

REMOVAL

1. Remove the V-belt.
2. Remove the water pump pulley.
3. Remove the crankshaft pulley.

When removing the attaching bolt of the crankshaft pulley, use the following SST to prevent the ring gear from turning.

SST: 09201-87701-000

4. Remove the resistive cord.
5. Remove the oil filler cap.
6. Remove the surge tank cover.
7. Remove the surge tank bracket.
8. Remove the cylinder head cover.
9. Remove the timing belt upper cover.
10. Remove the timing belt lower cover.

11. Remove the timing belt tensioner subassembly.
When removing the timing belt tensioner subassembly, set the piston No.1 to the top dead center under the compression stroke.

(Before removing the timing belt tensioner, align the punch marks of the crankshaft and camshaft timing belt pulleys with the indicators, respectively.)

NOTE:

After the timing belt tensioner has been removed, under no circumstances should the camshaft or the crankshaft timing belt pulley be rotated. If they should be rotated, the piston will interfere with the valves, resulting in damage to these parts.

12. Remove the timing belt idler subassembly No.1.
13. Remove the timing belt idler subassembly No.2. Remove it, using a 10 mm hexagon wrench.

14. Remove the crankshaft timing belt pulley flange.
15. Remove the timing belt.

Prior to the timing belt removal, put a mark which shows the normal rotating direction at the back surface of the timing belt, using chalk or the like.

NOTE:

- ① While removing the timing belt, make sure not to bend the belt sharply to form a small radius. Moreover, never use a screwdriver or the like.
- ② Never allow oils and water to get to the timing belt.

