engine 617.952 (turbodiesel)

Connect contact handle to terminal 30 and 50 at cable connector.

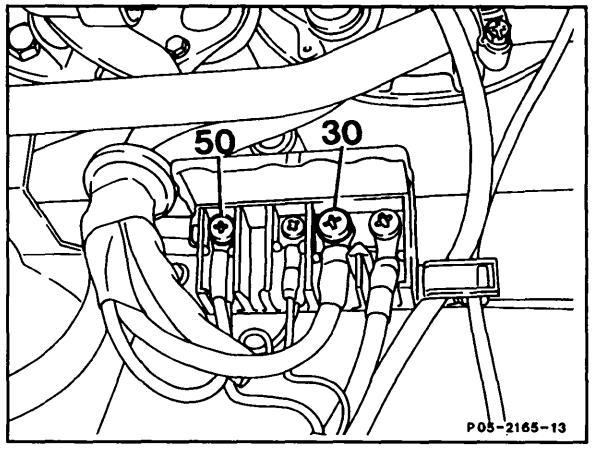
The cable connector is fitted in the right hand wheel housing.



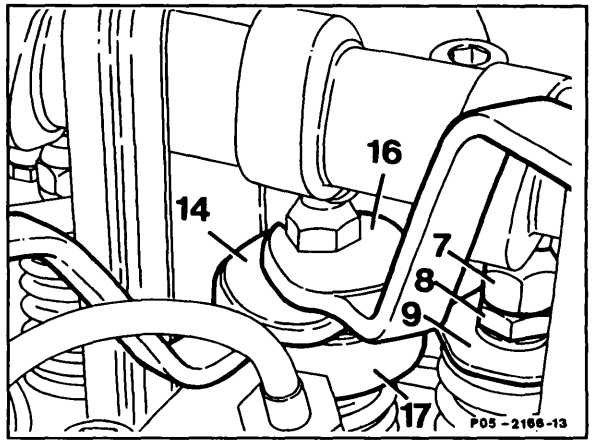
Model 126 with engine 617.951 (turbodiesel)

Connect contact handle to terminal 30 and 50 at cable connector.

The cable connector is fitted to the right hand side member.



- Place retaining wrench (17) to hexagon of valve spring plate.
- Loosen hex nut (7), by holding locknut (8) at valve with valve adjusting wrench (14).
- Set valve clearance by turning cap nut.
- After adjusting, secure cap nut with locknut.



Also check that cap and locknuts of valves which were not adjusted are tight.

- Re-check valve clearance.