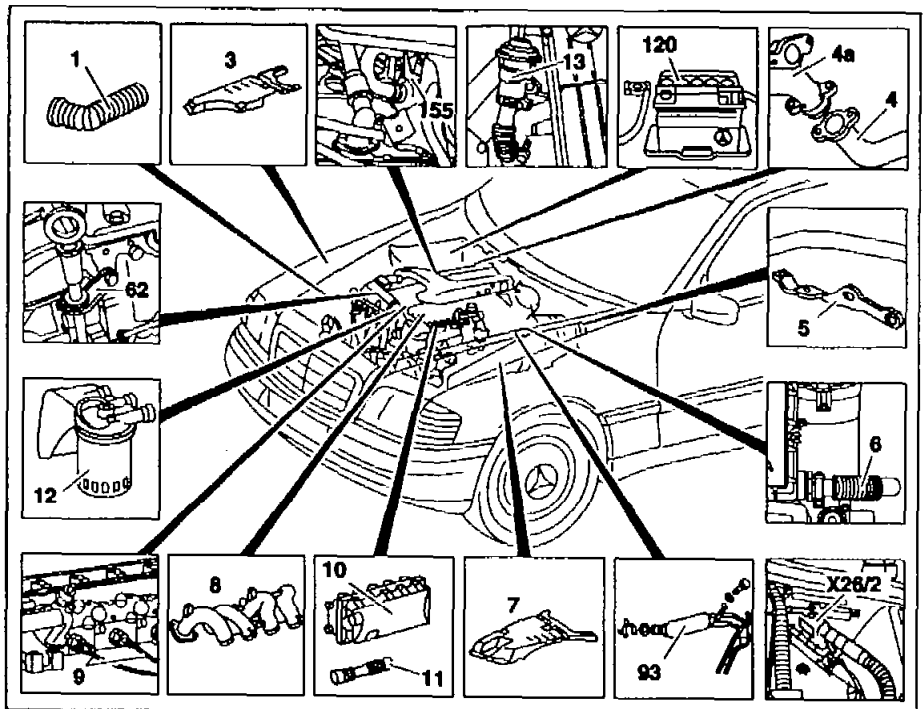


ENGINE 601 in MODEL 124, 201, 202
 ENGINE 602 in MODEL 124, 201
 ENGINE 603 in MODEL 124, 126, 140

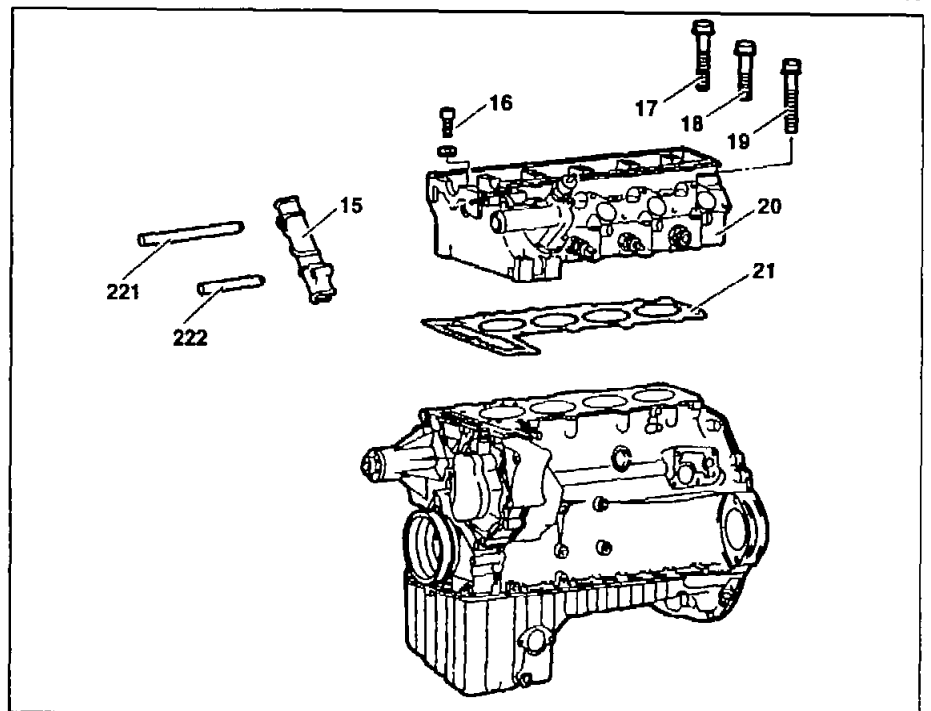
- 1 Intake hose
- 3, 7 Trim panel
- 4 Exhaust pipe
- 4a Exhaust manifold
- 5 Exhaust side support
- 6 Exhaust gas recirculation line
- 8 Intake manifold
- 9 Glow plug connection cable
- 10 Air cleaner
- 11 Air intake hose
- 12 Fuel filter
- 13 EGR valve
- 62 Bracket
- 93 Pipe elbow of heating feed line
- 120 Battery
- 155 Supporting strut

