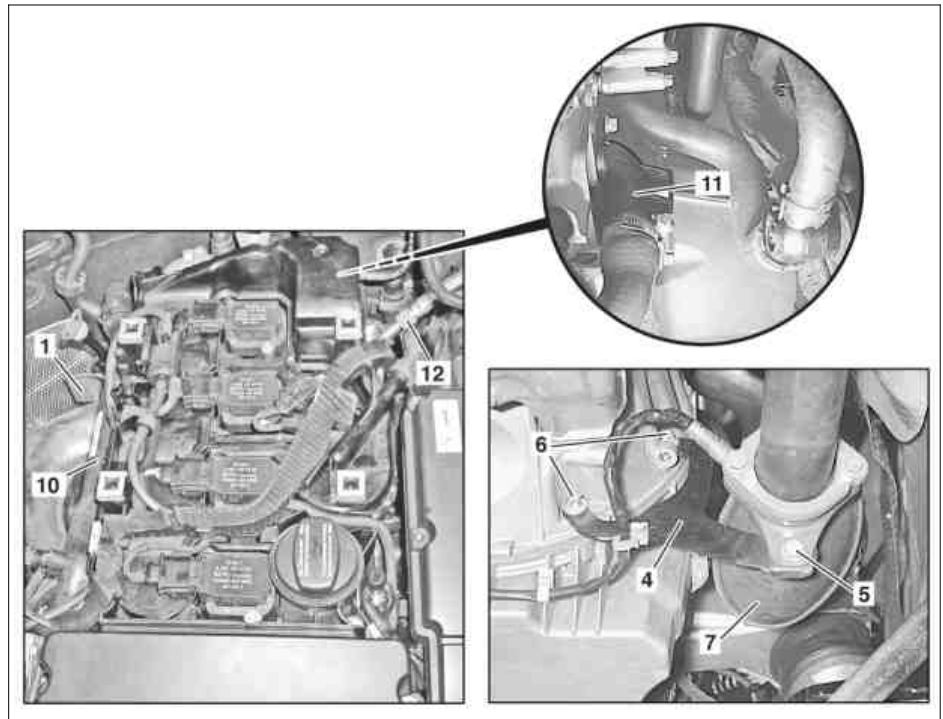


**ENGINES** 271.921 in MODEL 203  
**ENGINES** 271.940 in MODEL 203, 209  
**ENGINES** 271.946 in MODEL 203  
**ENGINES** 271.948 in MODEL 203  
**ENGINES** 271.955 in MODEL 209  
**ENGINES** 271.957 in MODEL 203

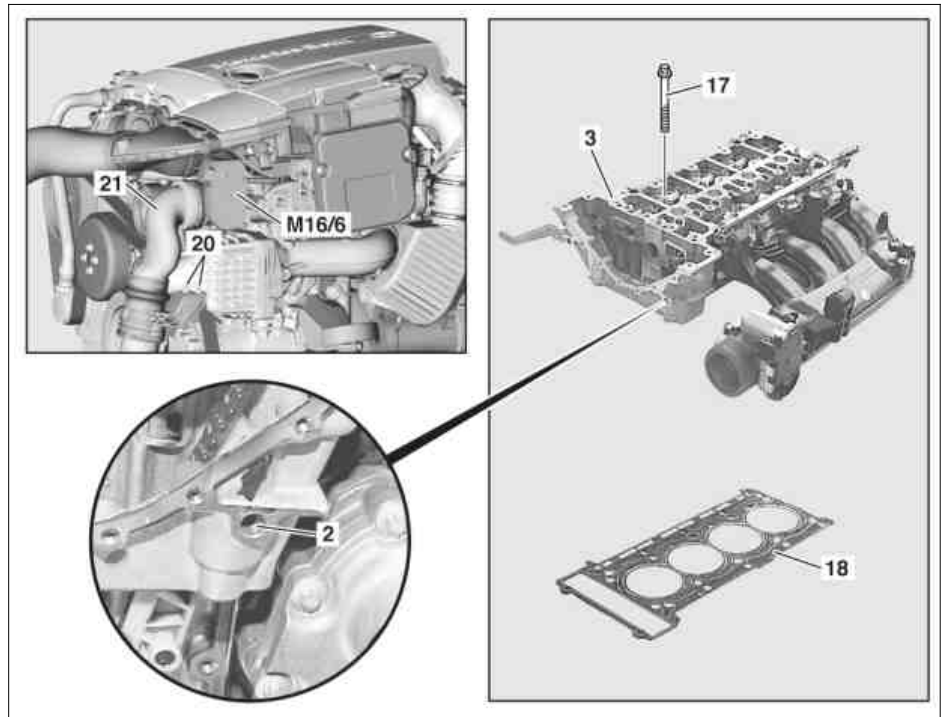
- 1 Heat shield
- 4 Bracket
- 5 Screw
- 6 Bolts
- 7 Exhaust manifold with catalytic converter
- 10 Coolant line
- 11 Coolant line
- 12 Fuel feed line



