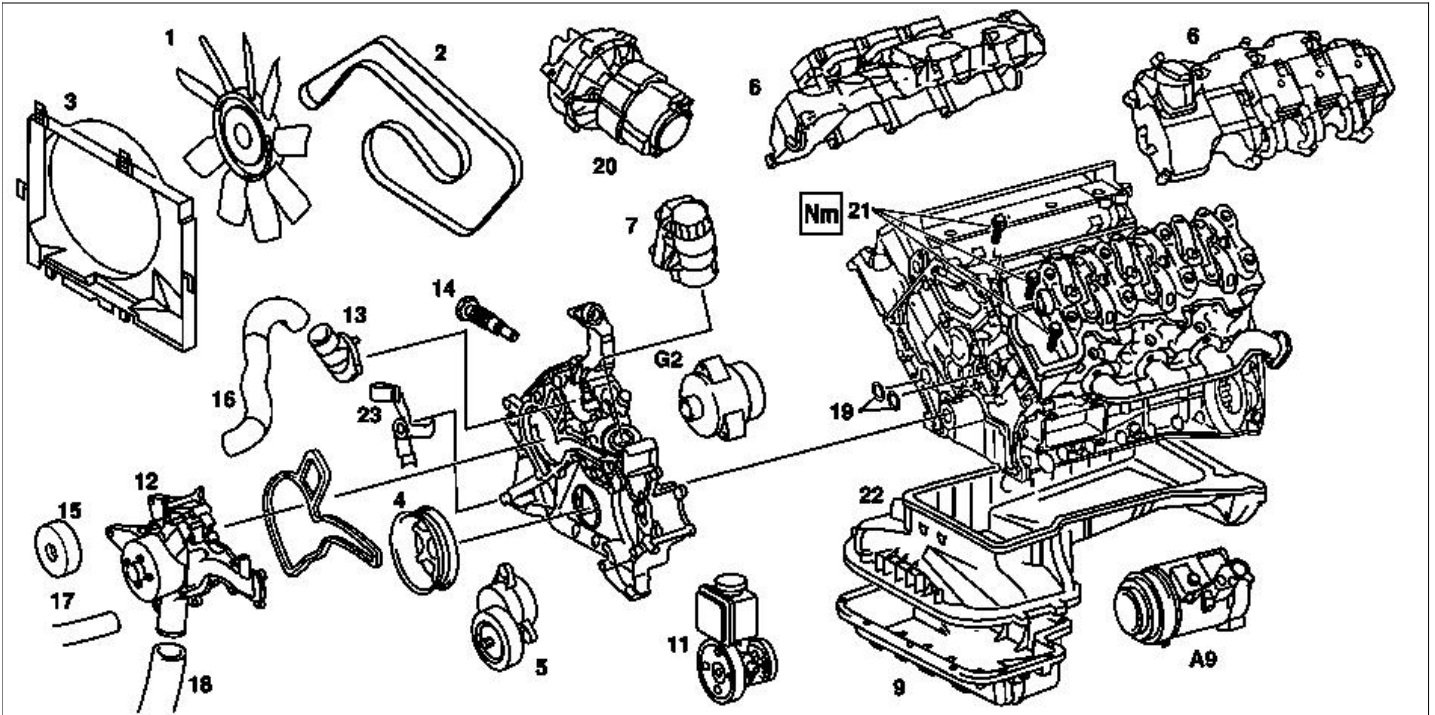


ENGINES 112 in MODEL 129, 163, 170, 202, 208, 210.061 /063 /065 /261 /263 /265 /663, 220

ENGINES 113 (except 113.991) in MODEL 129, 163, 202, 208, 210, 215, 220, 230.475 /474 (except 215.374, 220.074 /174)