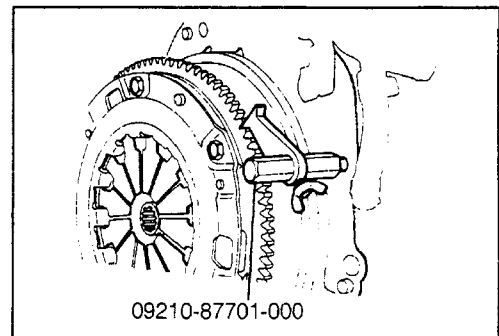


Fig. 5-100

WM-05115

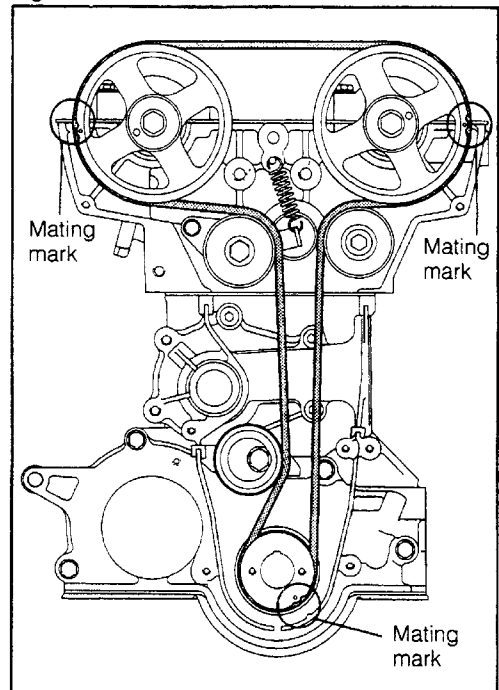


Fig. 5-101

WM-05116

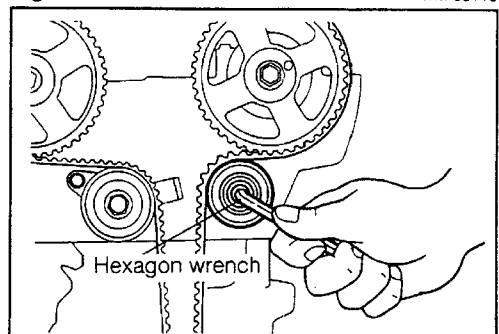


Fig. 5-102

WM-05117

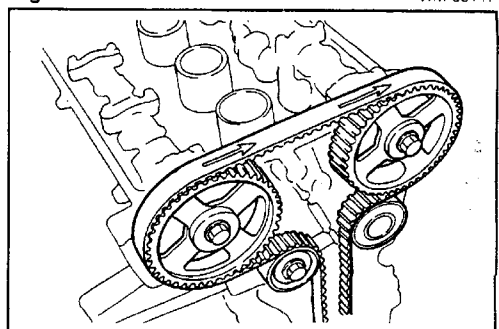


Fig. 5-103

WM-05118

ENGINE MECHANICALS

16. Remove the crankshaft timing belt pulley, as follows:
Screw in M6 bolts. Remove the crankshaft timing belt pulley together with the bolts.

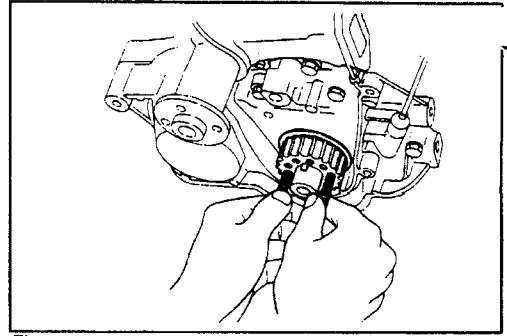


Fig. 5-104

WM-05119

17. Remove the camshaft timing belt pulley (intake & exhaust).
When removing the attaching bolt of the camshaft timing belt pulley, prevent the rotation of the camshaft by holding the hexagonal section (width across flats: 23 mm) of the cylinder No.1 with a spanner or the like.

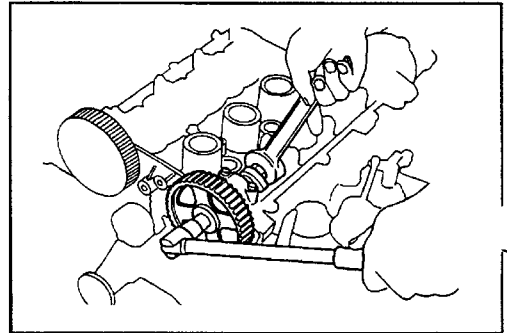


Fig. 5-105

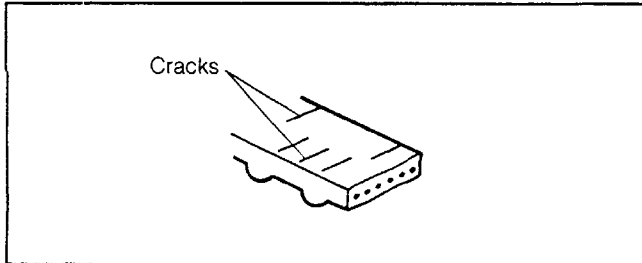
WM-05120

INSPECTION

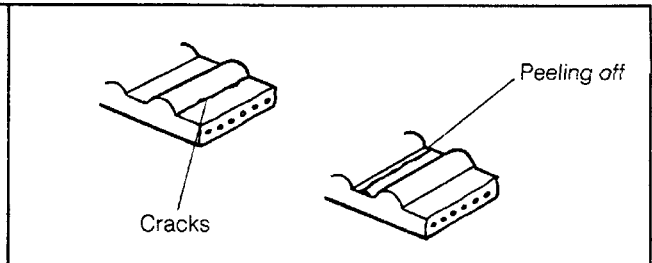
1. Checking of timing belt

Check each section of the timing belt. Replace the belt which exhibits the following damage.

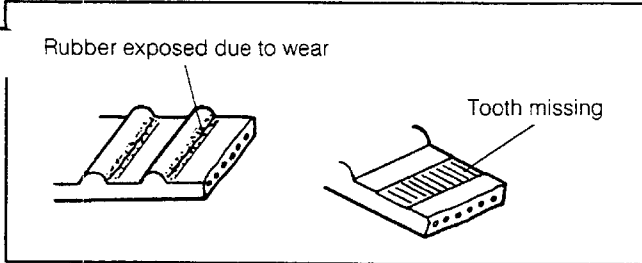
(1) Cracks at rubber portion of back surface