P01.30-2327-06


- 2 Slide rail pins
- 3 Cylinder head
- 17 Cylinder head bolts
- 18 Cylinder head gasket
- 20 Bolts
- 21 Inlet and pressure connection

M16/6 Throttle valve actuator





P01.30-2328-06

#### Modification notes

14.8.07	Remove chain tensioner not applicable; the  wedge is to be used to de-tension the timing chain	Step 4	
14.8.07	Remove tensioning rail - added	Steps 13, 14	

	<b>Remove/install</b>		
1 	Drain coolant at radiator and at crankcase Notes on coolant		AR20.00-P-1142PR AH20.00-N-2080-01A
2	Remove bolt (5), loosen bolts (6) and remove exhaust manifold with catalytic converter (7) from holder (4)	<b>Installation:</b> Replace bolt (5).   	*BA49.10-P-1001-01K *BA49.10-P-1010-01K
3	Remove air filter housing		AR09.10-P-1150Q
4	Remove camshaft housing	Use  wedge is to be used to de-tension the timing chain. 	AR05.20-P-6995QK  *271589003100
5	Remove hydraulic valve clearance compensation elements		AR05.00-P-2011QK
6	Remove heat shield (1)		*BA05.20-P-1004-03A
7	Detach exhaust manifold with catalytic converter (7) from cylinder head (3)	Only detach exhaust manifold with catalytic converter (7) and press to the side; do remove.	AR14.10-P-4095QK
8	Remove oil dipstick guide tube from cylinder head (3)		
9	Remove coolant lines (10, 11) from cylinder head (3)	 	*BA20.10-P-1003-01I  *BA20.10-P-1004-01I
10	Detach engine wiring harness		AR01.00-P-2410-02CW *BA01.30-P-1001-01J
11	Remove bolts (20) and detach suction and pressure connection (21) from throttle valve actuator (M16/6)		*BA09.41-P-1004-02A
12	Pull out slide rail bolt (2) at cylinder head	Use a screwdriver to remove plug.   	AR01.30-P-5800-04GS *116589203300 *116589013400 *605589003300
13	Remove wedge	<b>Installation:</b> Pull timing chain upwards while holding tensioned. 	   *271589003100
14	Remove tensioning rail		AR05.10-P-8127QK
15	Relieve fuel pressure		AR07.03-P-1460-01V *119589046300
16	Remove fuel feed line (12) from fuel distributor		*BA07.52-P-1002-01B
17	Loosen cylinder head bolts (17) in stages and unscrew	In order to avoid stresses in the cylinder head (3), loosen cylinder head bolts (17) when the engine has cooled down, in reverse order of the tightening instructions: ↓ Tightening specifications for cylinder head bolts  	AR01.30-P-5800-07QA  *BA01.30-P-1002-01J *BA01.40-P-1002-01G
18	Remove cylinder head (3)	<b>Installation:</b> Replace cylinder head gasket (18). When fitting on cylinder head (3), pay attention to guide bolts for fixing cylinder head (3).	
	<b>Clean</b>		
19	Clean sealing surfaces of cylinder head (3) and crankcase	Do not use any sharp-edged tools or abrasive paper as this will damage the sealing surfaces. Cleaner from package	  *BR00.45-Z-1028-04A
20	Check sealing surfaces on cylinder head (3) and crankcase for cracks and unevenness	The cylinder head (3) and the crankcase must not be post-worked (face grind), because the production tolerances must not be below the limit.	

