

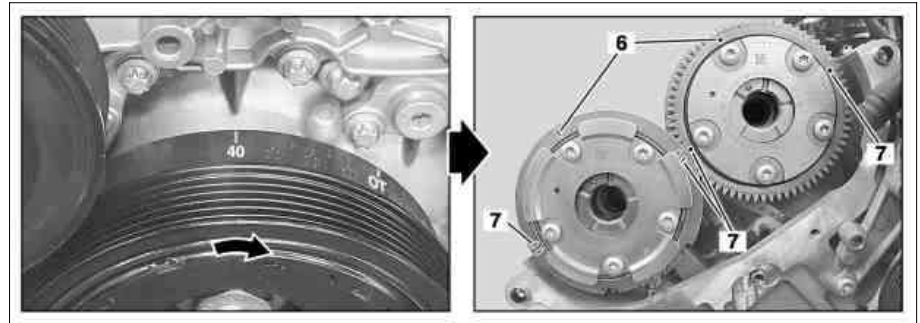
P05.10-2238-09

- 1 Exhaust camshaft
- 2 Intake camshaft

- 3 Old timing chain
- 4 New timing chain








- 5 Pulse wheel markings


- 6 Markings on camshaft adjuster
- 7 Markings on camshaft adjuster



P05.10-2239-04

☒	Removing		
⚠ Danger!	Risk of explosion caused by oxyhydrogen gas. Risk of poisoning and caustic burns caused by swallowing battery acid. Risk of injury caused by burns to skin and eyes from battery acid or when handling damaged lead-acid batteries	No fire, sparks, open flames or smoking. Wear acid-resistant gloves, clothing and glasses. Only pour battery acid into suitable and appropriately marked containers.	AS54.10-Z-0001-01A
1	Disconnect ground line from battery	Model 164 Model 251	AR54.10-P-0003GZ AR54.10-P-0003RT AH54.10-P-0001-01A
ⓘ	Notes on battery		AR15.12-P-2003GZA
2	Remove ignition coils		
3	Remove spark plugs	i To ensure that engine can be cranked easily when drawing in the timing chain.	
4	Remove exhaust camshaft (1) and intake camshaft (2) at right cylinder head		AR05.20-P-6992GZA
5	Disconnect old timing chain (3)	i Before commencing work on the timing case recess, cover over recess with clean cloth to prevent small parts dropping down. Parts which have fallen into the timing case recess, must be removed. ☒ ☒ ☒	AR05.10-P-7601-01VA *602589009800 *602589023300 *602589056300
☒	Install		

6	Draw in new timing chain (4)	<p>i Always remove the assembly link after drawing in the new timing chain. These are only an assembly aid and not intended for engine running.</p> <p></p> <p></p>	<p>AR05.10-P-7601-04VA</p> <p>*602589009800</p> <p>*272589036300</p>
7	Rivet new timing chain (4)	<p>i Before commencing work on the timing case recess, cover over recess with clean cloth to prevent small parts dropping down. Parts which have fallen into the timing case recess, must be removed.</p> <p>Nm</p> <p></p> <p></p> <p></p> <p></p> <p></p>	<p>AR05.10-P-7601-02VA</p> <p>*BA05.10-P-1007-01B</p> <p>*272589003900</p> <p>*272589006300</p> <p>*272589016300</p> <p>*271589016300</p> <p>*602589009800</p>
8	Turn engine at crankshaft in direction of engine rotation to a 55° crank angle before ignition TDC of first cylinder (the 305° marking on the belt pulley)	<p>i Markings (5) on the exhaust and intake camshaft pulse wheel on the left cylinder head must stand in the middle in the camshaft Hall sensor bores: ↓</p> <p>Check basic position of camshafts for an installed front cover on cylinder head at a 55° crank angle before ignition TDC.</p> <p>i If markings (5) on the exhaust and intake camshaft pulse wheel on the left cylinder head cannot be seen through the camshaft Hall sensor bores, turn engine at crankshaft by one turn in direction of engine rotation.</p>	<p>AR05.20-P-6010GZA</p>
9	Turn engine at crankshaft in direction of engine rotation through a 95° crank angle to a 40° crank angle after ignition TDC on the first cylinder		
10	Install exhaust and intake camshaft on right cylinder head in basic position	<p>i Markings on the camshaft adjuster (6) are aligned to the top and the markings on the camshaft adjuster (7) are in alignment with the cylinder head cover contact surface: ↓</p> <p>Check basic position of camshafts for an uninstalled front cover on cylinder head at a 40° crank angle before ignition TDC.</p>	<p>AR05.20-P-6992GZA</p> <p>AR05.20-P-6010-01VB</p>
11	Turn engine at the crankshaft in the direction of rotation of the engine and check basic position of camshafts for an installed front cover on cylinder head at a 55° crank angle before ignition TDC (305° marking on the belt pulley)	<p>i The markings (5) on the pulse wheels for the exhaust and intake camshaft must lie in the middle in the camshaft Hall sensor bores.</p>	<p>AR05.20-P-6010GZA</p>
12	Install spark plugs	Nm	*BA15.10-P-1001-01C
13	Install ignition coils		AR15.12-P-2003GZA
⚠ Danger!	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	Secure vehicle to prevent it from moving by itself. Wear closed and snug-fitting work clothes. Do not touch hot or rotating parts.	AS00.00-Z-0005-01A
14	Carry out an engine test run and check the engine for leaks		

