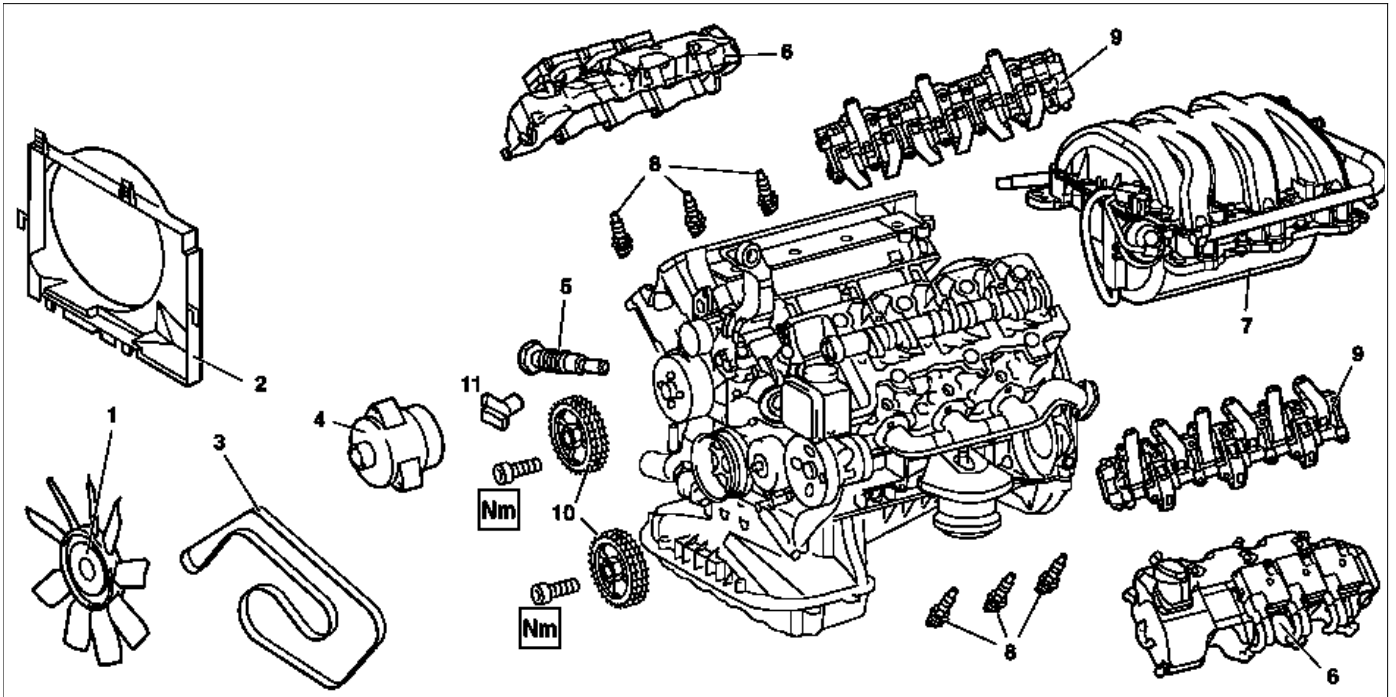


ENGINE 112.945 in MODEL 463.209 /232 /233 /244 /245 /250
 ENGINE 112 in MODEL 129, 163
 ENGINE 113.962 in MODEL 463.206 /240 /241 /247 /248 /249 /254
 ENGINE 113 in MODEL 129, 163, 202, 208, 210
 ENGINE 113.982 in MODEL 463.243 /246



