

01-4150 Removing and installing cylinder head

Preceding work:

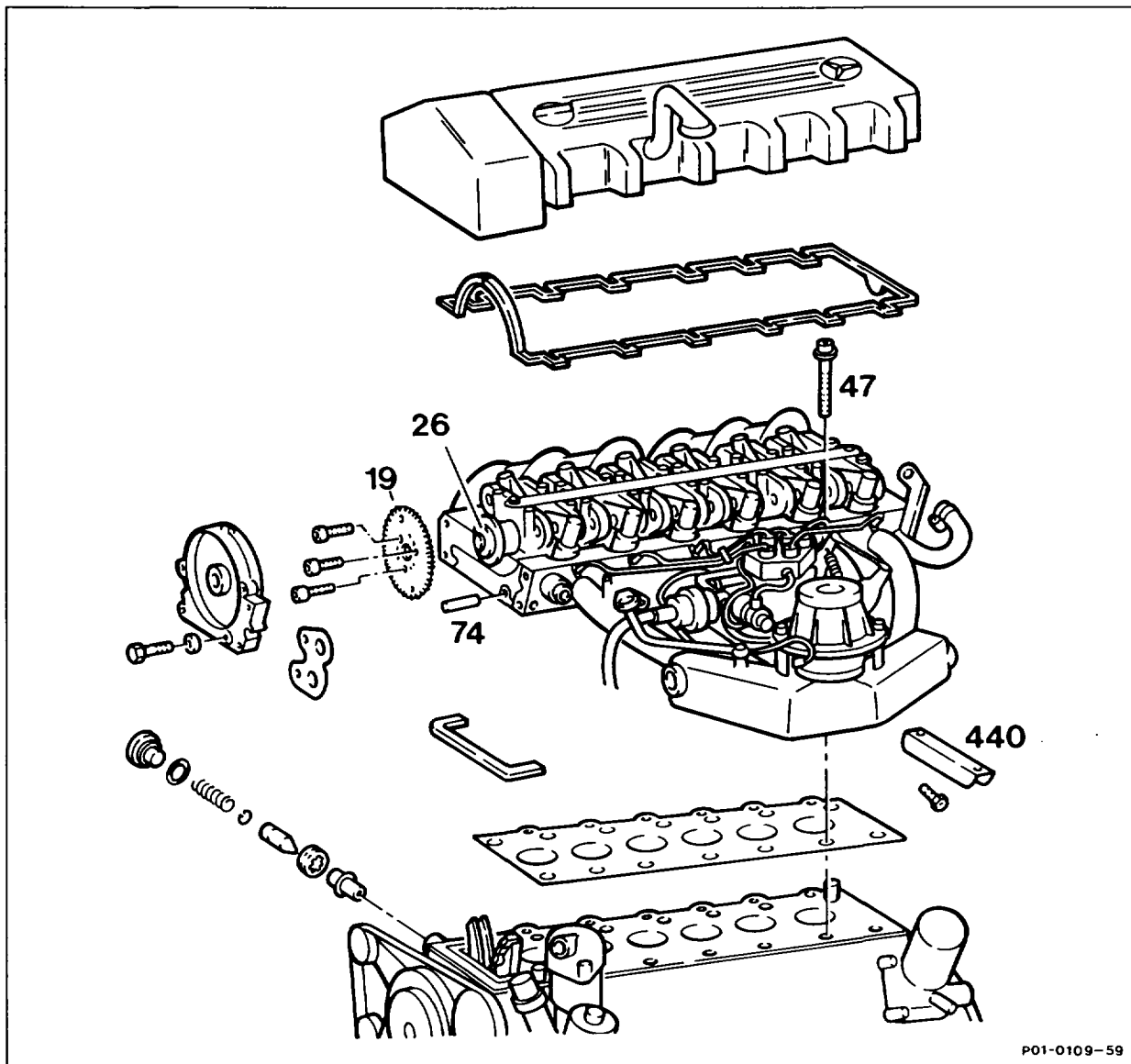
Warning instructions when hood open (01-0085).

Coolant drained (20-0100).

Front cover at top removed (01-2120).

