Engine - Mechanical
- A13SM and A15SM engines

Poly-V-belt

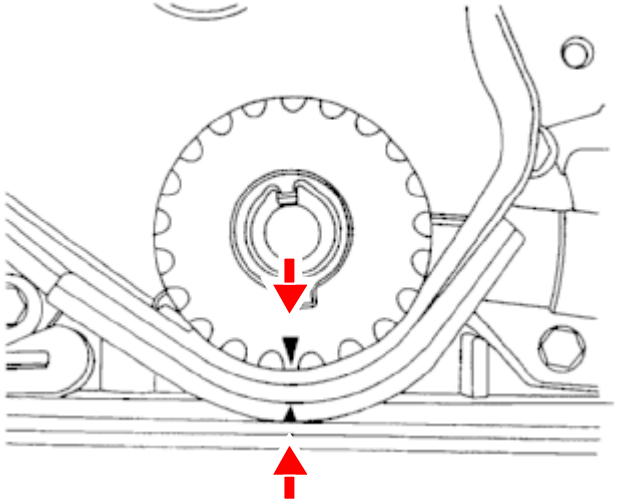
torque settings	
alternator	
– adjusting bolt	20 Nm
– bolt	20 Nm

Adjustment

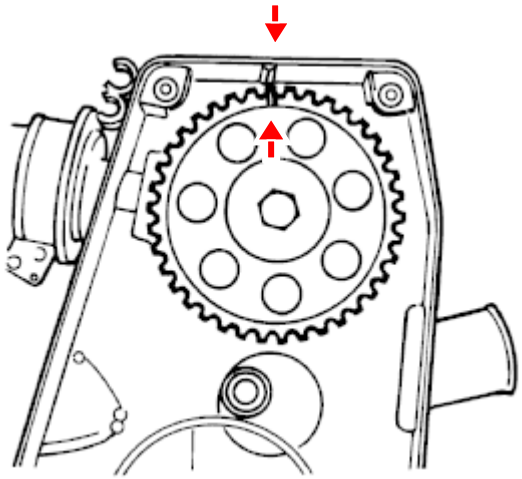
Tension the poly-V-belt by turning the tensioner bolt.

Timing belt

checking / renewing	See the general information about Timing belts (Service intervals)



timing marks; crankshaft



timing marks; camshaft

Removal

Detach / disconnect: the battery earth lead.

Remove:

- the shield; from below the engine
- the air intake hoses
- the air filter housing
- the RH front wheel
- the shield; from the inner wing panel
- the poly-V-belt
- the upper timing cover

Lay aside: the alternator.

Remove: the power steering pump pulley.

Support: the engine.

Detach / disconnect: the RH engine mounting bracket.

Remove:

- the power steering pump
- the crankshaft pulley
- the lower timing cover.

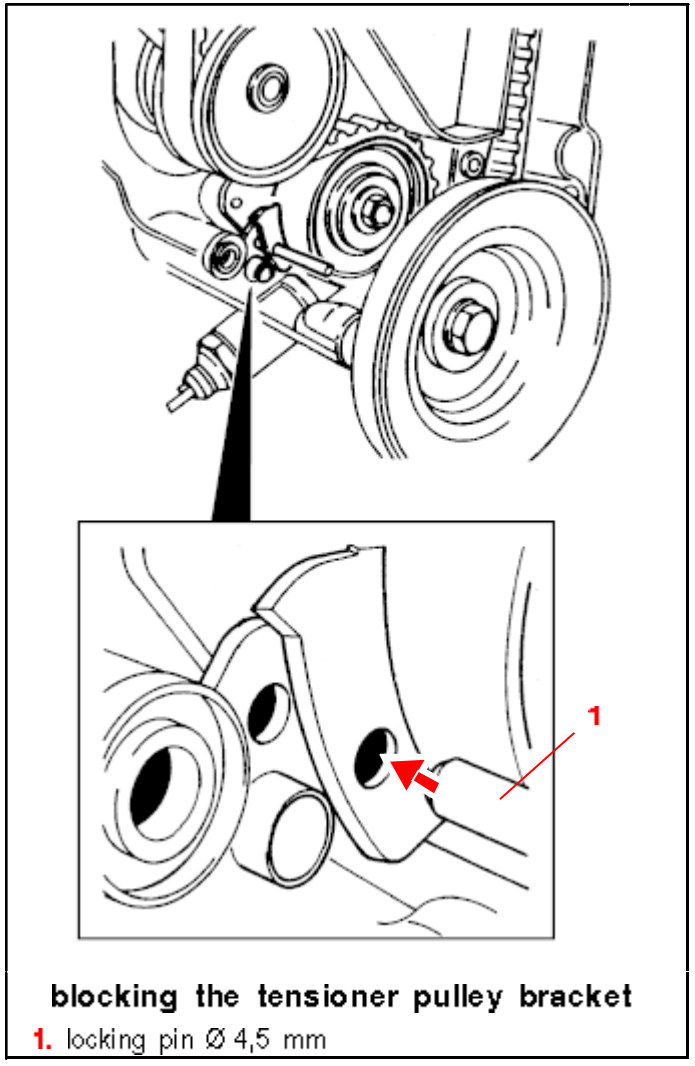
Rotate the crankshaft clockwise until the timing marks are aligned.