21	Blow out the tapped holes of the cylinder head bolts (17) with compressed air and clean from oil and water		
22	Check cylinder head bolts (17), replace if required		AR01.30-P-5800-03HA *BE01.30-P-1001-04B
23	Install in the reverse order		
	<b>Check</b>		
24	Check engine oil level		
 <b>Danger!</b>	<b>Risk of accident</b> caused by vehicle starting off by itself when engine is running. <b>Risk of injury</b> caused by contusions and burns during starting procedure or when working near the engine as it is running	Secure vehicle to prevent it from moving by itself. Wear closed and snug-fitting work clothes. Do not touch hot or rotating parts.	AS00.00-Z-0005-01A
25	Check for oil leaks with engine running		

#### Cylinder head/cylinder head bolts

Number	Designation	Engine 271
BE01.30-P-1001-04B	Cylinder head bolt	Thread diameter M 10x1.5
		Length (L) when new mm 165
		Length (L) mm 167.5
		See picture -

#### Cylinder head

Number	Designation	Engine 271
BA01.30-P-1001-01J	Bolt, ground line to front cover	M6 Nm 8
BA01.30-P-1002-01J	Bolt, cylinder head	M10 Stage 1 Nm 45
		Stage 2 $\Delta^\circ$ 90
		Stage 3 $\Delta^\circ$ 90
		See picture -

#### Crankcase, timing case cover, end cover

Number	Designation	Engine 271
BA01.40-P-1002-01G	Bolt, cylinder head to timing case cover	Stage 1 Nm 20
		Stage 2 $^\circ\Delta$ -

**Nm** Camshaft bearing housing

Number	Designation	Engine 271
BA05.20-P-1004-03A	Shield to camshaft bearing housing	M6 Nm 8

**Nm** Fuel distributor

Number	Designation	Engine 271.9
BA07.52-P-1002-01B	Fuel feed line to fuel distributor	Nm 24

**Nm** Charge air duct

Number	Designation	Engine 271
BA09.41-P-1004-02A	Bolt connecting charge air duct downstream of charge air cooler to pressure damper	Nm 8

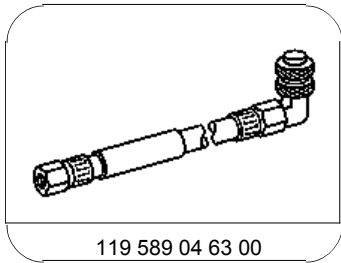
**Nm** Coolant pump, coolant thermostat

Number	Designation	Engine 271
BA20.10-P-1003-01I	Bolt, coolant thermostat housing at cylinder head	Nm 9
BA20.10-P-1004-01I	Bolt connecting coolant line to cylinder head	Nm 9

**Nm** Exhaust system

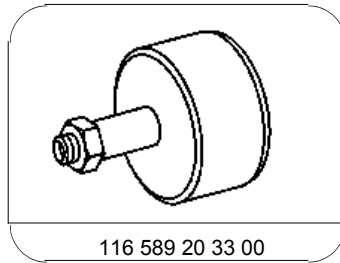
Number	Designation	Engine 271 in model 203/209
BA49.10-P-1001-01K	Bolt of exhaust bracket to transmission	Nm 20

BA49.10-P-1010-01K	Bolt connecting exhaust manifold with catalytic converter to bracket	Nm	20
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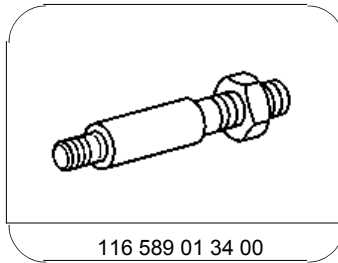
119 589 04 63 00

Pressure hose



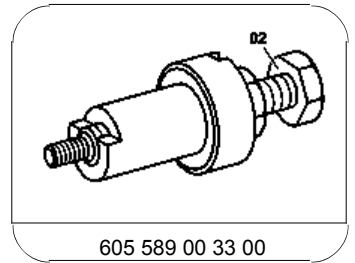
116 589 20 33 00

Impact extractor



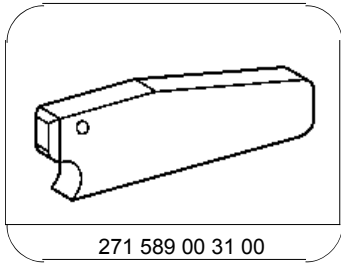
116 589 01 34 00

Threaded stud



605 589 00 33 00

Puller



271 589 00 31 00

Wedge

#### Repair materials

Number	Designation	Order number
BR00.45-Z-1028-04A	Cleaner from package	Adolf Würth GmbH & Co. KG Reinhold-Würth-Str. 12-17 74653 Künzelsau-Gaisbach Germany Tel. +49 7940 15-0 Fax +49 7940 15-1000 www.wuerth.de