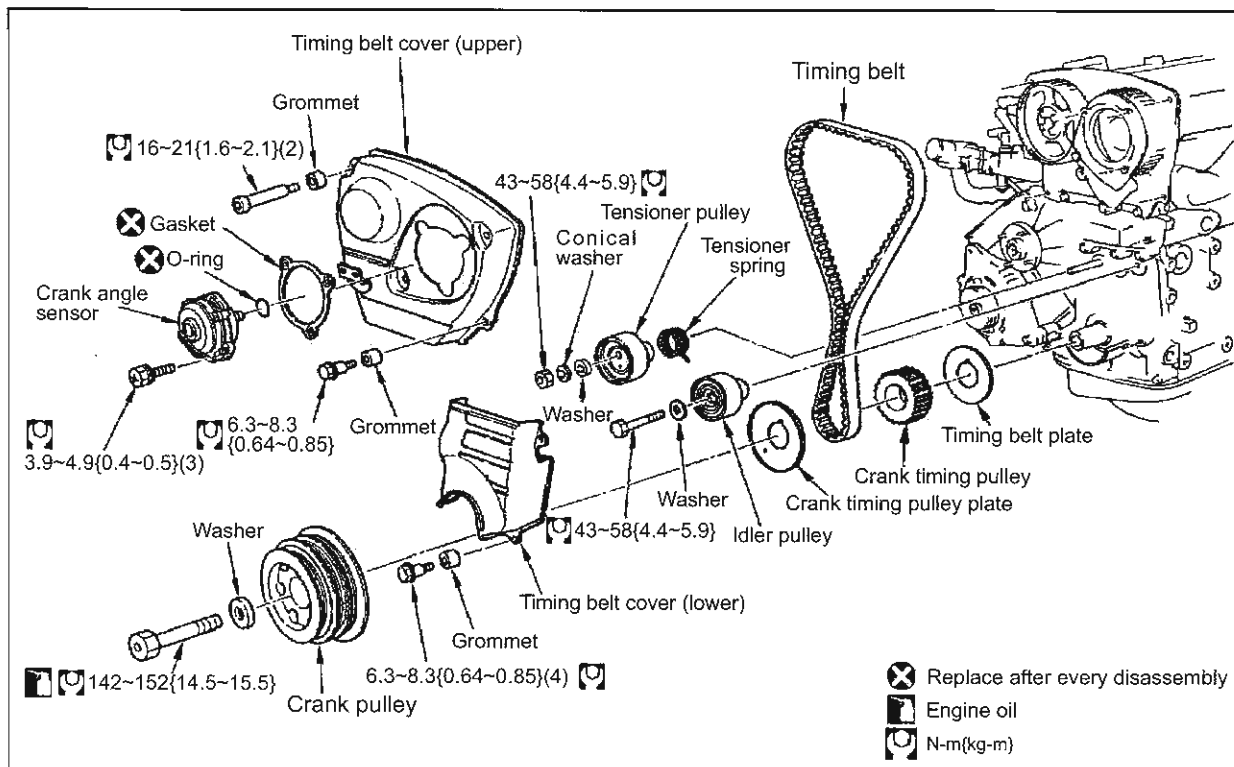


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8. TIMING BELT (RB25DE / RB25DET)

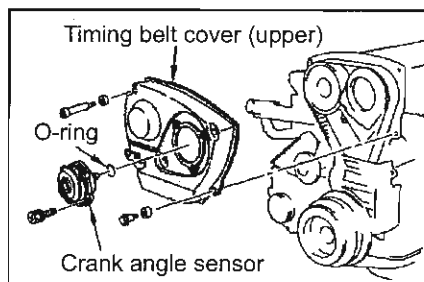


Caution:

- Do not twist or bend the timing belt. Care must be taken not to allow grease or water to come in contact with the timing belt.
- Do not readjust (retension) the belt as it will shorten the life expectancy of the timing belt.
- It is recommended to replace the timing belt with a new one, once you have removed or loosened the timing belt during inspection or removal of parts.

