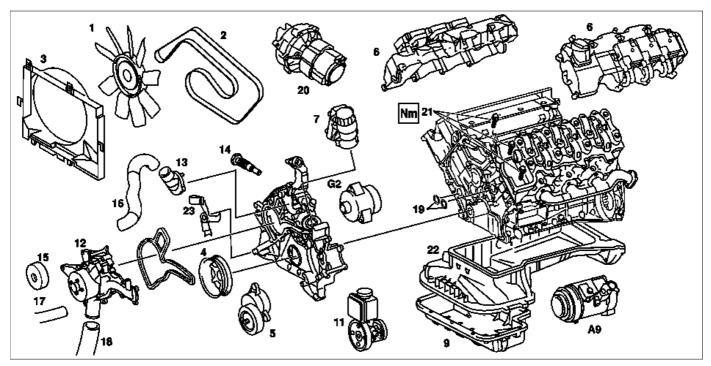
Document title Remove/install timing case cover

**Document number** ar0140p8000b

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
- 2 Poly-V belt
- 3 Fan shroud
- 4 Vibration damper
- 5 Poly-V belt tensioning device
- 6 Cylinder head covers
- 7 Oil filter housing with oil-water heat exchanger
- 9 Oil pan bottom section
- 11 Power steering pump
- 12 Coolant pump
- 13 Thermostat housing
- 14 Chain tensioner
- 15 Guide pulley16 Coolant line
- 17 Coolant line

- 18 Coolant line
- 19 Timing case sealing rings
- 20 Air pump
- 21 Screw/bolts
- 22 Oil pan
- 23 ATF line bracket
- A9 Refrigerant compressor
- G2 Alternator

#### **Modification notes**

1.9.04	Value changed from 10 Nm to 14 Nm	Value in row 1003 changed for engine	*BA20.10-P-1003-01M
		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	
	Value changed from 10 Nm to 14 Nm	Value in series 1004 altered for engine	*BA20.10-P-1004-01M
		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	

XX	Remove/install		
	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.	AS54.10-Z-0001-01A
1	Disconnect battery ground line	Model 129, 163, 170, 202, 208, 210	AR54.10-P-0003A
		Model 215, 220	AR54.10-P-0003I
		Model 230.474 /475	AR54.10-P-0003R
<b>!</b>	Notes on battery	All models	AH54.10-P-0001-01A
2	Remove engine compartment paneling	Model 129, 202, 208, 210	AR61.20-P-1105AB
		Model 163.172/ 174/ 175	AR61.20-P-1105GH
		Model 170	AR61.20-P-1105A
		Model 215, 220	AR61.20-P-1105M
		Model 230	AR61.20-P-1105R

	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	AS20.00-Z-0001-01A
3	Drain coolant at radiator	and safety glasses. Engine 112, 113 in model 129, 163, 202, 208, 210, 215, 220	AR20.00-P-1142HA
		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	AR20.00-P-1142RVK
		Engine 112.947 in model 170.465 Engine 112.960 in model 170.466	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	
		Li 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	AR20.40-P-5000GH AR20.40-P-5000SV
3	Attach guard plate for radiator/condenser	Engine 112.960 in model 170.466	A1120.40-1 -30003 V
₩F	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	AR13.22-P-1202B
		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	AR13.22-P-1202BA
		Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	AR13.22-P-1202R
10	Remove cylinder head covers (6)	Engine 112.947 in model 170.465 Engine 112, 113 air filter located on vehicle	AR13.22-P-1202SV AR01.20-P-5014B
	Tiemore dymidel fledd 607615 (b)	side Engine 112, 113 air filter located on engine side	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)	i 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	AR15.40-P-5032R
		Engine 113.992 in model 230.474	

