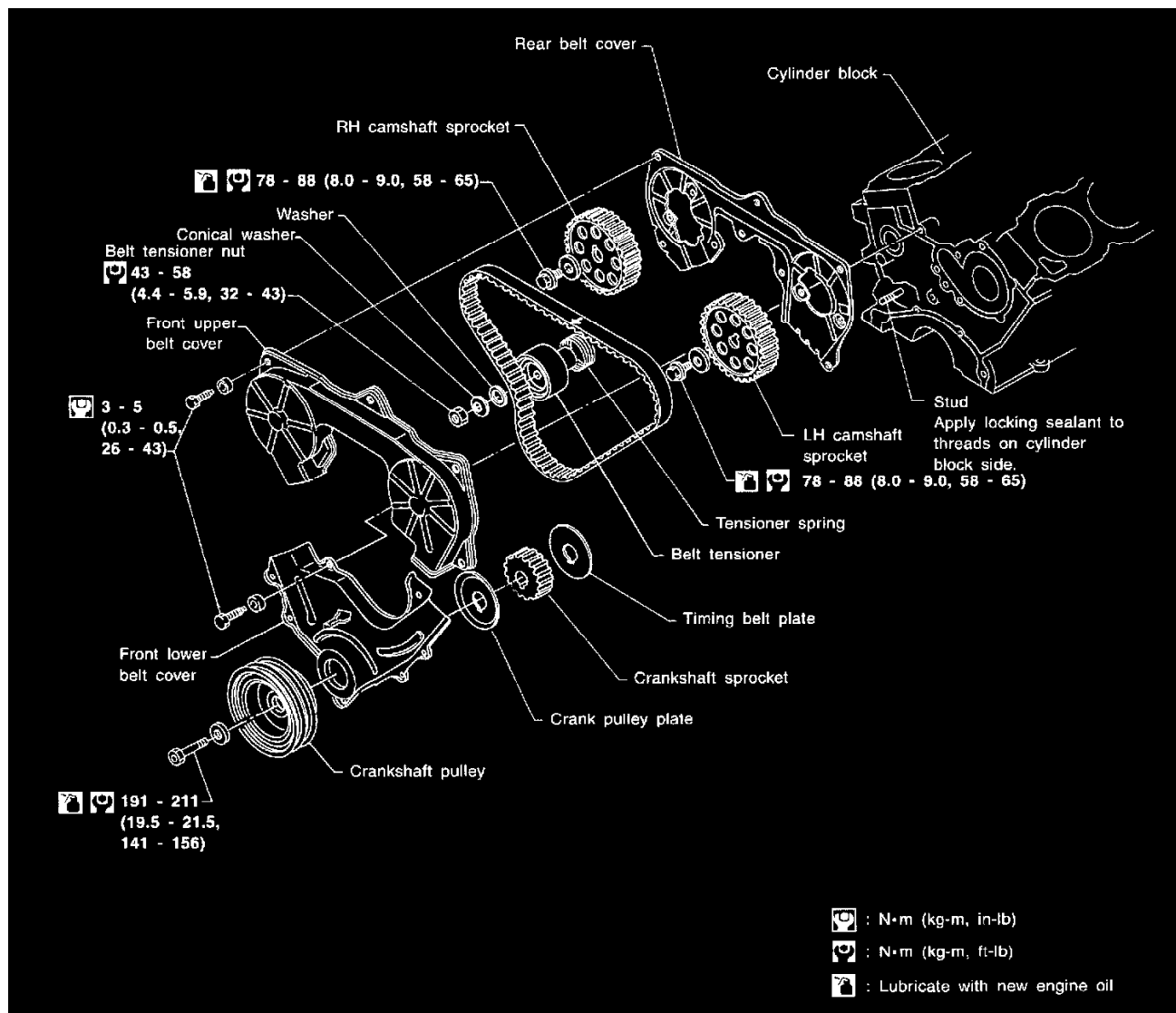


Timing Belt: Service and Repair

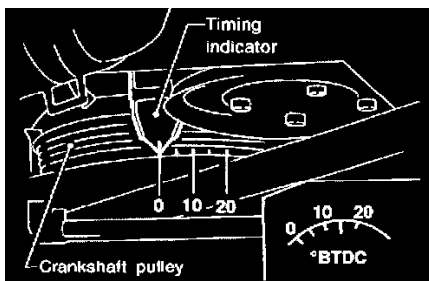


CAUTION:

- Do not bend or twist timing belt.
- After removing timing belt, do not turn crankshaft and camshaft separately because valves will strike piston heads.
- Make sure that timing belt, camshaft sprocket, crankshaft sprocket and belt tensioner are clean and free from oil and water.
- Installation should be carried out when engine is cold.