X26/2 Connector



P01.30-0363-06

- 15 Cylinder head slide rail
- 16 Hexagon socket bolts of cylinder head to timing case cover
- 17 Cylinder head bolts
- 18 Cylinder head bolts
- 19 Cylinder head bolts
- 20 Cylinder head
- 21 Cylinder head gasket
- 221 Slide rail pin
- 222 Slide rail pin



P01.30-0364-06

Modification notes

1.1.91	Cylinder head bolts modified	see step 24	AR01.30-P-5800HX
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	Removing, installing		
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⑫	Remove cylinder head only once engine has cooled down		
1	Remove camshaft	Installation: Inspect basic position of camshaft	05-220 AR05.20-P-6010HW
2	Remove nozzle holder	Naturally aspirated engine Turbo engine	07.1-230 07.1-6810
3	Remove radiator	Models 124, 126, 140, 201 Model 202	AR20.20-P-3865HW AR20.20-P-3865HA
4	Remove poly V-belt		AR13.25-P-3200HW
5	Disconnect ground cable at battery (120)		AR54.10-P-0003A
6.1	Remove air intake hose (11) and air filter cover (10) together with filter element	Naturally aspirated engine	
7.1	Take off trim panels (3, 7)	Model 140	
8.1	Detach intake hose (1) to turbocharger	Turbo engine	
9.1	Unbolt supporting strut (155) of heating return flow line	Turbo engine	
10.1	Unbolt turbocharger pressurized oil line at crankcase	Turbo engine	09-6020
11	Take off fuel filter (12)	Pinch off fuel line for this step and unscrew bolts to cylinder head.	
12	Unbolt bracket (62) of dipstick guide tube		
13.1	Take off pipe (6) between EGR valve and intake manifold or charge air distribution pipe, respectively	Engine with exhaust gas recirculation	
14.1	Detach EGR valve (13) line to air guide housing	Engine with exhaust gas recirculation	
15	Unbolt exhaust side support (5) at transmission		
16	Unbolt exhaust pipe (4) from exhaust manifold	Naturally aspirated engine Turbo engine	49-100 49-7000
17.1	Remove pipe elbow of heating feed at rear left cylinder head	Engines with exhaust gas recirculation Installation: Replace O-ring	
18	Unbolt glow plug connection cable (9)		
19.1	Unplug connector (X26/2)	Model 202	
20	Remove intake manifold (8) on naturally aspirated engine or charge air distribution pipe on turbo engine	Naturally aspirated engine Turbo engine	14-180 14-1310
21	Knock out slide rail pins (221, 222) at cylinder head	Installation: Coat collar of slide rail pins with sealant. 	AR01.30-D-5800-04B AR01.30-P-5800HX/5 116 589 20 33 00 116 589 01 34 00 605 589 00 33 00 BR00.45-Z-1010-01A