P01.40-2097-09

Shown on engine 112 in model 210

1	Viscous fan clutch	9	Oil pan bottom section	18	Coolant line
2	Poly-V belt	11	Power steering pump	19	Timing case sealing rings
3	Fan shroud	12	Coolant pump	20	Air pump
4	Vibration damper	13	Thermostat housing	21	Screw/bolts
5	Poly-V belt tensioning device	14	Chain tensioner	22	Oil pan
6	Cylinder head covers	15	Guide pulley	23	ATF line bracket
7	Oil filter housing with oil-water heat exchanger	16	Coolant line	A9	Refrigerant compressor
		17	Coolant line	G2	Alternator

















Modification notes




1.9.04	Value changed from 10 Nm to 14 Nm	Value in row 1003 changed for engine 112.910/911/912/913/914/915/916/917/920/921/922/923/940/941/942/943/944/945/946/947/949/953/954/955/960/961/970/972/973/975	*BA20.10-P-1003-01M
	Value changed from 10 Nm to 14 Nm	Value in series 1004 altered for engine 112.910/911/912/913/914/915/916/917/920/921/922/923/940/941/942/943/944/945/946/947/949/953/954/955/960/961/970/972/973/975	*BA20.10-P-1004-01M

	Remove/install		
⚠	Danger!	Risk of explosion caused by oxyhydrogen gas. Risk of poisoning and caustic burns caused by swallowing battery acid. Risk of injury caused by burns to skin and eyes from battery acid or when handling damaged lead acid batteries	No fire, sparks, open flames or smoking. Wear acid-resistant gloves, clothing and glasses. Only pour battery acid into suitable and appropriately marked containers.
1	Disconnect battery ground line	Model 129, 163, 170, 202, 208, 210 Model 215, 220 Model 230.474 /475	AS54.10-Z-0001-01A AR54.10-P-0003A AR54.10-P-0003I AR54.10-P-0003R AH54.10-P-0001-01A
ⓘ	Notes on battery	All models	
2	Remove engine compartment paneling	Model 129, 202, 208, 210 Model 163.172/ 174/ 175	AR61.20-P-1105AB AR61.20-P-1105GH

		Model 170 Model 215, 220 Model 230	AR61.20-P-1105A AR61.20-P-1105M AR61.20-P-1105R
⚠ Danger!	Risk of injury to skin and eyes caused by scalding from contact with hot coolant spray. Risk of poisoning caused by swallowing coolant.	Do not open cooling system unless coolant temperature is below 90°C. Open cap slowly and release the overpressure. Do not pour coolant into beverage containers. Wear protective gloves, protective clothing and safety glasses.	AS20.00-Z-0001-01A
3	Drain coolant at radiator	Engine 112, 113 in model 129, 163, 202, 208, 210, 215, 220 Engine 113.963 in models 230.475 Engine 112.960 in model 170.466 Engine 113.992 in model 230.474 Engine 113.963 in models 230.475 Engine 112.947 in model 170.465 Engine 112.960 in model 170.466	AR20.00-P-1142HA AR20.00-P-1142RVK AR20.00-P-1142SV
4.1	Remove engine cover with integrated air filter	Model 129 Model 170.465 Model 202.033 / 093 Model 208.370/ 374/ 470 Model 220 Model 230.475 i Unclip covering on front side of engine. Remove engine cover with integrated air filter from the cylinder head covers vertically in the upward direction.	
4.2	Remove air filter	Engine 112.960 in model 170.466 Engine 113.992 in model 230.474	AR09.10-P-1150SVK
5.1	Remove viscous fan clutch (1)	Engine 112 in models 210, 202, 129 Engine 112 in model 163.154 /157 Engine 113 in model 210, 208, 202, 129 Engine 113 in model 163.172 i Right-hand thread!	AR20.40-P-5660C
6.1	Remove heater unit	Model 170.465 with retrofitted stationary heater Thermo Top C. * Not for USA, Canada, Mexico	AR83.70-P-5302NB
7.1	Remove fan shroud (3)	Engine 113 in model 215 Engine 112 in model 220 Engine 113 in model 220 Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	AR20.40-P-6800AB
7.2	Remove electric fan	i Model 163 unscrew screw/bolts at bottom of fan shroud. Engine 113.965 in model 163.175 Engine 113.981 in model 163.174 Engine 112.947 in model 170.465 Engine 112.960 in model 170.466	AR20.40-P-5000GH AR20.40-P-5000SV
8 WF	Attach guard plate for radiator/condenser Guard plate for radiator/condenser	Engine 112, 113, 137, 271, 272, 275, 285, 602, 604, 605, 606, 611, 612, 613, 628, 648	WF58.50-P-0110-01A
9.1	Remove poly-V belt for compressor	Engine 113.992 in model 230.474	AR13.21-P-1202RVK
9.2	Remove poly-V belt (2)	Engine 112 in model 129, 163 Engine 113 in model 129, 202, 208, 210 Engine 113 (except 113.965 /981) in model 163 Engine 112 in model 202, 208, 210 Engine 112 in model 220 Engine 113 in model 215.373 /375 Engine 113 in model 220.070 /073 /075 /083 /084 /170 /173 /175 /183 /184 /875 Engine 113.965 in model 163.175 Engine 113.981 in model 163.174 Engine 113.984 in model 208.374 /474 Engine 113.963 in models 230.475 Engine 113.992 in model 230.474 Engine 112.947 in model 170.465	AR13.22-P-1202B AR13.22-P-1202BA AR13.22-P-1202R AR13.22-P-1202SV
10	Remove cylinder head covers (6)	Engine 112, 113 air filter located on vehicle side Engine 112, 113 air filter located on engine side	AR01.20-P-5014B AR01.20-P-5014BV
11	Detach coolant line (17, 18) from coolant pump (12).		

