

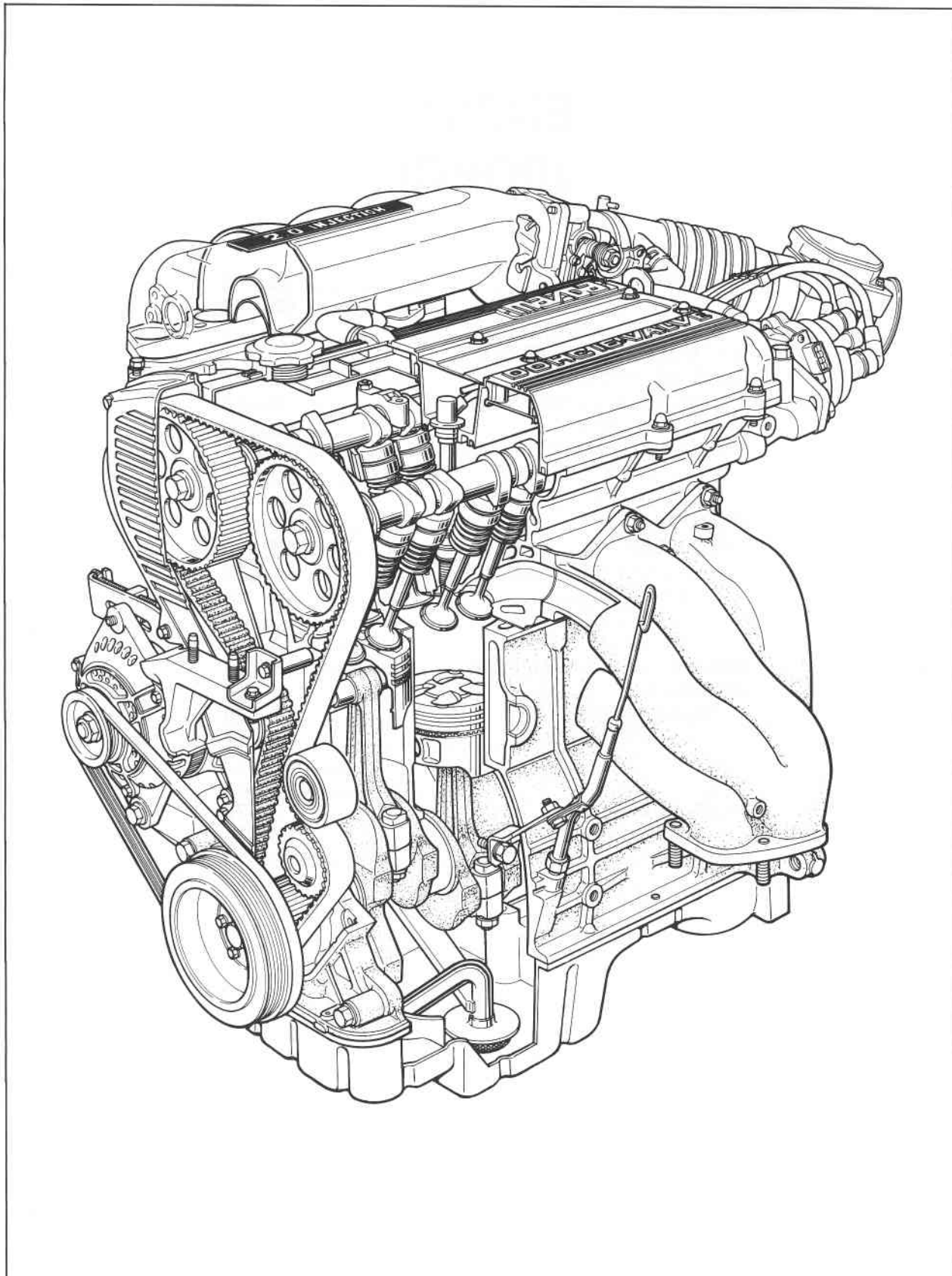
## ENGINE (DOHC)

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# 1B OUTLINE

## OUTLINE

### STRUCTURAL VIEW



4BG01A-002

## SPECIFICATIONS

Item				Engine model	FE DOHC	
					Leaded fuel	Unleaded fuel
Type					Gasoline, 4 cycle	
Cylinder arrangement and number					In line, 4 cylinders	
Combustion chamber					Pentroof	
Valve system					OHC, belt driven	
Displacementcc (cu in)					1,998 (121.9)	
Bore and strokemm (in)					86.0 x 86.0 (3.39 x 3.39)	
Compression ratio					10.0 : 1	9.2 : 1
Compression pressure kPa (kg/cm <sup>2</sup> , psi)-rpm				Standard	1,422 (14.5, 206)—290	1,373 (14.0, 199)—310
				Minimum	996 (10.2, 144)—290	961 (9.8, 139)—310
Valve timing	IN	Open	BTDC	10°	10°	
		Close	ABDC	60°	55°	
	EX	Open	BBDC	60°	55°	
		Close	ATDC	10°	10°	
Valve clearancemm (in)				IN	0; Maintenance-free	
				EX	0; Maintenance-free	
Idle speedrpm					750 ± 50	
Ignition timingBTDC					12° ± 1°	
Firing order					1—3—4—2	

76G01B-002

## TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Difficult starting	<b>Malfunction of engine-related components</b> Burned valve Worn piston, piston ring, or cylinder Failed cylinder head gasket	Replace Replace or repair Replace	1B—35 1B—43 1B—16
	<b>Malfunction of fuel system</b>	Refer to Section 4C	
	<b>Malfunction of electrical system</b>	Refer to Section 5	
Poor idling	<b>Malfunction of engine-related components</b> Malfunction of HLA Poor valve to valve seat contact Failed cylinder head gasket	Replace Repair or replace Replace	1B—60 1B—37 1B—16
	<b>Malfunction of fuel system</b>	Refer to Section 4C	
Excessive oil consumption	<b>Oil working up</b> Worn piston ring groove or sticking piston ring Worn piston or cylinder	Replace Replace or repair	1B—43 1B—43
	<b>Oil working down</b> Worn valve seal Worn valve stem or guide	Replace Replace	— 1B—35
	<b>Oil leakage</b>	Refer to Section 2A	

76G01B-003

# 1B TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Insufficient power	<b>Insufficient compression</b> Malfunction of HLA Compression leakage from valve seat Seized valve stem Weak or broken valve spring Failed cylinder head gasket Cracked or distorted cylinder head Sticking, damaged, or worn piston ring Cracked or worn piston	Replace Repair Replace Replace Replace Replace Replace Replace	1B—60 1B—37 1B—35 1B—38 1B—16 1B—34 1B—43 1B—43
	<b>Malfunction of fuel system</b>	Refer to Section 4C	
	<b>Others</b> Slipping clutch Dragging brakes Wrong size tires	Refer to Section 6 Refer to Section 11 Refer to Section 12	
Abnormal combustion	<b>Malfunction of engine-related components</b> Malfunction of HLA Sticking or burned valve Weak or broken valve spring Carbon accumulation in combustion chamber	Replace Replace Replace Eliminate carbon	1B—60 1B—35 1B—38 —
	<b>Malfunction of fuel system</b>	Refer to Section 4C	
Engine noise	<b>Crankshaft or bearing related parts</b> Excessive main bearing oil clearance Main bearing seized or heat-damaged Excessive crankshaft end play Excessive connecting rod bearing oil clearance Connecting rod bearing seized or heat-damaged	Replace or repair Replace Replace or repair Replace or repair Replace	1B—51 1B—51 1B—52 1B—53 1B—53
	<b>Piston related parts</b> Worn cylinder Worn piston or piston pin Seized piston Damaged piston ring Bent connecting rod	Replace or repair Replace Replace Replace Replace	1B—41 1B—44 1B—43 1B—43 1B—44
	<b>Valves or timing related parts</b> Malfunction of HLA* Broken valve spring Excessive valve guide clearance Malfunction of timing belt tensioner	Replace Replace Replace Replace	1B—60 1B—38 1B—35 1B—47
	<b>Malfunction of cooling system</b>	Refer to Section 3A	
	<b>Malfunction of fuel system</b>	Refer to Section 4C	
	<b>Others</b> Malfunction of water pump bearing Improper drive belt tension Malfunction of alternator bearing Exhaust gas leakage	Replace Adjust Replace Repair	— 1B— 6 — 1B—34

\* Tappet noise may occur if the engine is not operated for an extended period of time. The noise should stop after the engine has reached normal operating temperature.

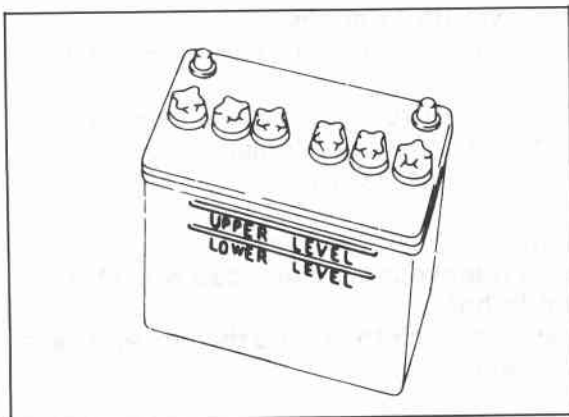
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## TUNE-UP PROCEDURE

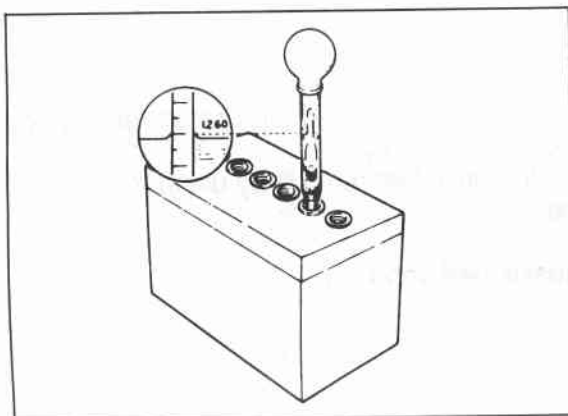
Tune the engine according to the procedures described below.

### Battery

1. Check for corrosion on the terminals, or loose cable connections.  
If necessary, clean the clamps and tighten firmly.
2. Check that the electrolyte level is between the UPPER and LOWER marks.  
Add distilled water if necessary.



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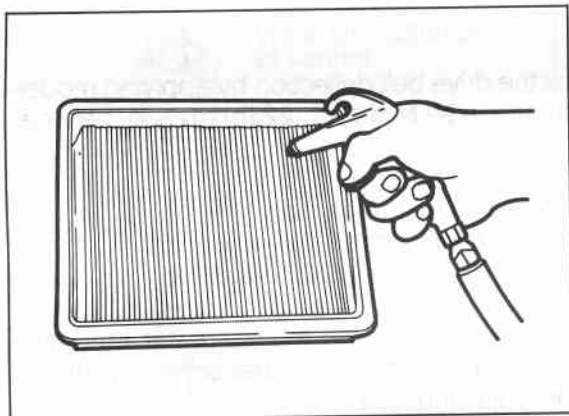
3. Check the specific gravity by using a hydrometer.  
If the specific gravity reading is 1.200 or less, recharge the battery. (Refer to Section 5.)

### Air Cleaner Element

Visually check the air cleaner element for excessive dirt, damage, or oil. Clean or replace if necessary.

#### Caution

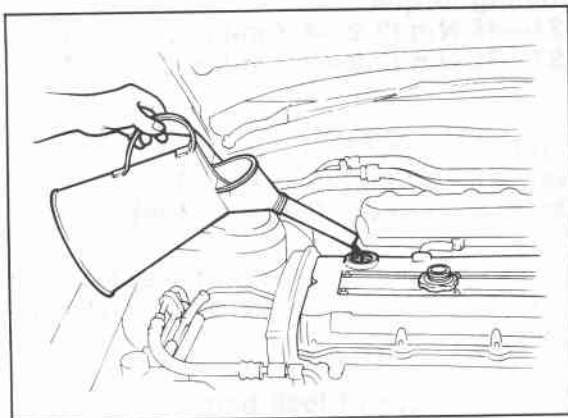
**When cleaning the air cleaner element, blow dust off from the inside completely first, then blow from the outside.**



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### Engine Oil

Check the engine oil level and condition with the oil level gauge.  
Add oil, or change it, if necessary.



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# 1B TUNE-UP PROCEDURE



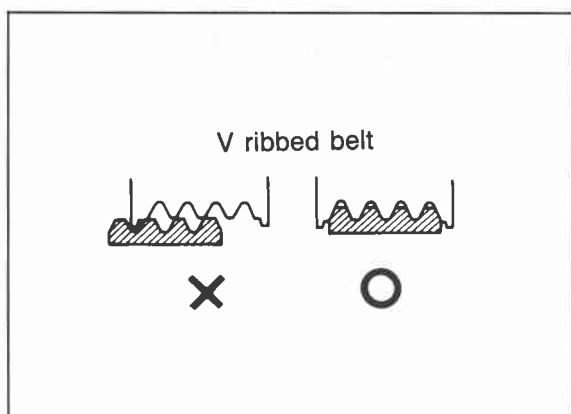
86U01X-008

## Coolant Level (Cold engine)

1. Check that the coolant level is near the radiator inlet port.
2. Check that the level in the coolant reservoir is between the FULL and LOW marks. Add coolant if necessary.

## Warning

- a) **Never remove the radiator cap while the engine is hot.**
- b) **Wrap a thick cloth around the cap and carefully remove it.**



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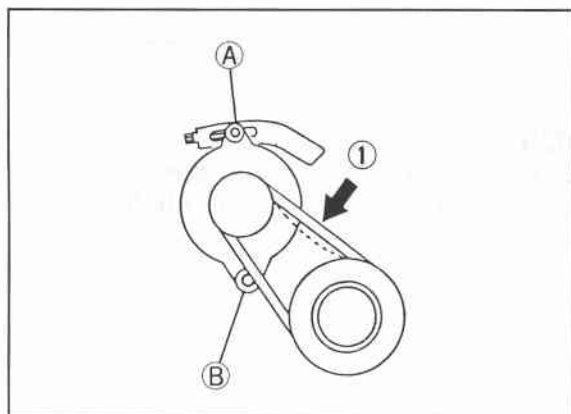
## Drive Belt

1. Check that the drive belt is positioned in the pulley groove.
2. Check the drive belt for wear, cracks, or fraying. Replace if necessary.
3. Check the drive belt tension by using the tension gauge.

## Standard belt tension

N (kg, lb)

Belt	New	Used
Alternator	589—785 (60—80, 132—176)	491—687 (50—70, 110—154)
P/S	687—883 (70—90, 154—198)	589—785 (60—80, 132—176)
A/C	687—883 (70—90, 154—198)	589—785 (60—80, 132—176)



76G01B-007

4. Check the drive belt deflection by applying moderate pressure (**98 N, 10 kg, 22 lb**) midway between the pulleys.

## (1) Alternator belt deflection

**New : 6—8 mm (0.24—0.31 in)**

**Used: 7—9 mm (0.27—0.35 in)**

If necessary, loosen the alternator mounting bolts and adjust the belt deflection by turning the adjusting bolt.

## Tightening torque

**Ⓐ : 31—46 N·m (3.2—4.7 m·kg, 23—34 ft·lb)**

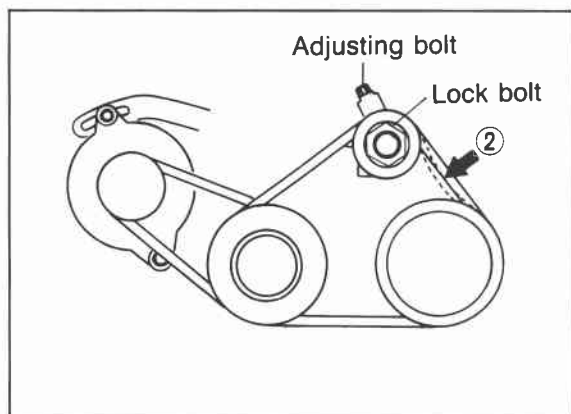
**Ⓑ : 37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**

## (2) P/S belt deflection

**New : 8—10 mm (0.31—0.39 in)**

**Used: 9—11 mm (0.35—0.43 in)**

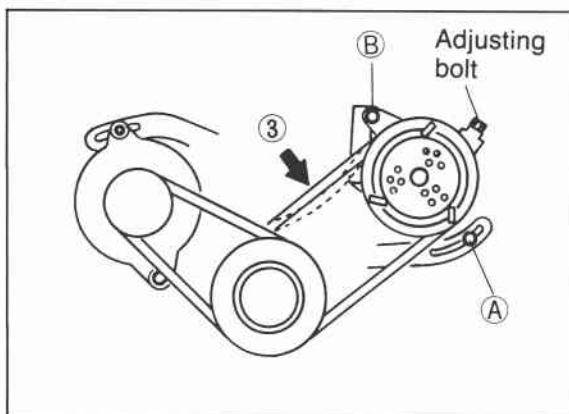
If necessary, loosen the idler pulley lock bolt and adjust the belt deflection by turning the adjusting bolt.



76G01B-008

## Tightening torque of lock bolt:

**37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**



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## (3) A/C belt deflection

**New : 7—9 mm (0.27—0.35 in)**

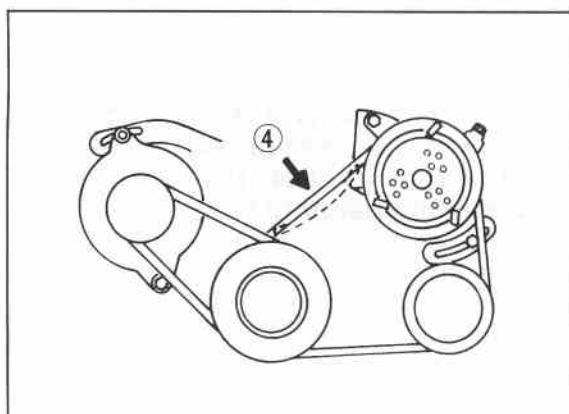
**Used: 8—10 mm (0.31—0.39 in)**

If necessary, loosen the A/C mounting bolts and adjust the belt deflection by turning the adjusting bolt.

## Tightening torque

**A: 37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**

**B: 37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**



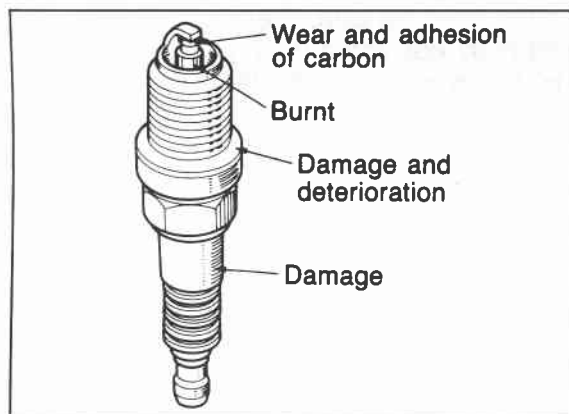
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## (4) P/S and A/C belt deflection

**New : 7—9 mm (0.27—0.35 in)**

**Used: 8—10 mm (0.31—0.39 in)**

If necessary, adjust the belt deflection using the same procedure as used for the A/C belt deflection.



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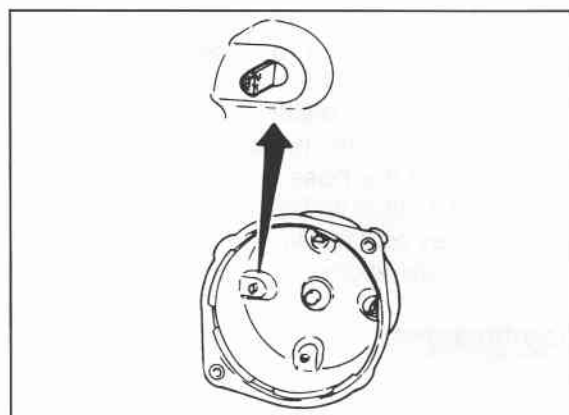
## Spark Plug

Check the following points. Clean or replace if necessary.

