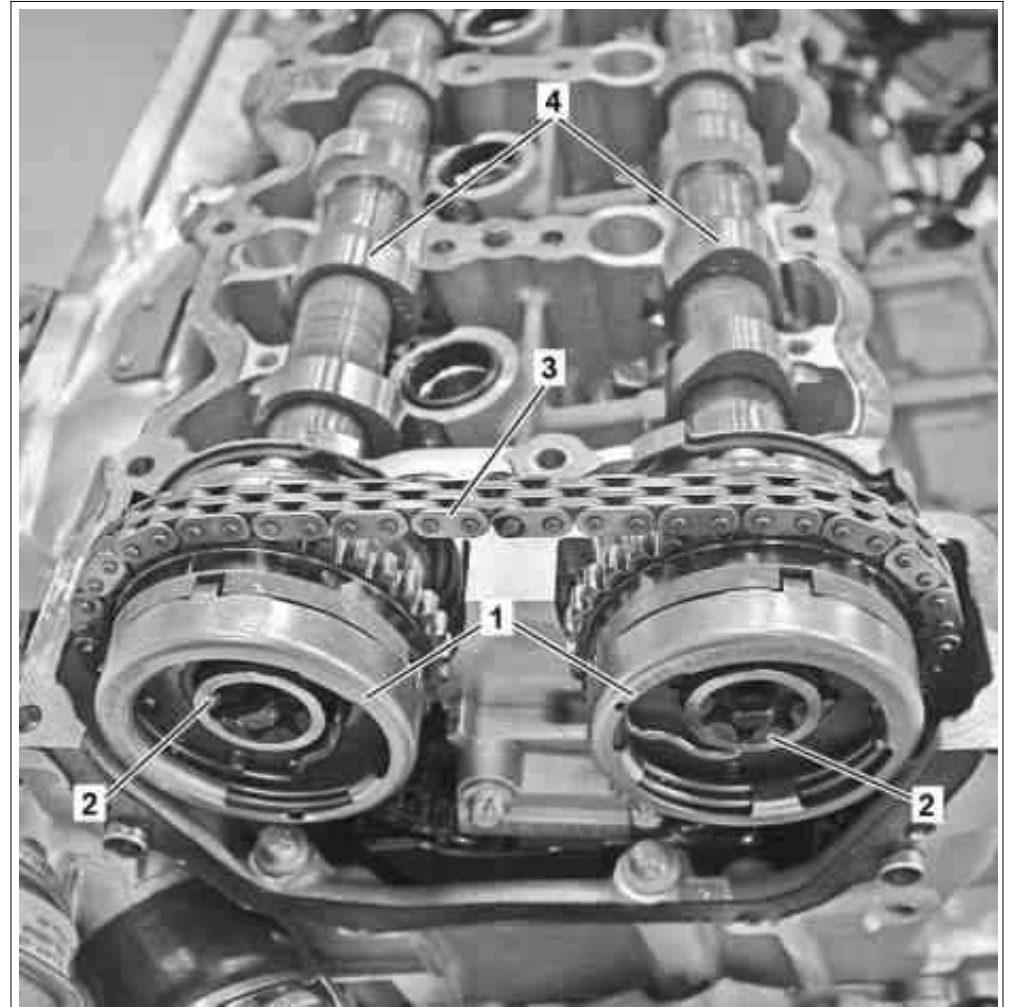


**Document title** Remove/install camshaft adjusters

**Document number** ar0520p7201el

Engine 157, 276.9, 278 in model 212, 218

- 1 Camshaft positioner
- 2 Control valve
- 3 Timing chain
- 4 Camshafts



P05.20-2355-12

☒ ☒	Remove/install		
1	Rotate engine at crankshaft center bolt in direction of engine rotation to a 40° crank angle (CA) after top dead center (TDC) on cylinder 1 (ignition TDC)		AR05.10-P-7620-04MM
2	Remove respective cylinder head cover	Engine 276.9 - right cylinder head cover Engine 276.9 - left cylinder head cover Engine 157, 278 - right cylinder head cover Engine 157, 278 - left cylinder head cover	AR01.20-P-5012EEL AR01.20-P-5013EEL AR01.20-P-5012ELB AR01.20-P-5013ELB
3	Mount hold-down tool on camshafts (4)	☒ Tie-down set	*276589014000
4	Remove respective chain tensioner	ENGINE 276.9 ENGINE 157, 278	AR05.10-P-7800EL AR05.10-P-7800ELB
5	Loosen control valve (2) and remove	<p>☒ <b>i</b> To loosen and tighten control valve (2) the camshafts (4) must be counterheld by a helper at their rear end by means of a Torx T 60.</p> <p>☒ <b>i</b> <b>Installation:</b> The thread and bolt head contact surface of the control valve (2) must be oiled. The control valve (2) must be tightened down evenly <b>without</b> discontinuity with torque.</p> <p>☒ <b>Nm</b> Center valve, pulse wheel/camshaft adjuster to camshaft</p> <p>☒ Socket</p>	*BA05.20-P-1009-02A *271589001000