Removal

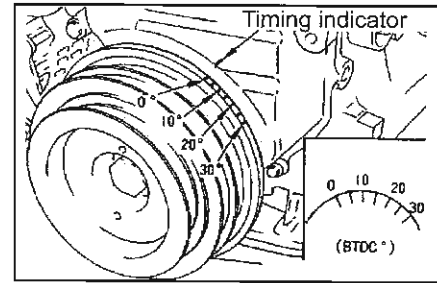
1. Remove the negative battery terminal.
 - (1) Open the boot lid.
 - (2) Remove the boot room front finisher and disconnect negative battery terminal.
2. Remove the under cover.
3. Extract coolant from radiator drain plug.
4. Remove the radiator.
5. Remove the cooling fan.
6. Remove the supplement belt.
7. Remove the crank angle sensor.
 - The crank angle sensor must be handled gently so it will not cause any damage.
8. Remove the timing belt cover (upper).



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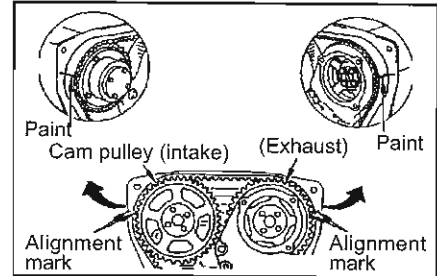
9. Position No. 1 cylinder at compression T.D.C (top dead centre) position.

(1) Turn the crank pulley clockwise and align timing belt cover indicator and the timing mark (0°).



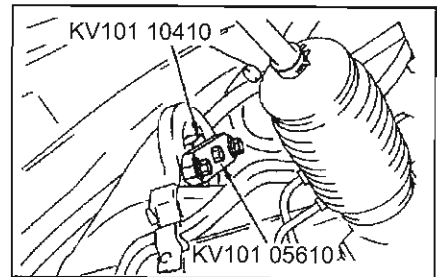
(2) Check that the cam timing pulley alignment mark is aligned with belt cover alignment mark.

- If the cam timing pulley alignment is not in correct position, turn the crank pulley 360° clockwise.
- Place alignment mark on back side of the timing belt by aligning it to the cam timing pulley alignment mark.



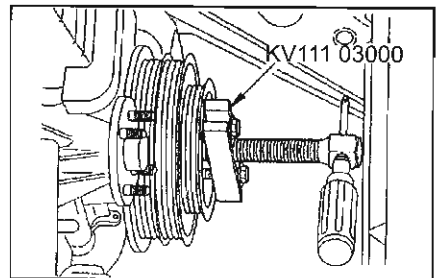
10. Remove the crank pulley.

(1) Remove the starter motor. Place the ring gear stopper to fix the crankshaft.



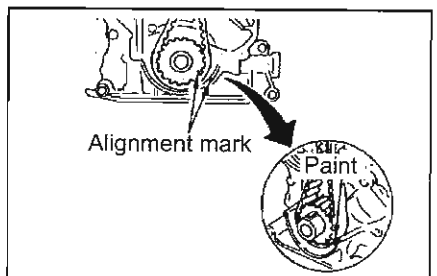
(2) Loosen the crank pulley bolt and draw out approx. 1cm.

- Install M6 x 1.0 (2) with underhead approx. 50mm to crank pulley screw holes. Use the pulley puller to remove the crank pulley from the crankshaft.



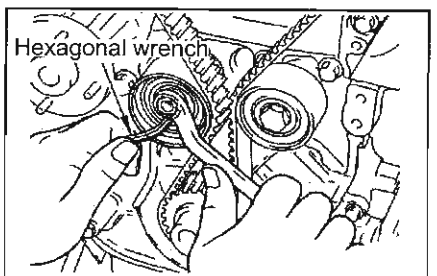
11. Remove the timing belt cover (lower).

- Remove the crank timing pulley plate.
- Place alignment mark on back side of the timing belt by aligning it to the crank timing pulley alignment mark.



12. Remove the timing belt.

- (1) Loosen the tension pulley installation nuts.
- (2) Insert the wrench into tensioner pulley hexagonal hole and turn it clockwise to tighten the installation nut temporarily.
- (3) Remove timing belt from each pulley.



13. Remove cam timing pulley.



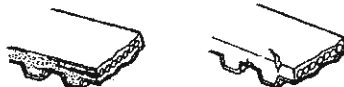
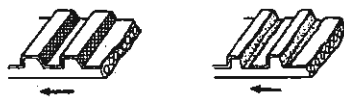
14. Remove crank timing pulley.

- 15. Remove the timing belt plate.
- 16. Remove the tensioner pulley and the spring.
- 17. Remove the idler pulley.