1. Damaged insulation
2. Worn electrodes
3. Carbon deposits
4. Damaged gasket
5. Burnt spark insulator
6. Plug gap

## Plug gap:

**0.7—0.8 mm (0.028—0.031 in)**



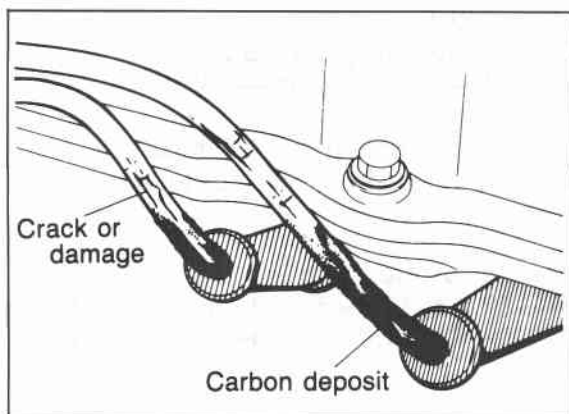
86U01X-013

## Distributor Cap

Check the following points. Replace if necessary.

1. Cracks or carbon deposits
2. Burnt or corroded terminals
3. Worn distributor center contact

# 1B TUNE-UP PROCEDURE

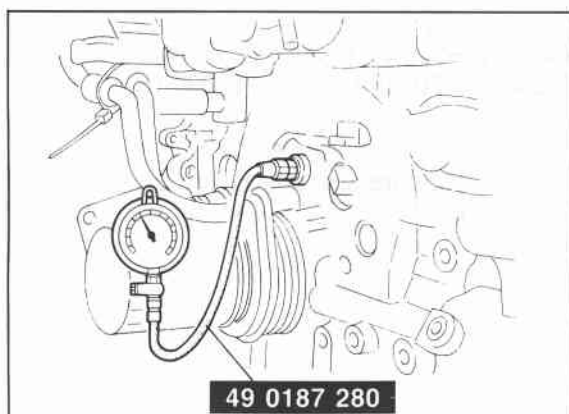


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## High-Tension Lead

Check the following points. Clean or replace if necessary.

1. Damaged lead
2. Carbon deposits



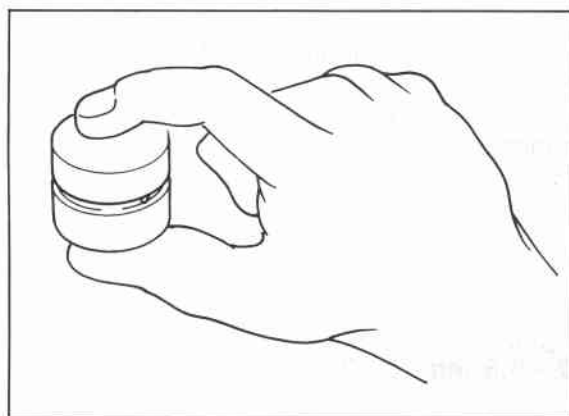
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## Hydraulic Lash Adjuster (HLA)

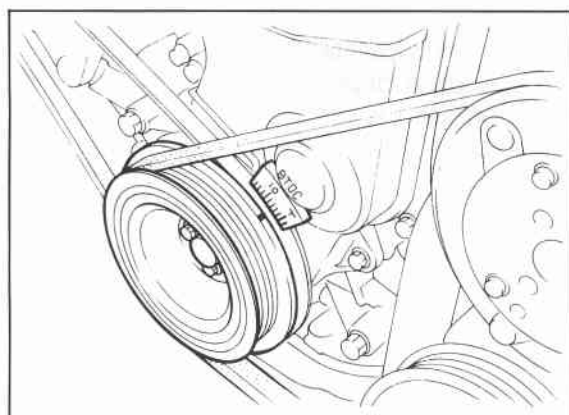
### Note

**Tappet noise may occur if the engine is not operated for an extended period of time. The noise should stop after the engine has reached normal operating temperature.**

1. Check for tappet noise. If noise exists, check the following points.
  - (1) Engine oil condition and level
  - (2) Engine oil pressure (Refer to Section 2A)
2. If the noise does not stop, check for movement of each HLA by pushing it during disassembly.
3. If the HLA moves, replace the HLA. (Refer to page 1B—60.)



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76G01B-013

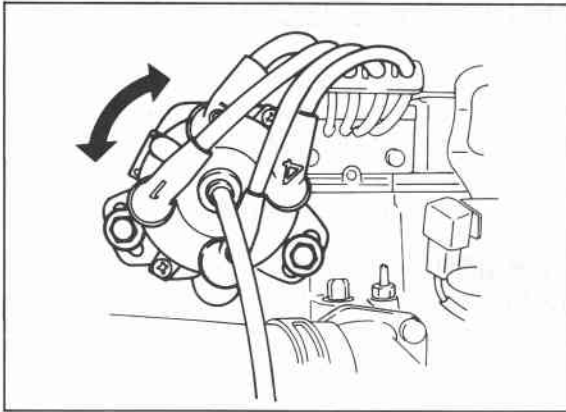
## Ignition Timing

1. Warm up the engine and run it at idle.
2. Turn all electric loads OFF.
3. Connect a timing light tester.
4. Disconnect the vacuum hose from the vacuum control, and plug the hose.
5. Check that the ignition timing mark (yellow) on the crankshaft pulley and the timing mark on the timing belt cover are aligned.

**Ignition timing:  $12^{\circ} \pm 1^{\circ}$  BTDC  
(at idle speed)**

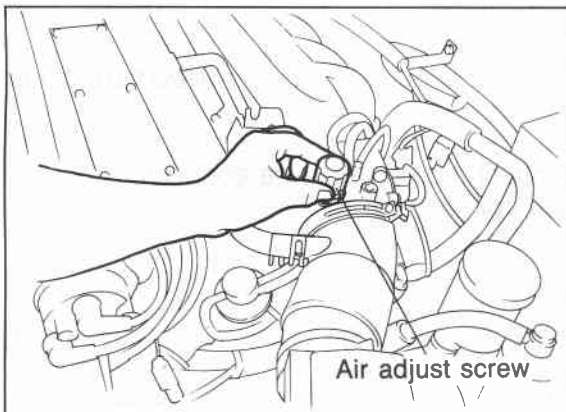


## TUNE-UP PROCEDURE 1B



69G01B-518

6. If necessary, adjust the ignition timing by turning the distributor.



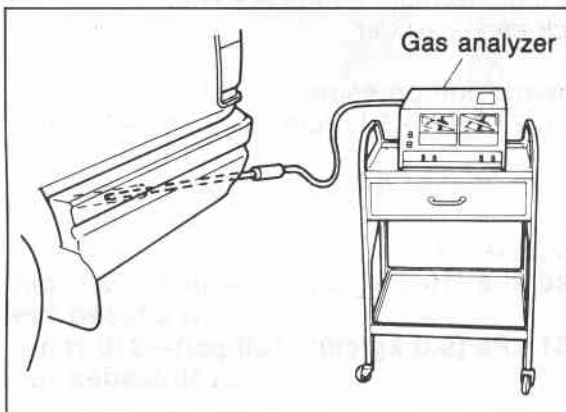
76G01B-014

### Idle Speed

1. Ground the test connector to the vehicle with a jumper wire.
2. Connect a tachometer to the engine.
3. Check the idle speed.

**Idle speed:  $750 \pm 50$  rpm**

4. If necessary, remove the blind cap from the throttle body and adjust by turning the air adjust screw.
5. Install the blind cap and disconnect the jumper wire from the test connector.



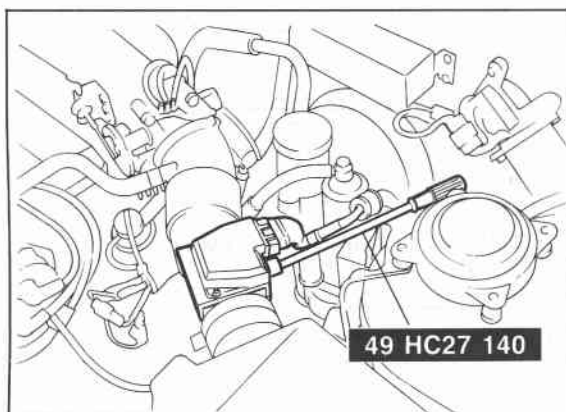
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### Idle Mixture

1. Connect an exhaust gas analyzer to the vehicle.
2. Measure the CO and HC concentration.

**CO concentration:  $1.5 \pm 0.5\%$**

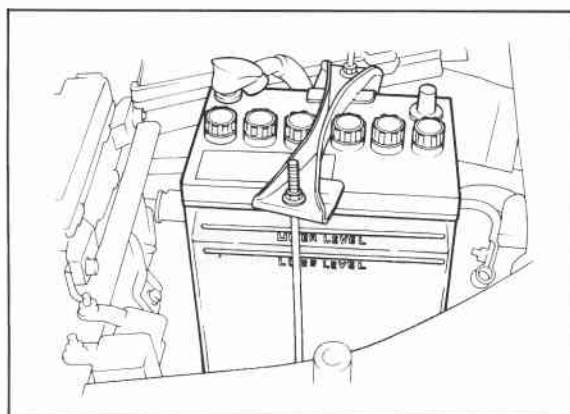
**HC concentration: Less than 1,000 ppm**



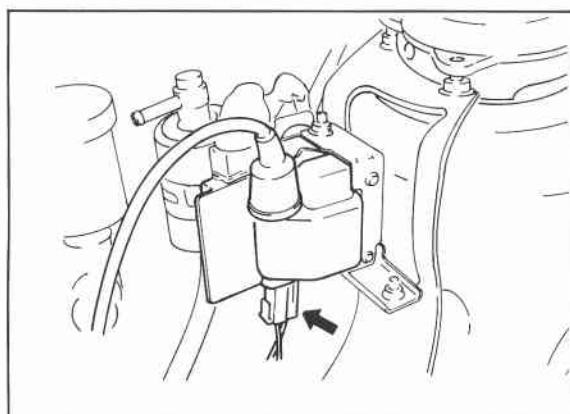
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3. If necessary, remove the blind cap from the air flow meter and adjust by turning the bypass air adjust screw with **SST**.
4. Install the blind cap to the air flow meter and disconnect the jumper wire from the test connector.

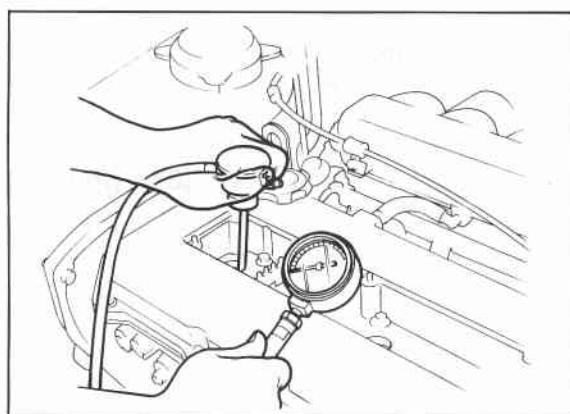
# 1B ON-VEHICLE INSPECTION



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76G01B-018

## ON-VEHICLE INSPECTION

If the engine exhibits low power, poor fuel economy, or poor idle, check the following points.

1. Ignition system (Refer to Section 5)
2. Compression
3. Fuel system (Refer to Section 4C)

### COMPRESSION

1. Check that the battery is fully charged. Recharge if necessary.

2. Warm up the engine to the normal operating temperature.
3. Turn it off for about 10 minutes to allow the exhaust manifold to cool.
4. Remove all spark plugs.
5. Disconnect the primary wire connector from the ignition coil.

6. Connect a compression gauge to No.1 spark plug hole.
7. Fully depress the accelerator pedal and crank the engine.
8. Note the maximum gauge reading.
9. Check each cylinder.

#### Standard compression:

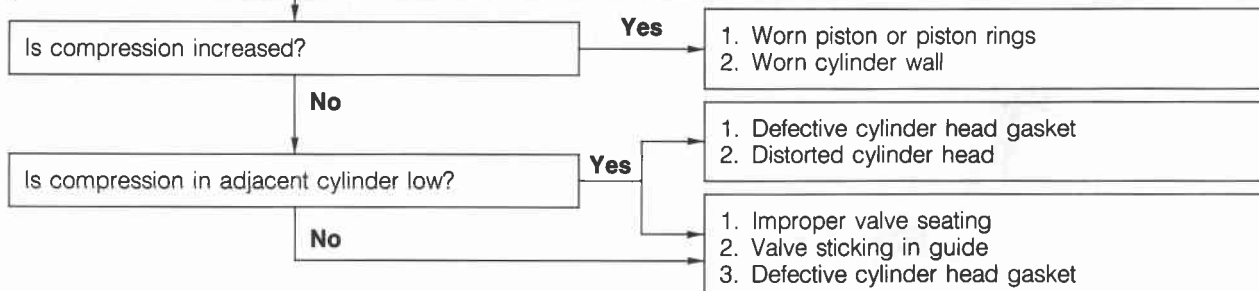
**1,422 kPa (14.5 kg/cm<sup>2</sup>, 206 psi)—290 rpm**  
 ..... **Leaded fuel**  
**1,373 kPa (14.0 kg/cm<sup>2</sup>, 199 psi)—310 rpm**  
 ... **Unleaded fuel**

#### Compression limit:

**996 kPa (10.2 kg/cm<sup>2</sup>, 144 psi)—290 rpm**  
 ..... **Leaded fuel**  
**961 kPa (9.8 kg/cm<sup>2</sup>, 139 psi)—310 rpm**  
 ... **Unleaded fuel**

### Possible Cause

If compression is low, pour heavy oil into the cylinder and turn the crankshaft several times  
 Check compression once more



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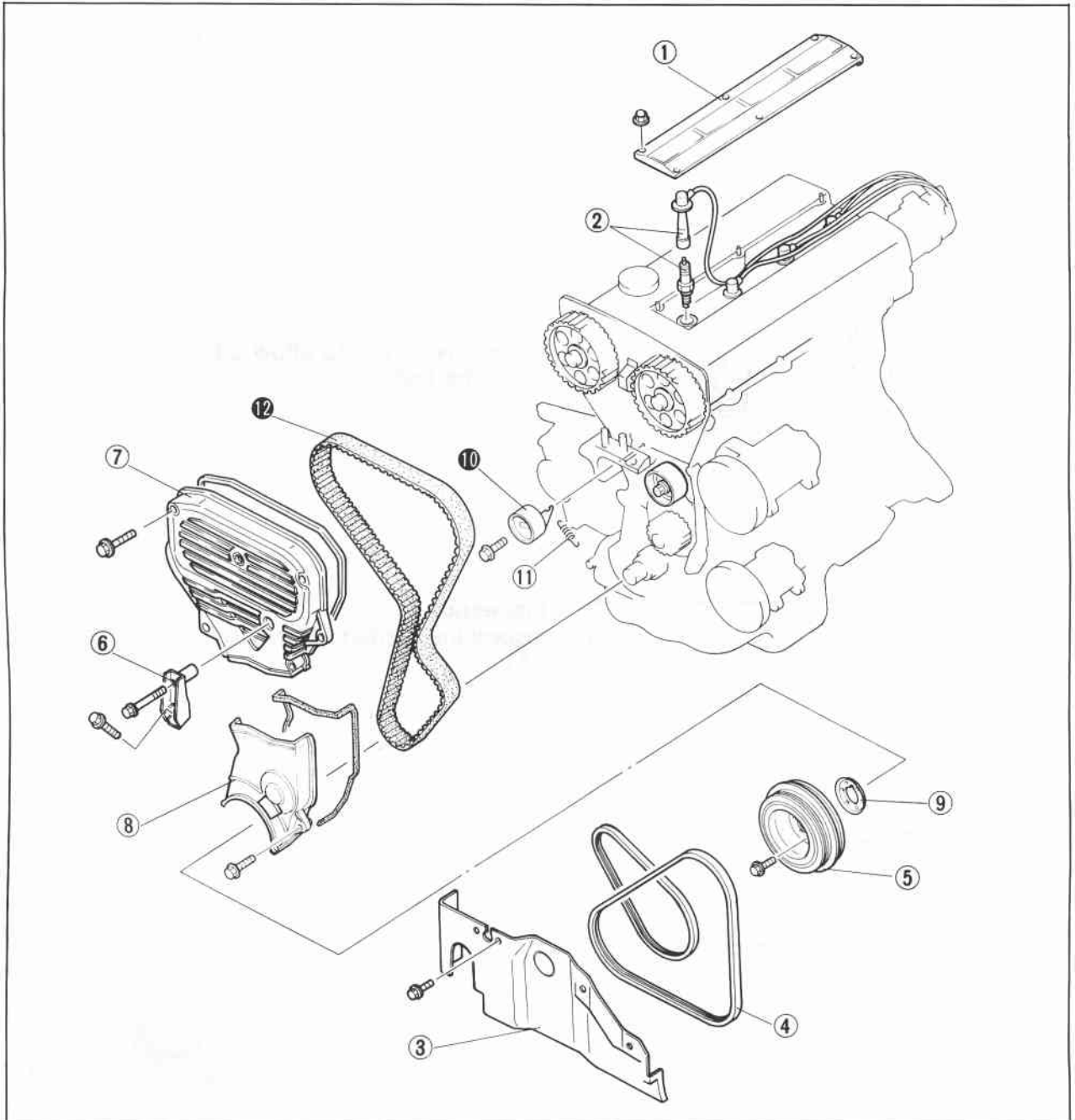
## ON-VEHICLE MAINTENANCE

### TIMING BELT

#### Removal

1. Disconnect the negative battery cable.
2. Remove in the sequence shown in the figure referring to the removal note for specially marked parts.

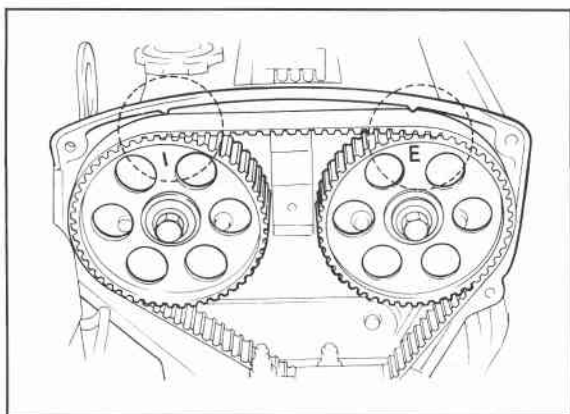
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76G01B-020

- |                                     |                                  |
|-------------------------------------|----------------------------------|
| 1. Center cover                     | 7. Upper timing belt cover       |
| 2. High-tension lead and spark plug | 8. Lower timing belt cover       |
| 3. Engine side cover                | 9. Baffle plate                  |
| 4. Drive belt                       | 10. Timing belt tensioner        |
| 5. Crankshaft pulley                | 11. Timing belt tensioner spring |
| 6. Engine mount bracket             | 12. Timing belt                  |

## 1B ON-VEHICLE MAINTENANCE (TIMING BELT)



76G01B-021

### Removal note

#### Timing belt tensioner

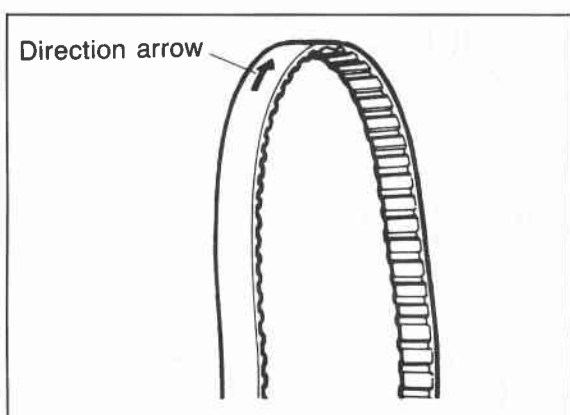
1. Turn the crankshaft to align the mating marks of the camshaft pulleys.

#### Note

**For intake side camshaft pulley, align “I” mark.**

**For exhaust side camshaft pulley, align “E” mark.**

2. Remove the tensioner.



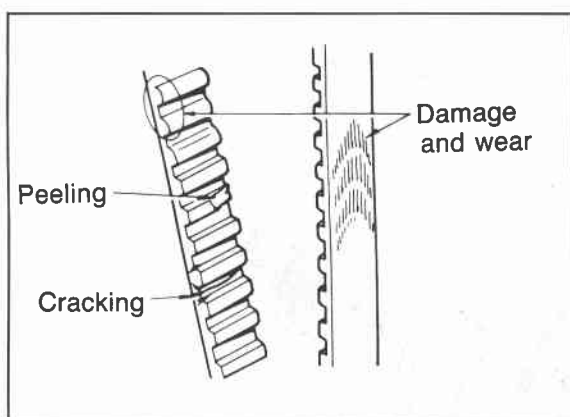
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### Timing belt

Mark the timing belt rotation for proper reinstallation if it is reused.

