

















Engine	112.913 in model 211.061/261
Engine	112.917 in model 211.080/280
Engine	112.922 in model 220.063/163
Engine	112.944 in model 220.065/165
Engine	112.949 in model 211.065/265
Engine	112.954 in model 211.082/282
Engine	112.972 in model 220.067/167
Engine	112.973 in model 230.467
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 215.375, 220.875
Engine	113.960 in model 220.075/175
Engine	113.963 in model 230.475
Engine	113.966 in model 220.084/184
Engine	113.967 in model 211.070/270
Engine	113.969 in model 211.083/283
Engine	113.986 in model 215.373
Engine	113.986 in model 220.073/173
Engine	113.990 in model 211.076/276
Engine	113.991 in model 215.374
Engine	113.991 in model 220.074/174
Engine	113.992 in model 230.474
Engine	113.995 in model 230.472
Engine	137.970 in model 215.378, 220.178/878
Engine	271.941 in model 211.042/242
Engine	271.956 in model 211.041/241
Engine	272.922 in model 211.052/252
Engine	272.943 in model 211.054/254
Engine	272.944 in model 211.092/292
Engine	272.964 in model 211.056/256
Engine	272.972 in model 211.087/287
Engine	272.985 in model 211.057/257
Engine	273.960 in model 211.072/272
Engine	273.962 in model 211.090/290

Modification notes

26.09.2014	Mischungsverhältnis Kühlmittel		BF20.00-P-1001-04A
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	Risk of death caused by vehicle slipping or toppling off of the lifting platform.	Align vehicle between vehicle lift columns and position the four support plates at the vehicle lift support points specified by the vehicle manufacturer.	AS00.00-Z-0010-01A
	Risk of injury to skin and eyes suffering scalding from contact with hot coolantspray. Risk of poisoning from swallowing coolant.	Do not open cooling system unless coolant temperature is below 90 °C. Open cap slowly and release the pressure. Do not pour coolant into beverage containers. Wear protective gloves, protective clothing and safety glasses.	AS20.00-Z-0001-01A
	Notes on coolant		AH20.00-N-2080-01A
	Remove		
1	Switch off ignition		
2	Open engine hood	MODEL 211 MODEL 215, 220 MODEL 230	AR88.40-P-1000T AR88.40-P-1000M AR88.40-P-1000R
	Check		
3.1	Check coolant level	MODEL 211	AP20.30-P-2050KN
3.2	Check coolant level	MODEL 215, 220, 230  Coolant cold. Engine coolant level up to	

		 Coolant warm: Engine coolant level approx. 1 cm above marking "Cold water level". If coolant level is too low: ↓ Subject to separate repair order, check cooling system for leaktightness.	
	Remove		
4	Drain coolant	ENGINE 112, 137, 113 except 113.963, 113.991 in MODEL 215.374, 220.274/174, 113.992/995 ENGINE 113.963/992/995 ENGINE 271 ENGINE 272, 273	AR20.00-P-1142HA AR20.00-P-1142RVK AR20.00-P-1142T AR20.00-P-1142TS
	Install		
5	Pour in new coolant	ENGINE 112, 137, 113 except 113.963, 113.991 in MODEL 215.374, 220.274/174, 113.992/995 ENGINE 113.963/992/995 ENGINE 271 ENGINE 272, 273  An engine filled with type 30 antifreeze must not be filled later on with conventional coolant as per Sheet 325.0 or 325.2. Type 30 antifreeze may not be mixed with other antifreezes and it must be replaced every 3 years! Engine damage can occur otherwise.  A special antifreeze (type 30) is available for the "light alloy corrosion in cooling circuit" repair case. Indications of light alloy corrosion in the cooling circuit are: <ul style="list-style-type: none"> ● Sludging or gel formation in cooling circuit ● Engine overheating ● Flow rate deficiency in cooler In these cases, a warning label (model 30) is to be attached in a well-visible spot on the coolant expansion reservoir.  Use antifreeze model 30 if warning label (model 30) is present on the coolant expansion reservoir.  Use approved anti-corrosion and antifreeze agents only.  Coolant mixing ratio  ENGINE 112, 113Cooling system  ENGINE 137Cooling system  ENGINE 271Cooling system  ENGINE 272, 273Cooling system	AR20.00-P-1142HA AR20.00-P-1142RVK AR20.00-P-1142T AR20.00-P-1142TS *BF20.00-P-1001-04A *BF20.00-P-1001-02K *BF20.00-P-1001-02M *BF20.00-P-1001-02P *BF20.00-P-1001-02U
6	Seal coolant expansion reservoir with cap		
7	Close engine hood	MODEL 211 MODEL 215, 220 MODEL 230	AR88.40-P-1000T AR88.40-P-1000M AR88.40-P-1000R

 Cooling system

Number	Designation		Engine 112.913/917/949/954 in model 211	Engine 112.922/944/972 in model 220
BF20.00-P-1001-02K	Cooling system	Total filling capacity	Liter ≈ 9,5	≈ 10,5
		Filling capacity of anticorrosion agent/antifreeze down to -37 °C	Liter ≈ 4,75	≈ 5,0
		Filling capacity of anticorrosion agent/antifreeze down to -45 °C	Liter ≈ 5,25	≈ 5,5
		Sheet	BB00.40-P-0310-01A	BB00.40-P-0310-01

	Sheet	BB00.40-P-0325-00A	BB00.40-P-0325-00A
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 Cooling system

