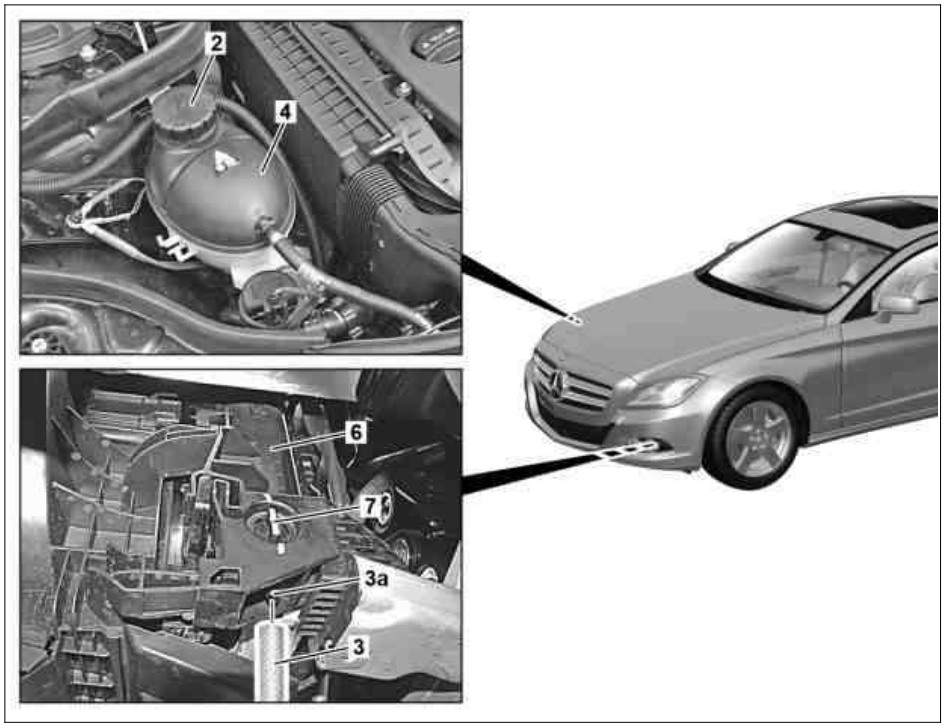
Engine 157, 276, 278 in model 212, 218

Modification notes

12.02.2014	Work procedure altered and special tools for electrical vacuum pump and NTKL adaptation, added.	Operation steps 14 to 26	AR20.00-P-1142-04A
26.09.2014	Mischungsverhältnis Kühlmittel		BF20.00-P-1001-04A

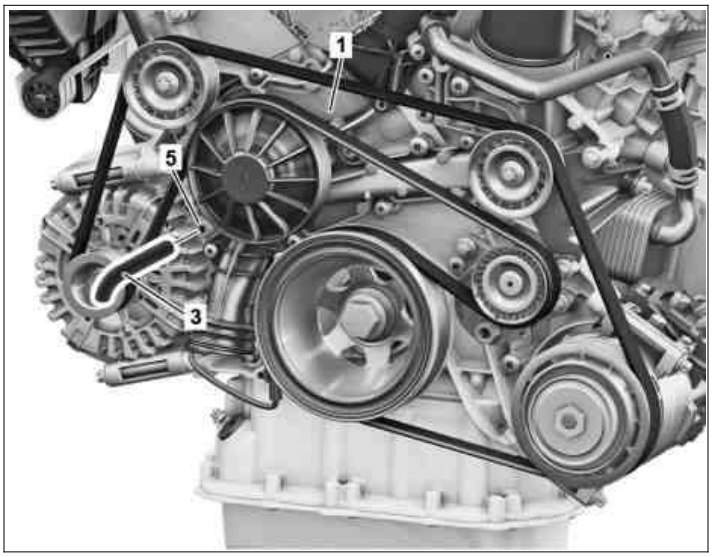
2 Cap
3 Drain hose
3a Fitting
4 Coolant expansion reservoir
6 Radiator
7 Drain screw



P20.00-2410-06

Shown on engine 276 except code ME04 (Mild HYBRID drive)

