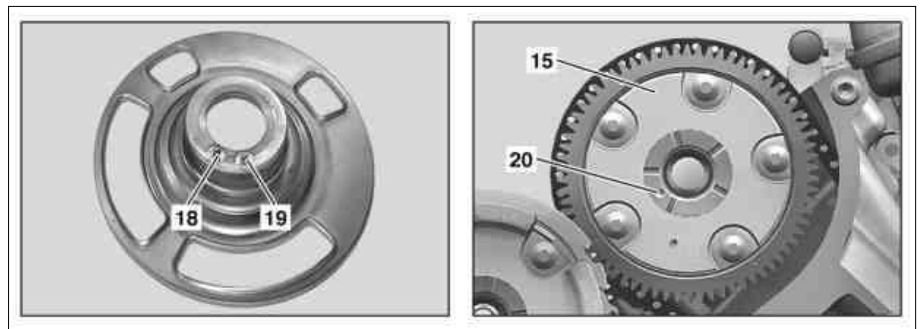


P05.20-2246-09

- 1, 2 Exhaust camshaft
- 3, 4 Intake camshaft
- 7, 8 Center valve of intake camshaft
- 15 Camshaft adjuster for intake camshaft
- 18 Dowel pin
- 19 Pin
- 20 Bore in camshaft adjuster

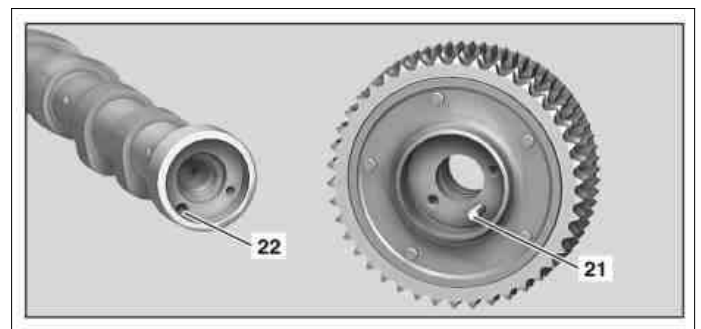
- 11, 12 Pulse wheel for intake camshaft
- 15, 16 Camshaft adjuster for intake camshaft

- 24 Tensioning rail
- 25 Color coding
- 26, 27 Cap



P05.20-2248-04



- 21 Dowel pin in camshaft adjuster
- 22 Bore in camshaft



P05.20-2249-10

☒ ☒	Remove/install		
1	Turn key in ignition lock to position "0"	<p>i Vehicles with code 889 Keyless Go: Press Keyless Go start/stop button repeatedly until the ignition is switched off. Remove Keyless Go transmitter card or transmitter key from vehicle and store beyond reach of the transmitter (at least 2 m).</p>	
2	Remove air filter housing		AR09.10-P-1150GZA
3	Remove chain tensioner	Chain tensioner with thread M24×1.5 (only for engine 272)	AR05.10-P-7800GZA

		Chain tensioner with thread M22×1.5 i In case of engine 272, both chain tensioners can be removed whereby for engine 273 only chain tensioner with thread M22×1.5 is installed. i Installation: Install new chain tensioner with thread of M22×1.5. The previously installed chain tensioner must not be reinstalled because during removal, its pressure pin is pressed into the end position. The thrust pin latch prevents this return stroke. This would overstretch the timing chain on reinstalling.	AR05.10-P-7800GZG
	Right-hand side		
4	Remove camshaft adjuster for right exhaust camshaft (1)		AR05.20-P-7201GZA
5	Remove cap (26)		
6	Detach center valve (7)	i Installation: Tightening of center valve (7) may only take place for a removed chain tensioner. Malfunctions of camshaft adjustment can occur otherwise. i Observe loosening direction. Nm	AR05.20-P-7201-06VA *BA05.20-P-1009-02A
7	Remove right cylinder head cover		AR01.20-P-5012GZA
8	Mark timing chain relative to camshaft adjuster (15) using color codes (25)	i Engine positioned at 40° crankshaft angle after ignition TDC. i Installation: Check position of intake camshaft (3) based on color coding (25).	
9	Remove tensioning rail (24)		AR05.10-P-8127GZA
10	Remove center valve (7) and pulse wheel (11)	i Check dowel pin (18) and pin (19). If a dowel pin (18) or pin (19) is sheared off then this must be removed from camshaft adjuster (15). i Installation: Always replace pulse wheel (11). When tightening center valve (7) there is a risk that dowel pin (18) or pin (19) may shear off at pulse wheel (11). i Installation: Lubricate center valve (7) at the contact surface with the pulse wheel (11) before assembly. i Installation: Align dowel pin (18) for pulse wheel (11) with fitted bore (20) in camshaft adjuster (15).	
11	Remove timing chain from camshaft adjuster (15) and detach camshaft adjuster (15) forwards from intake camshaft (3)	i Installation: Lubricate contact surfaces to intake camshaft (3) and camshaft adjuster (15) before mounting camshaft adjuster (15). i Installation: Align color coding (25) on camshaft adjuster (15) and timing chain with each other. Align dowel pin (21) in camshaft adjuster (15) with fitted bore (22) in intake camshaft (3).	
	Left-hand side		
12	Remove camshaft adjuster for the left exhaust camshaft (2)		AR05.20-P-7201GZA
13	Remove cap (27)		
14	Detach center valve (8)	i Installation: Tightening of center valve (8) may only take place for a removed chain tensioner. Malfunctions of camshaft adjustment can occur otherwise. i Observe loosening direction. Nm	AR05.20-P-7201-06VA *BA05.20-P-1009-02A
15	Remove left cylinder head cover		AR01.20-P-5013GZA
16	Mark timing chain relative to camshaft adjuster (16) using color codes (25)	i Engine positioned at 40° crankshaft angle after ignition TDC. i Installation: Check position of intake camshaft (4) based on color coding (25).	
17	Remove center valve (8) and pulse wheel (12)	i Check dowel pin (18) and pin (19). If a dowel pin (18) or pin (19) is sheared off then this must be removed from camshaft adjuster (16). i Installation: Always replace pulse wheel (12). When tightening center valve (8) there is a risk that dowel pin (18) or pin (19) may shear off at pulse wheel (12).	

		<p>i Installation: Lubricate center valve (8) at the contact surface with the pulse wheel (12) before assembly.</p> <p>i Installation: Align dowel pin (18) for pulse wheel (12) with fitted bore (20) in camshaft adjuster (16).</p>	
18	Remove timing chain from camshaft adjuster (16) and detach camshaft adjuster (16) towards the front from intake camshaft (4)	<p>i Installation: Lubricate contact surfaces to intake camshaft (4) and camshaft adjuster (16) before the mounting camshaft adjuster (16).</p> <p>i Installation: Align color coding (25) on camshaft adjuster (16) and timing chain with each other. Align dowel pin (21) in camshaft adjuster (16) with fitted bore (22) in intake camshaft (4).</p>	
19	Install in the reverse order		
	Checking		
 Danger!	<p>Risk of accident caused by vehicle starting off by itself when engine is running. Risk of injury caused by contusions and burns during starting procedure or when working near the engine as it is running</p> <p>Conduct engine test run and check engine for leaks</p>	<p>Secure vehicle to prevent it from moving by itself.</p> <p>Wear closed and snug-fitting work clothes. Do not touch hot or rotating parts.</p>	AS00.00-Z-0005-01A
20			

Nm **Camshaft, camshaft adjustment**

Number	Designation		Engine	Engine
			272	273
BA05.20-P-1009-02A	Center valve for pulse wheel/ camshaft adjuster to camshaft	Nm	145	145