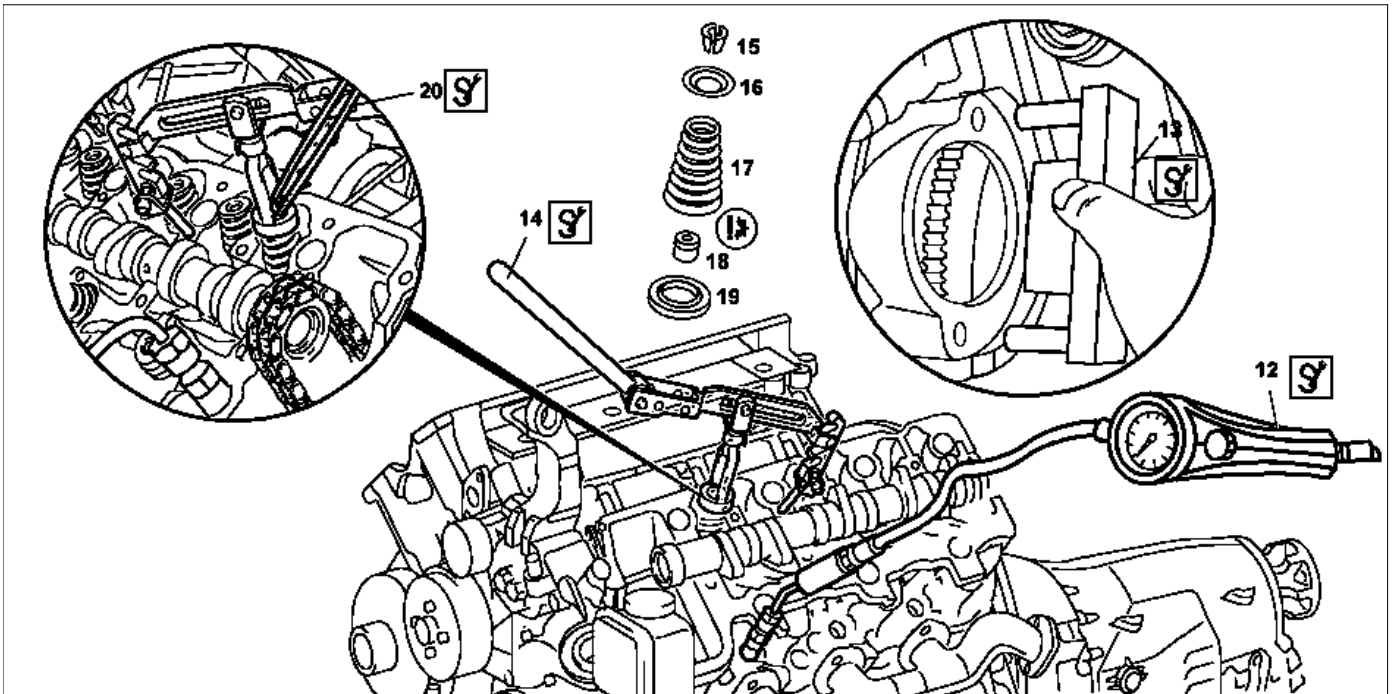
P05.30-0330-09

Shown on engine 112 in model 129

1 Viscous fan
 2 Fan shroud
 3 Poly-V belt

4 Alternator
 5 Chain tensioner
 6 Cylinder head covers
 7 Intake manifold

8 Spark plugs
 9 Camshaft bearing bridges
 10 Camshaft sprockets
 11 Camshaft position sensor



P05.30-0331-09






Shown on engine 112

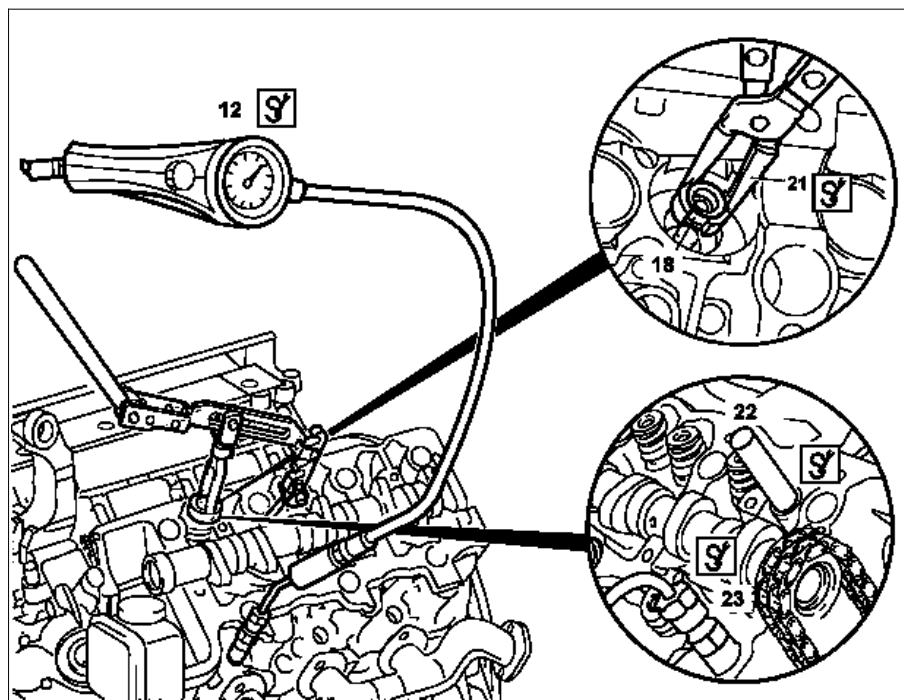
12 Cylinder leakage testing unit
 13 Retaining lock
 14 Valve tool