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	AR01.45-P-7555V
		Engine 113.942 in model 163.172 Engine 113.965 in model 163.175 Engine 113.981 in model 163.174	AR01.45-P-7555VE
		Engine 113.981 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	AR01.45-P-7555VA
		Engine 112.975 in model 220 Engine 113.948/ 966 in model 220	AR01.45-P-7555IW
		Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	AR01.45-P-7555R
7.1	Remove oil pump	Engines 112, 113 in model 163	AR18.10-P-6020B
8.1	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	AR01.45-P-7500FD AR01.45-P-7500FB
		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	AR01.45-P-7500SV
		Engine 112 in model 202, 208 Engine 113 in model 208 Engine 113.944 in model 202.033 /093	AR01.45-P-7500FC
		Engine 112 in model 210.06 /26 /66 Engine 113 in model 210	AR01.45-P-7500F
		Engine 112 (except 112.975) in model 220 Engine 113 (except 113.948 /966) in model 220	AR01.45-P-7500I
		Engine 112.975 in model 220 Engine 113.948/ 966 in model 220	AR01.45-P-7500IW
		Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	AR01.45-P-7500R
9.1	Remove tensioning device for compressor poly-V belt	Engine 113.992 in model 230.474	AR13.25-P-3217RVK
0	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  i Model 129, 202, 210 with manual	AR13.25-P-3200B
		transmission. Unscrew damper for belt tensioning device at coolant pump. Engine 113.963 in models 230.475	AR13.25-P-3200R
		Engine 113.992 in model 230.474	
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	AR03.30-P-1600C AR03.30-P-1600CA
		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-1600RVK
22	Remove chain tensioner (14)	Engine 112 in model 129, 163 Engine 113 (except 113.965 /981) in model 163	AR05.10-P-7800C
		Engine 113 in model 129, 202, 208, 210 Engine 112 in model 170, 202, 208, 210 Engine 113 in model 163.174 /175	AR05.10-P-7800CA
		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-7800AM
3.1	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	AR18.20-P-3471BA

		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-3471B
24.1	Remove oil reservoir on power steering pump	Model 163	
ræa D	(11)	Removal: Extract oil from reservoir. Remove retaining ring.      Installation: Replace sealing ring. Check that retaining ring is correctly seated.	AD40 00 D 4011DD
<b>₩</b> AP	Power steering - checking and correcting oil level	Hand pump	AP46.00-P-4611BB *210589007100
24.2	Detach power steering pump (11) with oil	i Do not disconnect lines.	
	reservoir.	Nm	*DA 40 00 D 400F 04A
		Nm	*BA46.30-P-1005-01A *BA46.30-P-1010-01A
		Nm	*BA46.30-P-1010-01C
25.1	Remove guide pulley at timing case cover	Model 230.474	2777010077707070
		Nm	*BA13.25-P-1008-01D
25.2	Remove guide pulley (15) at coolant pump	i Except model 230.474 Take plastic cover off guide pulley.	*BA20.10-P-1001-01C
26.1	Pomovo gemproces	Nm	*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	AR14.30-P-7251A AR14.30-P-7251AA
		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-7251RVK
28	Separate electrical line from coolant	Engine 110.002 in model 200.474	ATTI001 1231TVIX
29	temperature sensor  Remove screw/bolts (21) of cylinder head to	Nm	*BA01.40-P-1002-01C
	timing case cover on right and left		D71011101 1002 010
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: ↓	*BR00.45-Z-1013-01A
		Bolt plan for timing case cover engine 112, 113  Bolt plan for timing case cover engine	AR01.40-P-8000-01B AR01.40-P-8000-01RVK
		113.992	Anu1.40-F-0000-01nVK
		Nm	*BA01.40-P-1001-01C
		Nm	*BA01.40-P-1002-01C
31	Take off timing case cover	installation: The bolt threads for the coolant pump, the belt tensioning device, and the power steering pump are not cut into a new timing case cover. For this reason, use new self-tapping screws in combination with a new timing case cover for mounting the coolant pump, the belt tensioning device and the power steering pump. Pay attention to tightening torque with non-pretapped threads.	*BA13.25-P-1001-01D *BA13.25-P-1001-01M *BA13.25-P-1005-01D *BA13.25-P-1006-01D *BA13.25-P-1007-01D *BA20.10-P-1001-01C
		Nm	*BA20.10-P-1001-01M
		Nm	*BA20.10-P-1002-01C