Number	Designation		Engine 112.973 in model 230.467	Engine 112.975 in model 220	
BF20.00-P-1001-02K	Cooling system	Total filling capacity	Liter	≈ 10,8	≈ 10,4
		Filling capacity of anticorrosion agent/antifreeze down to -37 °C	Liter	≈ 5,4	≈ 5,2
		Filling capacity of anticorrosion agent/antifreeze down to -45 °C	Liter	≈ 6	≈ 5,7
		Sheet		BB00.40-P-0310-01A	BB00.40-P-0310-01A
		Sheet		BB00.40-P-0310-01A	BB00.40-P-0310-01A

 Cooling system

Number	Designation		Engine 113.941/960 in model 220	Engine 113.948/966 in model 220	
BF20.00-P-1001-02K	Cooling system	Total filling capacity	Liter	≈ 11,5	≈ 11,6
		Filling capacity of anticorrosion agent/antifreeze down to -37 °C	Liter	≈ 5,75	≈ 5,8
		Filling capacity of anticorrosion agent/antifreeze down to -45 °C	Liter	≈ 6,25	≈ 6,4
		Sheet		BB00.40-P-0310-01A	BB00.40-P-0310-01A
		Sheet		BB00.40-P-0325-00A	BB00.40-P-0325-00A

 Cooling system

Number	Designation		Engine 113.960/986 in model 215	Engine 113.963 in model 230.475	
BF20.00-P-1001-02K	Cooling system	Total filling capacity	Liter	≈ 11,5	≈ 11,5
		Filling capacity of anticorrosion agent/antifreeze down to -37 °C	Liter	≈ 5,75	≈ 5,8
		Filling capacity of anticorrosion agent/antifreeze down to -45 °C	Liter	≈ 6,25	≈ 6,5
		Sheet		BB00.40-P-0310-01A	BB00.40-P-0310-01A
		Sheet		BB00.40-P-0325-00A	BB00.40-P-0325-00A

 Cooling system

Number	Designation		Engine 113.967/969 in model 211	Engine 113.986/991 in model 220	
BF20.00-P-1001-02K	Cooling system	Total filling capacity	Liter	≈ 10,75	≈ 13,5
		Filling capacity of anticorrosion agent/antifreeze down to -37 °C	Liter	≈ 5,25	≈ 6,8
		Filling capacity of anticorrosion agent/antifreeze down to -45 °C	Liter	≈ 6,0	≈ 7,4
		Sheet		BB00.40-P-0310-01A	BB00.40-P-0310-01A

	Sheet	BB00.40-P-0325-00A	BB00.40-P-0325-00A
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 Cooling system

Number	Designation		Engine 113.990	Engine 113.991 in model 215	
BF20.00-P-1001-02K	Cooling system	Total filling capacity	Liter	≈ 13,2	≈ 14,5
		Filling capacity of anticorrosion agent/antifreeze down to -37 °C	Liter	≈ 6,6	≈ 7,3
		Filling capacity of anticorrosion agent/antifreeze down to -45 °C	Liter	≈ 7,3	≈ 8
		Sheet		BB00.40-P-0310-01A	BB00.40-P-0310-01A
		Sheet		BB00.40-P-0325-00A	BB00.40-P-0325-00A

 Cooling system

Number	Designation		Engine 113.992/995 in model 230	
BF20.00-P-1001-02K	Cooling system	Total filling capacity	Liter	≈ 13,0
		Filling capacity of anticorrosion agent/antifreeze down to -37 °C	Liter	≈ 6,5
		Filling capacity of anticorrosion agent/antifreeze down to -45 °C	Liter	≈ 7,3
		Sheet		BB00.40-P-0310-01A
		Sheet		BB00.40-P-0325-00A


 Cooling system

Number	Designation		Engine 137.970	
BF20.00-P-1001-02M	Cooling system	Total filling capacity	Liter	≈ 12
		Filling capacity of anticorrosion/antifreeze down to -37°C	Liter	≈ 6
		Filling capacity of anticorrosion/antifreeze down to -45°C	Liter	≈ 6,6
		Sheet		BB00.40-P-0310-01A
		Sheet		BB00.40-P-0325-00A

 Cooling system

Number	Designation		Engine 271.9		
BF20.00-P-1001-02P	Cooling system	Workshop replacement quantity	Liter	≈ 5,6	
		Antifreeze/water	Up to -37°C	%	50/50
			As of -38 °C	%	55/45
		Sheet			BB00.40-P-0310-01A
		Sheet			BB00.40-P-0325-00A
		Sheet			BB00.40-P-0326-00A

Number	Designation			Engine 272 in model 164, 211, 251 Engine 272.964 in model 219	Engine 273 in model 211, 219	
BF20.00-P-1001-02U	Cooling system	Workshop replacement amount	Main circuit	Liter	≈ 5,0	≈ 7,0
			Low temperature circuit	Liter	-	-
		Antifreeze/water	Up to -37_°C		50/50	50/50
			As of -38_°C		55/45	55/45
			Specifications for Operating Fluids, Sheet		BB00.40-P-0310-01A	BB00.40-P-0310-01A
		Specifications for Operating Fluids, Sheet		BB00.40-P-0325-00A	BB00.40-P-0325-00A	
		Specifications for Operating Fluids, Sheet		-	-	

 Coolant mixing ratio

Number	Designation			Engine all	
BF20.00-P-1001-04A	Coolant mixing ratio	Antifreeze/water	Up to -37°C	%	50/50
			As of -38 °C	%	55/45
			Sheet		BB00.40-P-0310-01A
			Sheet		BB00.40-P-0325-00A
			Sheet		BB00.40-P-0326-00A