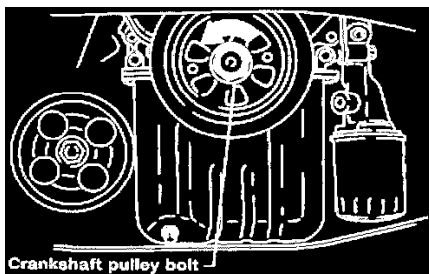
Removal

1. Jack up the vehicle front and support with safety stand.
2. Remove engine under cover.
3. Remove front RH wheel and engine side cover.
4. Drain engine coolant from radiator.
5. Remove the following belts.
 - Compressor drive belt
 - Generator drive belt
 - Power steering pump drive belt

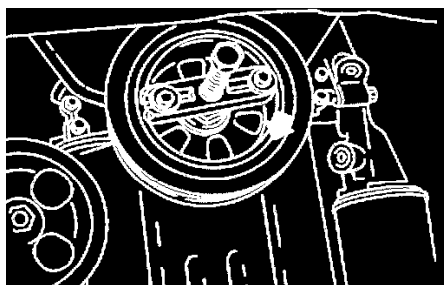


Timing Marks

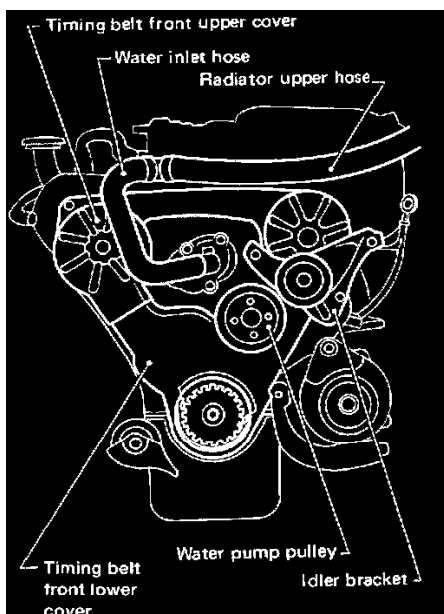
6. Set No. 1 piston at TDC of its compression stroke.



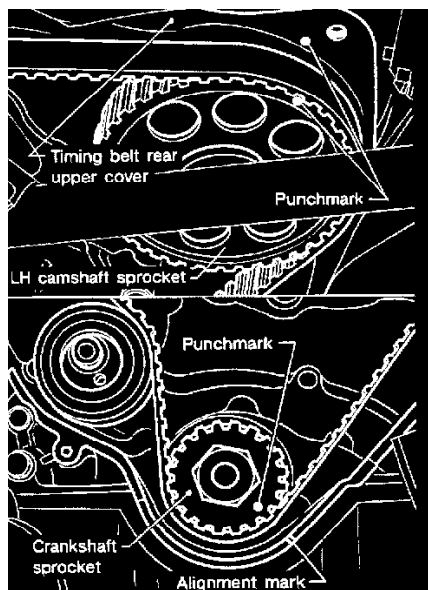
7. Loosen crankshaft pulley bolt.



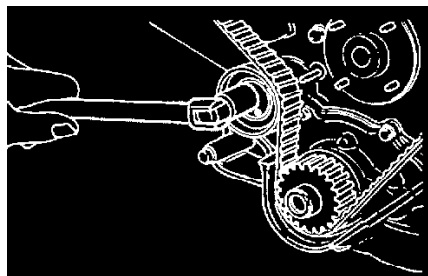
8. Remove crankshaft pulley using a suitable puller.



9. Remove radiator upper hose and water inlet hose.
10. Remove compressor drive belt idler bracket.
11. Remove water pump pulley.
12. Remove breather pipe from timing belt front upper cover.
13. Remove timing belt front covers.