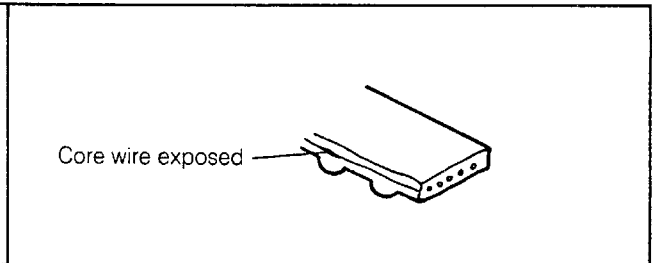
(2) Cracks at tooth bottom and peeling off and cracks at canvas



(3) Wear at canvas and tooth missing



(4) Abnormal wear at side surface of belt



Replace the belt in the following cases, even if no external damage is observed.

- (1) Case where the timing belt has been continuously exposed to water owing to water leakage of the water pump, etc.
- (2) Case where the rubber may have swollen because of a large amount of oil stuck on the timing belt
- (3) Case where most likely excessive force has been applied to the timing belt due to a camshaft seizure

WM-05121

2. Checking of timing belt tensioner

Turn the tensioner. Check the bearing for a lock condition and abnormal noise. Also check the belt contact surface for damage.

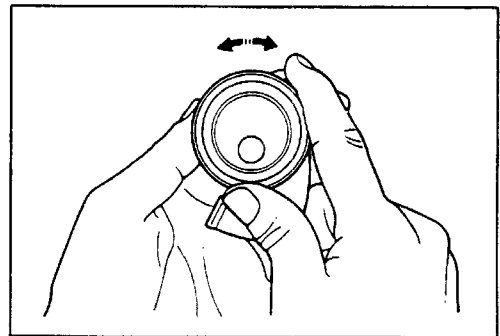


Fig. 5-106

WM-05122

3. Checking of timing belt idler subassemblies No.1 and No.2

Check the timing belt idler subassemblies No.1 and No.2 in the same way as with the timing belt tensioner.

WM-05123

ENGINE MECHANICALS

4. Checking of timing belt pulley
 (1) Check the timing belt pulley for wear.

	mm (inch)
	Minimum limit
Camshaft timing belt pulley	110.6 (4.354)
Crankshaft timing belt pulley	54.6 (2.149)

If wear of the timing belt pulley exceeds the minimum limit above, replace the timing belt pulley.

- (2) Check the belt contact surface of the timing belt pulley for scratches, etc.

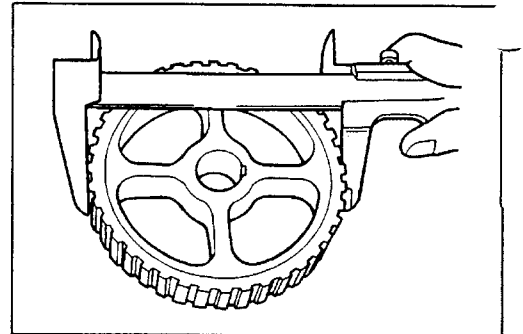


Fig. 5-107

WM-05124

5. Checking of crankshaft timing belt pulley flange
 Check the crankshaft timing belt pulley flange for deformation or damage.

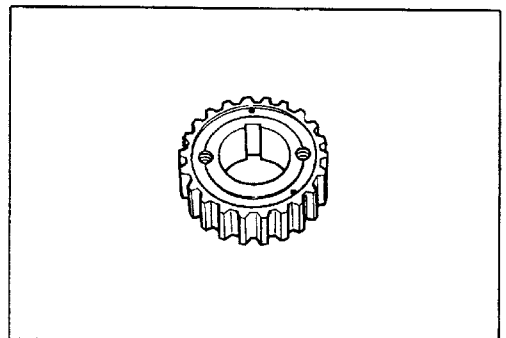


Fig. 5-108

WM-05125

INSTALLATION

1. Installation of camshaft timing belt pulley
 - (1) Install the camshaft timing belt pulley to the camshaft with the "F" mark facing toward your side.
 - (2) Install the washer plate of the timing belt pulley in such a way that the washer plate's locating pin for camshaft positioning use is aligned with the groove of the timing belt pulley and the hole at the end surface of the camshaft.
 - (3) Tighten the attaching bolt.

