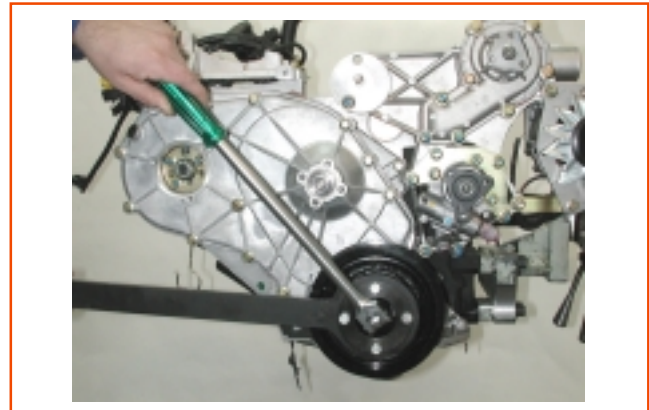


► CRANKSHAFT PULLEY**Removal**

1. Drain coolant water.
2. Remove radiator upper hose.
3. Remove fan, see FAN -Removal
4. Remove moving belt, see ACCESSORIES MOVING BELT - Removal.
5. Install tool nr. 8130638 in crankshaft pulley and fix it with 4 bolts.
6. Remove crankshaft pulley fixation bolt, using a lever of an appropriate length.
7. Remove pulley. If necessary, use extractor nr. 8130628.

Reinstallation

1. Reinstall in inverse order, tightening fixation bolt with 80 Nm + 125°.

**TIMING HOUSING COVER****Removal**

1. Remove crankshaft pulley, see CRANKSHAFT PULLEY - REMOVAL
2. Remove 14 fixation bolts from timing housing cover.
3. Remove cover with gasket.

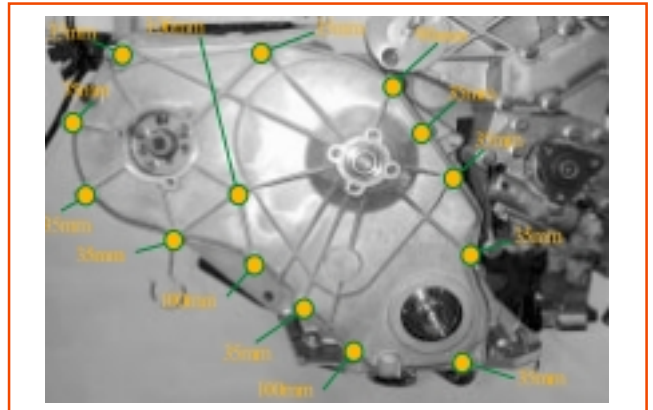
Seal replacement

1. Remove used cover seal and clean housing
2. Support cover and install a new seal, open side turned to the housing, using tool nr. 8130637.



Reinstallation

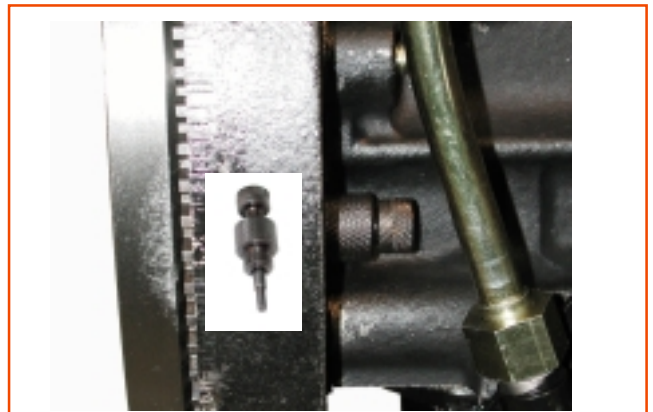
1. Reinstall in inverse order of removal, using new gaskets, installing fixation bolts as shown in the illustration and tighten according to specification.