		Nm	*BA20.10-P-1002-01M
		Nm	*BA20.10-P-1003-01C
		Nm	*BA20.10-P-1003-01M
	+	Nm	*BA20.10-P-1004-01C
		Nm	*BA20.10-P-1004-01M
		Nm	*BA46.30-P-1010-01A
		Mm	*BA46.30-P-1010-01C
		Nm	*BA46.30-P-1002-01S
		i Installation: Only apply sealant on the	*BR00.45-Z-1013-01A
		specified surfaces in the form of a bead with a height and width of 2.0 mm $\pm$ 0.5 mm. The	
		sealant must be applied within 10 minutes!	
		The silicone bead must not be spread!	
<b>(3)</b>	Notes on sealant path for timing case cover		AH01.40-P-1000-01B
		Installation: If sealant enters the oil	
		ducts, this is carried by the oil flow and will	
		clog the oil supply bores.	
		<ul> <li>Do not damage cylinder head gasket.</li> <li>Replace sealing rings on timing case (19).</li> </ul>	
		- Replace front crankshaft radial sealing	
		ringing ring: \	
		Engine 112 in model 129	AR03.20-P-3000B
		Engine 113 in model 129 Engine 113 in model 163, 202, 208, 210	
		Engine 113 in model 163, 202, 208, 210 Engine 112 in model 170, 202, 208, 210, 220	AR03.20-P-3000BA
		ENGINE 113 in MODEL 215, 220	711100.201 0000271
		Engine 113.981 in model 163.174	
		Engine 113.963 in models 230.475 Engine 113.992 in model 230.474	
	Clean	Lingine 113.992 in model 230.474	
32	Clean sealing surfaces	(IS) Do	AR01.00-P-0050-01A
52	Olean Sealing Surfaces	Do not use any sharp-edged tools or abrasive paper as this will damage the sealing	
		surfaces.	
		Loctite 7200	*BR00.45-Z-1038-04A
		Loctite 7063 cleaning spray (150 ml)	*BR00.45-Z-1046-04A
33	Install in the reverse order		
	Risk of accident caused by vehicle starting off by itself when engine is running. Risk of	Secure vehicle to prevent it from starting off by itself.	AS00.00-Z-0005-01A
	injury caused by contusions and burns from	Wear closed and snug-fitting work clothes.	
	o o	Do not touch hot or rotating parts.	
0.4	when the engine us running		
34 35	Check for leaktightness with engine running	First warm up applies to appreting	
35	Check cooling system for leaktightness	First warm up engine to operating temperature.	
		Engine 112 (except 112.947 /960)	AR20.00-P-1010HA
		Engine 113 (except 113.992 /963)	
		Engine 112 in Model 170	AR20.00-P-1010P
36	Perform basic programming	Model 215, 220	AR00.19-P-0200M
		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	
		i 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	Model 220, 230	
I( <del>S</del> A ►	DIAGNOSIS and erase if necessary		AD00 00 D 0000 044
<b>⊯</b> AD	Connect STAR DIAGNOSIS and read out fault memory		AD00.00-P-2000-04A
	,	STAR DIAGNOSIS diagnosis system	
		i Stored faults which can result from	
			I
		removal and installation or test work, have to	
		removal and installation or test work, have to be processed and erased in the fault memories after completing the work.	

 $<sup>\</sup>overline{\rm ^{Nm}}$  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	lm	20	20
BA01.40-P-1002-01C	Screw/bolt, cylinder head to timing case cover	lm	20	20

# $\overline{\rm Nm}$ 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

# $\overline{\rm Nm}$ 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/ 184/187	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	n 35	35	35
		Thread pre-tapped Nr	n 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

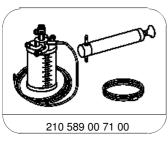
## Nm Refrigerant compressor

Number	Designation	Engine	Engine	Engine	Engine
		112, 113 in model 129	111, 112, 113, 612, 628 in model 163	112 in model 170	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



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