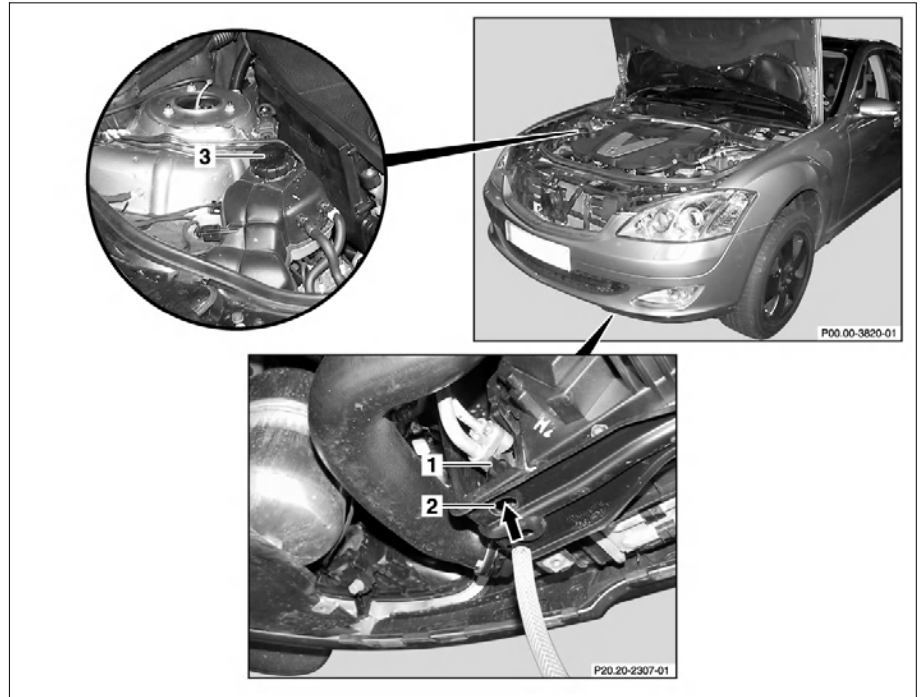


Engine 642 in model 221

### Modification notes

20.11.2013	Work procedure altered and special tools for electrical vacuum pump and NTKL adaptation, added.	Operation steps 14 to 26	AR20.00-P-1142-04A
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- 1 Drain screw for radiator  
2 Fitting  
3 Coolant cap



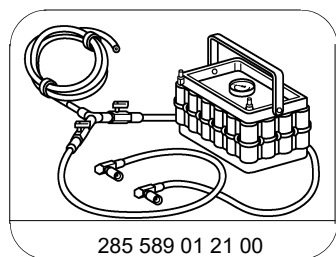
P20.20-2308-06

Warning	<b>Risk of injury</b> to skin and eyes suffering scalding from contact with hot coolant spray. <b>Risk of poisoning</b> 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
	<b>Risk of death</b> 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
	Notes on coolant		AH20.00-N-2080-01A
	<b>Drain off</b>		
1	Open hood		
2	Open coolant cap (3) on coolant expansion reservoir	Turn the coolant cap (3) counterclockwise one half-turn, relieve the overpressure, then unscrew the coolant cap (3).	
3	Remove front soundproofing bottom section		
4	Slide the drain hose on to the left fitting (2) at the radiator		
5	Open radiator drain screw (1) and drain off coolant	Collect coolant in a suitable container.	
6	Tighten radiator drain screw (1)		
7	Detach drain hose from fitting (2)		
	<b>Pour in</b>		
8	Pour in coolant and bleed cooling system Notes on coolant level Anticorrosion/antifreeze agents (Sheet 325.0) Coolant specifications	Re-use clean coolant. Cooling system NTKL Adaption	AR20.00-P-1142-04A AH20.00-P-1142-01CW BB00.40-P-0325-00A BB00.40-P-0310-01A  *BF20.00-P-1001-02W *285589012100

		<input checked="" type="checkbox"/> Electric vacuum pump	*285589022100
		<input checked="" type="checkbox"/> Test cap	*210589009100
		<input checked="" type="checkbox"/> Cooler vacuum filling device	*285589002100
4	<b>Check</b>		
9	Check cooling system for leaktightness		AR20.00-P-1010SX
10	Close coolant cap (3) on coolant expansion reservoir		
11	Install front noise encapsulation bottom section		
12	Close engine hood		

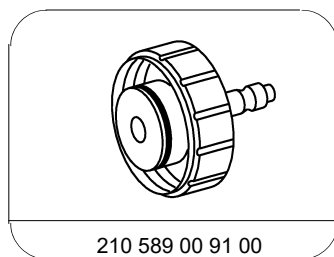
 Cooling system

Number	Designation	Engine 642 in model 203, 209, 211, 219, 221			
BF20.00-P-1001-02W	Cooling system	Workshop replacement amount	Main circuit	l	≈ 7,5
			Low-temperature circuit	l	-
		Antifreeze/water	Down to -37°C	%	50/50
			-38°C and below	%	55/45
			Sheet		BB00.40-P-0310-01 A
			Sheet		BB00.40-P-0325-00 A
			Sheet		BB00.40-P-0326-00 A



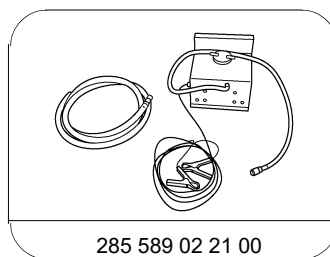
285 589 01 21 00

NTKL Adaption



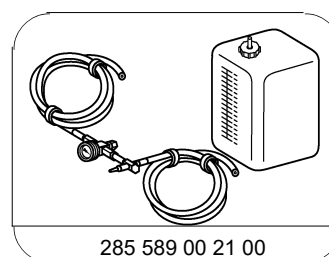
210 589 00 91 00

Test cap



285 589 02 21 00

Electric vacuum pump



285 589 00 21 00

Cooler vacuum filling device