15 Valve keeper
 16 Upper valve spring retainer
 17 Valve spring
















18 Valve stem seal
 19 Lower valve spring retainer
 20 Tweezers

Shown on engine 112

- 12  Cylinder leakage testing unit
- 18  Valve stem seal
- 21  Valve stem seal pliers
- 22  Assembly drift
- 23  Connection hose



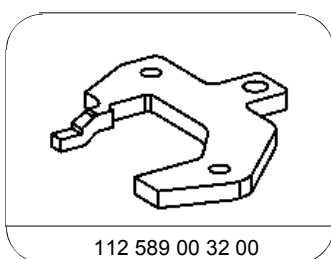
P05.30-0332-06

	Remove/install		
1	Remove engine cover or air filter	Remove engine cover or air filter by pulling it vertically up and off the cylinder head covers.	
2	Remove viscous fan (1)	 Right-hand thread!	AR20.40-P-5660C
3	Fan shroud (2)	 On model 163 unscrew bolts at bottom of fan shroud. Model 163. Model 463.	AR20.40-P-5000GH AR20.40-P-6800V
4	Remove poly-V belt (3)	 Installation: Lock tensioning device with a drift or pin (diameter 5 mm).	AR13.22-P-1202B
5	Remove cylinder head covers (6)	Air filter located at vehicle side. Air filter located on engine side.	AR01.20-P-5014B AR01.20-P-5014BV
6	Remove spark plugs (8)	 One spark plug only at each cylinder. Model 163. Model 129, 202, 208, 210. Model 463.	AP15.10-P-1580GH AP15.10-P-1580A AP15.10-P-1580GA
7	Remove intake manifold (7)	 The intake manifold system must not be disassembled.  Remove intake manifold together with fuel rail. Model 129, 163, 202, 208, 210. Model 463.	AR09.20-P-1310A AR09.20-P-1310AG
8	Position crankshaft to 40° after ignition TDC of cylinder 1	 Engine must not be cranked back!	AR05.10-P-6858V
9	Remove chain tensioner (5)		AR05.10-P-7800C
10	Remove the camshaft position sensor (11)		AR15.10-P-2000A
11	Remove camshaft sprockets (10)	 Lock the right and left camshaft with locating plates.  Locating plate  Locating plate  Open-end wrench  Insertion tool  Torque wrench  After installation: ↓ Inspect engine timing. If necessary after checking: ↓ Set basic position of camshafts.	*112589003200 *112589013200 *112589000100 *112589010300 *001589722100 *BA05.20-P-1001-01B AR05.10-P-6858V
12	Remove the camshaft bearing bridges (9)	Engine 112, 113 except code (479) Cylinder shutoff. Engine 113 with code (479) cylinder shutoff.	AR05.20-P-6020AU AR05.20-P-7103AU AR05.20-P-7103AV