#### Caution

**Be careful not to allow oil, grease, or water on the belt.**



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### Inspection

Inspect the following parts. (Refer to page 1B—46, 47.)

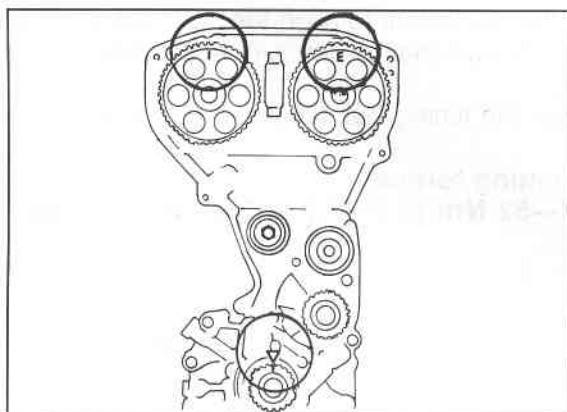
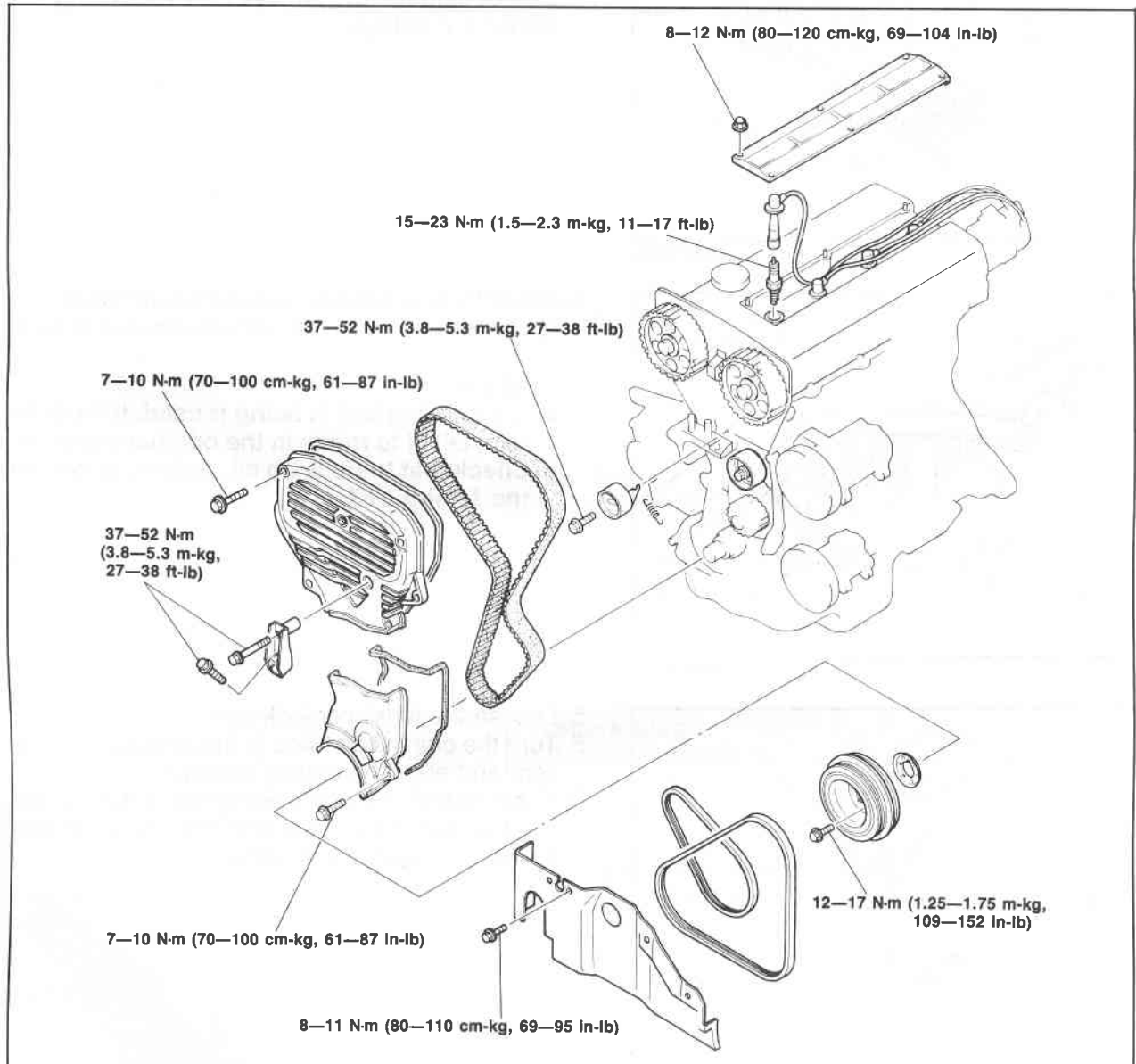
1. Timing belt
2. Timing belt tensioner and spring
3. Timing belt idler pulley
4. Timing belt pulley
5. Camshaft pulley

## Installation

Install in the reverse order of removal referring to the installation note.

## Torque Specifications

76G01A-109



76G01B-023

## Installation note

### Timing belt

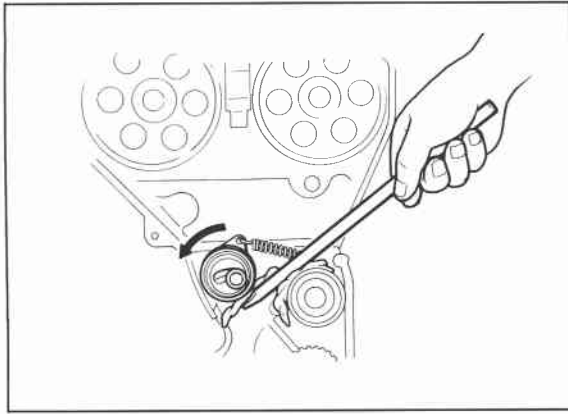
1. Check that the mark on the timing belt pulley is aligned with the mating mark.
2. Check that the mating mark of the camshaft pulleys are aligned with the seal plate mating marks.

### Note

**For intake side camshaft pulley, align "I" mark.**

**For exhaust side camshaft pulley, align "E" mark.**

## 1B ON-VEHICLE MAINTENANCE (TIMING BELT)

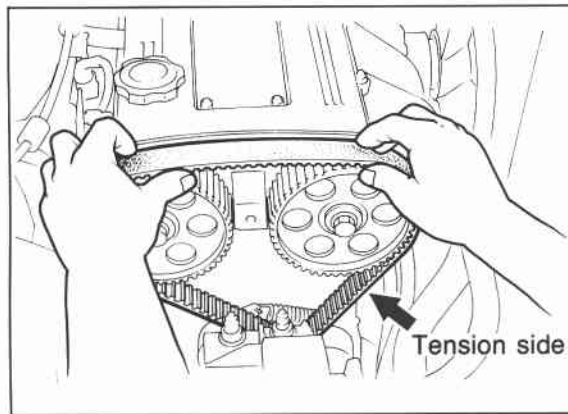


76G01B-024

3. Install the timing belt tensioner and spring. Temporarily secure it with the spring fully extended.

### Caution

**Do not damage the pulleys when securing the tensioner pulley.**

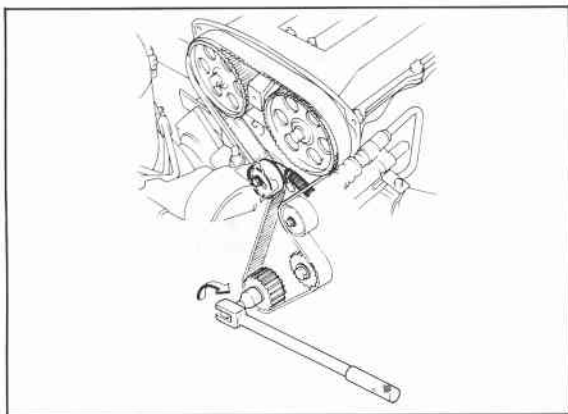


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4. Install the timing belt so that there is no looseness at the tension side, and at the two camshaft pulleys.

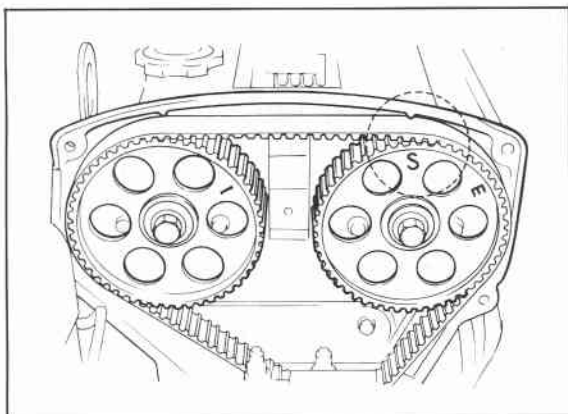
### Caution

- a) If the timing belt is being reused, it must be reinstalled to rotate in the original direction.
- b) Check that there is no oil, grease, or dirt on the timing belt.



69G01B-027

5. Loosen the tensioner lock bolt.
6. Turn the crankshaft twice in the direction of rotation, and align the mating marks.
7. Check that the timing marks are correctly aligned. If not aligned, remove the timing belt tensioner and timing belt, and repeat steps 1—6.



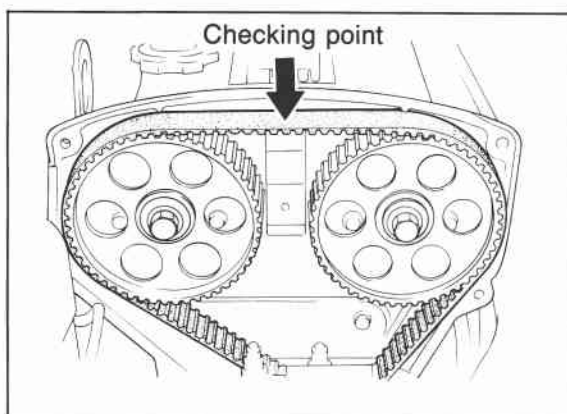
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8. Turn the crankshaft to align the "S" mark of the right side camshaft pulley with seal plate mating mark.
9. Tighten the timing belt tensioner lock bolt.

### Tightening torque:

**37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**

## ON-VEHICLE MAINTENANCE (TIMING BELT) 1B



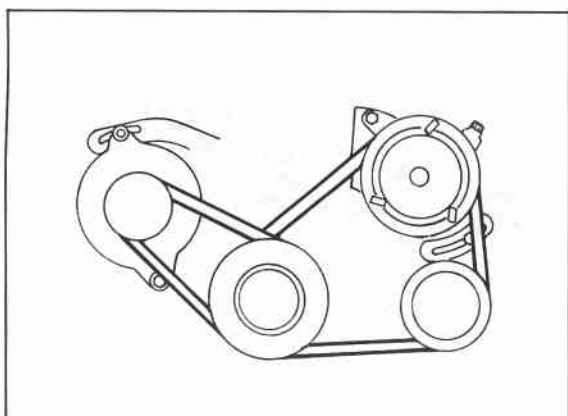
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10. Check the timing belt deflection. If the deflection is not correct, repeat the adjustment from step 5 above.

**Timing belt deflection: 7.5—8.5 mm  
(0.30—0.33 in) / 98 N (10 kg, 22 lb)**

### Caution

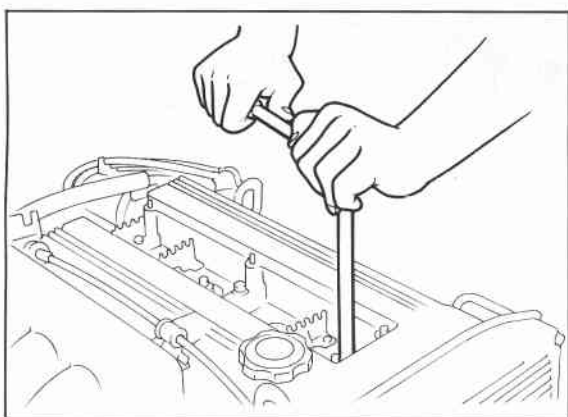
**Be sure not to apply tension other than that of the tensioner spring.**



76G01B-028

### Drive belt

Install each drive belt, and check the belt deflection. (Refer to page 1B—6.)



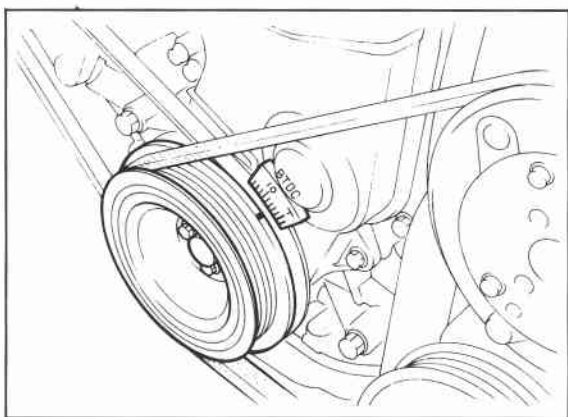
79G01C-021

### Spark plug

1. Apply anti-seize compound or molybdenum-based lubricant to the spark plug threads.
2. Install the spark plugs.

### Tightening torque:

**15—23 N·m (1.5—2.3 m·kg, 11—17 ft·lb)**



86U01X-029

### Steps After Installation

Perform the necessary engine adjustment. (Refer to TUNE-UP PROCEDURE.)

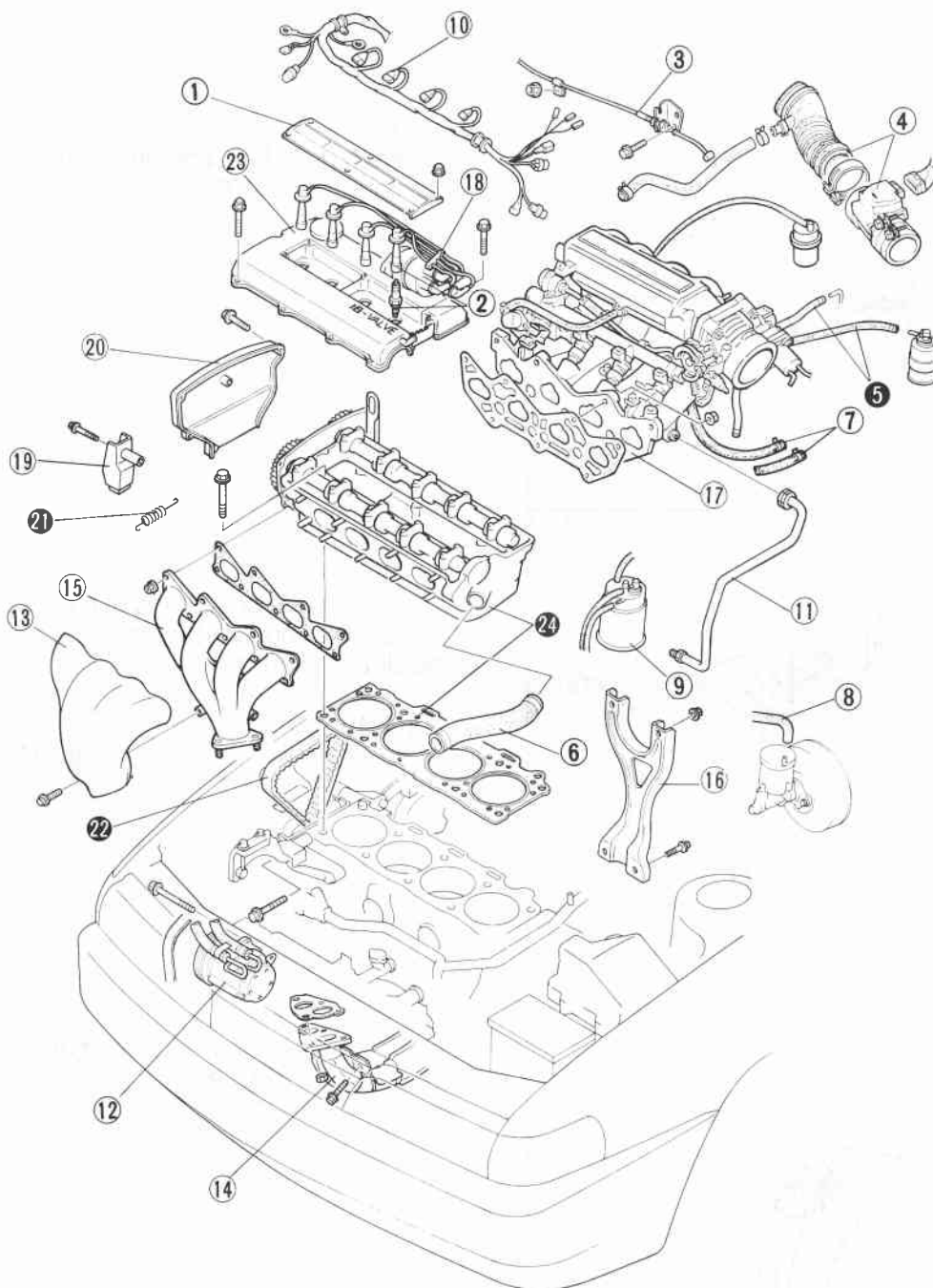
# 1B ON-VEHICLE MAINTENANCE (CYLINDER HEAD)

## CYLINDER HEAD

### Removal

**Warning: Release the fuel pressure. (Refer to Section 4C.)**

1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove in the sequence shown in the figure referring to the removal note for specially marked parts.



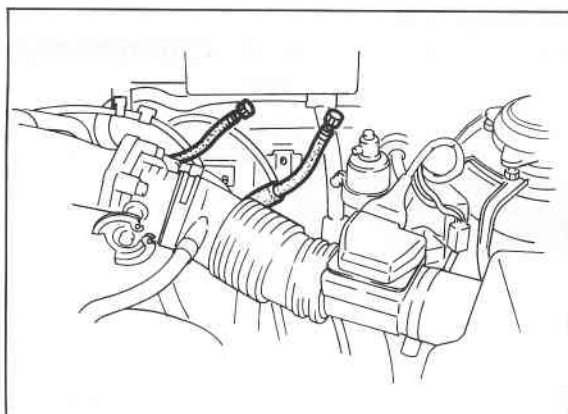
76G01B-029



1. Center cover
2. High-tension lead and spark plug
3. Accelerator cable
4. Air intake pipe assembly
5. Fuel hose
6. Upper radiator hose
7. Heater hose
8. Brake vacuum hose
9. Canister hose (Unleaded fuel)
10. Engine harness connector and ground
11. EGR pipe (Unleaded fuel)
12. A/C compressor and bracket

13. Exhaust manifold insulator
14. Exhaust pipe
15. Exhaust manifold
16. Intake manifold bracket
17. Intake manifold assembly
18. Distributor
19. Engine mount stay
20. Upper timing belt cover
21. Timing belt tensioner spring
22. Timing belt
23. Cylinder head cover
24. Cylinder head and gasket

76G01B-030



86U01X-032

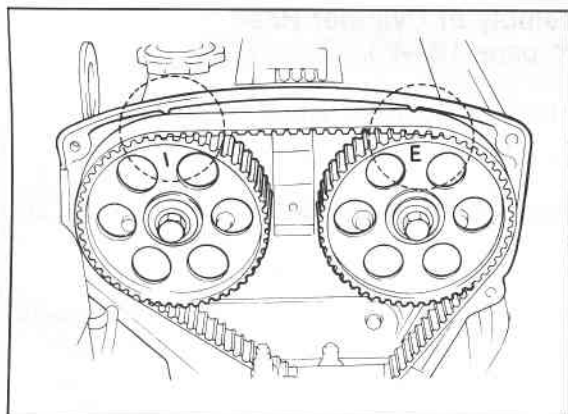
## Removal note Fuel hose

### Warning

a) Cover the hose with a rag because fuel will spray out when disconnecting.

b) Keep sparks and open flame away from the fuel area.

Plug the disconnected hoses to avoid fuel leakage.