Operation no. of operation texts and work units or standard texts
and flat rates

01-5800, 01-5855



P01-0109-59

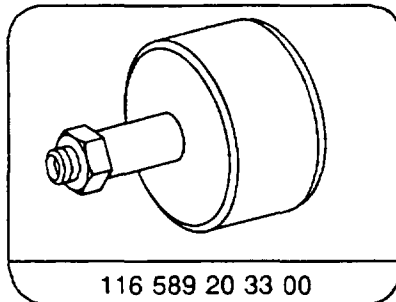
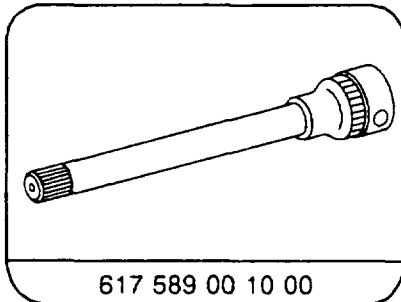
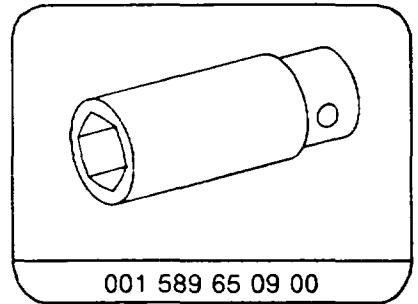
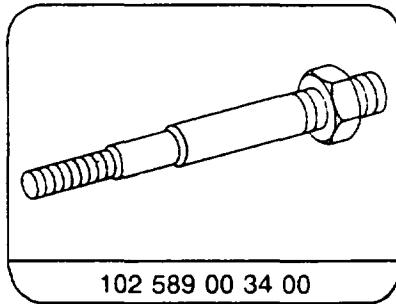
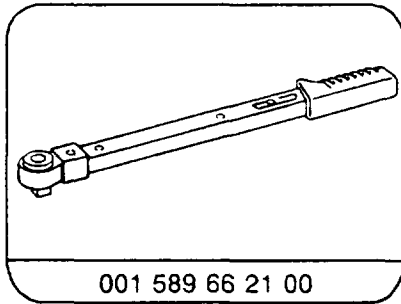
Camshaft sprocket (19)	mark relative to camshaft (26), detach and attach (step 1)
Chain tensioner	remove, install (05-3100)
Camshaft sprocket (19)	remove, install (05-2200)



Guide rail pin (74)	withdraw, knock in; use impact extractor 116 589 20 33 00, threaded pin 100 589 00 34 00 for this step (step 4)
Bracket of dipstick guide tube and intake manifold support (440)	unbolt, bolt on (steps 5 and 6)
Coolant hoses and heating water return pipe	detach, attach (steps 7 – 8)
Automatic transmission: dipstick guide tube	unbolt, bolt on (step 9)
Fuel pipes	detach, attach; briefly open fuel filler cap beforehand (step 10)
Bowden cable (accelerator control), model 124, 201	detach, attach (30-3250) (step 11)
Control pressure cable	detach, attach (step 12)
Model 107, 126: accelerator control linkage	detach, attach (steps 13 – 14)
Engine wiring harness	detach, attach (steps 15 – 17)
Exhaust system at exhaust manifold	unbolt, bolt on (step 18)
Cylinder head bolts (47)	slacken in reverse order of tightening diagram and remove (step 19)
Cylinder head together with intake manifold and exhaust manifold	take off, fit on and replace cylinder head gasket (steps 20 – 21)
Camshaft (26)	position to marking (step 22)
Piston of cylinder 1	set to TDC (step 23)
Threaded holes for cylinder head bolts in crankcase	clean
	 Free of oil grease
Cylinder head bolts (47)	check, tighten (01-4050)
	 The cylinder head gasket is not watertight until the engine has reached normal operating temperature and the gasket has swollen. For this reason, do not pressure-test cooling system until the engine has reached normal operating temperature.
Engine	warm up to normal operating temperature.
Cooling system	check for leaks (20-0170)