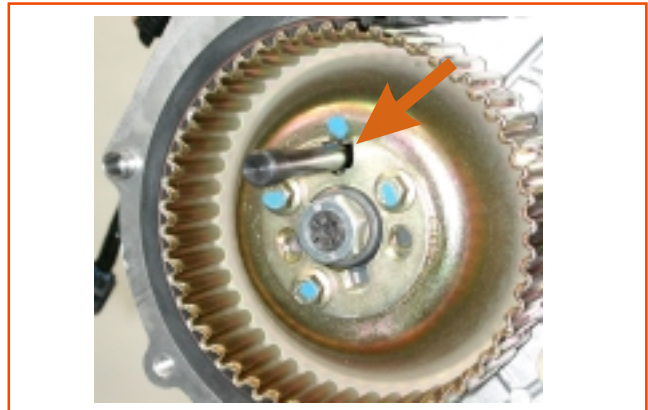
DISTRIBUTION BELT

Removal

1. Remove timing housing cover. See TIMING HOUSING COVER - Removal.
2. Turn engine until cylinder nr. 1 to be at TDC (4th cylinder swinging).
3. Remove flywheel housing plug and install timing tool nr. 8130632.
4. Fit the timing tool nr. 8130632 pin in the hole of the flywheel.
5. Check the correct alignment of the timing mark on the camshaft toothed pulley and if crankshaft gib is aligned with the arrow engraved in the housing.

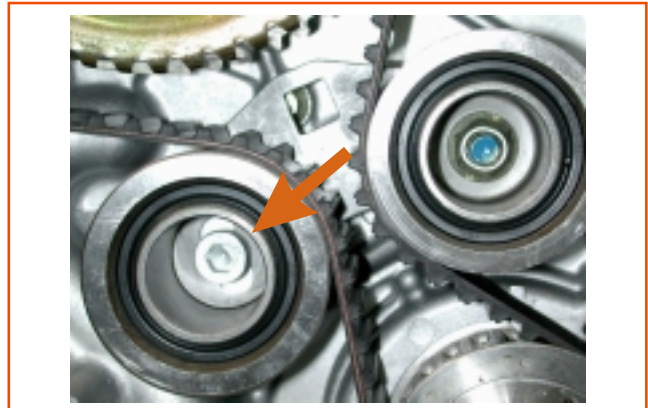


6. Install tool nr. 8130633 pin in the fuel injection pump pulley and fit it in pump flange.



Note: If camshaft teeth pulley has to be removed during these operations, its fixation bolts must be loosen before the distribution belt removal.

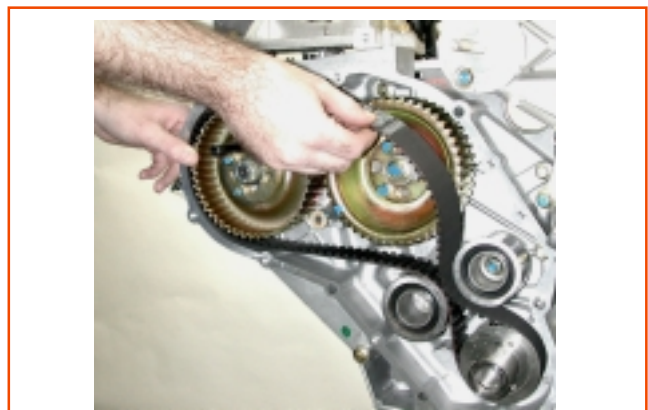
7. Loosen belt tensor bolt.



8. Remove distribution belt. With the use, the belt wears in the rotation sense.

Note: If the original belt will be reused, it must be assembled keeping the original rotation sense.

9. Mark belt rotation sense, to reinstall in the same sense later.



Note: The belts must be stocked with the edges in a clean surface and in such way that the folds do not have a radius lower than 50 mm. Do not fold belts in an acute angle or with ray lower than 50mm, otherwise it may occur premature failures.

Belt tensor

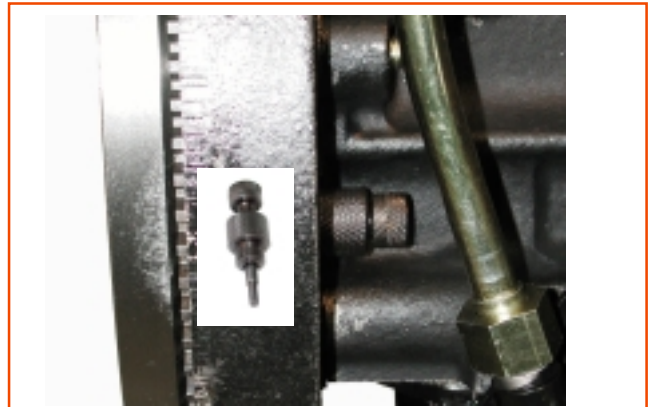
Note: The belt tensor only needs to be removed if it is being replaced or to have access to remove the timing housing.