Tightening Torque: 3.0 - 4.5 kg-m (22 - 33 ft-lb)

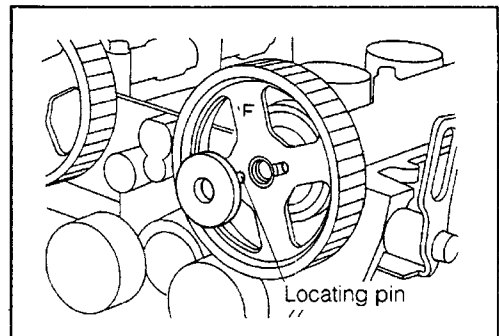


Fig. 5-109

WM-05126

2. Installation of crankshaft timing belt pulley flange

Install the crankshaft timing belt pulley flange with its hemmed portion at the periphery facing the cylinder block side.
3. Installation of crankshaft timing belt pulley

With the "F" mark at the end surface of the crankshaft timing belt pulley facing toward your side, insert the pulley into the crankshaft, aligning with the key groove.

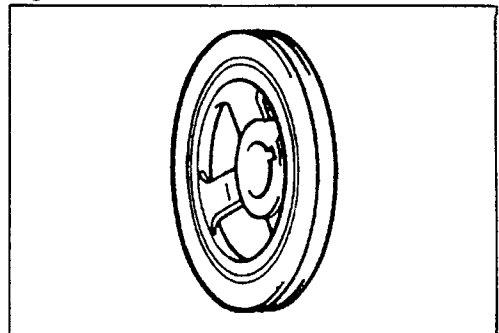


Fig. 5-110

WM-05127

4. Installation of timing belt idler subassembly No.1

When installing the idler subassembly No.1, bring the right side of the locating bracket into contact with the balance shaft gear cover. Namely, set the bracket in such a way that a clearance is provided between the left side of the bracket and the balance gear cover.

Tightening Torque: 3.0 - 4.5 kg-m (22 - 33 ft-lb)

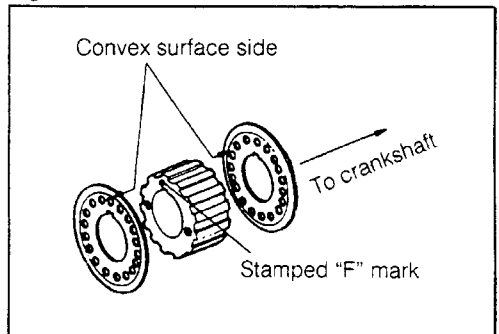


Fig. 5-111

WM-05128

5. Installation of timing belt idler subassembly No.2

Install the timing belt idler subassembly No.2, using a 10 mm hexagon wrench.

Tightening Torque: 4.0 - 5.0 kg-m (29 - 36 ft-lb)

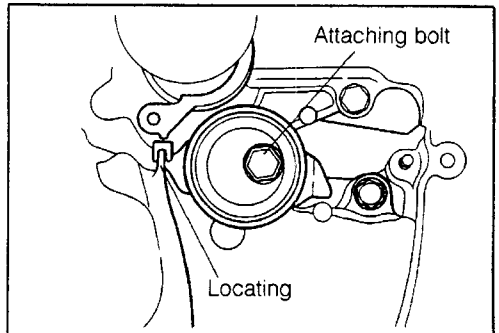


Fig. 5-112

WM-05129

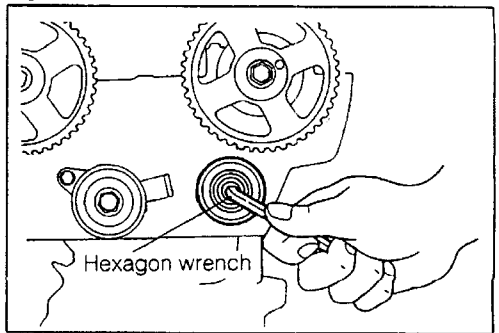


Fig. 5-113

WM-05130

ENGINE MECHANICALS

6. Installation of timing belt tensioner
 - (1) With the timing belt tensioner set to the lowest position, temporarily tighten the two attaching bolts of the timing belt tensioner.
(This tightening must be made to such an extent that the tensioner can not be moved when the tension spring is attached.)
 - (2) Install the tension spring. Ensure that the tension spring are positively hooked at its both ends and will not be detached.

