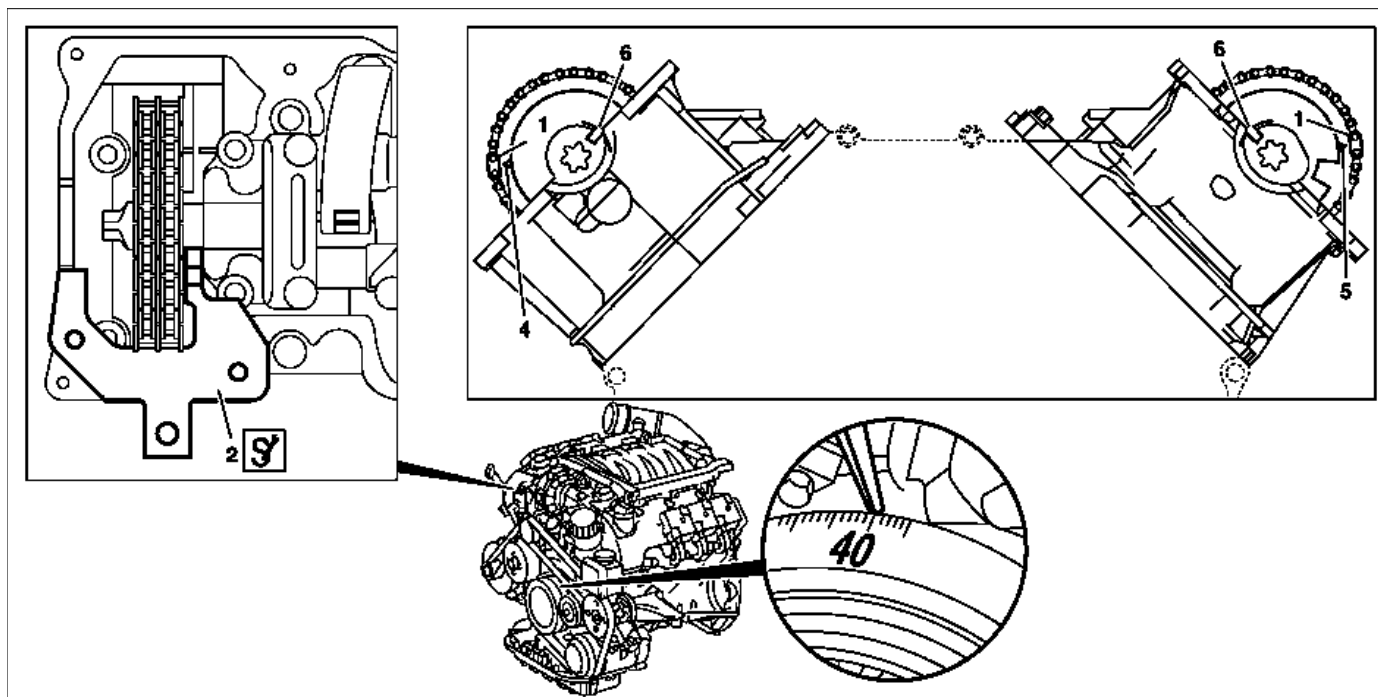


ENGINE 113 (except 113.995) in MODEL 129, 163, 202, 203, 208, 209, 210, 211, 215, 220, 230



P05.20-0313-09

6 Groove of camshaft

- 1 Copper-plated strap
2 Locating plate for right camshaft

Modification notes

26.11.97	M112/113 Operation note modified	Step 3	AR05.10-P-7800C
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[illegible]

		Engine 112 in models 211.080/082/261/265 /280/282, Engine 113 in model 211.083/270/283 Engine 112.945 in model 463.209/232/233 /244/245/250, Engine 112 in Model 129, 163, 170, 202, 203, 208, 209.361/365/461/465, 210, 211.061 /065, 220, 230.467, Engine 113 (except 113.990/991) in Model 129, 163, 202, 208, 209.375/376/475/476, 210, 211.070, 215, 220, 230.474/475, Engine 113.962 in model 463.206/240/241 /247/248/249/254, Engine 113.982 in model 463.243/246 Engine 113.990 in model 211.076/276, Engine 113.991 in models 215.374, 220.074 /174	AR15.10-P-2000A AR15.10-P-2000RVK
5	Remove right-hand camshaft sprocket	Lift timing chain from camshaft sprocket. Open-end wrench Insertion tool Torque wrench	*112589000100 *112589010300 *001589722100
6	Remove left-hand camshaft sprocket	Lift timing chain from camshaft sprocket. Open-end wrench Insertion tool Torque wrench	*112589000100 *112589010300 *001589722100
	Install		
7	Rotate left-hand camshaft to the basic position and fit locating plate to the camshaft	Open-end wrench Groove of camshaft (6) must point to the center of the cylinder head cover separating surface in direction of inner V. Locating plate Place locating plate flush onto left cylinder head and insert into the groove (6) of the camshaft. At a 40° crank angle after ignition TDC of cylinder 1 it is possible to rotate the camshaft without the valves coming into contact with the pistons.	*112589000100 *112589013200
8	Rotate right camshaft in basic position and insert locating plate for right camshaft (2) in the camshaft	Open-end wrench Groove of camshaft (6) must point to the center of the cylinder head cover separating surface in direction of inner V. Locating plate Place locating plate for right camshaft (2) flush onto the right cylinder head and insert into the groove of the camshaft (6). At a 40° crank angle after ignition TDC of cylinder 1 it is possible to rotate the camshaft without the valves coming into contact with the pistons.	*112589000100 *112589003200
9	Install left-hand camshaft sprocket	Place timing chain onto camshaft sprocket. Insertion tool Bolt of camshaft sprocket engine 112, 113 except 113.969	*112589010300 *BA05.20-P-1001-01B
10	Install right-hand camshaft sprocket	Place timing chain onto camshaft sprocket. Insertion tool Bolt of camshaft sprocket engine 112, 113 except 113.969	*112589010300 *BA05.20-P-1001-01B
11	Install camshaft Hall sensor	Engine 112 in models 211.080/082/261/265 /280/282, Engine 113 in model 211.083/270/283	