 Timing chain, chain tensioner

Number	Designation		Engine	Engine
			272	273
BA05.10-P-1007-01B	Bolt for timing chain rivet element (reference value)	Nm	32	32

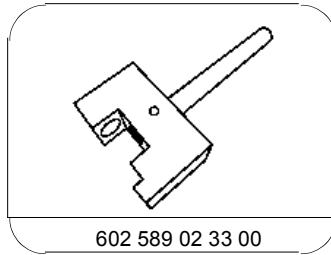
 Spark plugs

Number	Designation	Engine 272	Engine 273
BA15.10-P-1001-01C	Spark plug on cylinder head	Nm 23	23



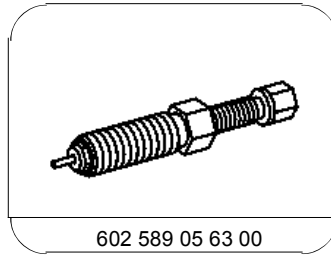
602 589 00 98 00

Case



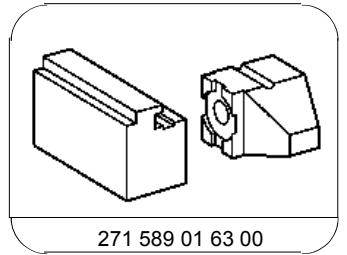
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Chain separating tool



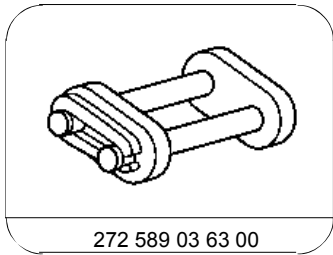
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Thrust spindle



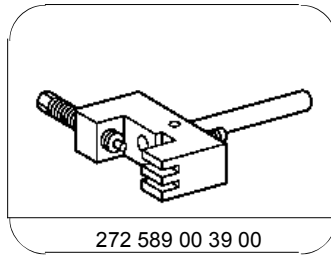
271 589 01 63 00

Assembly inserts



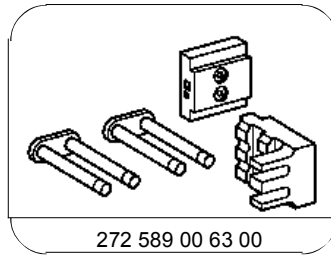
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Assembly link



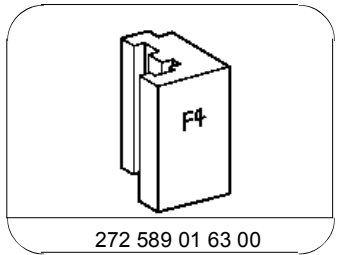
272 589 00 39 00

Riveting tool



272 589 00 63 00

Assembly inserts



272 589 01 63 00

Guide