Special tools



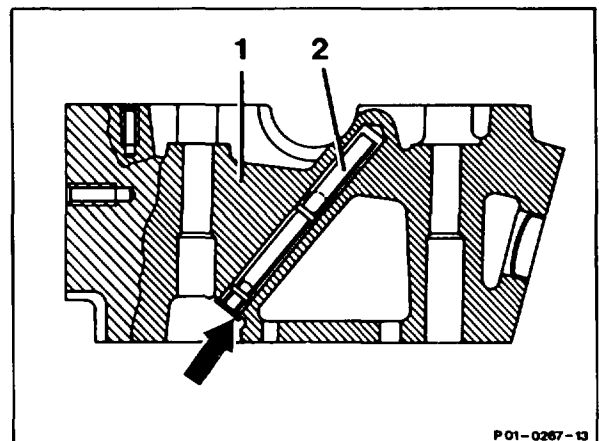
Notes

Detach cylinder head together with camshaft, intake manifold and exhaust manifold after engine has cooled down.



As of 12/86 an oil nozzle return flow lock (2) with stop collar (arrow) has been installed in the cylinder head. It is essential to install this oil nozzle when performing repairs (18-4150).

Only one cylinder head gasket with the same inner Ø is used for standard Ø and for the +0.5 mm and 1.0 mm repair sizes.



Combustion chamber surround in mm

Engine	Combustion chamber surround inner Ø
103.94	84.6
103.98	90.2

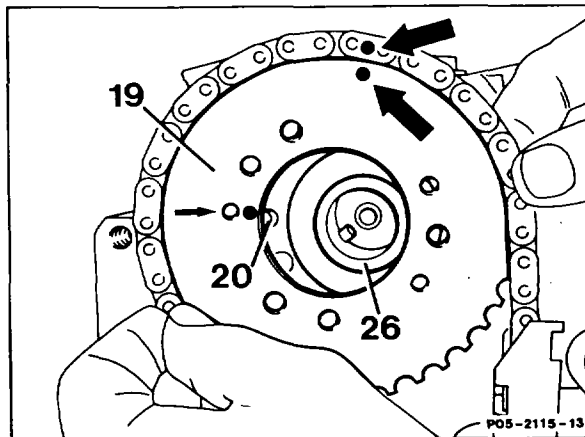


Removal, installation

1 Mark position of camshaft sprocket (19) relative to camshaft. This is done by applying coloured marking (arrow) next to fixing pin (20) on the camshaft sprocket (19).

2 Remove chain tensioner (05-3100).

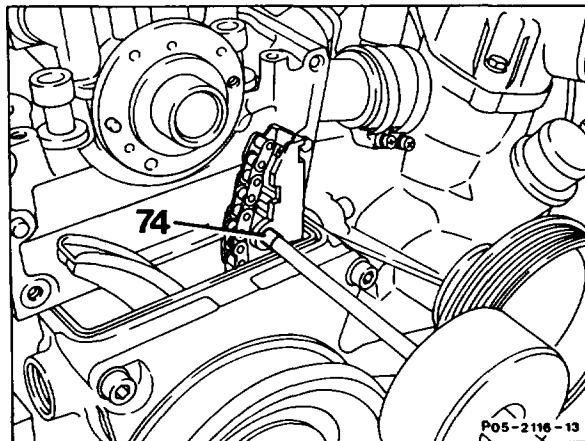
3 Unbolt camshaft sprocket, remove (05-2200).



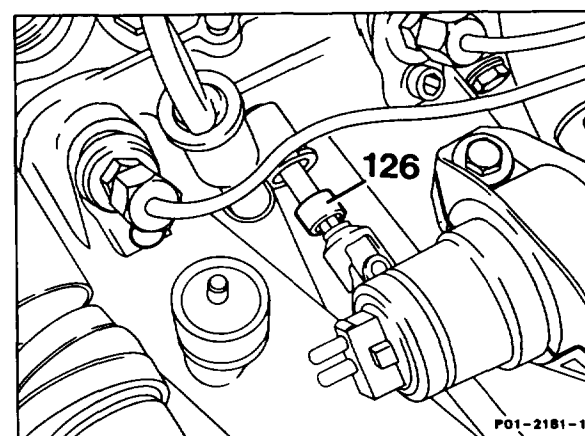
4 Use impact extractor 116 589 20 33 00 and threaded pin 100 589 00 34 00 to pull out guide rail pins (74).

