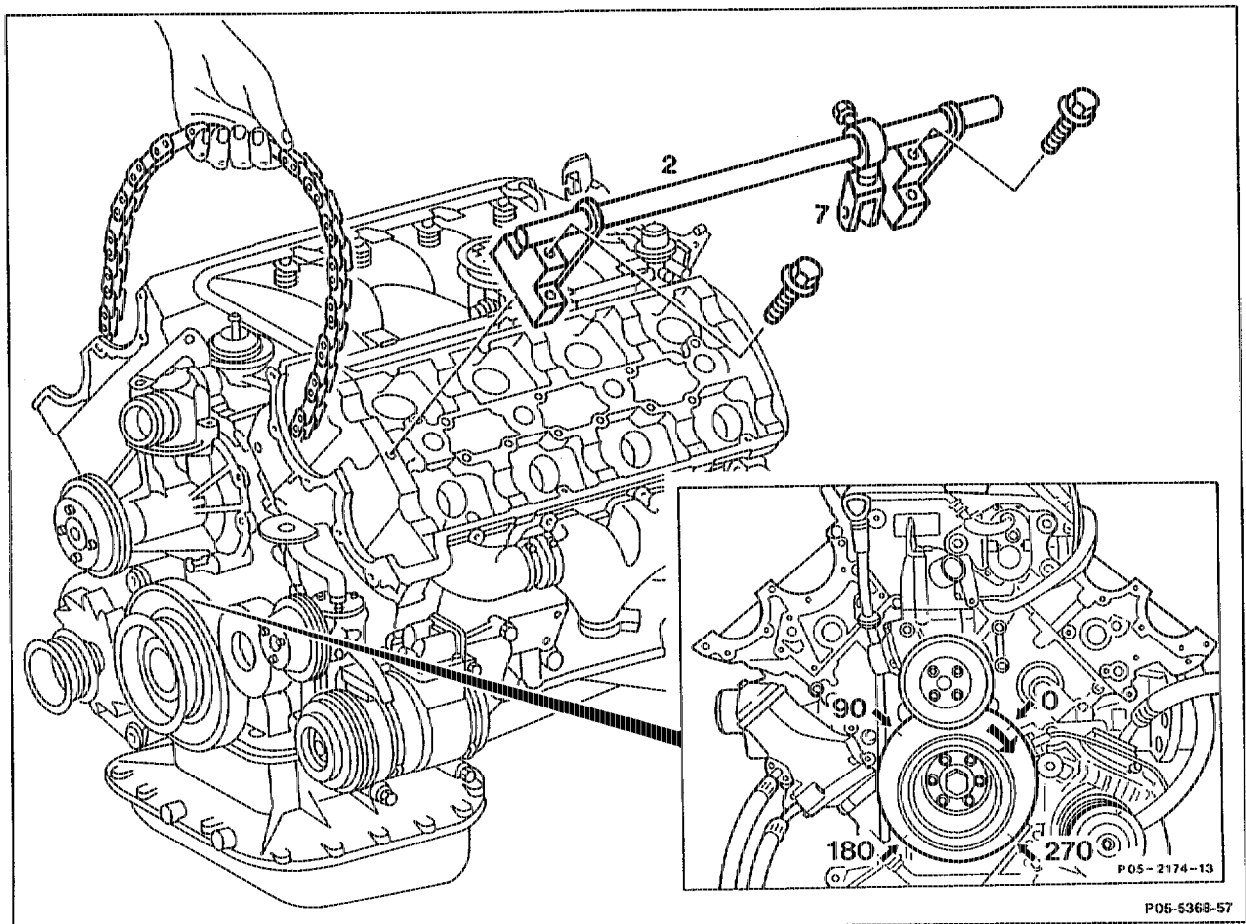


## 05-2500 Removing and installing valve springs

Preceding work:  
 Camshafts removed (05-2200).  
 Spark plugs removed (15-1031).