Inspection

Timing belt

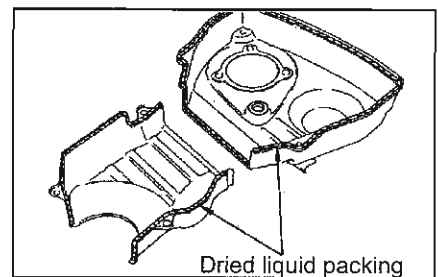
- Refer to the diagram below to inspect the timing belt. Check for any wear or adhesion of foreign objects.
- Replace timing belt if inspection indicates any problem.

ITEM	CONDITION	CAUSE
Missing tooth Cracked tooth		Cam shaft lock
Cracks on rear side		Tensioner lock Engine overheat Interference with belt cover etc.
Wear and cracks on the side		Belt mis-alignment Belt plate malfunction
Worn teeth		Cam shaft rotation resistance
Grease or water adhesion	-	Oil seal malfunction Water pump leak

- Check each pulley tooth for any wear or cracks. Replace with new belt if any abnormality is found.

Timing belt cover gasket

- Check if there is any wear or damage to timing belt cover (upper and lower) reverse side dried liquid packing.
- Replace the cover ASSY if there is any fault or abnormal.

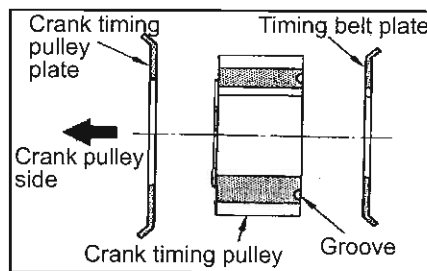


Installation

1. Install idler pulley.

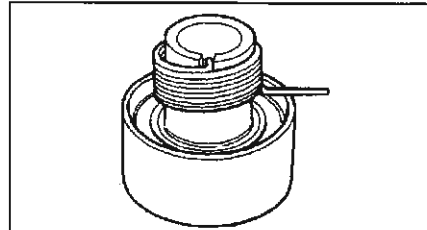
Tightening torque (N-m{kg-m}) 43~58{4.4~5.9}

- After tightening with correct torque, make sure the idler pulley will turn smoothly.

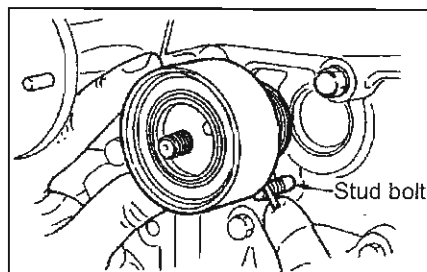


2. Install the tensioner pulley.

- (1) Fit the tensioner spring claw to the tensioner pulley groove securely.

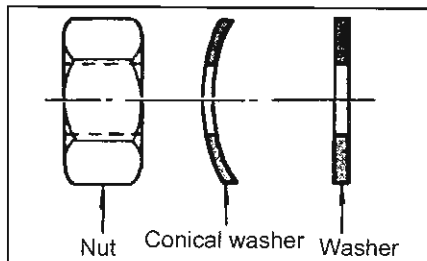


- (2) Hold the tensioner pulley with your finger. Hook the spring on top of the stud bolt by rotating the spring anti-clockwise.



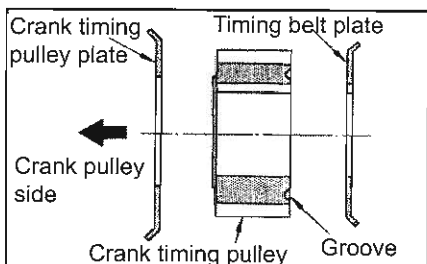
- (3) Temporarily install the tensioner pulley by installing in the order of washer, conical washer and installation nut.

- Make sure the conical washer is facing the direction shown in the diagram on the right.



3. Install the timing belt plate (rear) and the crank timing pulley.

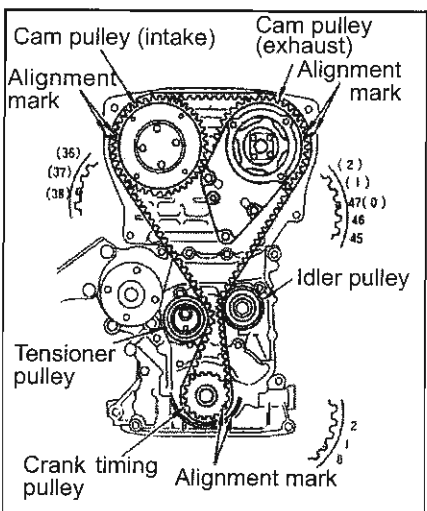
- Crankshaft key must be facing up.
- Rear timing belt plate has smaller exterior diameter compared to the front timing belt plate.
- Make sure the exterior diameter 'R' is facing correct direction.