22	Take slide rail (15) of timing chain out of the chain housing		
23	Unscrew hexagon socket bolt (16) in chain housing		BA01.40-P-1002-01A
BT 24	Cylinder head bolts modified Unscrew cylinder head bolts (17, 18, 19) in reverse order of tightening diagram	 	BT01.30-P-0003-01A 601 589 00 10 00 AR01.30-P-5800-01HW AR01.30-P-5800HX/5 AR01.30-P-5800-03HA AR01.30-P-5800HX/6 BE01.30-P-1001-04A BA01.30-P-1003-01C
25	Take off cylinder head (20) together with cylinder head gasket (21)		Clean contact surfaces of cylinder head and inspect for cracks. Install cylinder head with new gasket.
26	Clean threaded holes of cylinder head bolts		blow out with compressed air
27.1	Remove oil in cooling and heating system		If oil present in cooling and heating system 20-016
28.1	Remove overflow tank, clean		If oil present in cooling and heating system Engine 602.96 in models 124, 201 Engine 603.96 in model 124 Engine 603 in model 140 AR20.30-P-4540HW AR20.30-P-4540HX
29	Install in the reverse order		
30	Inspect engine oil level, correct.		
31	Inspect cooling system for leaks		AR20.00-P-1010HA
Danger!	Risk of accident as a result of vehicle starting off when engine running. Risk of injury as a result of bruises and burns if you insert your hands into engine when it is being started or when it is running.		Secure vehicle to prevent it starting off. Wear closed and close-fitting work clothes. Do not grasp hot or rotating parts. AS00.00-Z-0005-01A AR01.30-P-5800HX/7
32	Run engine and inspect for leaks		
33	Read fault memory, erase.		AD00.00-P-1000AZ

Cylinder head/cylinder head bolts

Number	Designation	Engine 601, 602 except 602.98, 603	
BE01.30-P-1001-04A	Cylinder head bolt	Thread diameter	M 10
		Length (L) when new	mm 80/102/115
		max. length (L)	mm 82/104/117
		Fig. see	-

Nm Tightening torques of cylinder head

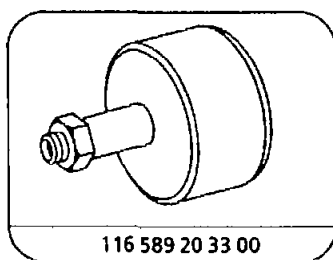
Number	Designation		Engine 601	Engine 602 except 602.98
BA01.30-P-1003-01C	Cylinder head bolt M10	1st stage	Nm 15	15
		2nd stage	Nm 35	35
		3rd stage	Δ° 90	90
		Settling time	min 10	10
		4th stage	Δ° 90	90
		Fig. see	-	-

Nm Tightening torques of cylinder head

Number	Designation		Engine 603
BA01.30-P-1003-01C	Cylinder head bolt M10	1st stage	Nm 15
		2nd stage	Nm 35
		3rd stage	Δ° 90
		Settling time	min 10
		4th stage	Δ° 90
		Fig. see	ra01006010415x

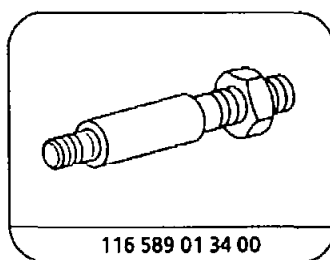
Nm Crankcase, timing case cover, end cover

Number	Designation		Engine 601, 602 except 602.98, 603
BA01.40-P-1002-01A	Bolt of cylinder head to timing case cover	Nm	25



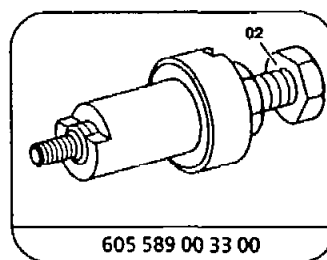
116 589 20 33 00

Impact extractor



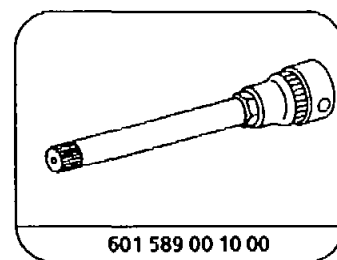
116 589 01 34 00

Threaded bolt



605 589 00 33 00

Extractor



601 589 00 10 00

Screwdriver bit

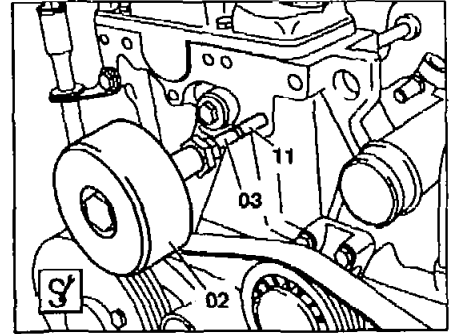
Repair products

Number	Designation	Order number
BR00.45-Z-1010-01A	Loctite 574 sealant	001 989 89 20