Operation no. of operation texts and work units or standard texts  
 and flat rates  
 05-3500

### A. Models 124, 129, 140



Right cylinder head: engine wiring harness .....	disconnect, connect.
Supporting bar (2) with slide (7) .....	attach off-center (facing toward outside of vehicle) to relevant cylinder head, take off, special tool 111 589 01 59 00.
Supporting bar (2) .....	bolt on with two M7 x35 bolts (bolts of camshaft bearing caps), unbolt.

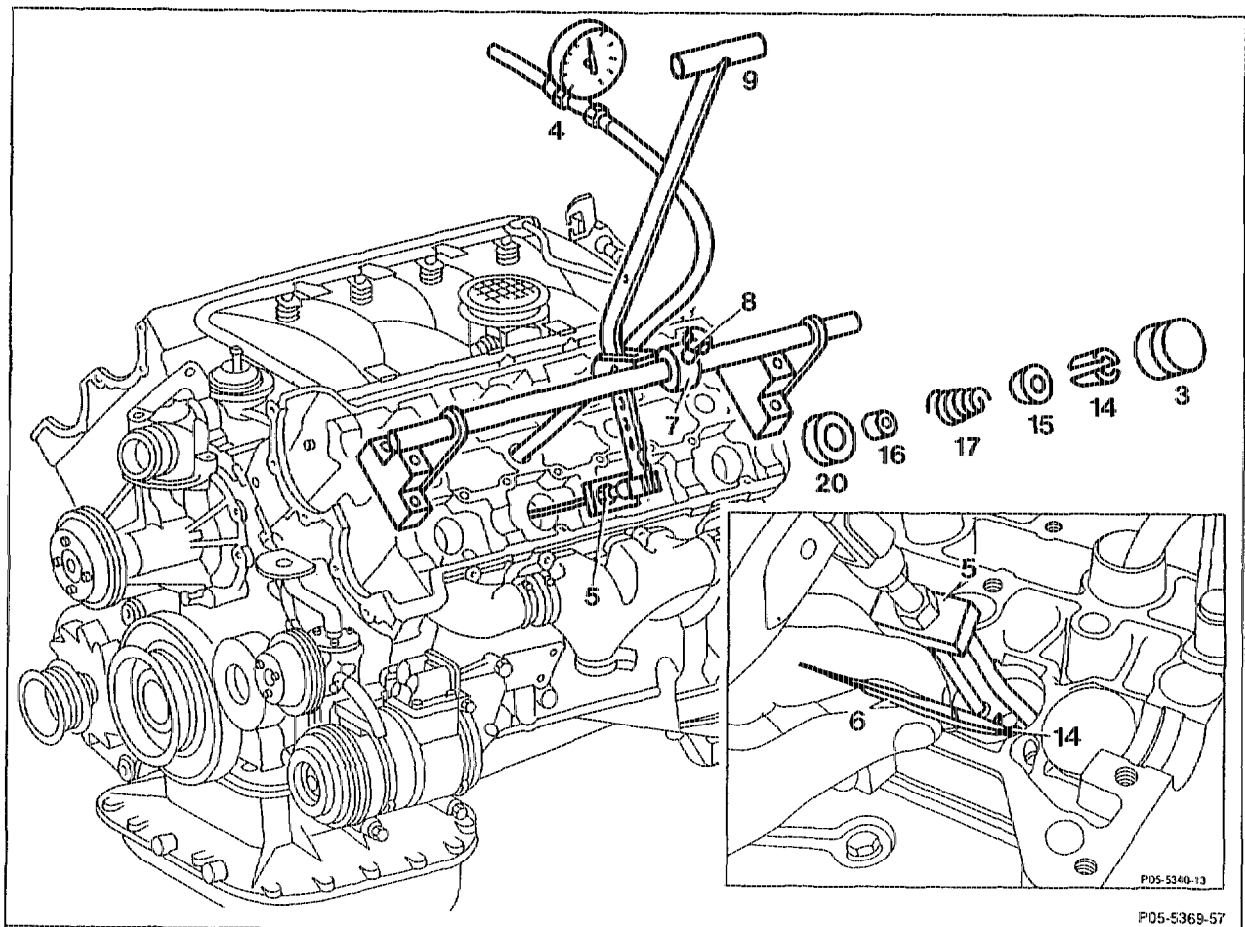
Timing chain .....

raise and turn piston of cylinder to be machined with wrench socket to TDC.