		Engine 112.945 in model 463.209/232/233 /244/245/250, Engine 112 in Model 129, 163, 170, 202, 203, 208, 209.361/365/461/465, 210, 211.061 /065, 220, 230.467, Engine 113 (except 113.990/991) in Model 129, 163, 202, 208, 209.375/376/475/476, 210, 211.070, 215, 220, 230.474/475, Engine 113.962 in model 463.206/240/241 /247/248/249/254, Engine 113.982 in model 463.243/246 Engine 113.990 in model 211.076/276, Engine 113.991 in models 215.374, 220.074 /174 	AR15.10-P-2000A AR15.10-P-2000RVK *BA15.10-P-1002-03A
12	Installing chain tensioner	Engine 112 in models 211.080/082/261/265 /280/282, Engine 113 in model 211.083/270/283 Engine 112.945 in model 463.209/232/233 /244/245/250, Engine 112 in models 163, 129 Engine 113.962 in model 463.206/240/241 /247/248/249/254, Engine 113 (except 113.965/981) in Model 210, 208, 202, 163, 129, Engine 113.982 in model 463.243/246 Engine 112 in Model 170, 202, 203, 208, 209, 210, Engine 113 in models 163.174/175, 209 Engine 112 in Model 211.061 /065, 220, 230.467, Engine 113 in models 211.070/076/276, 215.373/374/375, 220.070/073/074/075 /083/084/170/173/174/175/183/184/875, 230.474/475	AR05.10-P-7800C AR05.10-P-7800CA AR05.10-P-7800AM
	Check		
13 	Inspect timing Check general notes on valve timing, scribe marks	Engine 112, 113  The engine must not be turned back; otherwise the timing chain can get jammed.	AR05.10-P-6858V AH05.10-P-1000-01A
14	Install cylinder head covers	Air filter located at vehicle side. Air filter located on engine side.	AR01.20-P-5014B AR01.20-P-5014BV

Camshaft

Number	Designation	Engines 113.940/941/ 942/943/944/ 948/961/962/ 963/964/965/ 966/967/968/ 969/971/980/ 981/982/984/ 986/992/995	Engine 112 except 112.951/976
BA05.20-P-1001-01B	Bolt, camshaft sprocket	M12×45 Stage 1 Nm 50	50
		Stage 2 4° 90	90

Camshaft

Number	Designation	Engine 112.951/ 976	Engine 113.960 with code 479
BA05.20-P-1001-01B	Bolt, camshaft sprocket	M12×45 Stage 1 Nm 50	50

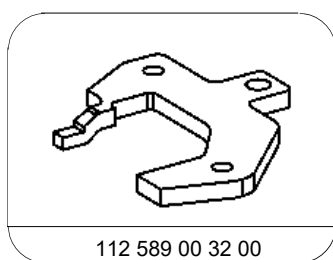
		Stage 2	⌵°	90	90
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Camshaft

Number	Designation			Engine 113.987/988/ 990/993	Engine 113.991
BA05.20-P-1001-01B	Bolt, camshaft sprocket	M12×45	Stage 1 Nm	50	50
			Stage 2 ㄥ°	90	90

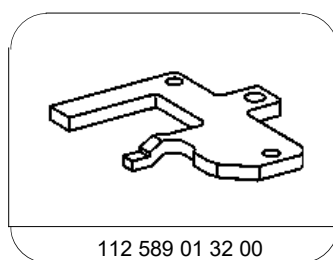
Position sensor

Number	Designation		Engines 112.910/911/ 912/913/914/ 915/916/917/ 920/921/922/ 923/940/941/ 942/943/944/ 945/946/947/ 949/951/953/ 954/955/960/ 961/970/972/ 973/975/976	Engines 113.940/941/ 942/943/944/ 948/960/961/ 962/963/964/ 965/966/967/ 968/969/971/ 980/981/982/ 984/986/992/ 993/995	Engines 113.987/ 988/990/ 991
BA15.10-P-1002-03A	Camshaft Hall sensor to cylinder head	Nm	8	8	8



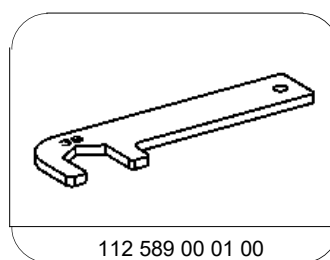
112 589 00 32 00

Locating plate



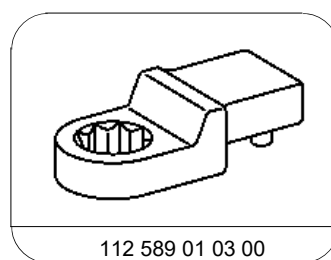
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Locating plate



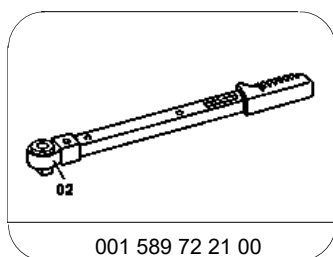
112 589 00 01 00

Open end wrench



112 589 01 03 00

Insertion tool



001 589 72 21 00

Torque wrench