6	Remove camshaft positioner (1) from camshaft (4)	<p>☒ <b>i</b> <b>Installation:</b> The camshaft positioners (1) must not be mixed up with each other.</p> <p>☒ <b>i</b> <b>Installation:</b> Check basic position of camshafts (4) and adjust if necessary.</p>	AR05.20-P-6020EL
7	Remove timing chain (3) from camshaft adjusters (1)	☒ <b>i</b> <b>Installation:</b> The right hand timing chain (3) is placed first on the camshaft adjuster (1) for the intake camshaft and then on the camshaft positioner (1) for the exhaust camshaft. The left hand timing chain (3) is placed first on the camshaft adjuster (1) for the exhaust camshaft and then on the camshaft positioner (1) for the intake camshaft.	
8	Install in the reverse order		

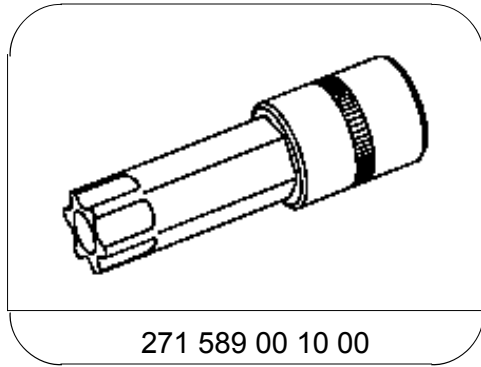
9	<p><b>Risk of accident</b> from vehicle starting off by itself when engine running. <b>Risk of injury</b> (bruises and burns) resulting from working on the engine while it is being started or when it is running.</p> <p>Perform an engine test run and check engine for functionality</p>	<p>Secure vehicle to prevent it from starting off by itself. Wear closed and snug-fitting work clothes. Do not touch hot or rotating parts.</p>	AS00.00-Z-0005-01A
---	--	---	--------------------

**Nm** Camshaft, camshaft adjustment

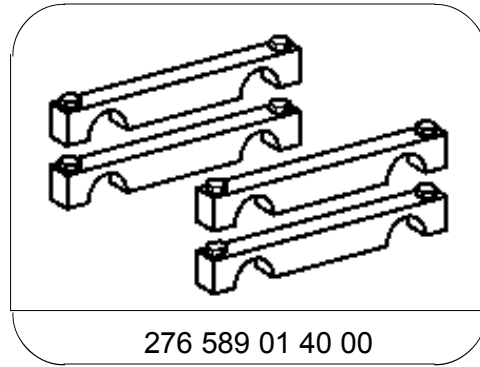
Number	Designation			Engine 157	Engine 276
BA05.20-P-1009-02A	Center valve, pulse wheel/camshaft adjuster to camshaft	Stage 1	Nm	20	130
		Stage 2	Δ°	45	–

**Nm** Camshaft, camshaft adjustment

Number	Designation			Engine 278
BA05.20-P-1009-02A	Center valve, pulse wheel/camshaft adjuster to camshaft	Stage 1	Nm	130
		Stage 2	Δ°	–



Socket



Tie-down set