12	Detach coolant line (16) at thermostat housing (13)		
13	Detach refrigerant compressor (A9)	 Place to one side with lines still connected. 	*BA83.55-P-1001-01A
14.1	Remove alternator (G2)	Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	AR15.40-P-5032R
15.1	Detach ATF line bracket (23).	Model 230	
15.2	Detach ATF line from front axle carrier	Model 163	
16	Remove oil pan bottom section (9)	Shown on engine 112.942 in model 163.154 Engine 112.970 in model 163.157 Engine 113.942 in model 163.172 Engine 113.965 in model 163.175 Engine 113.981 in model 163.174 Engine 112 in model 210, 208, 202, 170, 129, engine 113 in model 210, 208, 202, 129 Engine 112 (except 112.975) in model 220 Engine 113 (except 113.948 /966) in model 220 Engine 112.975 in model 220 Engine 113.948/ 966 in model 220 Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	AR01.45-P-7555V AR01.45-P-7555VE AR01.45-P-7555VA AR01.45-P-7555IW AR01.45-P-7555R
17.1	Remove oil pump	Engines 112, 113 in model 163	AR18.10-P-6020B
18.1	Remove oil pan (22)	ENGINE 112, 113 in model 129 Shown on engine 112.942 in model 163.154 Engine 112.970 in model 163.157 Engine 113.942 in model 163.172 Engine 113.965 in model 163.175 Engine 113.981 in model 163.174 Engine 112.947 in model 170.465 with transmission 722.6 Engine 112.960 in model 170.466 with transmission 722.6 Engine 112 in model 202, 208 Engine 113 in model 208 Engine 113.944 in model 202.033 /093 Engine 112 in model 210.06 /26 /66 Engine 113 in model 210 Engine 112 (except 112.975) in model 220 Engine 113 (except 113.948 /966) in model 220 Engine 112.975 in model 220 Engine 113.948/ 966 in model 220 Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	AR01.45-P-7500FD AR01.45-P-7500FB AR01.45-P-7500SV AR01.45-P-7500FC AR01.45-P-7500F AR01.45-P-7500I AR01.45-P-7500IW AR01.45-P-7500R
19.1	Remove tensioning device for compressor poly-V belt	Engine 113.992 in model 230.474	AR13.25-P-3217RVK
20	Remove poly-V belt tensioning device (5)	Engine 112 in model 129, 163 Engine 113 in model 129, 202, 208, 210 Engine 113 (except 113.965 /981) in model 163  Model 129, 202, 210 with manual transmission. Unscrew damper for belt tensioning device at coolant pump. Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	AR13.25-P-3200B AR13.25-P-3200R
21	Remove vibration damper (4)	Engine 112 in model 129, 163 Engine 113 in model 129, 202.033 /093 Engine 113 (except 113.981) in model 163 Engine 113 (except 113.980) in model 210 Engine 113 (except 113.984) in model 208 Engine 112.947 in model 170 Engine 112 in model 202, 208, 210, 220 Engine 113.981 in model 163.174 Engine 113 (except 113.991) in model 215, 220 Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	AR03.30-P-1600C AR03.30-P-1600CA AR03.30-P-1600RVK
22	Remove chain tensioner (14)	Engine 112 in model 129, 163 Engine 113 (except 113.965 /981) in model 163 Engine 113 in model 129, 202, 208, 210	AR05.10-P-7800C