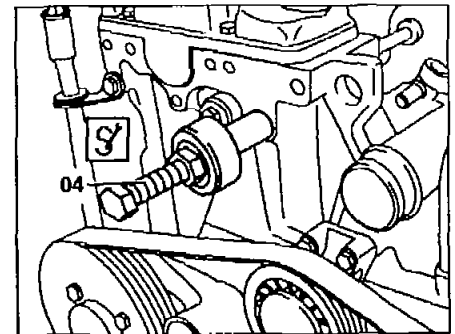


AR01.30-D-5800-04B	Removing slide rail bolts on cylinder head	<input checked="" type="checkbox"/> 116 589 20 33 00 Impact puller <input checked="" type="checkbox"/> 116 589 01 34 00 Threaded bolt <input checked="" type="checkbox"/> 605 589 00 33 00 Puller	
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A Use threaded insert (03) and impact extractor (02) to pull out slide rail bolt (11); insert threaded insert (03) into the slide rail bolt (11) and pull out with the impact extractor (02).



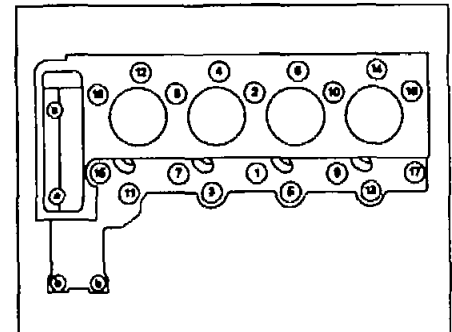
B Screw extractor (04) into slide rail bolt, turn bolt head and pull out slide rail bolt.



AR01.30-P-5800-01HW	Tightening diagram of cylinder head bolts		
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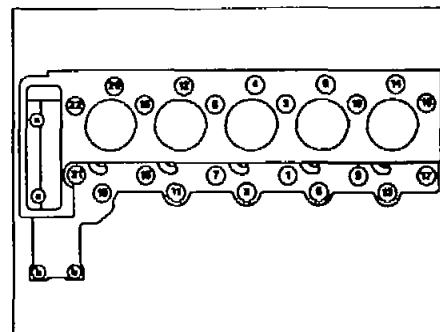
1 Slacken cylinder head bolts only once engine has cooled down.
 Slackening cylinder head bolts = in reverse order of tightening diagram
 Tightening cylinder head bolts = in order of tightening diagram
Engine 601 Bolt assignment

Bore	Bolt size
3, 5, 11, 13	M 10×80
2, 4, 6, 8, 10, 12, 14, 16, 18	M 10×102
1, 7, 9, 15, 17	M 10×115
a (chain housing area)	M 8×30
b (fuel filter)	M8×80



Engine 602 Bolt assignment

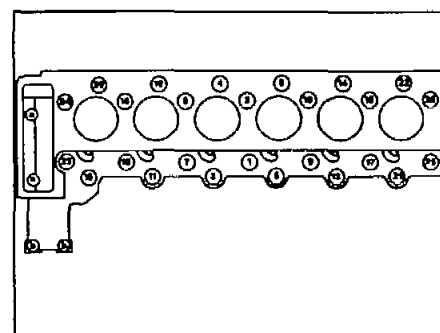
Bore	Bolt size
3, 5, 11, 13, 19	M 10×80
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22	M 10×102
1, 7, 9, 15, 17, 21	M 10×115
a (chain housing area)	M 8×30 or M 8×50
b (fuel filter)	M8×80