Installation note

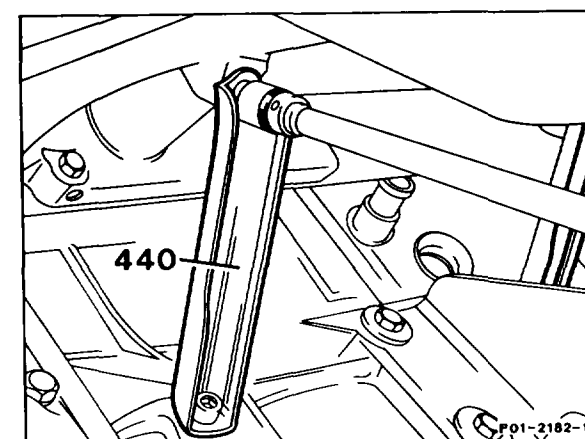
The thread in the guide rail pin (74) must be facing forward in direction of travel when it is knocked in.



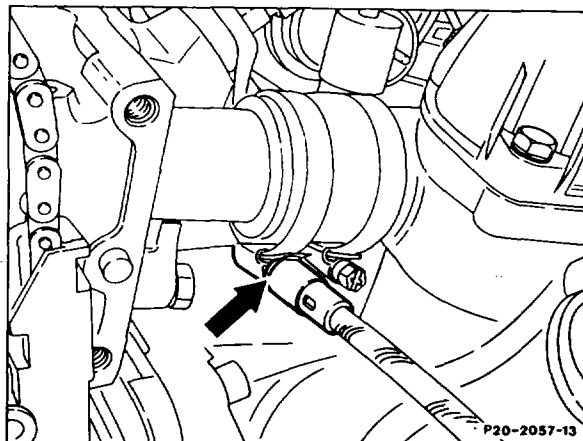
5 Unscrew bracket (126) of dipstick guide tube.



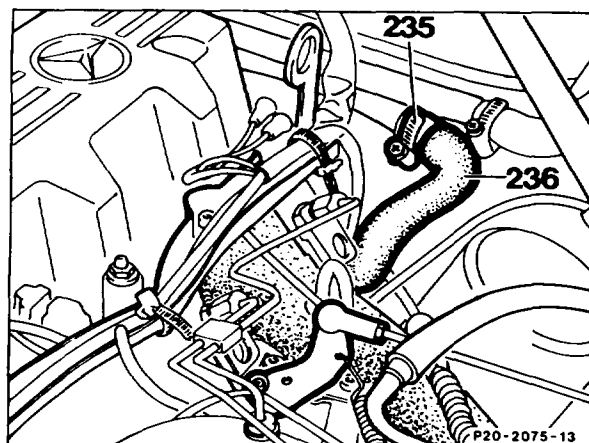
6 Unscrew both intake manifold supports (440) at top, detach at bottom.



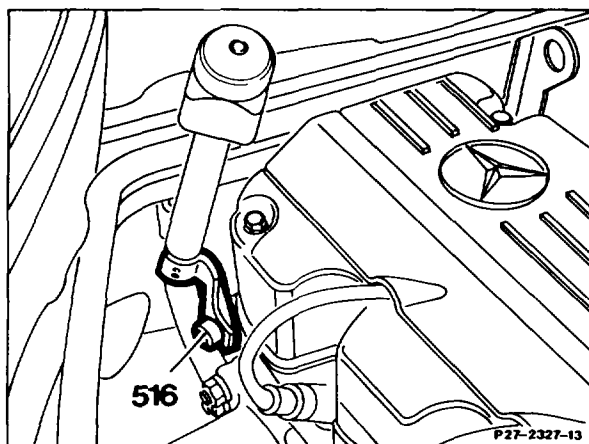
7 Slacken hose clips (arrow) at coolant hose to coolant pump.