76G01B-031

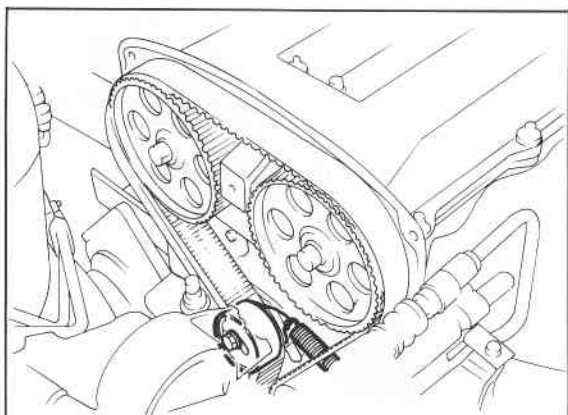
## Timing belt

1. Before removing the timing belt, turn the crankshaft to align the mating marks of the camshaft pulleys with the seal plate timing mark.

### Note

For intake side camshaft pulley, align "I" mark.

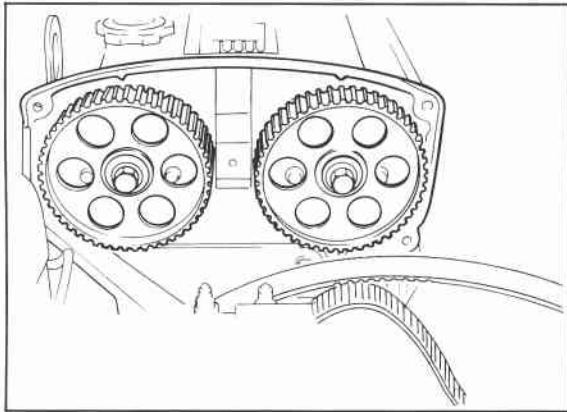
For exhaust side camshaft pulley, align "E" mark.



69G01B-036

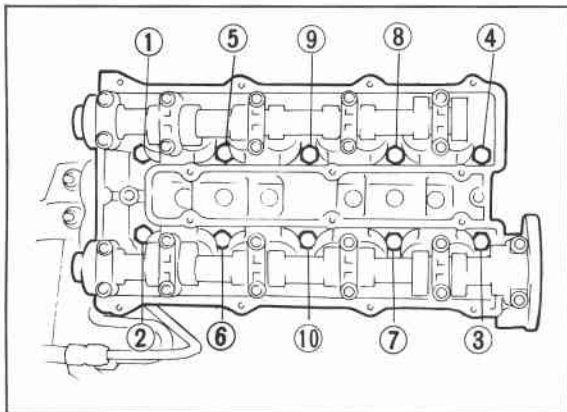
2. Loosen the timing belt tensioner lock bolt.
3. Shift the tensioner outward as far as possible, then temporarily tighten it.

## 1B ON-VEHICLE MAINTENANCE (CYLINDER HEAD)



69G01B-037

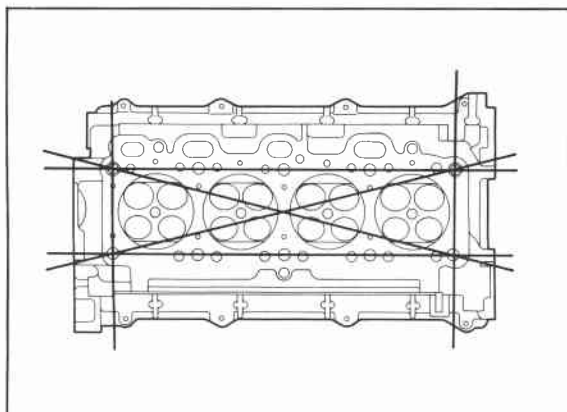
4. Remove the timing belt and secure it out of the way to prevent damage during removal and installation of the cylinder head.



76G01A-111

### Cylinder head bolt

Loosen the cylinder head bolts in two or three steps in the order shown in the figure.



76G01B-032

### Disassembly of Cylinder Head

Refer to page 1B—28.

### Inspection of Cylinder Head

Refer to page 1B—34.

### Assembly of Cylinder Head

Refer to page 1B—59.

# ON-VEHICLE MAINTENANCE (CYLINDER HEAD) 1B

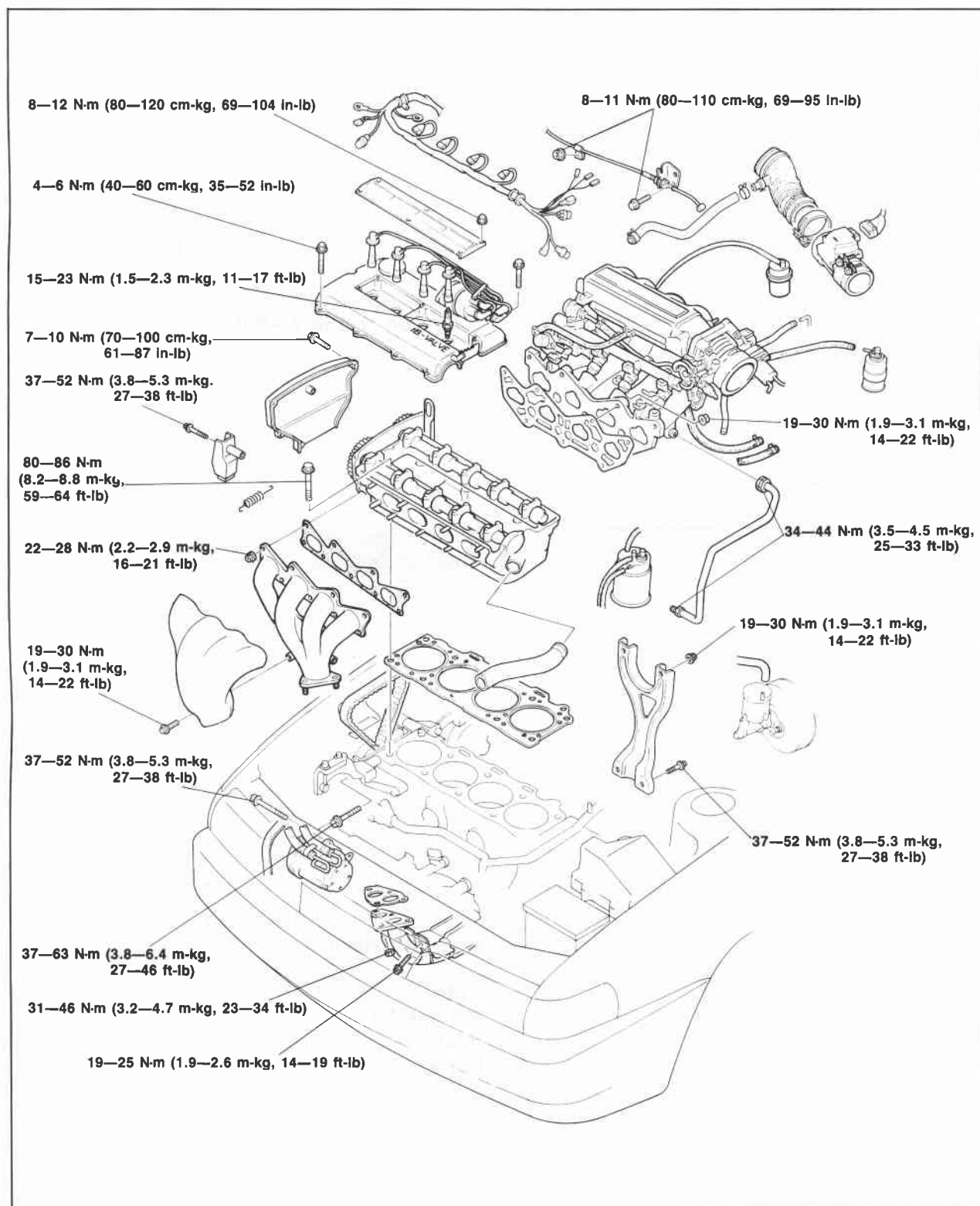
## Installation

Install in the reverse order of removal referring to the installation note.

### Note

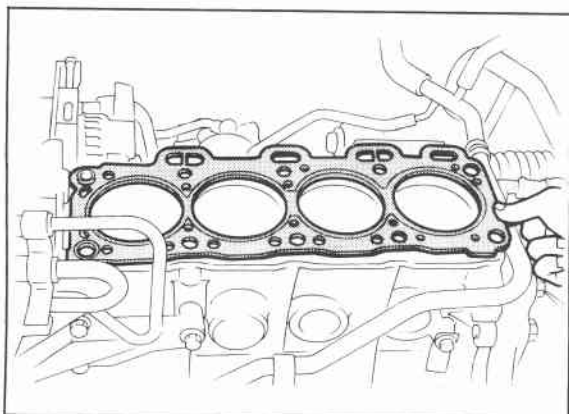
- a) Position the hose clamp in the original location on the hose.
- b) Squeeze the clamp lightly with large pliers to ensure a good fit.

## Torque Specifications



76G01A-112

## 1B ON-VEHICLE MAINTENANCE (CYLINDER HEAD)

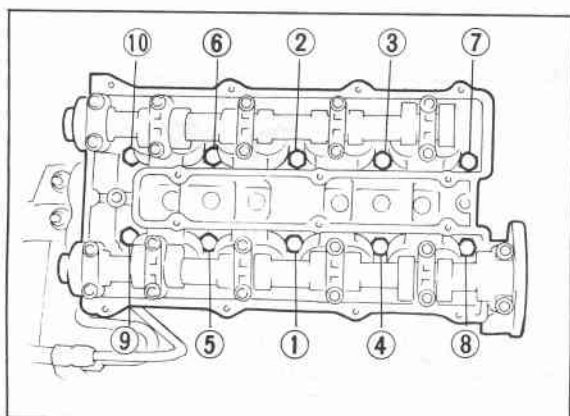


86U01X-035

### Installation note

#### Cylinder head

1. Thoroughly remove all dirt and oil from the top of the cylinder block with a rag.
2. Place a new cylinder head gasket in position.

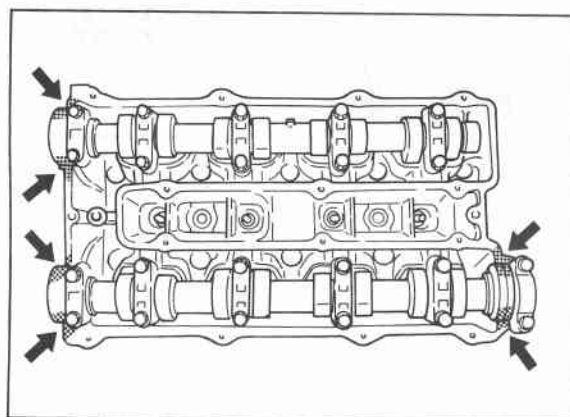


86U01X-036

3. Set the cylinder head in place.
4. Apply engine oil to the bolt threads and seat faces.
5. Tighten the cylinder head bolts in two or three steps in the order shown in the figure.

### Tightening torque:

**80—86 N·m (8.2—8.8 m·kg, 59—64 ft·lb)**



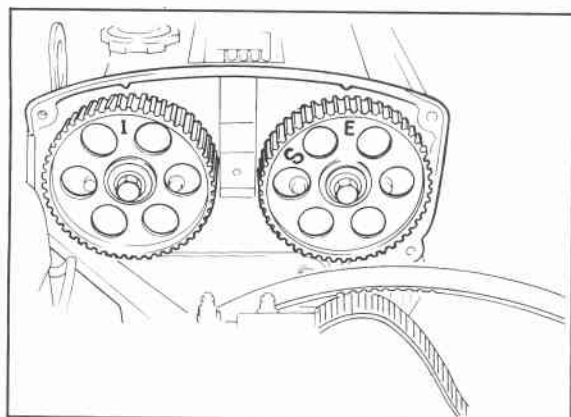
76G01B-033

### Cylinder head cover

1. Apply silicon sealant to the shaded area as shown in the figure.
2. Install the cylinder head cover and gasket.

### Tightening torque:

**4—6 N·m (40—60 cm·kg, 35—52 in·lb)**



76G01B-034

### Timing belt

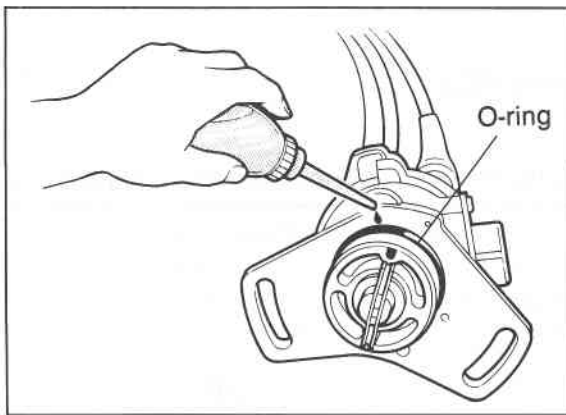
1. Align the mating marks of the camshaft pulleys with the seal plate timing mark.

### Note

**For intake side camshaft pulley, align “I” mark.**

**For exhaust side camshaft pulley, align “E” mark.**

2. Install the timing belt. (Refer to TIMING BELT of ON-VEHICLE MAINTENANCE.)



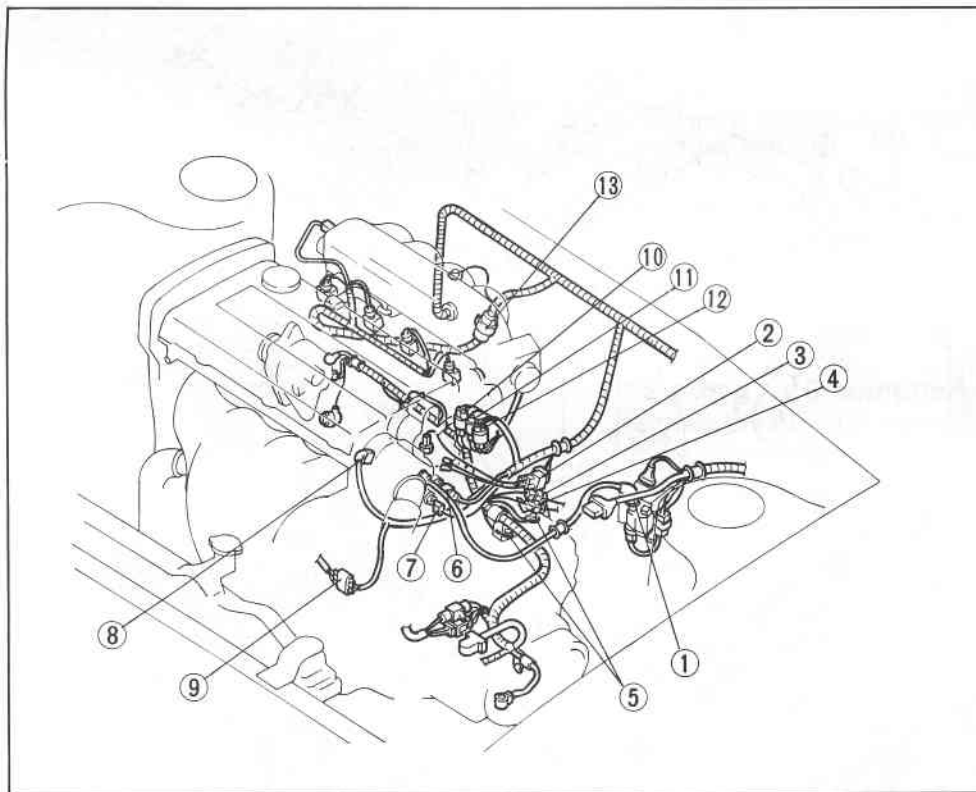
76G01A-035

## Distributor

1. Apply engine oil to the O-ring, and position it on the distributor.
2. Apply engine oil to the blade.
3. Install the distributor.
4. Loosely tighten the distributor mounting bolt.

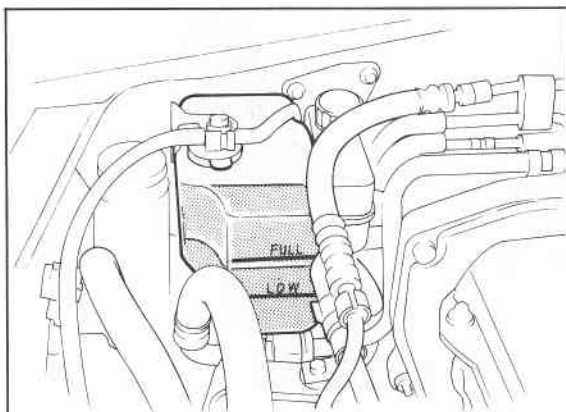
## Engine harness connector

Install the engine harness connectors.



76G01B-035

1. IG coil
2. Heat gauge unit
3. Speed sensor
4. P/S switch
5. Engine ground
6. Water temperature sensor
7. Water thermo switch
8. Crank angle sensor
9. Oxygen sensor
10. Linear solenoid
11. Solenoid valve (idle speed control)
12. Throttle position sensor
13. Injection harness



86U01X-041

## Steps After Installation

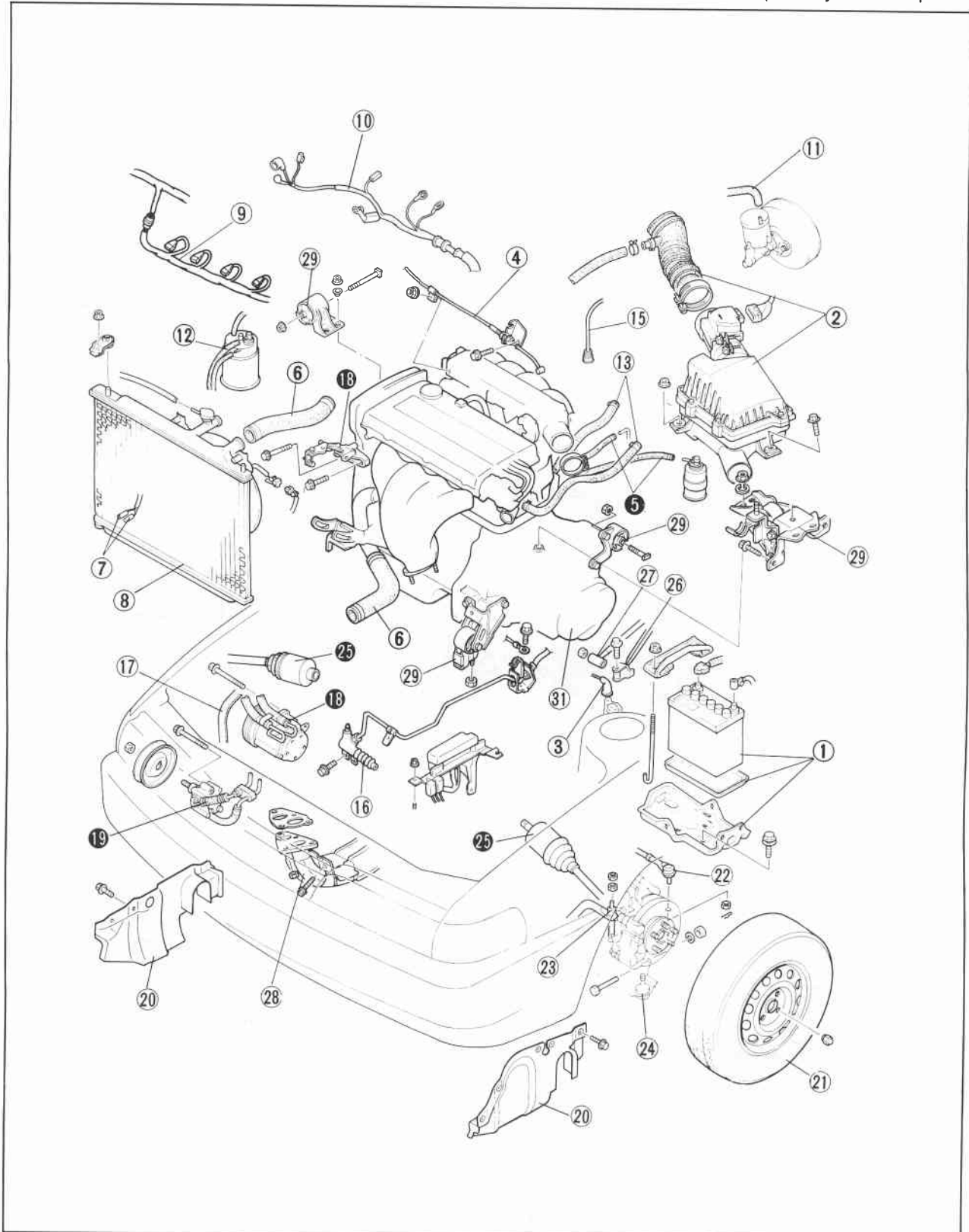
1. Fill the radiator with the specified amount and type of coolant.
2. Perform the necessary engine adjustments. (Refer to TUNE-UP PROCEDURE.)