1. Remove fixation bolt, idling pulley and inner tensor.

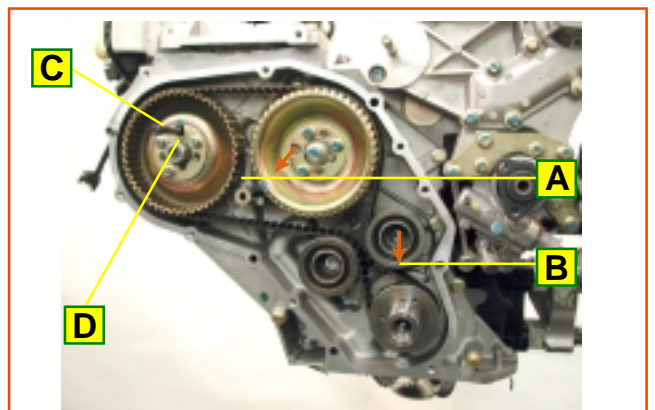
Distribution belt installation and tensioning

Note: It is important that belt tensioning is carefully and safely made. The following procedure evolves the belt tensioning to assure that it keeps tensioned between each pulley.

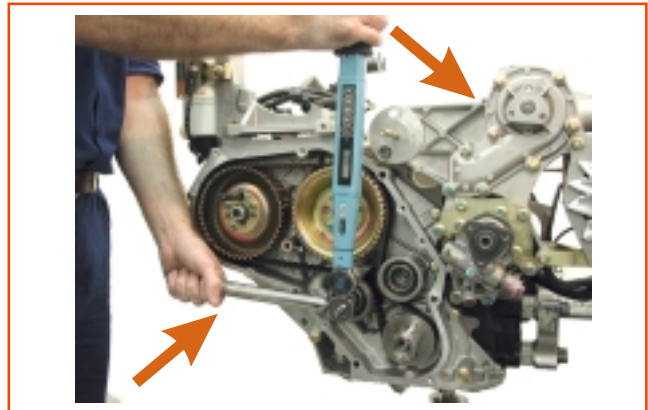
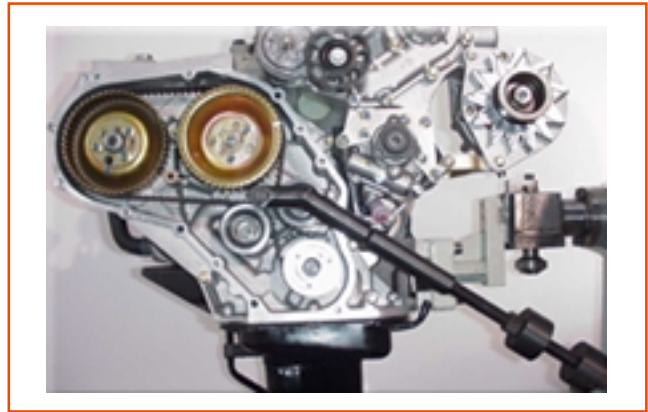
1. Lock engine, at TDC, positioning the pin of the timing tool nr. 8130632 in the flywheel-housing hole with the pin fitted in the flywheel hole.



2. Make sure that marks are aligned (Ref. A and B) and that injection timing tool pin nr. 8130633 is correctly introduced in injection pump pulley (Ref. C).



3. Loosen the 3 (three) fuel injection pump pulley fixation bolts (Ref. D), letting pulley slightly loose to allow belt accommodation.
4. Install distribution belt on the pulleys.
5. Slightly press belt tensor, screwing tensor bolt. Make sure if tensor movement is free, that is to say, bolt slightly loosen, allowing free movement, but, without side clearance.
6. Install in the square among idle and tensor pulleys, special tool nr. 8130649, which is adjusted to attend a torque equivalent from 9 to 10 Nm.
7. Tighten tensor bolt within 40 to 50 Nm.



8. Tighten the 3 (three) fixation bolts of fuel injection pump pulley, within 22 to 28 Nm.
9. Remove special tool, fuel injection pump and flywheel locking device.
10. Manually turn engine (2 turns) to distribute belt tension.
11. Check engine timing.

Note: After the torque application, it is recommended to check belt tension by the device pitch within 130 to 160 Hz.