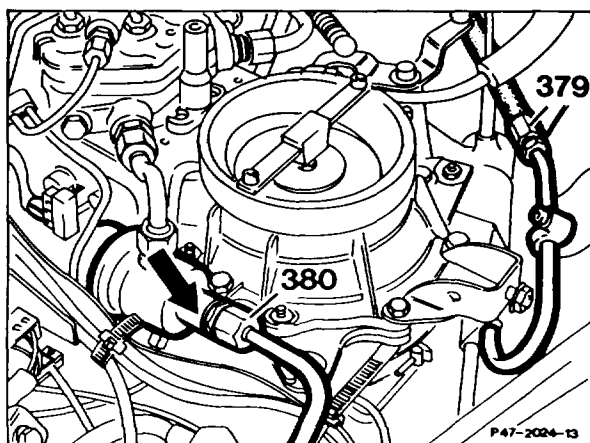
8 Slacken hose clip (235). Detach heating water return line (236).



9 If automatic transmission fitted: unscrew bolt (516).



10 Briefly open fuel filler cap to release pressure in the fuel tank.
Unscrew fuel lines (379, 380).
Hold the connection fitting (arrow) to prevent it moving when slackening the fuel line (380).

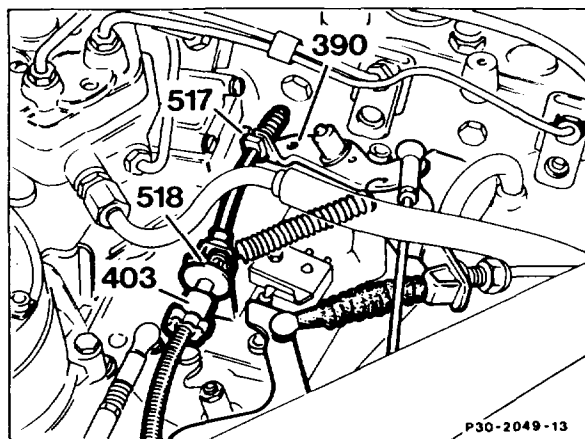


11 Models 124, 201: detach Bowden cable (accelerator control). Press plastic guide (517) out of its seat in the fulcrum lever (390) and withdraw Bowden cable (403) through the slot in fulcrum lever (390).

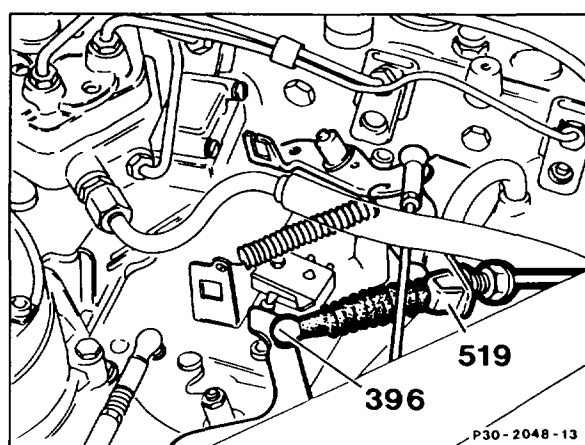
Compress the links of the plastic clip (518) and push plastic clip with Bowden cable (403) to the rear through the bracket.

Installation instruction

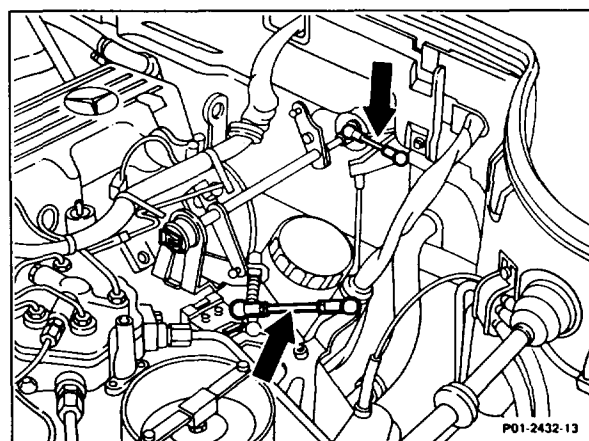
Adjust Bowden cable (403) (30–3250).



12 Detach control pressure cable (396). Compress links (519) of the plastic clip and guide plastic clip with linkage through the bracket.