		Engine 112 in model 170, 202, 208, 210 Engine 113 in model 163.174 /175 Engine 112 in model 220 Engine 113 in model 215.373 /375 Engine 113 in model 220.070 /073 /075 /083 /084 /170 /173 /175 /183 /184 /875 Engine 113 in model 230.474 /475	AR05.10-P-7800CA AR05.10-P-7800AM
23.1	Remove oil filter housing	Engine 113.992 in model 230.474	AR18.20-P-3471RKV
23.2	Remove oil filter housing with oil-water heat exchanger (7)	Engine 112 in model 170, 202, 208, 210, 220 Engine 113 in model 220 Engine 113.963 in models 230.475 Engine 113.965 in model 163.175 Engine 113.981 in model 163.174 Engine 112 in model 129, 163 Engine 113 in model 129, 202, 208, 210 Engine 113 (except 113.965/981) in model 163	AR18.20-P-3471BA AR18.20-P-3471B
24.1	Remove oil reservoir on power steering pump (11)  AP Power steering - checking and correcting oil level	Model 163  Removal: Extract oil from reservoir. Remove retaining ring.  Installation: Replace sealing ring. Check that retaining ring is correctly seated.  Hand pump	AP46.00-P-4611BB *210589007100
24.2	Detach power steering pump (11) with oil reservoir.	 Do not disconnect lines.   	*BA46.30-P-1005-01A *BA46.30-P-1010-01A *BA46.30-P-1010-01C
25.1	Remove guide pulley at timing case cover	Model 230.474 	*BA13.25-P-1008-01D
25.2	Remove guide pulley (15) at coolant pump	 Except model 230.474 Take plastic cover off guide pulley.  	*BA20.10-P-1001-01C *BA20.10-P-1001-01M
26.1	Remove compressor	Engine 112.960 in model 170.466 Engine 113.992 in model 230.474	AR09.50-P-4705SVK
27	Remove air pump (20)	Engine 112 (except 112.960) in model 170 Engine 112 in 163, 202, 208, 210 Engine 113 in 163, 202, 208, 210 Engine 112.922 in model 220.063 Engine 112.923 in model 129.059 Engine 112.943 in model 129.064 Engine 112.944 in model 220.065 /165 Engine 112.972 in model 220.067 /167 Engine 112.975 in model 220.087 /187 Engine 113.941 in model 220.070 /170 Engine 113.948 in model 220.083 /183 Engine 113.960 in model 220.075/ 175 Engine 113.960 in model 215.375 Engine 113.961 in model 129.068 Engine 113.963 in models 230.475 Engine 113.966 in model 220.084 /184 Engine 113.992 in model 230.474	AR14.30-P-7251A AR14.30-P-7251AA AR14.30-P-7251RVK
28	Separate electrical line from coolant temperature sensor		
29	Remove screw/bolts (21) of cylinder head to timing case cover on right and left		*BA01.40-P-1002-01C
30	Remove screw/bolts of the timing case cover	 Installation: Apply sealant to marked screw/bolts, observing the bolt plan for the timing case cover: ↓ Bolt plan for timing case cover engine 112, 113 Bolt plan for timing case cover engine 113.992  	*BR00.45-Z-1013-01A AR01.40-P-8000-01B AR01.40-P-8000-01RVK *BA01.40-P-1001-01C *BA01.40-P-1002-01C