# 1B REMOVAL

## REMOVAL

**Warning: Release the fuel pressure. (Refer to Section 4C.)**

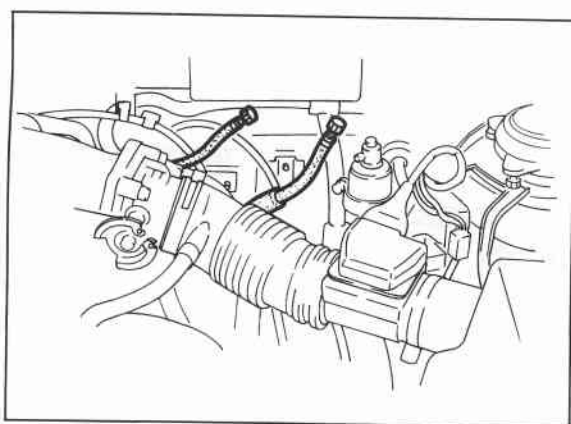
1. Disconnect the negative battery cable.
2. Drain the engine oil and coolant.
3. Remove in the sequence shown in the figure referring to the removal note for specially marked parts.



76G01B-036

- |                                |                                   |                            |
|--------------------------------|-----------------------------------|----------------------------|
| 1. Battery and battery carrier | 12. Canister hose (Unleaded fuel) | 21. Front wheel            |
| 2. Air cleaner assembly        | 13. Heater hose                   | 22. Tie-rod end            |
| 3. High-tension lead           | 14. Transaxle harness             | 23. Stabilizer control rod |
| 4. Accelerator cable           | 15. Speedometer cable             | 24. Lower arm bushing      |
| 5. Fuel hose                   | 16. Clutch release cylinder       | 25. Driveshaft             |
| 6. Radiator hose               | 17. Drive belt                    | 26. Change rod             |
| 7. Radiator harness            | 18. A/C compressor and bracket    | 27. Extension bar          |
| 8. Radiator and electric fan   | 19. P/S oil pump                  | 28. Exhaust pipe           |
| 9. EGI harness                 | 20. Engine side cover             | 29. Engine mount           |
| 10. Engine harness             |                                   | 30. Engine and transaxle   |
| 11. Brake vacuum hose          |                                   | 31. Transaxle              |

76G01B-037



76G01A-118

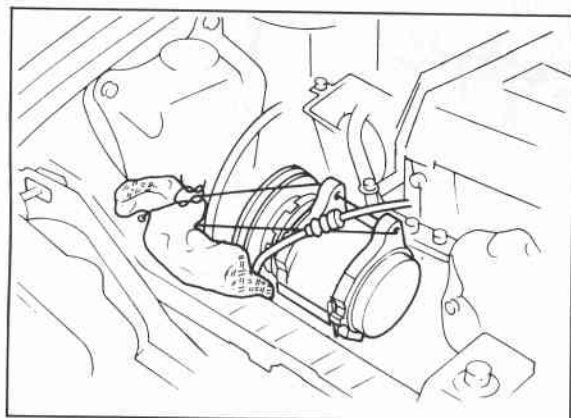
## Removal Note Fuel hose

### Warning

a) Cover the hose with a rag because fuel will spray out when disconnecting.

b) Keep sparks and open flame away from the fuel area.

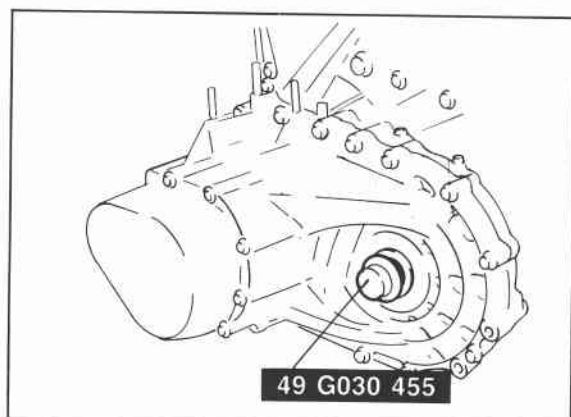
Plug the disconnected hoses to avoid fuel leakage.



67U01X-029

## P/S pump, A/C compressor

Remove the P/S pump and A/C compressor with the hoses still connected to them, secure the pump and compressor as shown in the figure.



86U01X-060

## Driveshaft

Remove the driveshafts. (Refer to Section 9.) Slide the **SST** into the transaxle.

# 1B DISASSEMBLY (AUXILIARY PARTS)

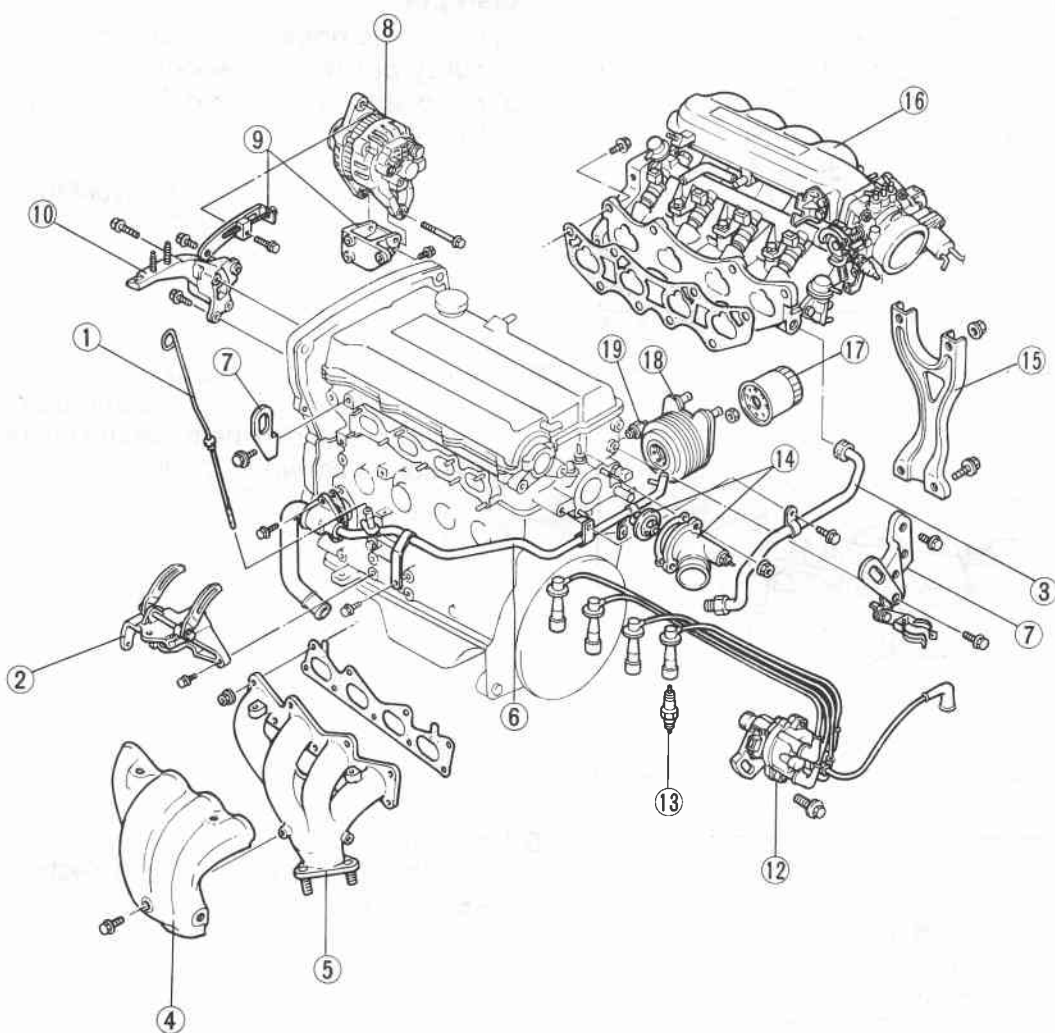
## DISASSEMBLY

1. Remove in the sequence shown in the figure referring to the disassembly note for specially marked parts.
2. Code all identical parts (such as pistons, piston rings, connecting rods, and valve springs) so that they can be reinstalled in the cylinder from which they were removed.
3. Clean the parts with steam, blow off any remaining water with compressed air.

### Note

Care should be taken during the disassembly of any part or system to study its order of assembly. Any deformation, wear, or damage should also be noted.

## AUXILIARY PARTS



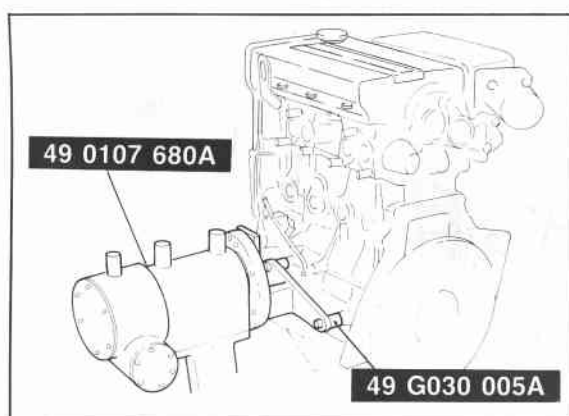
76G01A-119



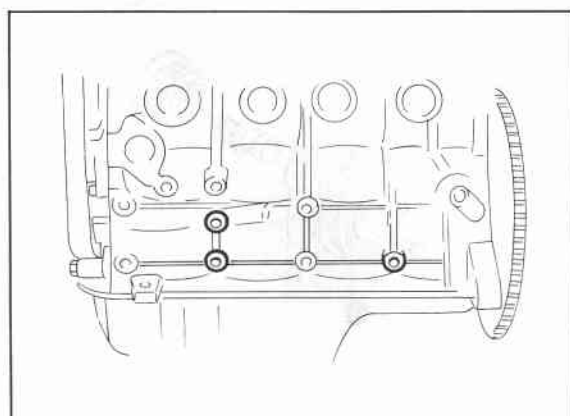
## DISASSEMBLY (AUXILIARY PARTS) 1B

1. Oil level gauge
2. P/S oil pump bracket
3. EGR pipe(Unleaded fuel)
4. Exhaust manifold insulator
5. Exhaust manifold assembly
6. Coolant inlet pipe and bypass pipe
7. Engine hanger
8. Alternator
9. Alternator strap and bracket
10. Engine mount bracket
11. Center cover
12. Distributor and high-tension lead
13. Spark plug
14. Thermostat and thermostat cover
15. Intake manifold bracket
16. Intake manifold assembly
17. Oil filter
18. Oil cooler
19. Oil pressure switch

76G01B-039



76G01A-120



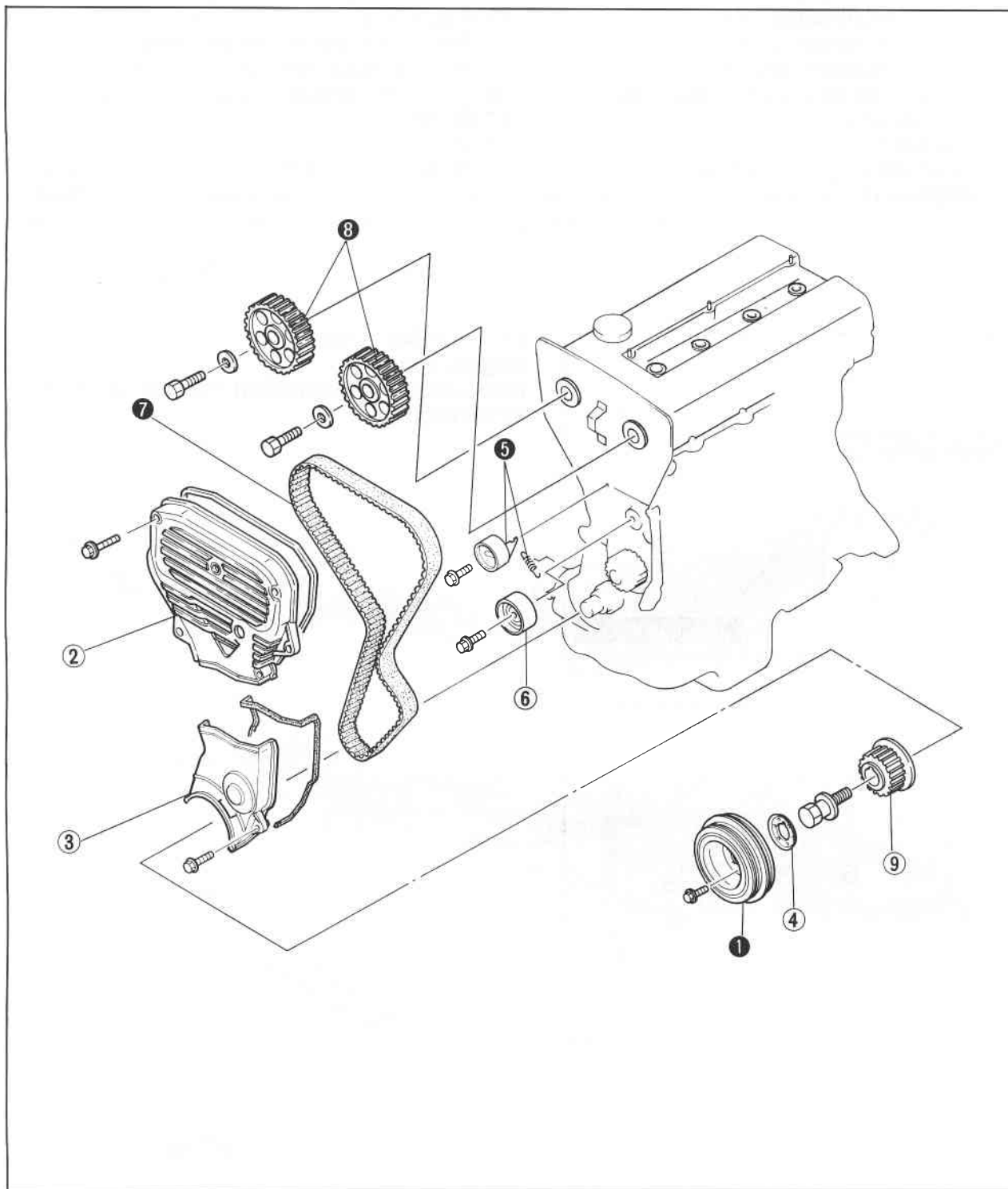
69G01X-000

### Disassembly Note Engine hanger

Remove the exhaust manifold; then connect the **SST** to the engine.

# 1B DISASSEMBLY (TIMING BELT)

## TIMING BELT

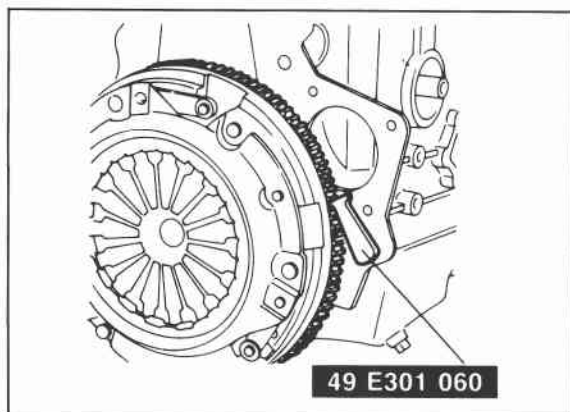


69G01B-072

1. Crankshaft pulley
2. Upper timing belt cover
3. Lower timing belt cover
4. Baffle plate
5. Timing belt tensioner and spring

6. Timing belt idler pulley
7. Timing belt
8. Camshaft pulley
9. Timing belt pulley

## DISASSEMBLY (TIMING BELT) 1B

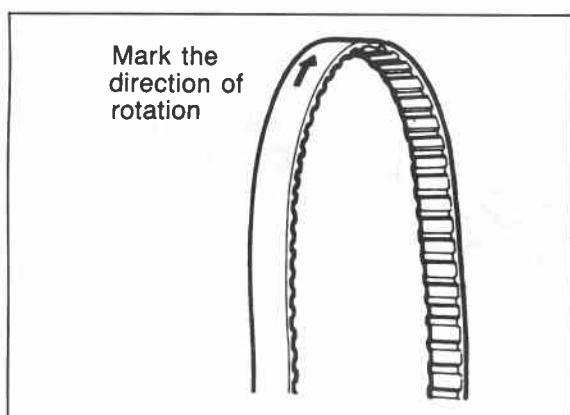


76G01A-121

### Disassembly Note

#### Crankshaft pulley

1. Set the **SST** against the flywheel.
2. Remove the crankshaft pulley.



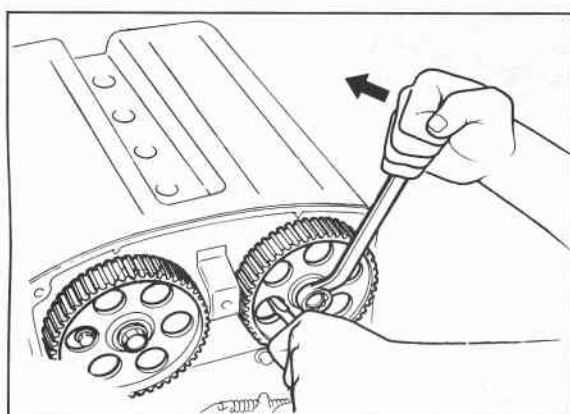
76G01B-119

#### Timing belt

1. Loosen the tensioner lock bolt, and remove the tensioner spring.
2. Mark the timing belt rotation for proper reinstallation if it is reused.
3. Remove the timing belt.

#### Caution

**Be careful not to allow oil or grease on the belt.**

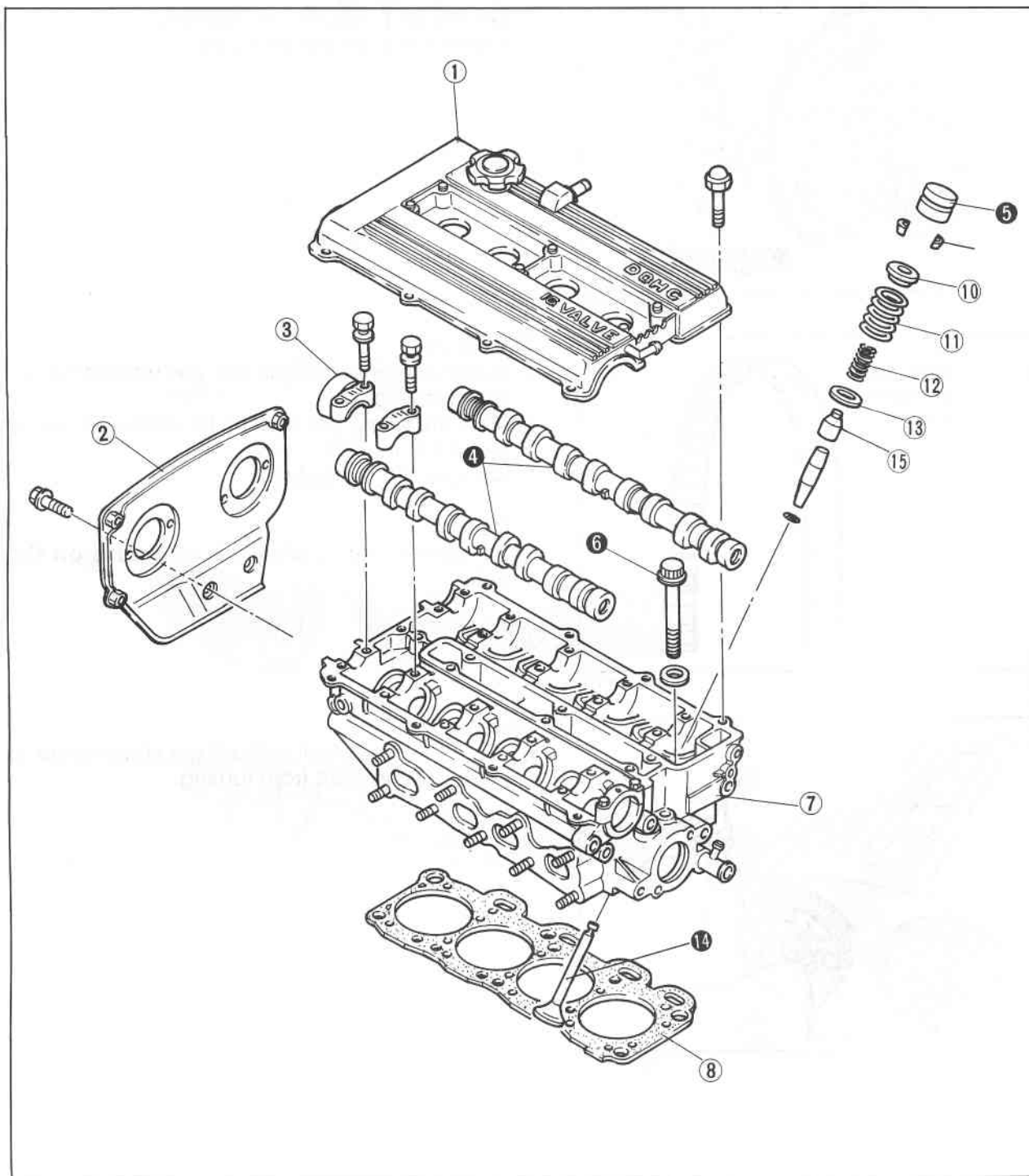


#### Camshaft pulley

Remove the pulley lock bolt using a screw driver to prevent the camshaft from turning.