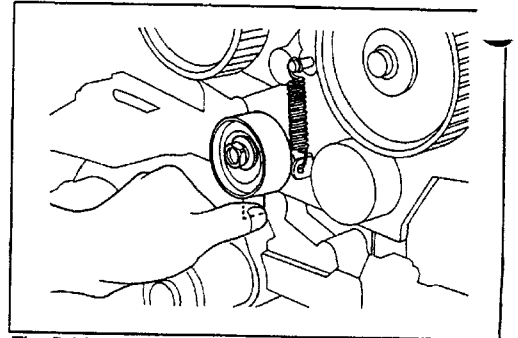


Fig. 5-114

WM-05131

7. Install the timing belt.

NOTE:

- ① Make sure not to bend the belt sharply to form a small radius. Such practice will cut the belt cord. (Never try to pry the timing belt with a screwdriver or the like.)
- ② Never permit oils or water to get to the belt.
- ③ When turning the engine with the belt installed, the rotation should be made at the crankshaft side.
- ④ If the belt is reused, install the belt in such a way that the belt is turned in the same direction indicated by the arrow mark which was put at the belt's back surface during the belt removal.

WM-05132

- (1) Ensure that the recessed marks of the crankshaft and camshaft timing belt pulleys are aligned with the indicator marks, respectively.

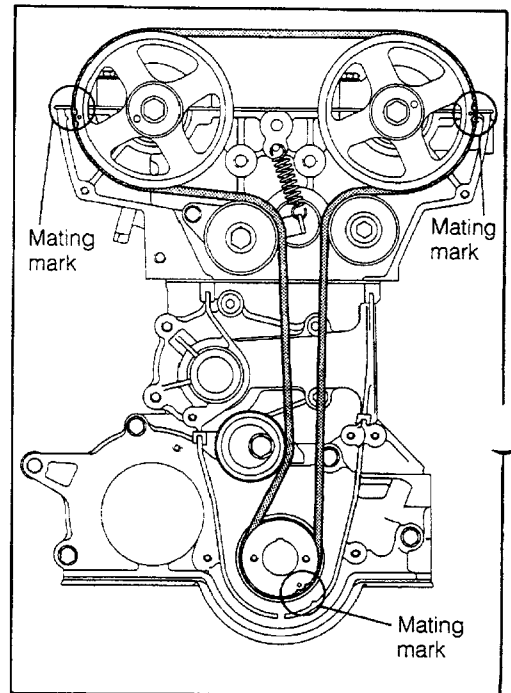


Fig. 5-115

WM-05133

- (2) Install the timing belt in such a way that the part number of the timing belt can be seen properly, as viewed toward the cylinder head side, and comes between the timing marks of the camshaft pulley. Also, make sure that the three mating marks at the back surface of the belt are aligned with the recessed marks on the camshaft and crankshaft timing belt pulleys, respectively. Ensure that the belt is not slackened, especially at the tension side (exhaust side) of the belt.

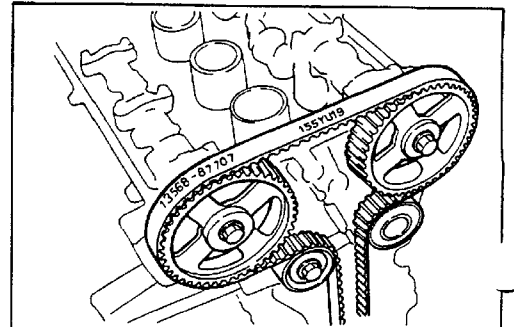


Fig. 5-116

WM-05134