		All except model 215, 220: code radio and normalize power window. Vehicles with stationary heater: adjust time display on stationary heater.	
37.1	Read out fault memory and erase	All except model 215, 220, 230  Stored faults which can result from lines being removed or from simulation during removal and installation or test work, have to be processed and erased in the fault memories after completing the work: ↓ Diagnosis Manual Volume 2 Index 0: connecting and using testing supplies.	
37.2 	Read out fault memory with STAR DIAGNOSIS and erase if necessary Connect STAR DIAGNOSIS and read out fault memory	Model 220, 230 STAR DIAGNOSIS diagnosis system  Stored faults which can result from removal and installation or test work, have to be processed and erased in the fault memories after completing the work.	AD00.00-P-2000-04A

 **Cylinder crankcase, timing case cover, end cover**

Number	Designation		Engine 112 except 112.951 / 976	Engine 112.951/ 976
BA01.40-P-1001-01C	Timing case cover to cylinder crankcase	Nm	20	20
BA01.40-P-1002-01C	Screw/bolt, cylinder head to timing case cover	Nm	20	20

 **Cylinder crankcase, timing case cover, end cover**

Number	Designation		Engine 113.940/941/ 942/943/944/ 948/960/961/ 962/963/964/ 965/966/967/ 968/969/971/ 980/981/982/ 984/986/992/ 995
BA01.40-P-1001-01C	Timing case cover to cylinder crankcase	Nm	20
BA01.40-P-1002-01C	Screw/bolt, cylinder head to timing case cover	Nm	20

 **Cylinder crankcase, timing case cover, end cover**

Number	Designation	Engine 113.987/ 988/990/ 991/993
BA01.40-P-1001-01C	Timing case cover to cylinder crankcase	Nm 20
BA01.40-P-1002-01C	Screw/bolt, cylinder head to timing case cover	Nm 20

Nm Belt tensioning device

Number	Designation	Engine 112.910/911/912/ 913/914/915/ 916/917/920/ 921/922/923/ 940/941/942/ 943/944/945/ 946/947/949/ 953/954/955/ 960/961/970/ 972/973/975
BA13.25-P-1001-01M	Self-tapping screw of belt tensioner to timing case cover	Thread not pre-tapped Nm 35
		Thread pre-tapped Nm 25

Nm Belt tensioning device

Number	Designation	Engine 113.940/941/ 942/943/944/ 945/946/948/ 960/961/962/ 963/964/965/ 966/967/968/ 969/971/980/ 981/982/984/ 986/987/988	Engine 113.990/ 991/992/ 993/995
BA13.25-P-1001-01D	Self-tapping screw of belt tensioner to timing case cover	Thread not pre-tapped Nm 35	35
		Thread pre-tapped Nm 25	25
BA13.25-P-1005-01D	Screw/bolt, belt tensioner to timing case cover	M7×25 Nm 35	35
BA13.25-P-1006-01D	Self-tapping screw for compressor belt tensioner to timing case cover	Thread not pretapped Nm -	35

		Thread pretapped	Nm	-	25
BA13.25-P-1007-01D	Bracket for charge air cooler water pipes		Nm	7	14
BA13.25-P-1008-01D	Screw/bolt, guide pulley for compressor and major assembly belts to timing case cover	M8×78	Nm	-	68

Nm Coolant pump, coolant thermostat

Number	Designation	Engine 113.940/941/ 942/943/944/ 945/946/948/ 960/961/962/ 963/965/966/ 967/968/969/ 980/981/982/ 984/986/992 993/995
BA20.10-P-1001-01C	Self-tapping screw, connecting coolant pump to timing case	Thread not pre-tapped M6 Nm 14
		Thread not pre-tapped M8 Nm 35
		Thread pre-tapped M6 Nm 10
		Thread pre-tapped M8 Nm 25
BA20.10-P-1002-01C	Belt pulley on coolant pump	Nm 10
BA20.10-P-1003-01C	Screw/bolt for coolant thermostat housing	M6 Nm 10
BA20.10-P-1004-01C	Coolant pump on timing case	M7 Nm 10