# 1B DISASSEMBLY (CYLINDER HEAD)

## CYLINDER HEAD

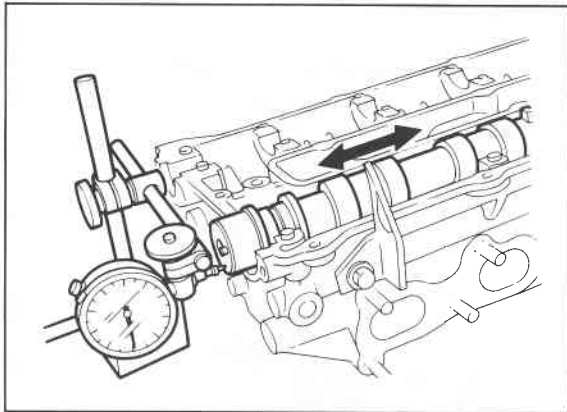


76G01B-040

- 1. Cylinder head cover
- 2. Seal plate
- 3. Camshaft cap
- 4. Camshaft
- 5. Hydraulic lash adjuster
- 6. Cylinder head bolt
- 7. Cylinder head
- 8. Cylinder head gasket

- 9. Valve keeper
- 10. Upper spring seat
- 11. Outer valve spring
- 12. Inner valve spring
- 13. Lower spring seat
- 14. Valve
- 15. Valve seal

## DISASSEMBLY (CYLINDER HEAD) 1B



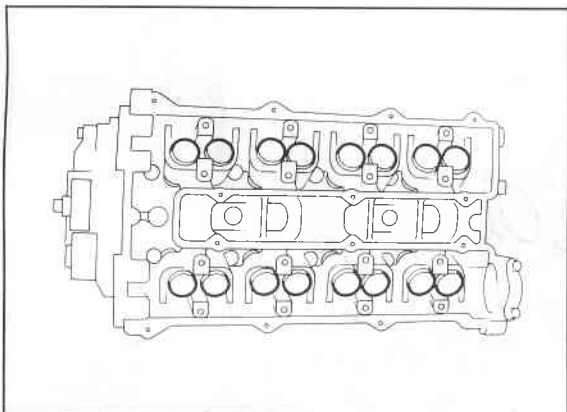
76G01B-041

### Disassembly Note

#### Camshaft

Before removing the camshaft, clean the bearings and journals, and measure the following points.

1. Camshaft end play. (Refer to page 1B—41.)
2. Camshaft journal oil clearance. (Refer to page 1B—40.)



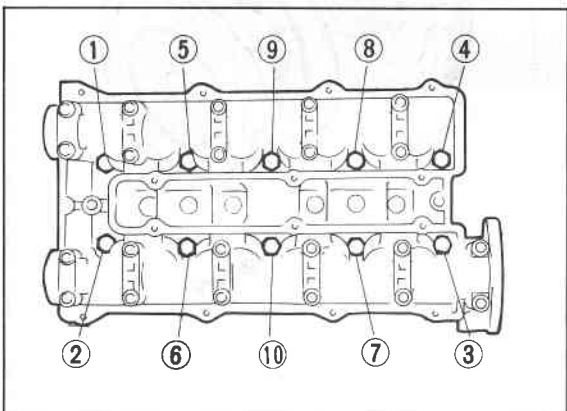
76G01B-042

### Hydraulic lash adjuster (HLA)

Remove the HLA from the cylinder head.

#### Note

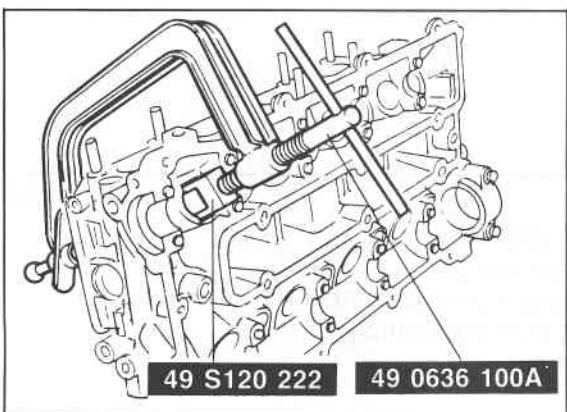
**Mark each HLA so that they can be reinstalled in the position from which they were removed.**



86U01X-068

### Cylinder head bolt

Loosen the cylinder head bolts in two or three steps in the order shown in the figure.



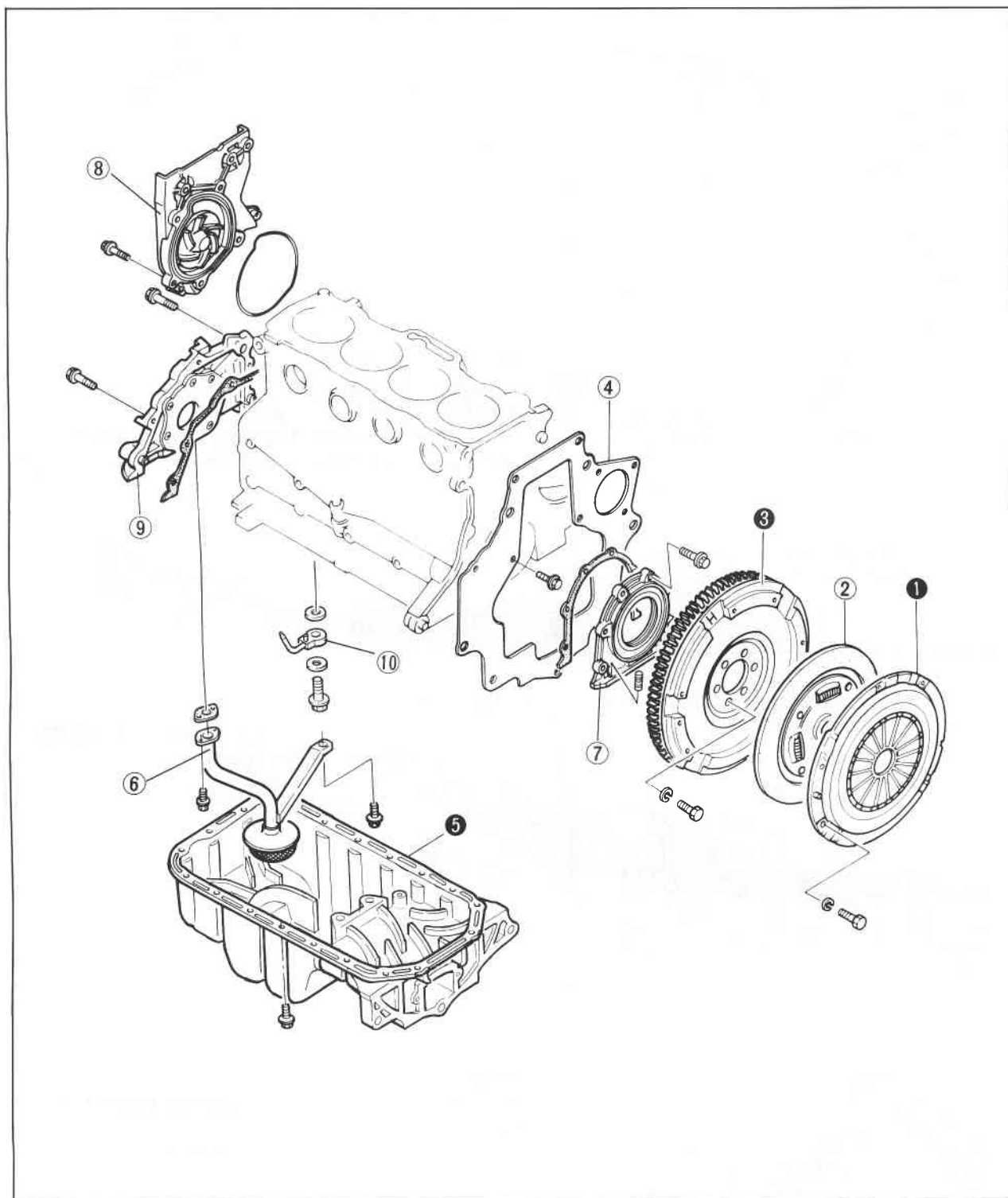
86U01X-069

### Valve

Remove the valves from the cylinder head with the SST.

# 1B DISASSEMBLY (CYLINDER BLOCK)

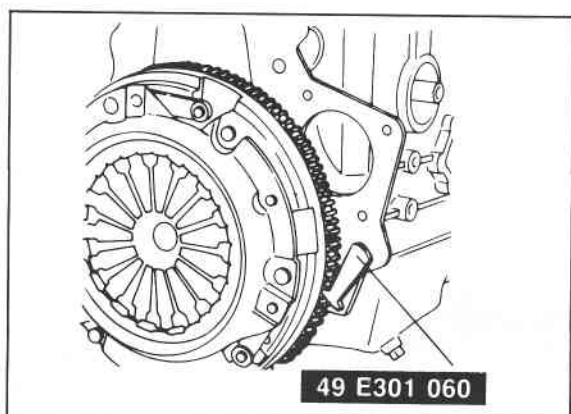
## CYLINDER BLOCK-I



76G01B-043

- |                 |                        |
|-----------------|------------------------|
| 1. Clutch cover | 6. Oil strainer        |
| 2. Clutch disc  | 7. Rear cover          |
| 3. Flywheel     | 8. Water pump assembly |
| 4. End plate    | 9. Oil pump assembly   |
| 5. Oil pan      | 10. Oil jet            |

## DISASSEMBLY (CYLINDER BLOCK) 1B

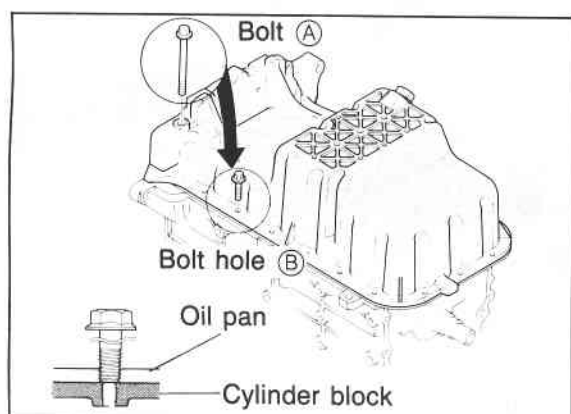


76G01B-044

### Disassembly Note

#### Clutch cover and flywheel

Remove the clutch cover and flywheel with the **SST**.



76G01B-045

### Oil pan

1. Remove the oil pan mounting bolts.
2. Install the bolt (A) from the mounting bolt or 10 mm (0.39 in) bolts in the specified bolt holes (B) (both sides).
3. Screw in the bolts gradually and alternately to remove the oil pan.

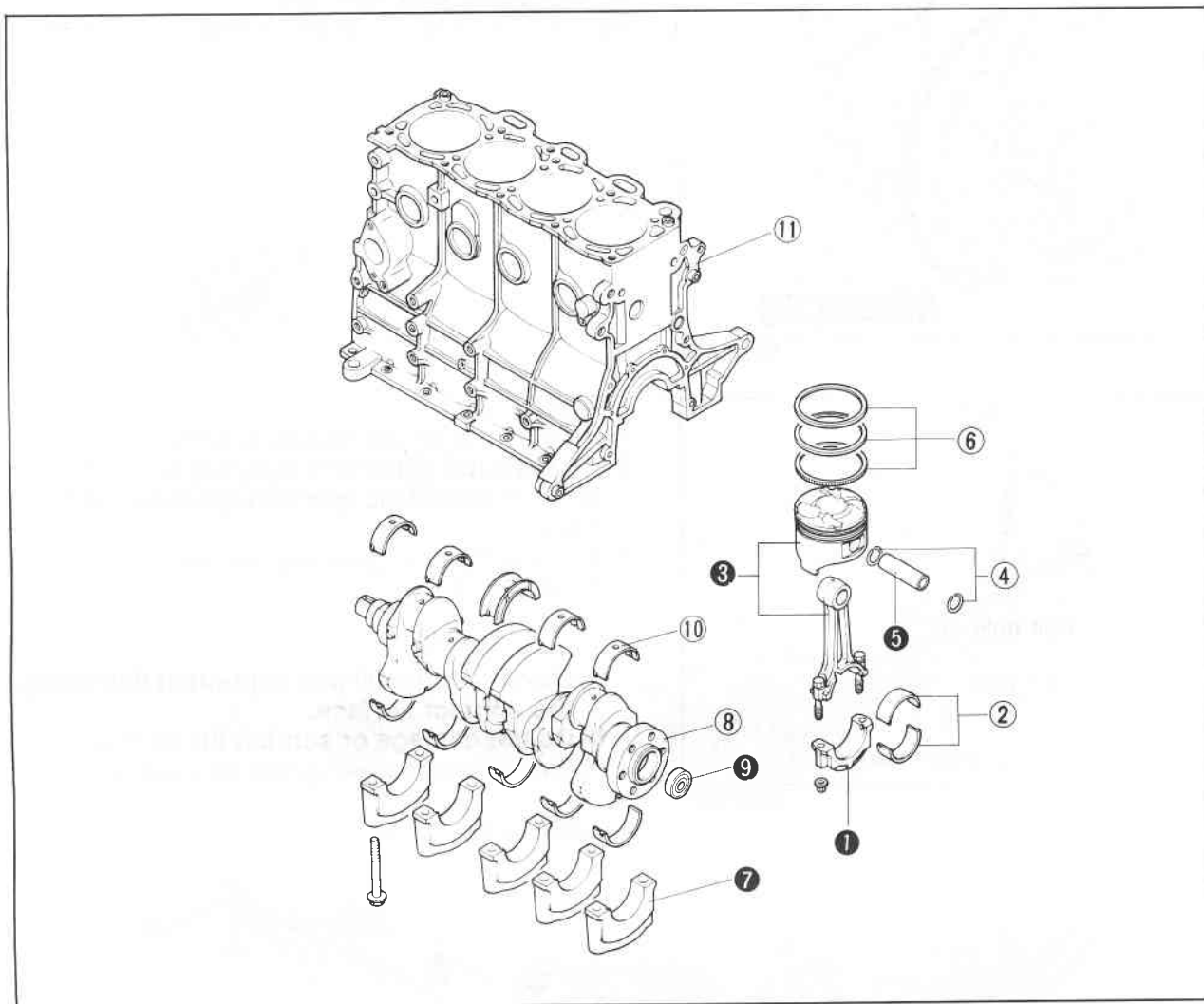
### Caution

- a) Do not pry the oil pan to prevent damaging the contact surface.
- b) Do not damage or scratch the contact surface when removing the oil sealant.

4. Remove the oil pan.

# 1B DISASSEMBLY (CYLINDER BLOCK)

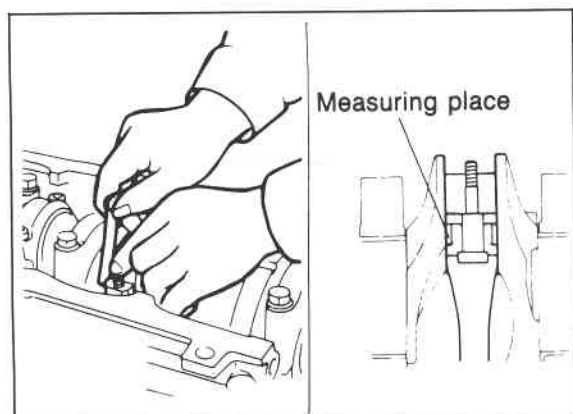
## CYLINDER BLOCK-II



76G01B-046

1. Connecting rod cap
2. Connecting rod bearing
3. Connecting rod and piston
4. Clip
5. Piston pin
6. Piston ring

7. Main bearing cap
8. Crankshaft
9. Pilot bearing
10. Main bearing
11. Cylinder block



76G01B-047

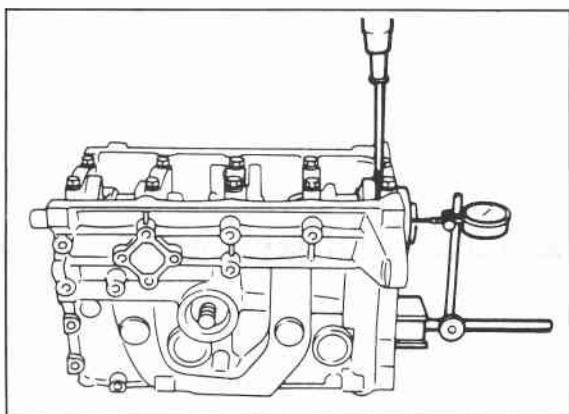
### Disassembly Note Connecting rod and cap

Before removing the connecting rod, clean the bearing, connecting rod, and crank pin, and measure the following points.

1. Connecting rod side clearance. (Refer to page 1B—53.)
2. Crankpin oil clearance. (Refer to page 1B—53.)



## DISASSEMBLY (CYLINDER BLOCK) 1B

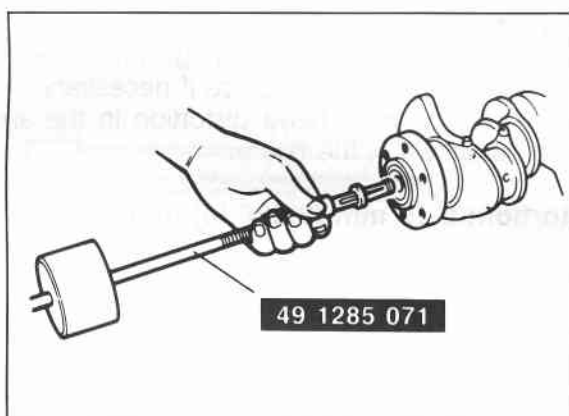


76G01B-048

### Main bearing cap

Before removing the main bearing caps, clean the bearings, main journals, and caps, and measure the following points.

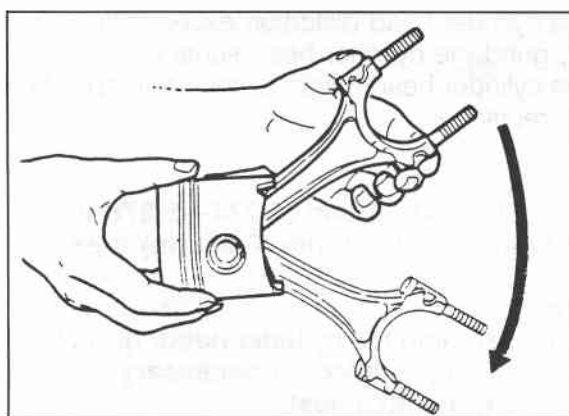
1. Crankshaft end play. (Refer to page 1B—52.)
2. Main journal oil clearance. (Refer to page 1B—51.)



76G01B-049

### Pilot bearing

Remove the pilot bearing from the crankshaft with the **SST**.