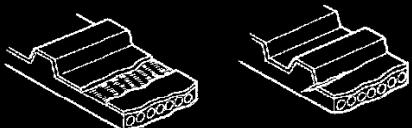
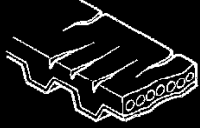
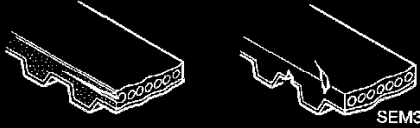
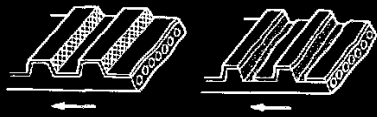


- Align punchmark on LH camshaft sprocket with punchmark on timing belt rear cover.
- Align punchmark on crankshaft sprocket with alignment mark on oil pump housing.
- Temporarily install crankshaft pulley bolt on crankshaft so the crankshaft can be rotated.



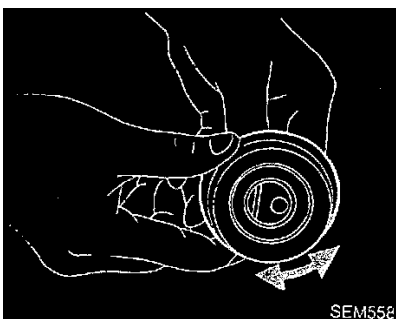
14. Loosen timing belt tensioner nut, rotate tensioner, then remove timing belt.

Inspection

| Item to check | Problem | Cause |
|--|---|---|
| Tooth is broken/tooth root is cracked. |  SEM394A | <ul style="list-style-type: none"> ● Camshaft jamming ● Distributor jamming ● Damaged camshaft/crankshaft oil seal |
| Back surface is cracked/worn. |  SEM395A | <ul style="list-style-type: none"> ● Tensioner jamming ● Overheated engine ● Interference with belt cover |
| Side surface is worn. |  SEM396A <ul style="list-style-type: none"> ● Belt corners are worn and round. ● Wicks are frayed and coming out. | <ul style="list-style-type: none"> ● Improper installation of belt ● Malfunctioning crankshaft pulley plate/timing belt plate |
| Teeth are worn. |  Rotating direction SEM397A <ul style="list-style-type: none"> ● Canvas on tooth face is worn down. ● Canvas on tooth is fluffy, rubber layer is worn down and faded white, or welt is worn down and invisible. | <ul style="list-style-type: none"> ● Poor belt cover sealing ● Coolant leakage at water pump ● Camshaft not functioning properly ● Distributor not functioning properly ● Excessive belt tension |
| Oil/Coolant or water is stuck to belt. | — | <ul style="list-style-type: none"> ● Poor oil sealing of each oil seal ● Coolant leakage at water pump ● Poor belt cover sealing |

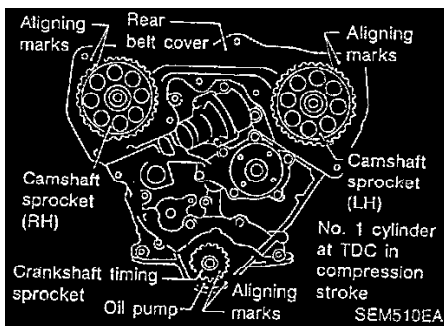
Visually check the condition of timing belt. Replace if any abnormality is found.