If turning at the crankshaft, ensure that the starting position is restored so that the coloured markings affixed to the timing chain can be re-used for setting the timing of the camshafts. The respective piston is in the TDC position if the marking numbers on the vibration damper, shown in the drawing above, are aligned with the TDC pointer.

Marking number	Piston In TDC
0	1 and 6
90	5 and 3
180	4 and 7
270	8 and 2



P05-5340-13

P05-5369-57

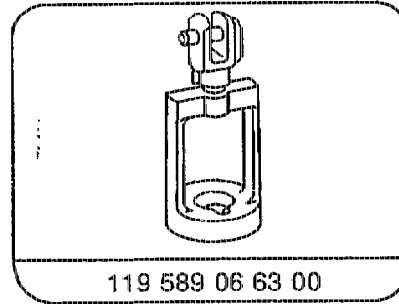
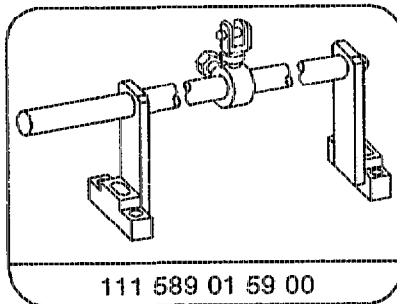
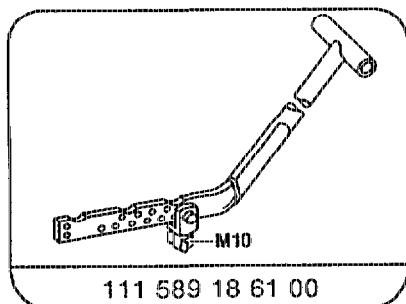
Bucket tappet (3) of relevant cylinder . . . . .	remove, install (05-2110).
Connection hose (4) of cylinder leak tester . . . . .	screw into spark plug hole.
Crankshaft . . . . .	fix in position with retaining lock to prevent it rotating (03-5000).
Compression chamber . . . . .	pressurise.
Lever presser (9) with thrust piece (5) . . . . .	insert into slide (7), special tools 111 589 18 61 00 and 119 589 06 63 00.
Thrust piece (5) . . . . .	attach to valve spring retainer (15) vertically.
Slide (7) . . . . .	fix in position with bolt (8).
Valve spring (17) . . . . .	compress.

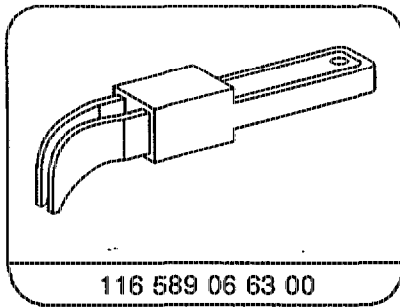
	⚠
	Valves must not touch the piston crown otherwise they will be bent.
Valve collets (14) . . . . .	remove with tweezers (6) or magnetic finger, install, special tool 116 589 06 63 00.

**Installation note**

Coat valve spring retainer (15) for fixing valve collets (14) with grease.	
Valve spring retainer (15) with valve spring (17) . .	remove, install.
Valve stem seal (19) . . . . .	replace (05-2700).
Bottom valve spring retainer (20) . . . . .	remove and examine for scoring, install.

**Special tools**





### Commercially available tools

Cylinder leak tester	e. g.	Bosch E F A W 210 A Sun, CLT 228
Rubber suction cup Ø 30 mm	e. g.	Hazet Nr. 735-2
Straight tweezers 160 mm with rounded tips	e. g.	Stahlwille D-42331 Wuppertal 12

### Note

Valve springs, upper and lower valve spring retainers with scoring must be replaced. The valve springs of the inlet and exhaust valves are identical.