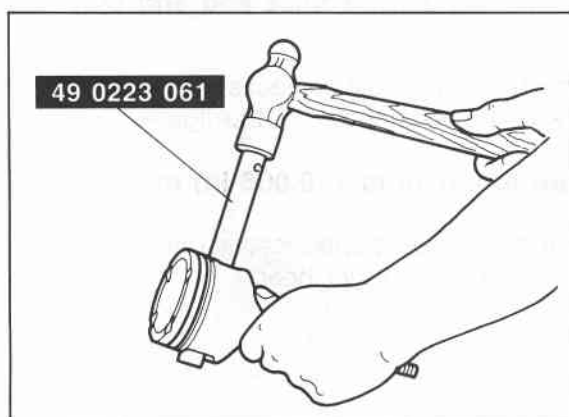


79G01C-050

### Piston and connecting rod

1. Before disassembling the piston and connecting rod, check the oscillation torque as shown in the figure.

If the large end does not drop by its own weight, replace the piston or the piston pin.



76G01B-050

2. Remove the piston pin with the **SST**.

# 1B INSPECTION AND REPAIR

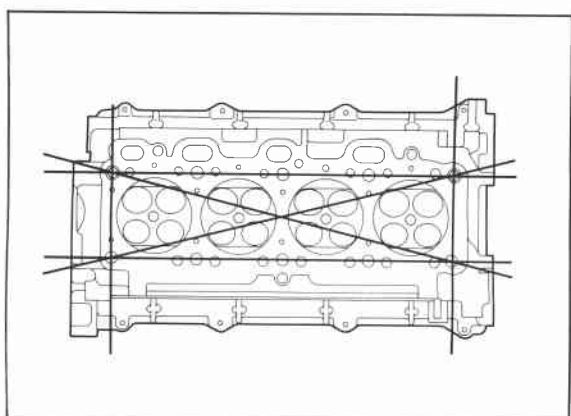
## INSPECTION AND REPAIR

1. Clean all parts, taking care to remove any gasket fragments, dirt, oil or grease, carbon, moisture residue, or other foreign materials.
2. Inspect and repair must be performed in the order specified.

### Caution

**Be careful not to damage the joints or friction surfaces of aluminum alloy components (such as the cylinder head or pistons).**

86U01X-077

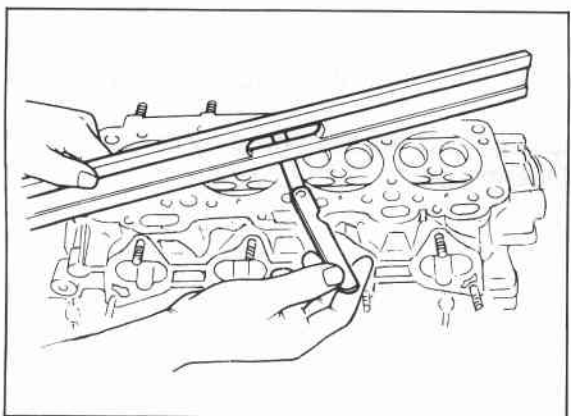


79G01C-106

### Cylinder Head

1. Inspect the cylinder head for damage, cracks, and leakage of water or oil. Replace if necessary.
2. Measure the cylinder head distortion in the six directions shown in the figure.

**Distortion: 0.15 mm (0.006 in) max.**



76G01B-051

3. If the cylinder head distortion exceeds specification, grind the cylinder head surface.  
If the cylinder head height is not within specification, replace it.

### Height:

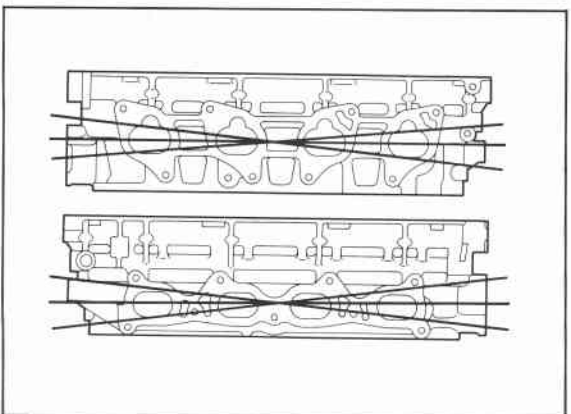
**133.95—134.05 mm (5.274—5.278 in)**

**Grinding limit: 0.20 mm (0.008 in) max.**

### Note

**Before grinding the cylinder head, first check the following. Replace if necessary.**

- Sinking of valve seat
- Damage of manifold contact surface
- Camshaft oil clearance and end play

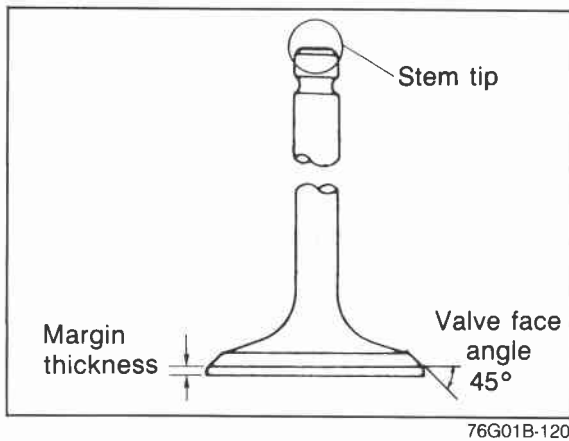


79G01C-053

4. Measure the manifold contact surface distortion in the six directions shown in the figure.

**Distortion: 0.15 mm (0.006 in) max.**

5. If distortion exceeds specification grind the surface or replace the cylinder head.



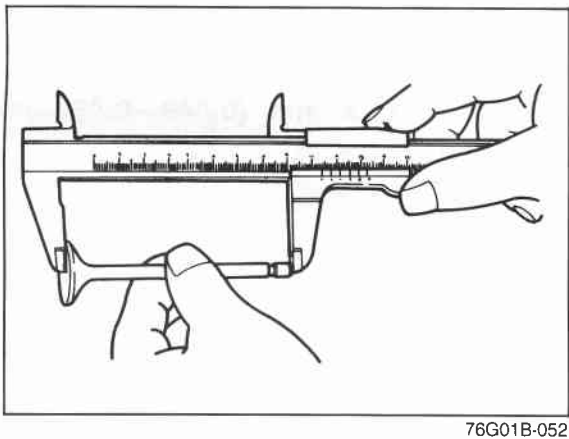
## Valve and Valve Guide

1. Inspect each valve for the following. Replace or resurface if necessary.
  - (1) Damaged or bent stem
  - (2) Roughness or damage to face
  - (3) Damage or uneven wear of stem tip
2. Check the valve head margin thickness. Replace if necessary

### Margin thickness

**IN : 0.85 mm (0.033 in) min.**

**EX: 0.9 mm (0.035 in) min.**

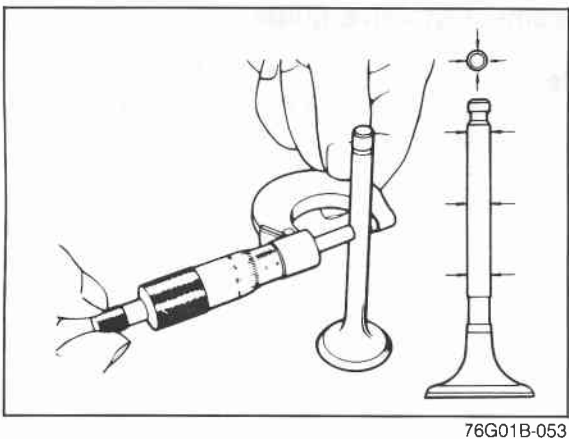


3. Measure the valve length.

### Length

**IN : 103.18 mm (4.0622 in)**

**EX: 103.94 mm (4.0921 in)**

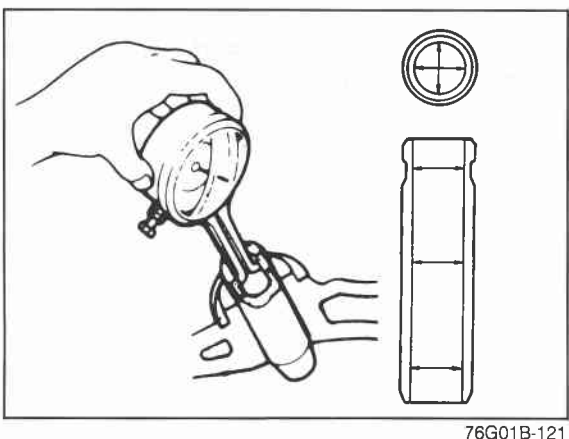


4. Measure the valve stem diameter.

### Diameter

**IN : 5.970—5.985 mm (0.2350—0.2356 in)**

**EX: 5.965—5.980 mm (0.2348—0.2354 in)**



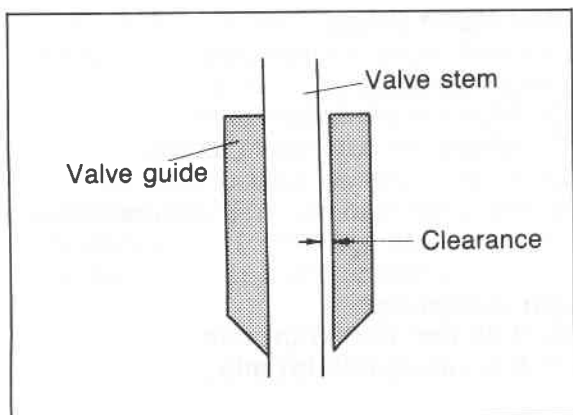
5. Measure the valve guide inner diameter.

### Inner diameter

**IN : 6.01—6.03 mm (0.2366—0.2374 in)**

**EX: 6.01—6.03 mm (0.2366—0.2374 in)**

# 1B INSPECTION AND REPAIR



76G01B-122

6. Measure the valve stem to guide clearance by subtract the outer diameter of the valve stem from the inner diameter of the corresponding valve guide.

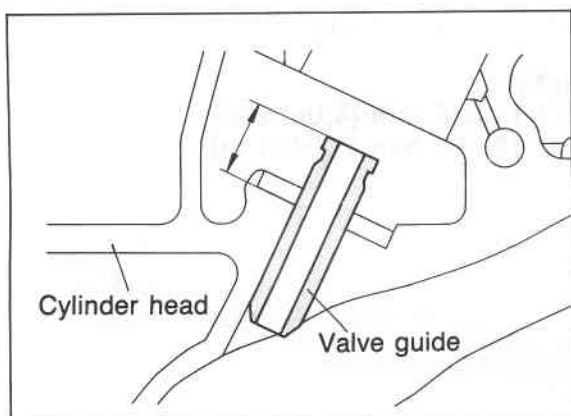
## Clearance

**IN : 0.025—0.060 mm (0.0010—0.0024 in)**

**EX: 0.030—0.065 mm (0.0012—0.0026 in)**

**Maximum: 0.20 mm (0.0079 in)**

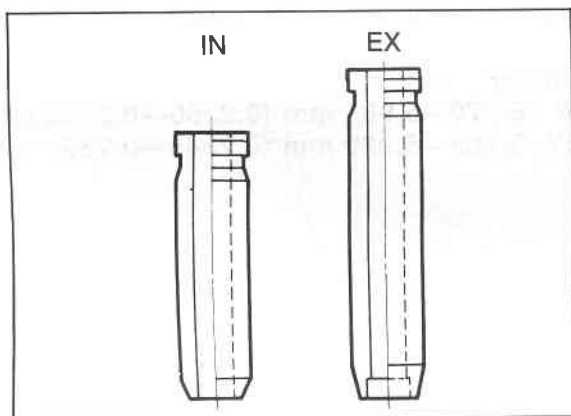
7. If the clearance exceeds the maximum, replace the valve and/or valve guide.



76G01B-054

8. Check that the valve guide projection height (dimension A in the figure). Replace if necessary.

**Height: 11.4—11.9 mm (0.449—0.469 in)**

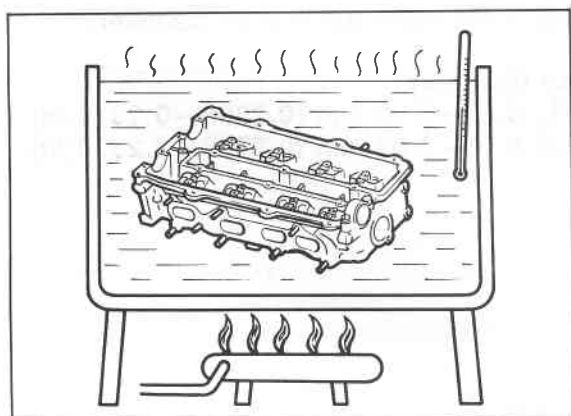


76G01B-123

## Replacement of valve guide

### Note

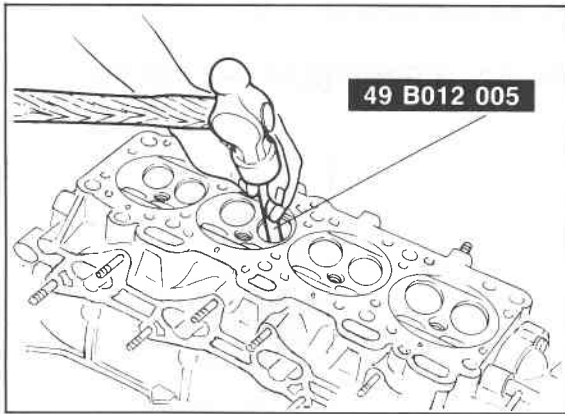
**Although the shapes of the intake and exhaust valve guides are different.**



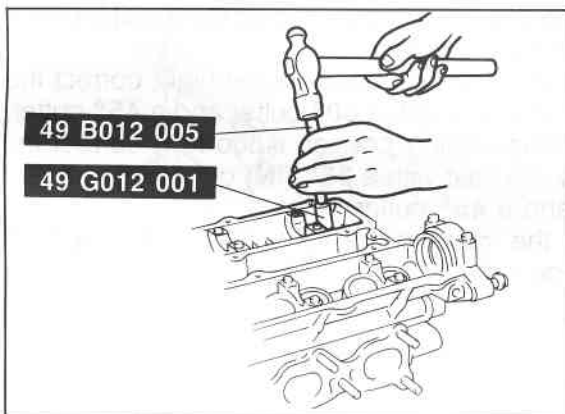
86U01X-083

### Removal

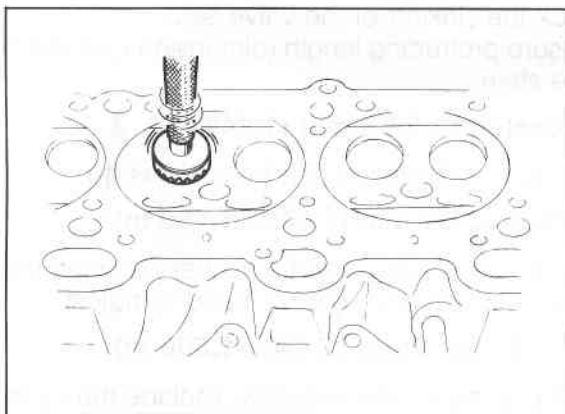
1. Gradually heat the cylinder head in water to **approx. 90°C (194°F)**.



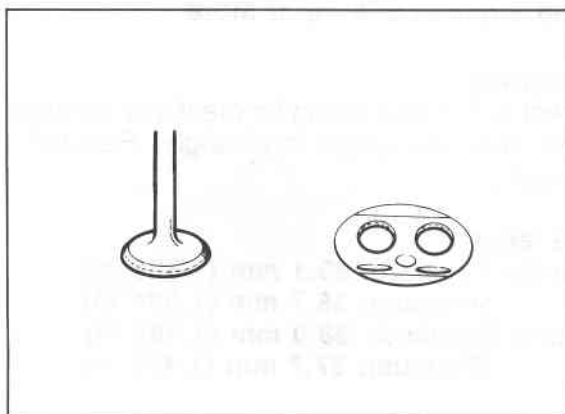
86U01X-084



76G01B-124



86U01X-087



69G01A-101

2. Remove the valve guide from the side opposite the combustion chamber with the **SST**.

## Installation

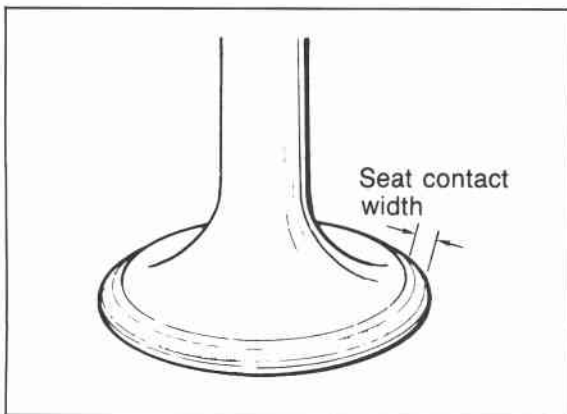
1. Gradually heat the cylinder head in water to **approx. 90°C (194°F)**.
2. Tap the valve guide in from the side opposite the combustion chamber with the **SST** until the projection height is as specified.

## Valve Seat

1. Inspect the contact surface of the valve seat and valve face for the following.
  - (1) Roughness
  - (2) Damage
2. If necessary, resurface the valve seat with a **45°** valve seat cutter and/or resurface the valve face.

3. Apply a thin coat of prussian blue to the valve face.
4. Check the valve seating by rotating the valve against the seat.
  - (1) If blue does not appear 360° around the valve face, replace the valve.
  - (2) If blue does not appear 360° around the valve seat, resurface the seat.

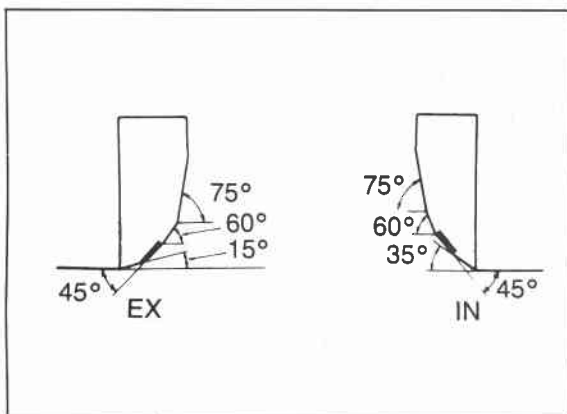
# 1B INSPECTION AND REPAIR



76G01A-128

5. Check the seat contact width.

**Width: 1.2—1.6 mm (0.047—0.063 in)**



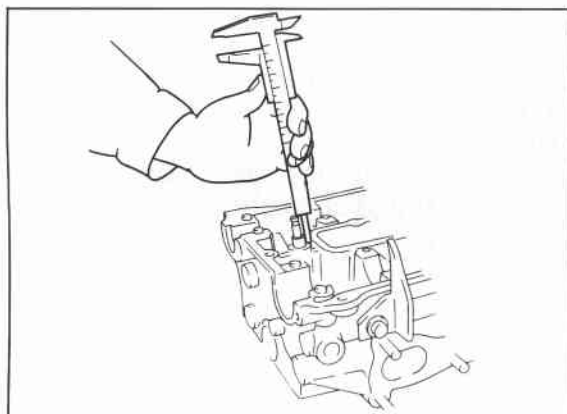
86U01X-088

6. Check that the valve seating position is at the center of the valve face.

(1) If the seating position is too high, correct the valve seat with a **60°** cutter and a **45°** cutter.

(2) If the seating position is too low, correct the valve seat with a **35° (IN)** or **15° (EX)** cutter and a **45°** cutter.

7. Seat the valve to the valve seat with a lapping compound.



76G01B-055

8. Check the sinking of the valve seat.

Measure protruding length (dimension L) of each valve stem.

**Dimension L: 36.8 mm (1.449 in)**

(1) If **L** is as below, it can be used as it is.

**36.8—37.6 mm (1.449—1.480 in)**

(2) If **L** is as below, insert a spacer between the spring seat and cylinder head to adjust.

**37.6—38.3 mm (1.480—1.508 in)**

(3) If **L** is more than as below, replace the cylinder head.