Nm Coolant pump, coolant thermostat

Number	Designation	Engine 112.910/911/912/ 913/914/915/ 916/917/920/ 921/922/923/ 940/941/942/ 943/944/945/ 946/947/949/ 953/954/955/ 960/961/970/ 972/973/975
BA20.10-P-1001-01M	Self-tapping screw, connecting coolant pump to timing case	Thread not pre-tapped M6 Nm 14

		Thread not pre-tapped	M8	Nm	35
		Thread pre-tapped	M6	Nm	10
		Thread pre-tapped	M8	Nm	25
BA20.10-P-1002-01M	Belt pulley on coolant pump			Nm	9
BA20.10-P-1003-01M	Screw/bolt for coolant thermostat housing		M6	Nm	14
BA20.10-P-1004-01M	Coolant pump on timing case		M7	Nm	14

Nm Power steering pump

Number	Designation		Model 170
BA46.30-P-1005-01A	Screw/bolt, power steering pump to cylinder liner collar seat or Cylinder crankcase	Nm	25

Nm Power steering pump

Number	Designation		Model 208.365/370 374/465/ 470/474	Model 210.061/062/063/ 065/070/074/ 081/082/083/ 261/262/263/ 265/270/274/ 281/282/283/ 663
BA46.30-P-1010-01A	Self-tapping screw, power steering pump to timing case	Thread not pre-tapped	Nm 35	35
		Thread pre-tapped	Nm 20	20

Nm Power steering pump

Number	Designation		Model 202.026/029/ 033/086/088/089/ 093	Model 129.059/ 064/068
BA46.30-P-1010-01A	Self-tapping screw, power steering pump to timing case	Thread not pre-tapped	Nm 35	35
		Thread pre-tapped	Nm 20	20

Nm Power steering pump

Number	Designation		Model 215.374/ 375/378/ 379	Model 220.083/08 4/087/183/1 84/187	Model 220.063/065/ 067/070/073/ 075/163/165/ 167/170/173/ 175/875 without code 487a	
BA46.30-P-1010-01C	Self-tapping screw, power steering pump to timing case	Thread not pre-tapped	Nm	35	35	35
		Thread pre-tapped	Nm	20	20	20

Nm Power steering pump

Number	Designation		Model 230 with engine 113
BA46.30-P-1002-01S	Self-tapping screw tandem pump/power steering pump to timing case	Thread not pre-tapped	Nm 35
		Thread pre-tapped	Nm 20

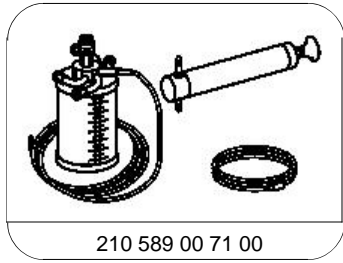
Nm Refrigerant compressor

Number	Designation		Engine 112, 113 in model 129	Engine 111, 112, 113, 612, 628 in model 163	Engine 112 in model 170	Engine 112, 113 in model 202, 208, 210
BA83.55-P-1001-01A	Screw/bolt, refrigerant compressor to bracket	Nm	20	20	20	20

Nm Refrigerant compressor

Number	Designation		Engine 113 in model 203, 209, 211, 219, 220	Engine 113 in model 215	Engine 112 in model 220	Engine 113 in model 230

BA83.55-P-1001-01A	Screw/bolt, refrigerant compressor to bracket	Nm	20	20	20	20
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Hand pump

Repair materials

Number	Designation	Order number
BR00.45-Z-1013-01A	Loctite 5970 sealant	A 003 989 98 20
BR00.45-Z-1038-04A	Loctite 7200	Henkel Loctite Deutschland GmbH Arabellastrasse 17 81925 München Germany Tel. +49 899268-0 Fax + 49 899101978 www.Loctite.de
BR00.45-Z-1046-04A	Loctite 7063 cleaning spray (150 ml)	A 001 986 71 71 10