As of 01/1993 conical-shaped valve springs are installed together with modified valve spring retainers and lighter bucket tappets. The inner valve spring is no longer fitted.

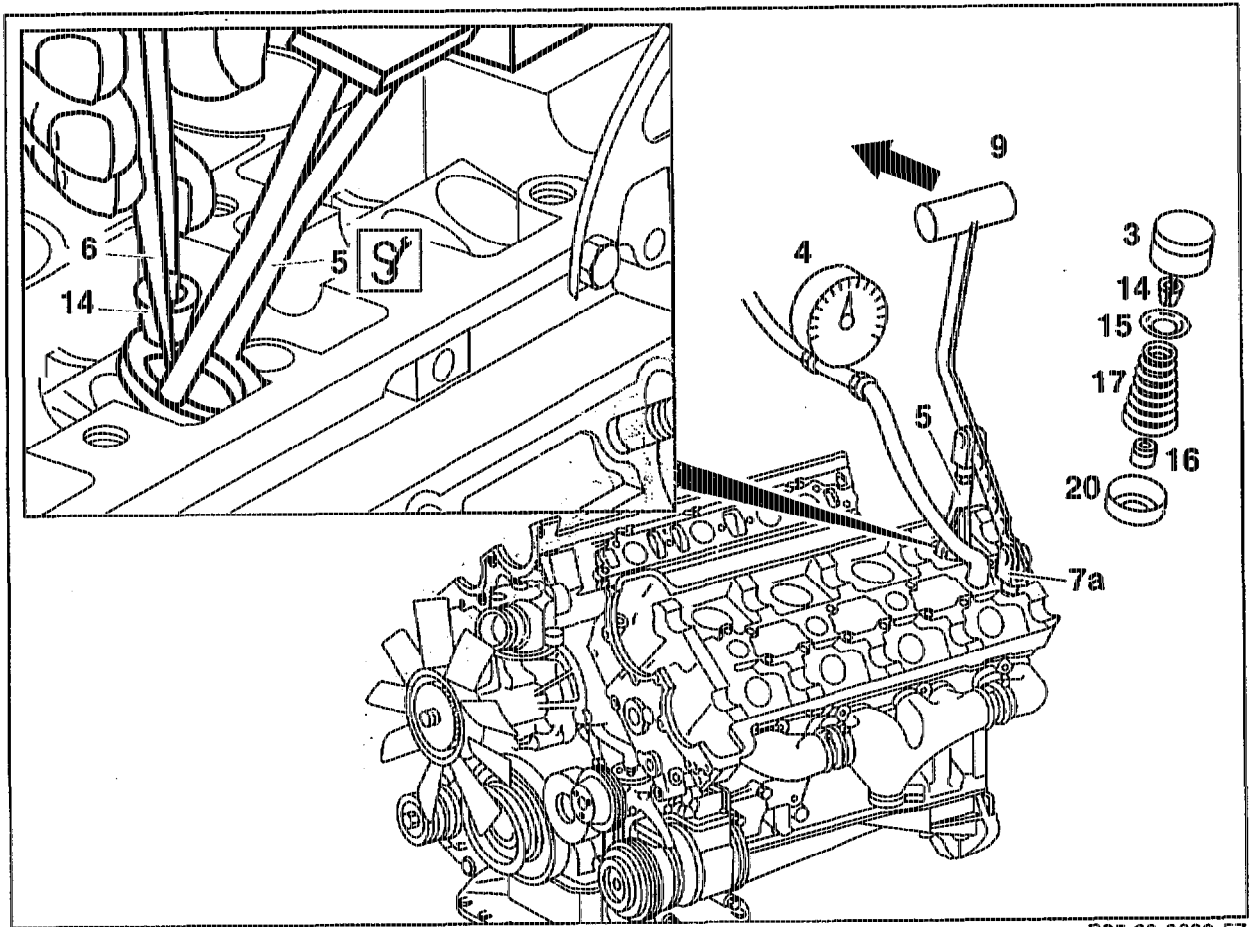
### Conical-shaped valve springs

	Valve spring wire dia. (round)	Valve spring wire dia. (oval)
Engine 119.971/975	3.5 mm	–
Engine 119.970/972/974	–	3.4 – 4.2 mm

Preceding work:  
 Camshafts removed (05-2200).  
 Spark plugs removed (15-1031).