13 Models 107, 126: press off accelerator control linkage (arrows) and turn to the left and tie tight.

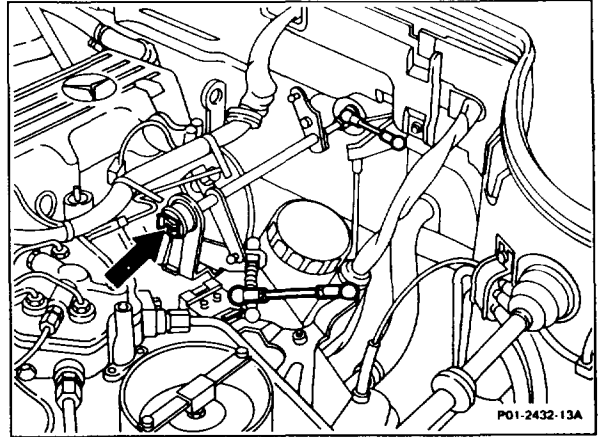


Shown on model 126

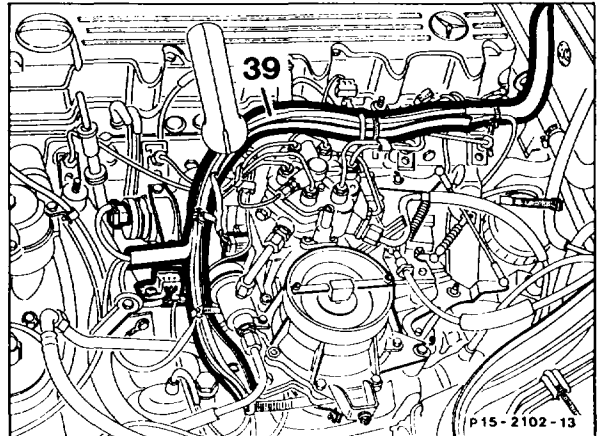


14 Take off clip (arrow) and withdraw accelerator control linkage shaft from the guide and take out to the front.

Shown on model 126

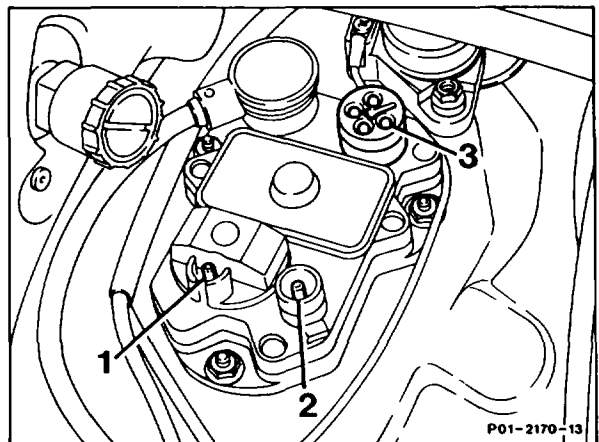


15 Detach engine wiring harness (39). Slacken all the cable straps of the engine wiring harness (39). Detach all the plug connections along the engine wiring harness (39).

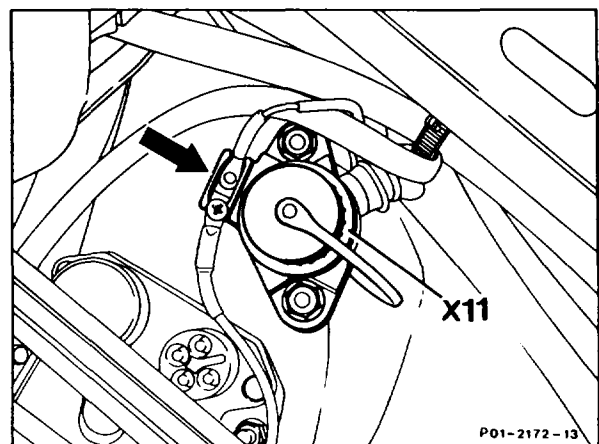


16 Detach control cable and vacuum line at the connector-sensor ignition control unit.

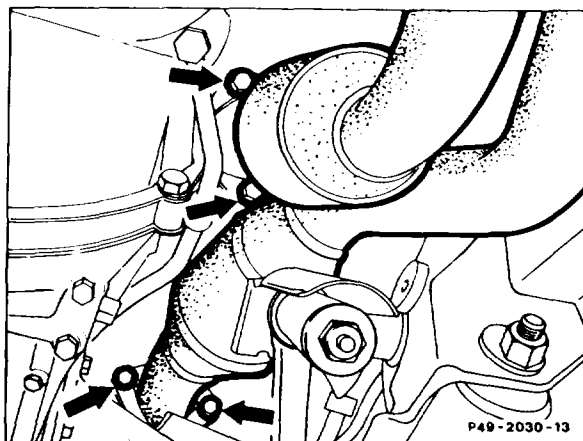
- 1 Vacuum connection
- 2 Control line-position sensor connection
- 3 Connector-sensor connection