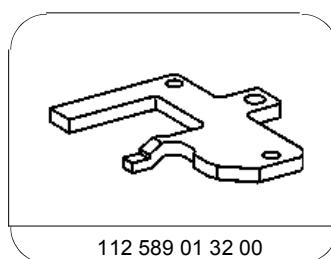
13	Rotate piston of the cylinder to be worked on to TDC	<p>i Crank engine at crankshaft for this purpose and hold up timing chain (so that it does not jam).</p> <p>i Installation: Before installing the camshaft sprockets, again turn back the crankshaft in the starting position to 40 ° as per ignition TDC at the first cylinder.</p>	
14	Install retaining lock (13) for crankshaft	<p>i After setting TDC of cylinder to be processed, in order to prevent crankshaft turning further.</p>	AR03.30-P-5000B
15	Connect cylinder leakage tester (12)	Turn connection hose of cylinder leakage tester into the relevant spark plug hole.	
16	Pressurize the compression chamber	With a pressure of about 5 bar.	
17	Screw retaining fork and detent with hinged bearing into cylinder head	<p><input checked="" type="checkbox"/> Valve assembly tool case</p>	*111589256100
18	Attach detent depresser with lever handle and thrust piece into detent with hinged bearing, align	<p>i Position thrust piece vertically at valve spring retainer and align parallel to detent with hinged bearing.</p> <p><input checked="" type="checkbox"/> Valve assembly tool case</p>	*111589256100
19	Remove upper valve spring retainer (16) and valve spring (17)	<p>w Do not allow valves to come into contact with piston crowns, otherwise they will be bent.</p> <p>i Compress valve spring and remove valve collets with tweezers or magnetic finger. The valve springs of the intake and exhaust valves are identical.</p> <p><input checked="" type="checkbox"/> Magnetic finger Tweezers</p>	*116589066300
20	Replace valve stem seals (18)	<p>i Inspect surface of valve stems for roughness and formation of burrs (visual inspection or with a nail). Replace valves with a rough stem surface or formation of burrs: ↓ Remove valves.</p>	AR05.30-P-3500-02A AR05.30-P-3511AV
21	Remove lower valve spring retainer (19)		
←	Checking		
22	Inspect upper and lower valve spring retainers (16, 19)	<p>i Inspect valve spring retainer for formation of burrs, replace if necessary.</p>	
23	Install in the reverse order		

Nm Camshaft

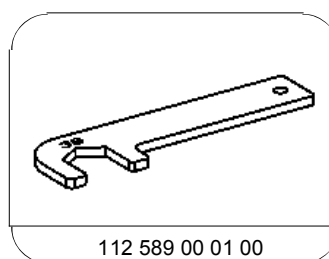
Number	Designation		Engine		
			112 except 112.951/976	113.940/941/ 942/943/944/ 948/961/962/ 963/964/965/ 966/967/968/ 969/971/980/ 981/982/984/ 986/992/995	
BA05.20-P-1001-01B	Camshaft sprocket bolt	M12×45	Stage 1 Nm	50	50
			Stage 2 Δ°	90	90



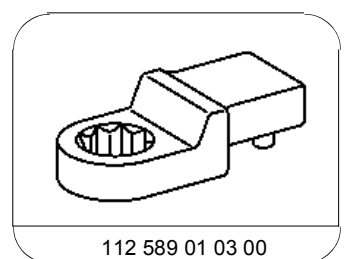
Locating plate



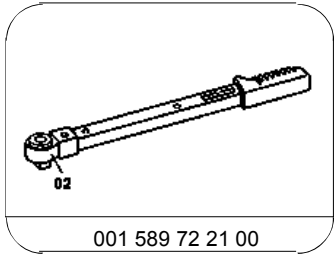
Locating plate



Open end wrench

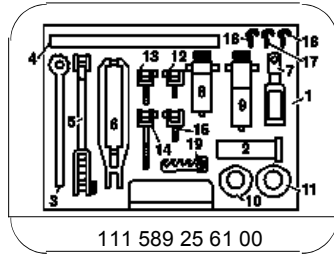


Insertion tool



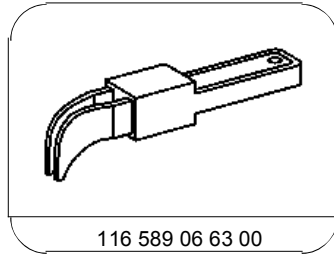
001 589 72 21 00

Torque wrench



111 589 25 61 00

Case for valve installation tools



116 589 06 63 00

Magnetic finger