1 Coolant pump
3 Drain hose
5 Drain screw



P20.00-2406-11

	Risk of death when touching components on vehicles with high-voltage on-board electrical system	Do not touch damaged or defective components and open lines of the high-voltage on-board electrical system. Persons who wear electronic implants (e.g. cardiac pacemakers) must **not** carry out any work on high-voltage on-board electrical systems.	AS54.00-Z-0001-01A
⚠ Warning	**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
	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
	Note on high-voltage on-board electrical system		AH54.00-P-0010-01A
	Notes on coolant		AH20.00-N-2080-01A
	Notes on coolant level		AH20.00-P-1142-01CW
	Drain off		
1	Perform enable for the high voltage on-board electrical system	Engine 276 in model 212 with code ME04 (Mild hybrid drive)	AR54.10-P-1150EH
2	Unscrew cap (2) on coolant expansion reservoir (4)	ⓘ Unscrew cap (2) slowly and relieve overpressure.	
3	Remove lower engine compartment paneling		AR61.20-P-1105EW
4	Push drain hose (3) onto left fitting (3a) on radiator (6)		
5	Unfasten drain screw (7) at radiator (6) and drain coolant	Remove drain screw (7) until coolant flows out. The drain screw (7) can be permanently damaged otherwise. ⓘ Catch coolant in a suitable container. ⓘ Observe regulations to dispose of coolant.	
6	Switch on ignition for about 5 seconds and then switch off again	Engine 157, 278 in model 212, 218 Engine 276 in model 212 with code ME04 (Mild hybrid drive) ⓘ Repeat this procedure twice after a waiting time of about 30 s in order to empty the low-temperature water circuit.	
7	Protect power electronics control unit from escaping coolant	Engine 276 in model 212 with code ME04 (Mild hybrid drive)	
8	Loosen drain screw (5)	Engine 276 in model 212, 218 Nm Drain screw on coolant pump	*BA20.10-P-1008-01AA
9	Push drain hose (3) onto drain screw (5)	Engine 276 in model 212, 218	
10	Further turn drain screw (5) and drain off coolant	Engine 276 in model 212, 218	
	Pour in		
11	Tighten drain screw (7) on cooler (6) and detach drain hose (3) from fitting (3a)		
12	Tighten drain screw (5) at drain screw and detach drain hose (3) from fitting (3a)	Engine 276 in model 212, 218	
13 ☞BB ☞BB	Pour in coolant and ventilate engine cooling system Anticorrosion/antifreeze agents (Sheet 325.0) Coolant specifications	ⓘ Re-use clean coolant. Coolant mixing ratio Cooler vacuum filling device Test cap NTKL Adaption Electric vacuum pump	AR20.00-P-1142-04A BB00.40-P-0325-00A BB00.40-P-0310-01A *BF20.00-P-1001-04A *285589002100 *210589009100 *285589012100 *285589022100
14	Switch on ignition for about 5 seconds and then switch off again	Engine 276 in model 212 with code ME04 (Mild hybrid drive) ⓘ Repeat this procedure twice after a waiting time of about 30 s in order to empty the low-temperature water circuit.	

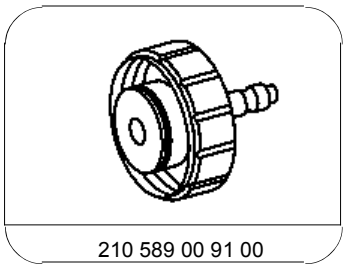
	Check		
15	Check engine cooling system for leaktightness		AR20.00-P-1010EL
16	Install lower engine compartment paneling		AR61.20-P-1105EW
17	Perform high voltage on-board electrical system commissioning	Engine 276 in model 212 with code ME04 (Mild hybrid drive)	AR54.10-P-1150EH
⚠ Warning	**Risk of accident** from vehicle starting off by itself when engine running. **Risk of injury** (bruises and burns) resulting from working on the engine while it is being started or when it is running.	Secure vehicle to prevent it from starting off by itself. Wear buttoned-up and snug-fitting work clothes. Do not touch hot or rotating parts.	AS00.00-Z-0005-01A
18	Perform an engine test run and check engine cooling system for proper operation		

Nm Coolant pump, coolant thermostat

Number	Designation			Engine 276
BA20.10-P-1008-01AA	Drain screw on coolant pump	Stage 1	Nm	6
		Stage 2	∡°	90

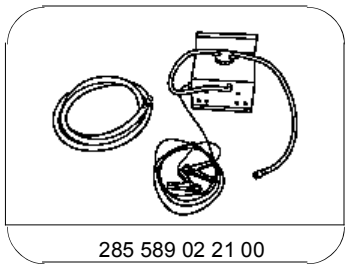
Coolant mixing ratio

Number	Designation				Engine all (4xWD, CAR, smart)
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



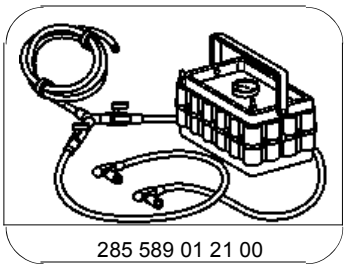
210 589 00 91 00

Test cap



285 589 02 21 00

Electric vacuum pump



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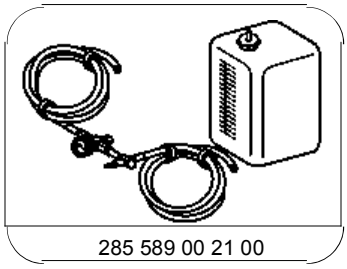
NTKL Adaption



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Cooler vacuum filling device