4. Install the cam pulley.

5. Install the timing belt.

- (1) Align the crank timing pulley alignment mark to oil pump housing alignment mark (No. 1 cylinder T.D.C).
 - (2) Align cam pulley alignment mark to each belt cover alignment mark. (No. 1 cylinder T.D.C).
 - (3) Insert the wrench to tensioner pulley hexagonal hole and turn it clockwise to temporarily tighten the installation nut.
 - (4) Align timing belt and each pulley alignment mark to install the timing belt.
- Make sure each timing pulley and timing belt alignment mark is at position shown in the diagram.

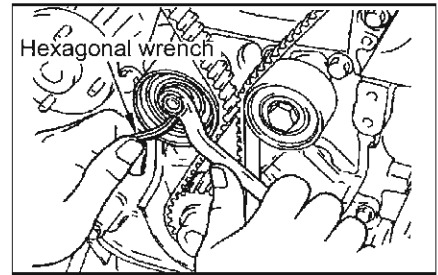


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6. Adjust the timing belt tension.

- (1) Turn the crankshaft clockwise twice with tensioner pulley installation bolt in loose condition.
- (2) Insert wrench to tensioner pulley hexagonal hole to fix the tensioner pulley to tighten the installation bolts.
Tightening torque(N-m{kg-m}) 43~58{4.4~5.9}

 - The timing belt tension should be at correct tension.

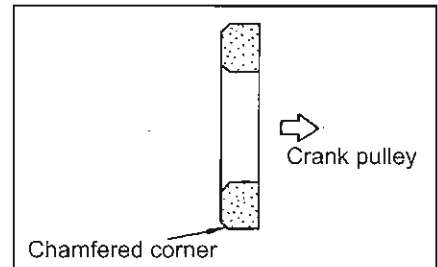


7. Install the crank timing pulley plate.

8. Install the timing belt cover (lower).
Tightening torque (N-m{kg-m}) 6.4~8.4{0.65~0.86}

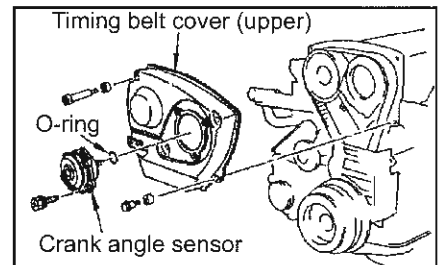
9. Install the crank pulley.

- Fix the crankshaft using the ring gear stopper.
- Install the washer so the flat surface is facing the crank pulley.
- Coat installation bolt and flange surface then tighten the bolts.
Tightening torque (N-m{kg-m}) 142~152{14.5~15.5}



10. Install the timing belt cover (upper)

- Tightening torque (N-m{kg-m})
- | | |
|-----------------------------------|--------------------|
| Inner hexagonal installation bolt | 16~21{1.6~2.1} |
| Installation bolt | 6.4~8.4{0.65~0.86} |



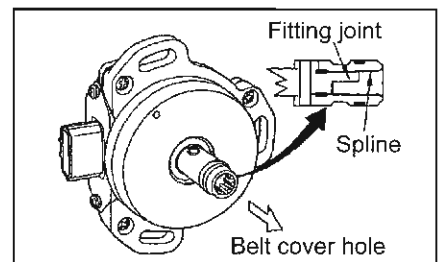
11. Install the crank angle sensor.

- (1) Apply grease to spline parts.

Caution:

Do not use chassis grease as it will outflow in high temperature.

- (2) There is a fitting joint inside the spline. Check the position of the spline before installing.
- (3) Check if it can be inserted in to the crank angle sensor belt cover hole easily, then tighten the bolt.
- (4) If it doesn't move easily, loosen the belt cover installation bolt while the crank angle sensor is in inserted position. Lightly move the belt cover up, down, right and left to align the centre of the belt cover hole and the cam shaft centre. Tighten the bolts.
Tightening torque (N-m{kg-m}) 3.9~4.9{0.4~0.5}



12. Place new timing belt replacement notification label on the timing belt cover surface (upper) once you have replaced the timing belt.

- Write mileage and the date on the label.

13. Install the rest in reverse order to the removal procedure.

