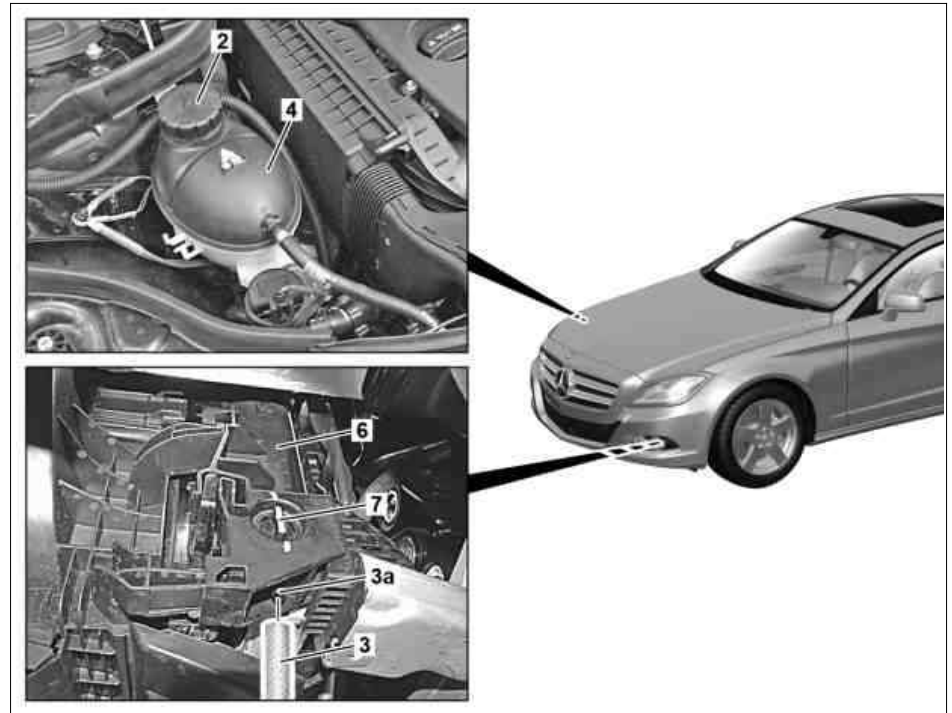


Engine 157, 276, 278 in model 212, 218

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	Mixing ratio for coolant		BF20.00-P-1001-04A

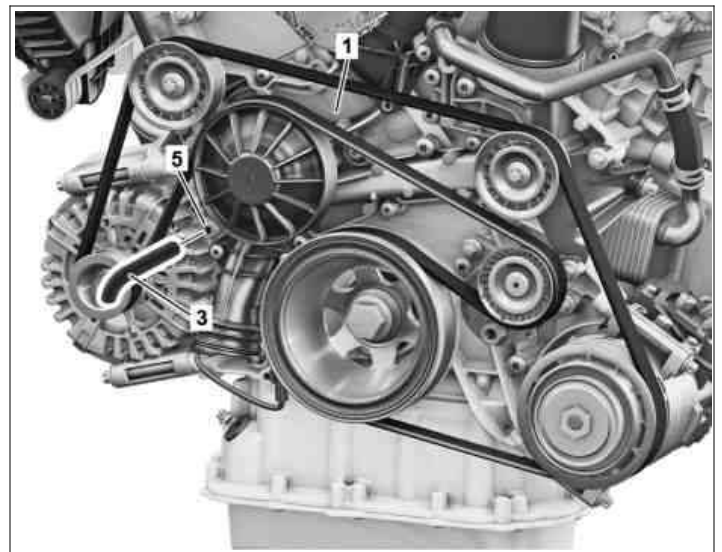
- 2 Cap
- 3 Drain hose
- 3a Fitting
- 4 Coolant expansion reservoir
- 6 Radiator
- 7 Drain screw



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 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 death when working on component parts and systems with U >= 30 V alternating voltage (AC) or U >= 60 V direct voltage (DC)	Do not touch damaged or defective live component parts and lines or non-insulated electrical connections and lines.	AS00.00-Z-0035-01A
 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
	General information on handling vehicles with high-voltage on-board electrical system and/or lithium-ion battery and/or gaseous-fuel drive system		AH00.00-Z-0300-01A
	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) only until the coolant flows off. The drain screw (7) can be permanently damaged otherwise.  Collect 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 process x 2 after a waiting time of approx. 30 s to thus empty 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  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	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 process x 2 after a waiting time of approx. 30 s to thus fill and bleed 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

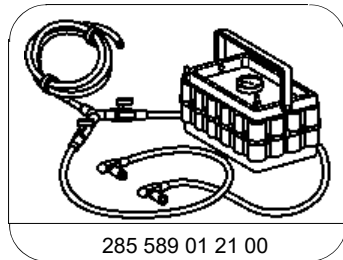
17	Perform high voltage on-board electrical system commissioning	Engine 276 in model 212 with code ME04 (Mild hybrid drive)	
 Warning	Risk of accident from vehicle starting off by itself when engine running. Risk of injury (bruises and burns) resulting from working on the engine while it is being started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

 Coolant pump, coolant thermostat

Number	Designation	Stage 1	Nm	Engine 276
BA20.10-P-1008-01AA	Drain screw on coolant pump			6
		Stage 2	4°	90

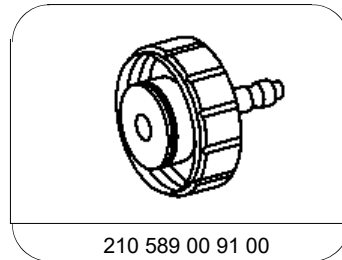
 Coolant mixing ratio

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
		Overview and specifications sheet BB00.40-P-0310-01A
		References to sheet specification BB00.40-P-0310ZZ



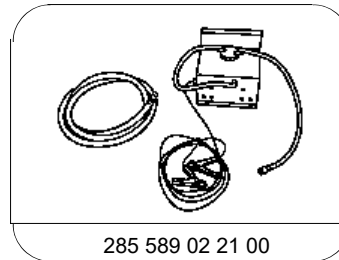
285 589 01 21 00

NTKL Adaption



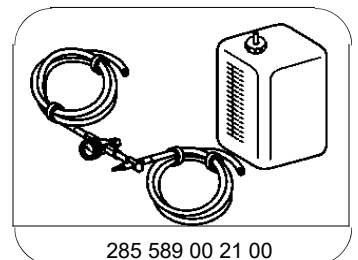
210 589 00 91 00

Test cap



285 589 02 21 00

Electric vacuum pump



285 589 00 21 00

Cooler vacuum filling device