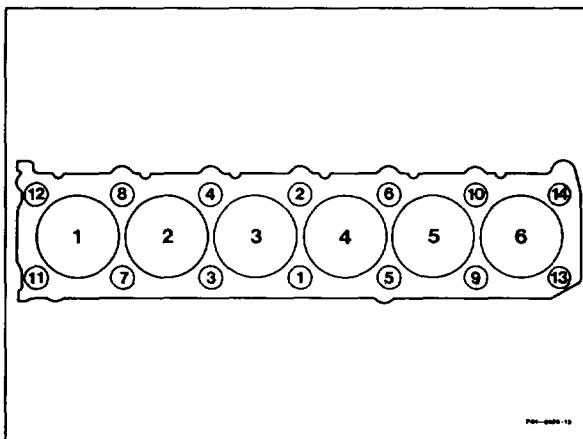
17 Detach terminal block terminal TD (arrow) next to diagnostic socket (X11), unscrew diagnostic socket (X11), detach grey cable from the TDC sensor on the left side of diagnostic socket (X11).



18 Unscrew bolts (arrows) for exhaust system at the flange of the exhaust manifold.



19 Slacken cylinder head bolts when engine cold in stages in the reverse order to the tightening diagram, starting with bolt 14.

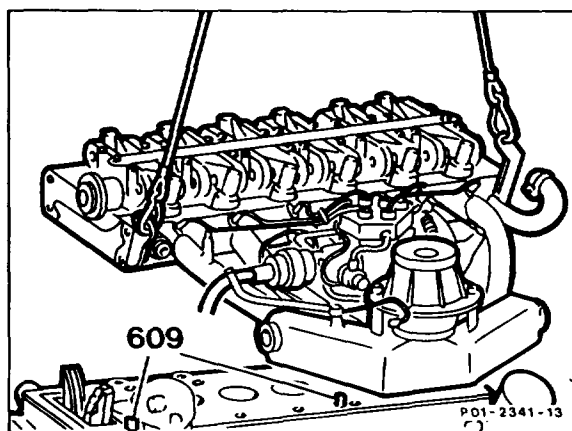


20 Attach engine hoist to the suspension lugs of the engine. Take off cylinder head.

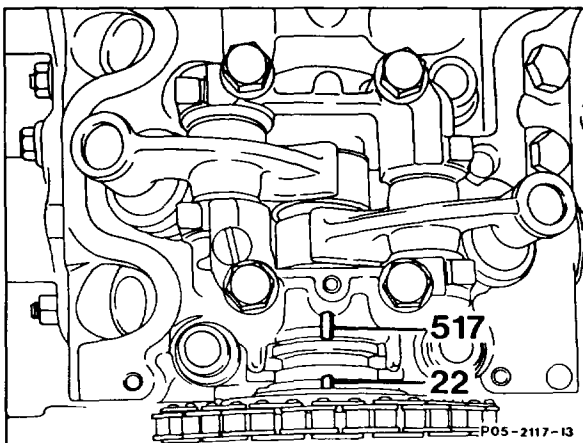
21 Renew cylinder head gasket.

Installation instruction

Pay attention to the 2 dowel pins (609) for locating the cylinder head on the crankcase.



22 Turn crankshaft so that pin (22) or positioning bore of the camshaft is aligned with the marking (517) on the 1st camshaft bearing.



23 Position piston of cylinder 1 to TDC (arrow).

24 Clean threaded holes for cylinder head bolts in crankcase.



Free of oil and water

25 Check cylinder head bolts, tighten (01-4050).

Installation is performed in the reverse order.

26 Check cooling system for leaks (20-0170).



The cylinder head gasket is not watertight until the engine has reached normal operating temperature and the gasket has swollen. For this reason, do not pressure-test cooling system until the engine has reached operating temperature.