Detension the timing belt:

Detach / disconnect: the water pump.

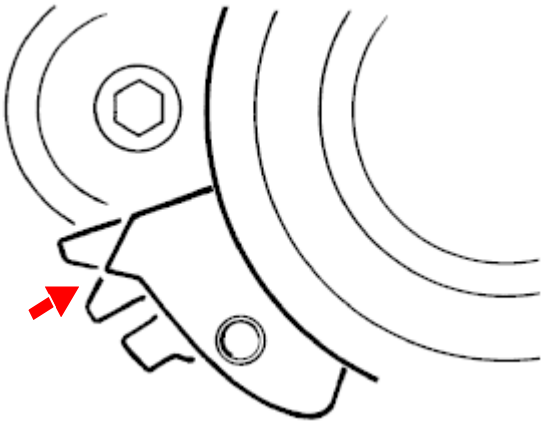
Remove: the timing belt.

Installation



blocking the tensioner pulley bracket

1. locking pin Ø 4,5 mm



tensioner pulley bracket markings

special tools	
tensioner pulley bracket locking pin	Ø 4,5 mm

torque settings	
timing covers	10 Nm
water pump	10 Nm
engine mounting bracket	60 Nm
power steering pump	25 Nm
power steering pump pulley	25 Nm
crankshaft pulley	
– step 1	95 Nm
– step 2	angle turn: 30°
– step 3	angle turn: 15°

Check that the timing marks are aligned.

Fit / apply: the timing belt.

Tension the timing belt:

Turn the water pump clockwise until the locking pin can be inserted.

Connect / tighten: the water pump.

Block the tensioner pulley bracket. See illustration.

Rotate the crankshaft clockwise; 2 turns.

Remove: the tensioner pulley bracket locking pin.

Detach / disconnect: the water pump.

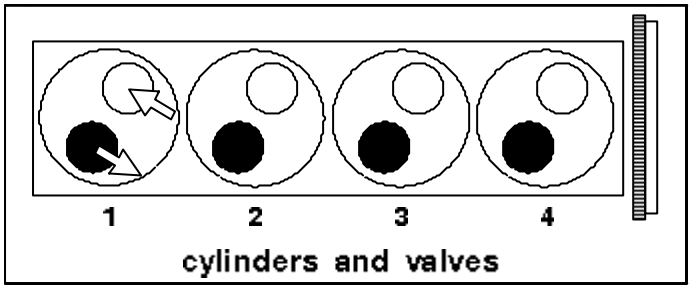
Turn the water pump until the tensioner pulley bracket markings are aligned. See illustration.

Connect / tighten: the water pump.

Check that the timing marks are aligned.

Complete the installation in reverse order of removal.

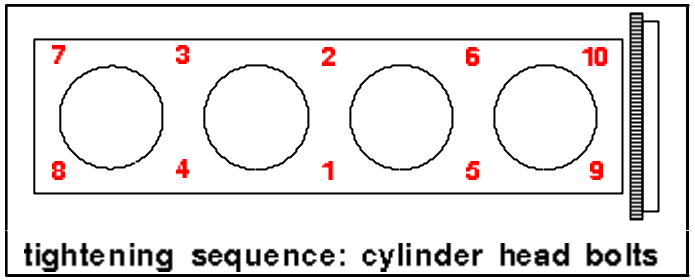
Valves, rocker arms and tappets



cylinders and valves

technical specifications	
firing order	1 - 3 - 4 - 2
valve operation	OHC; rocker arms; hydraulic valve clearance adjusters

Torque settings



tightening sequence: cylinder head bolts

cylinder head	
cylinder head bolts	
– step 1	25 Nm
– step 2	angle turn: 60°
– step 3	angle turn: 60°
– step 4	angle turn: 10°
exhaust manifold	25 Nm
inlet manifold	25 Nm
valve cover	10 Nm
engine block	
big end bearing caps ! Use new bolts	
– step 1	25 Nm
– step 2	angle turn: 30°
– step 3	angle turn: 15°

main bearing caps ! Use new bolts	
– step 1	50 Nm
– step 2	angle turn: 45°
– step 3	angle turn: 15°
flywheel	
– step 1	35 Nm
– step 2	angle turn: 30°
– step 3	angle turn: 15°
timing	
timing cover	10 Nm
camshaft gear	45 Nm
timing belt tensioner pulley	20 Nm
crankshaft pulley	
– step 1	95 Nm
– step 2	angle turn: 30°
– step 3	angle turn: 15°
lubrication system	
engine sump	10 Nm
oil drain plug	55 Nm
oil pressure sensor	40 Nm
cooling system	
coolant temperature sensor	20 Nm
thermostat housing	20 Nm
water pump	10 Nm

auxiliary units	
starter motor	43 Nm
alternator	20 Nm
power steering pump	25 Nm
power steering pump pulley	25 Nm
ignition / fuel system	
spark plugs	40 Nm
oxygen sensor	41 Nm
knock sensor	20 Nm