P01.30-0366-01

Engine 603 Bolt assignment

Bore	Bolt size
3, 5, 11, 13, 19, 21	M 10×80
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26	M 10×102
1, 7, 9, 15, 17, 21, 23, 25	M 10×115
a (chain housing area)	M 8×30 or M 8×50
b (fuel filter)	M8×80



P01.30-0367-01

AR01.30-P-5800-03HA	Checking cylinder head bolts		
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Cylinder head / Cylinder head bolts

Number	Designation	Engine 604, 605, 606	
BE01.30-P-1001-04A	Cylinder head bolts	Thread diameter	M 10
		Length (L) when new	mm 102/115
		Max. length (L)	mm 104/117
		Fig. see	AR01.30-5800-03HA

Cylinder head / Cylinder head bolts

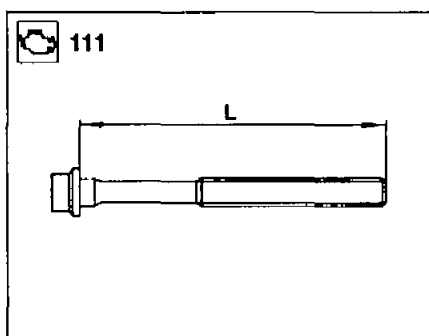
Number	Designation	Engine 111	
BE01.30-P-1001-04B	Cylinder head bolts	Thread diameter	M 12
		Length (L) when new	mm 102
		Max. length (L)	mm 105
		Fig. see	AR01.30-5800-03HA



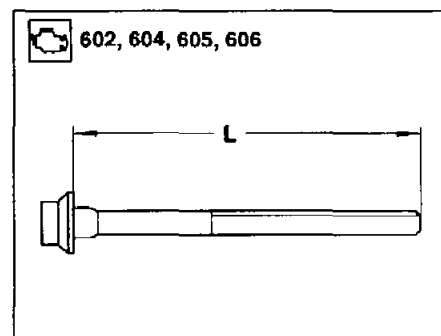
Test data of cylinder head bolts

Number	Designation	Engine 602.982/983	
BE01.30-N-1001-01A	Cylinder head bolts	Thread diameter	M 10
		Length (L) when new	mm 80 / 102 / 115
		Max. length (L)	mm 83.6 / 105.6 / 118.6
		Fig. see	AR01.30-P-5800-03HA

Measure length (L); if the length (L) exceeds the maximum permissible size, use new cylinder head bolts.



P01.30-0231-01



P01.30-0334-01

AS00.00-Z-0005-01A	Risk of accident as a result of vehicle starting off when engine is running. Risk of injury as a result of bruises and burns if you insert your hands into engine when it is being started or when it is running.	Secure vehicle to prevent it from moving off. Wear closed and close-fitting work clothes. Do not grasp hot or rotating parts.	Danger!
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Possible dangers

Risk of accident

from vehicle starting off during starting operation (e.g. when testing compression pressure) as a result of gear engaged or when engine running and vehicles with automatic transmission as a result of selector lever position "P" or "N" not engaged (exception: some vehicles do not have a selector lever position "P").

Risk of injury

Severe injuries may be caused by freely rotating parts in the area of the running engine. The heat produced by the engine when it is operating can result in severe burns if contact is made with individual, unshielded parts.

Rules of conduct / Protective measures

- As a general rule, carry out work on the running engine only if this is absolutely essential.
- Before starting the engine, apply parking brake.
- On models with manual transmission, move gearshift lever into Neutral position.
- On models with automatic transmission, move selector lever into position "P" or "N" (exception: some vehicles do not have a selector lever position "P").
- On models which do not have selector lever position "P", secure selector lever to prevent it from being operated unintentionally.
- Wear closed and close-fitting work clothes.
- Take off any jewelry, such as chains, rings etc.
- If you have long hair, wear a suitable head cover.
- Before commencing work on the running engine, check to obtain a general picture of the positioning of parts which may be hot.
- When carrying out work when starting the engine or when engine is running, do not touch any hot and rotating parts.



First aid measures in the event of burns

- Do not rub the skin areas affected; flush with plenty of cold water and cover skin with sterile bandages.
- Immediately consult a physician.