Operation no. of operation texts and work units or standard texts  
 and flat rates  
 05-3500


## B. Model 210



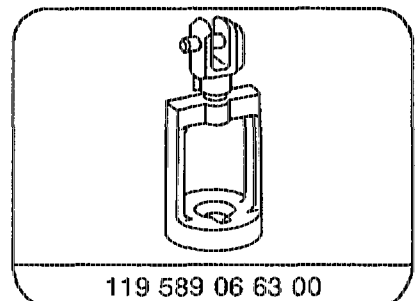
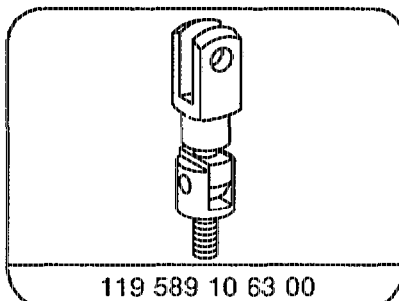
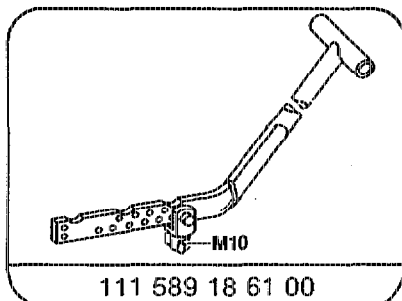
P05.20-0290-57

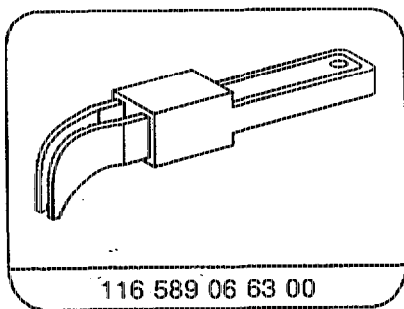
Lift up timing chain and rotate piston of cylinder  
 to be machined to TDC with wrench bit . . . . . see table for piston in TDC.

Marking index	Piston in TDC
0	1 and 6
90	5 and 3
180	4 and 7
270	8 and 2

Bucket tappet (3) of the relevant cylinder	remove, install (05-2110).
Connection hose (4) of cylinder leak tester	screw into spark plug hole.
Crankshaft	fix in position with retaining lock to prevent it turning (03-5000).
Compression chamber	pressurize.
Hinged clevis (7a)	insert into appropriate hole of the camshaft bearing cap in cylinder head.
Lever depresser (9)	attach with thrust piece (5) to hinged clevis (7a) in the appropriate hole, special tools 111 589 18 61 00 , 119 589 10 63 00 and 119 589 06 63 00.
Thrust piece (5)	position vertically onto valve spring retainer (15).
Valve spring (17)	compress.
	
The valves must not strike the piston crown otherwise they will be bent.	
Valve collets (14)	remove, install with tweezers (6), magnetic finger, special tool 116 589 06 63 00
<b>Installation note</b>	
Coat valve spring retainer (15) with grease for fixing the collets (14) in position.	
Valve spring retainer (15) together with valve spring (17)	remove, install.
Valve stem seal (19)	replace (05-2700).
Bottom valve spring retainer (20)	remove and inspect for pitting, install.

### Special tools





#### Commercially available tools

Cylinder leak tester

e. g. Bosch E F A W 210 A  
Sun, CLT 228

Rubber suction cup  $\varnothing$  30 mm

e. g. Hazet Nr. 735-2

Straight tweezers 160 mm with  
rounded tips

e. g. Stahlwille  
D-42331 Wuppertal 12