BELT TENSIONER AND TENSIONER SPRING

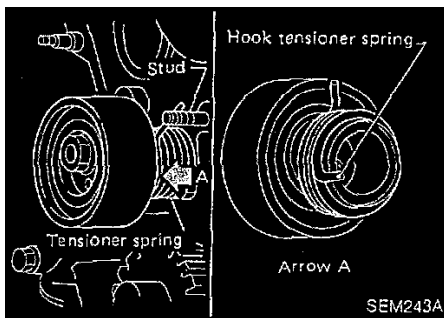


1. Check belt tensioner for smooth turning.
2. Check condition of tensioner spring.

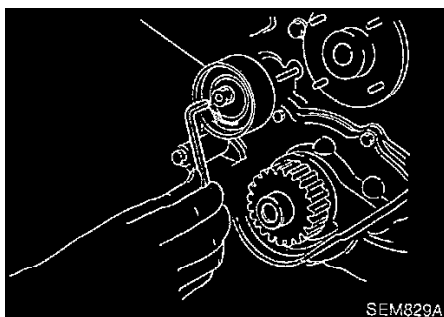
Installation



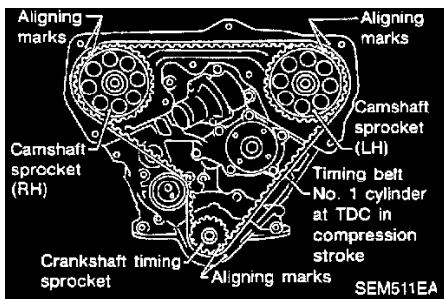
1. Confirm that No. 1 piston is set at TDC on its compression stroke.



2. Install tensioner and tensioner spring.
Once stud is removed, apply locking sealant to threads of stud on cylinder block side before installing.



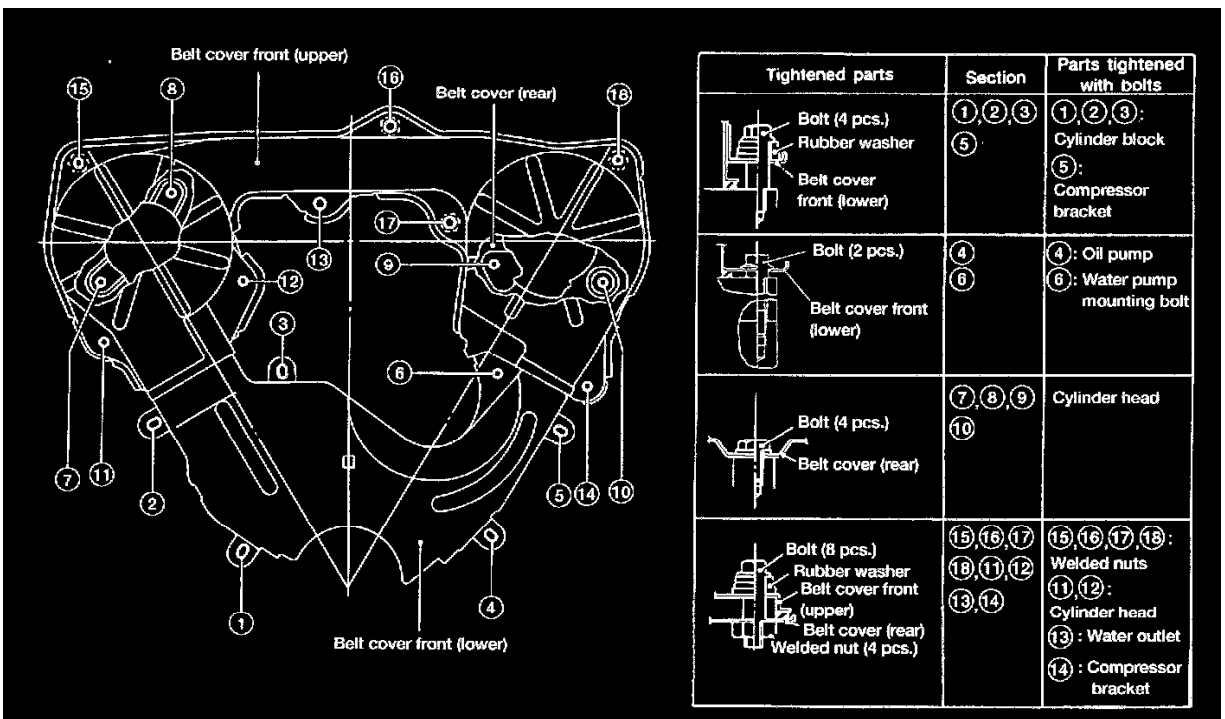
3. Turn tensioner fully outward with hexagon wrench, and temporarily tighten lock nut.



4. Set timing belt when engine is cold.
1) Align white lines on timing belt with punchmarks on camshaft sprockets and crankshaft sprocket.
2) Point arrow on timing belt toward front belt cover.

| | | |
|--------------------------------------|---|-----|
| Number of timing belt teeth | | 133 |
| Number of teeth between timing marks | Between LH and RH camshaft sprockets | 40 |
| | Between LH camshaft sprocket and crankshaft timing sprocket | 43 |

Number of teeth (reference)



Bolt Placement