**38.3 mm (1.508 in) or more**

## Valve Spring

1. Inspect each valve spring for cracks or damage.

2. Check the free length and angle. Replace if necessary.

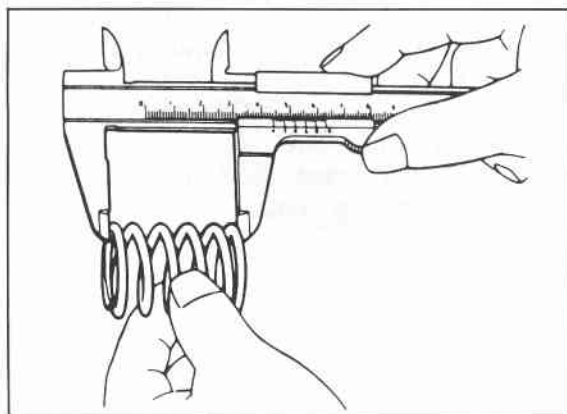
## Free length

**Outer Standard: 39.1 mm (1.539 in)**

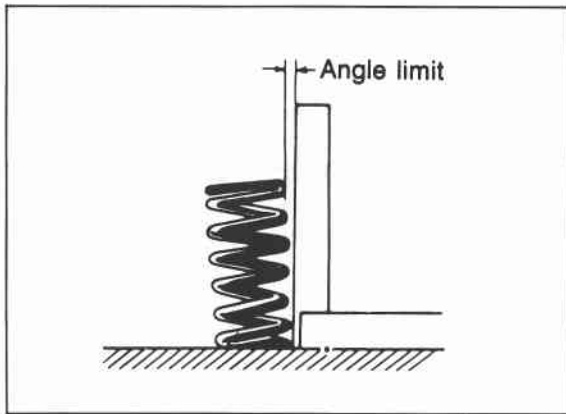
**Minimum: 38.7 mm (1.524 in)**

**Inner Standard: 38.0 mm (1.496 in)**

**Minimum: 37.7 mm (1.484 in)**



76G01B-038

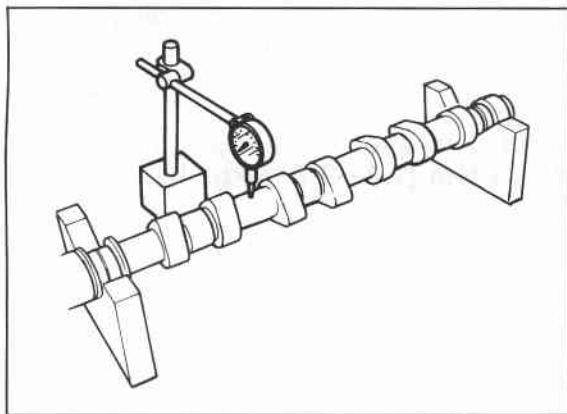


76G01B-057

## Angle

**Outer: 1.4 mm (0.055 in) max.**

**Inner: 1.3 mm (0.051 in) max.**

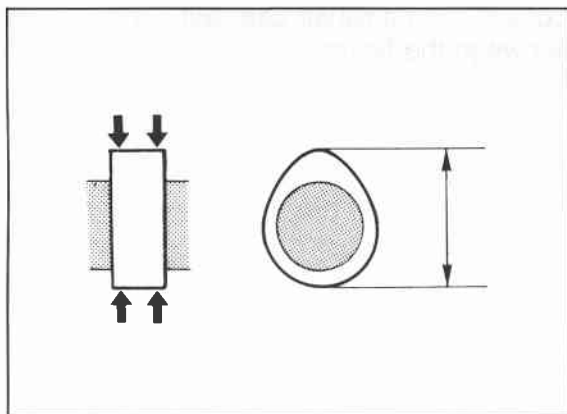


86U01X-092

## Camshaft

1. Set the front and rear journals on V-blocks.  
Check the camshaft runout. Replace if necessary.

**Runout: 0.03 mm (0.0012 in) max.**



76G01B-058

2. Check the cam for wear or damage. Replace if necessary.
3. Check the cam lobe height at the two points as shown in the figure.

## Height:

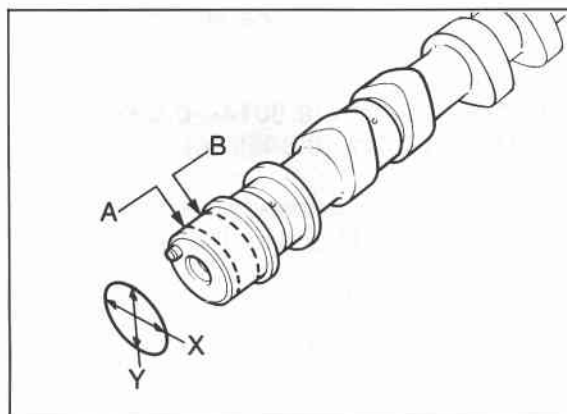
**45.055 mm (1.7738 in)..... Leaded fuel**

**45.052 mm (1.7737 in) ..... Unleaded fuel**

## Minimum:

**44.855 mm (1.7659 in)..... Leaded fuel**

**44.852 mm (1.7658 in) ..... Unleaded fuel**



76G01B-059

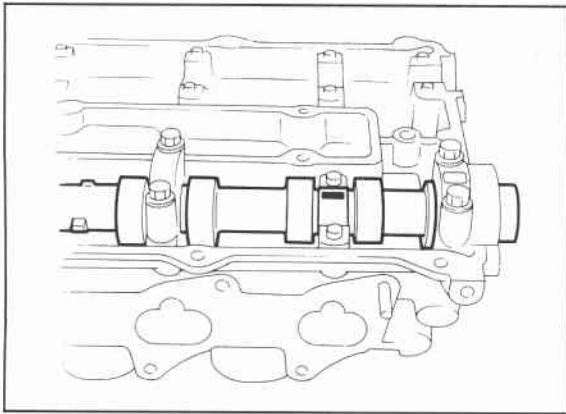
4. Measure wear of the journals in X and Y directions at the two points as shown in the figure.

## Diameter:

**29.940—29.965 mm (1.1787—1.1797 in)**

**Out-of-round: 0.05 mm (0.002 in) max.**

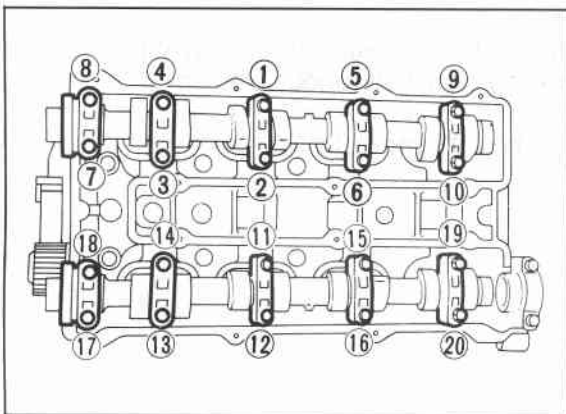
# 1B INSPECTION AND REPAIR



76G01B-060

5. Measure the oil clearance of the camshaft and camshaft caps.

- (1) Remove any oil or dirt from the journals and bearing surface.
- (2) Set the camshaft onto the cylinder head.
- (3) Position plasti-gauge on top of the journals in the axial direction.

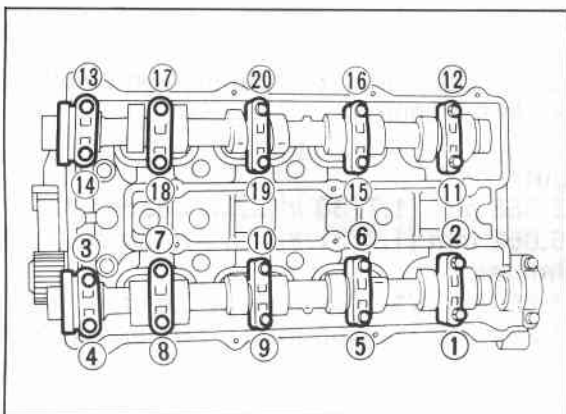


76G01B-061

- (4) Place the camshaft caps according the cap number and arrow, and tighten them in the order shown in the figure.

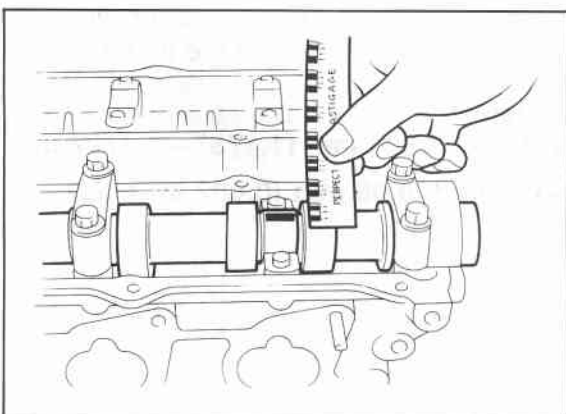
**Tightening torque:**

**18—26 N·m (1.8—2.7 m·kg, 13—20 ft·lb)**



76G01B-062

- (5) Loosen the camshaft cap bolts in the order shown in the figure.



76G01B-063

- (6) Measure the oil clearance at each cap.

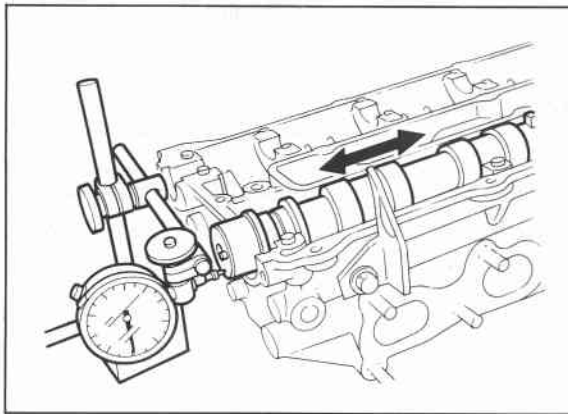
**Oil clearance:**

**0.035—0.085 mm (0.0014—0.0033 in)**

**Maximum: 0.15 mm (0.0059 in)**

- (7) If the oil clearance exceeds the maximum, replace the camshaft and/ or the cylinder head.





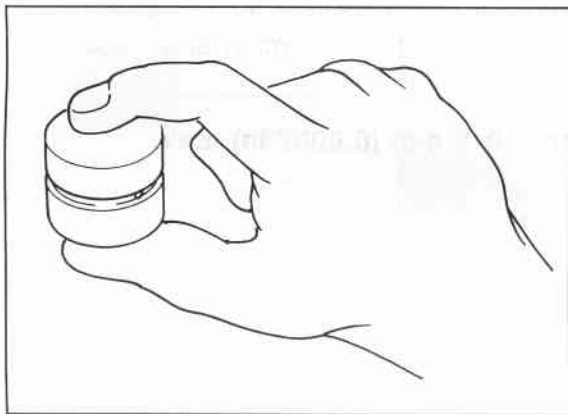
76G01B-125

6. Measure the camshaft end play. If it exceeds the maximum, replace the camshaft and/or the cylinder head.

**End play:**

**0.08—0.10 mm (0.003—0.004 in)**

**Maximum: 0.20 mm (0.008 in)**



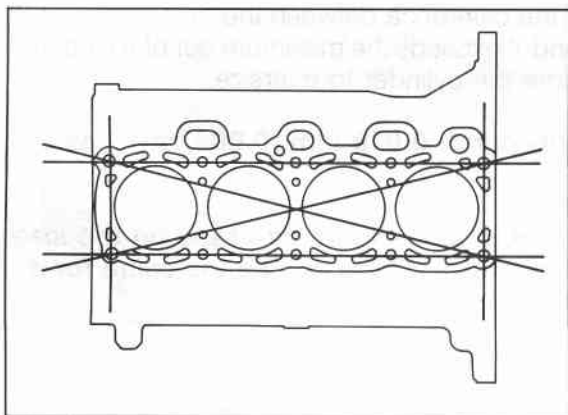
76G01B-064

**Hydraulic Lash Adjuster (HLA)**

1. Check the HLA face for wear or damage.
2. Hold the HLA between your fingers and press it. If the HLA moves, replace it.

**Caution**

**Do not disassemble the HLA.**

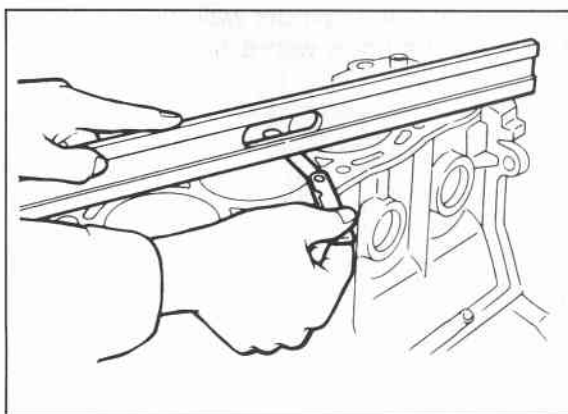


86U01X-100

**Cylinder Block**

1. Check the cylinder block. Repair or replace if necessary.
  - (1) Leakage damage
  - (2) Cracks
  - (3) Scoring of wall
2. Measure the distortion of the top surface of the cylinder block in the six directions as shown in the figure.

**Distortion: 0.15 mm (0.006 in) max.**

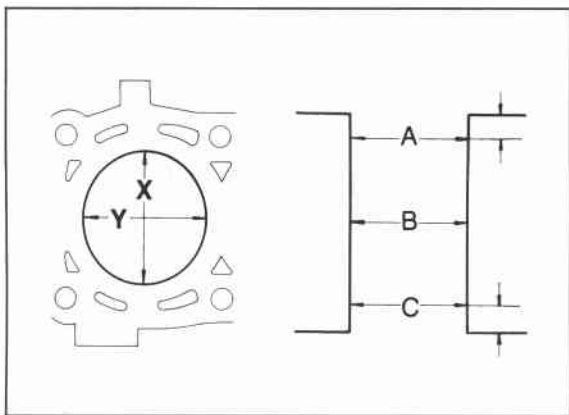


86U01X-101

3. If the distortion exceeds the maximum, repair by grinding, or replace the cylinder block.

**Grinding limit: 0.20 mm (0.008 in) max.**

# 1B INSPECTION AND REPAIR



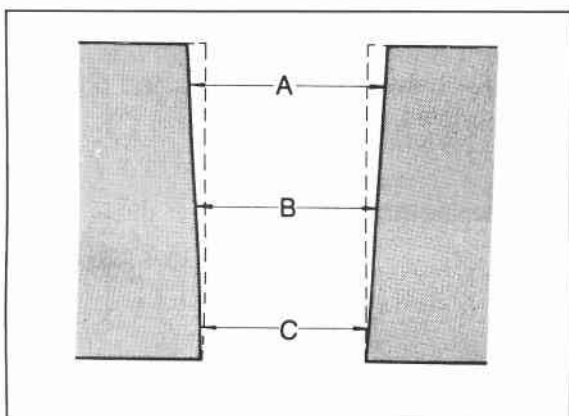
79G01C-070

4. Measure the cylinder bore in directions X and Y at three levels in each cylinder as shown.

## Cylinder bore

mm (in)

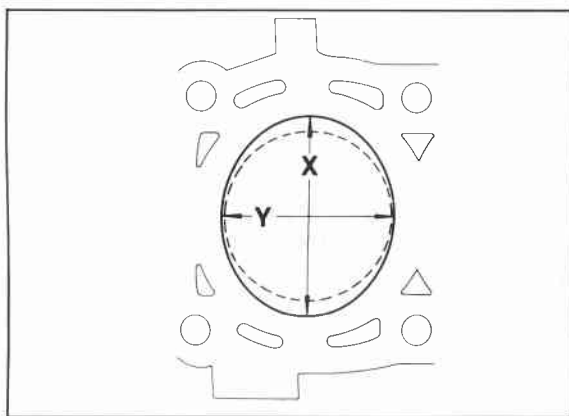
Size	Bore
Standard	86.000—86.019 (3.3858—3.3866)
0.25 (0.010) oversize	86.250—86.269 (3.3957—3.3964)
0.50 (0.020) oversize	86.500—86.519 (3.4055—3.4062)



79G01C-071

- (1) If the difference between the measurement A and C exceeds the maximum taper, rebore the cylinder to oversize.

**Taper: 0.019 mm (0.0007 in) max.**



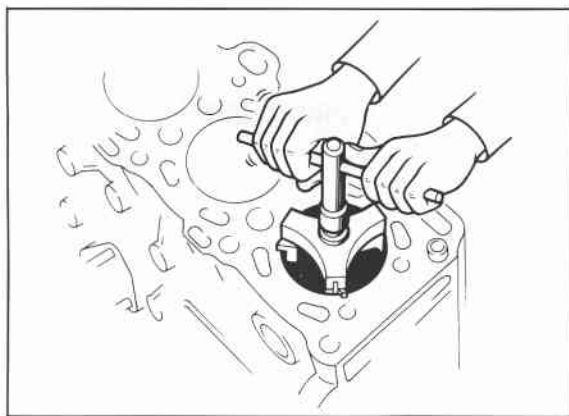
79G01C-072

- (2) If the difference between the measurement X and Y exceeds the maximum out-of-round, rebore the cylinder to oversize.

**Out-of-round: 0.019 mm (0.0007 in) max.**

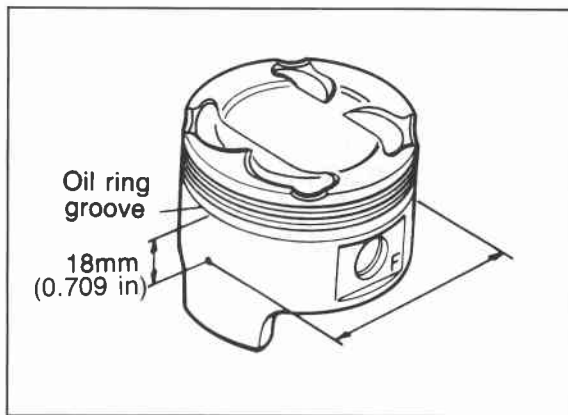
## Caution

The boring size should be based on the size of an oversize piston and be the same for all cylinders.

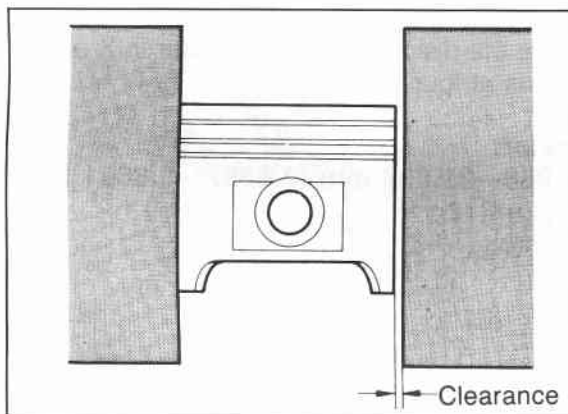


86U01X-102

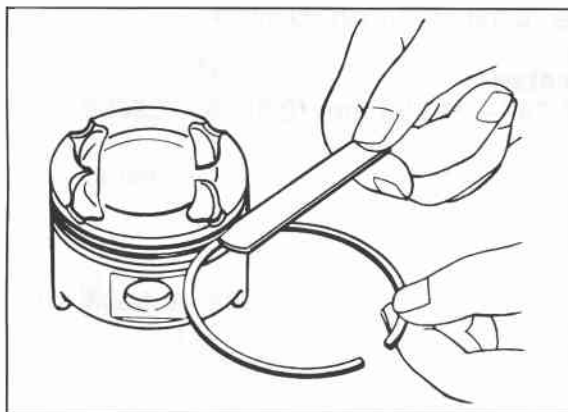
5. If the upper part of the cylinder wall shows uneven wear, remove the ridge with a ridge reamer.



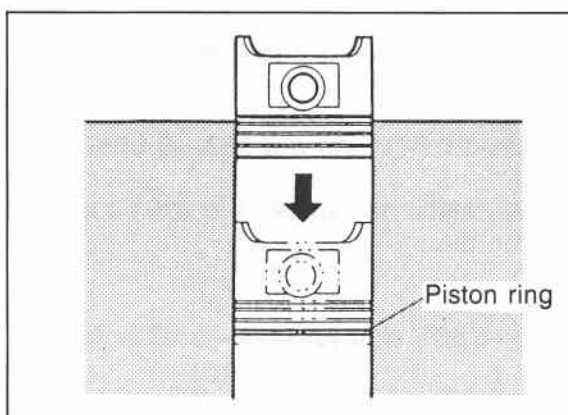
79G01C-073



76G01A-130



69G01A-125



86U01X-104

## Piston

1. Inspect the outer circumferences of all pistons for seizure or scoring. Replace if necessary.
2. Measure the outer diameter of each piston at a right angle ( $90^\circ$ ) to the piston pin, **18 mm (0.709 in) below** the oil ring land lower edge.

## Piston diameter

mm (in)

Size	Diameter
Standard	85.944—85.964 (3.3836—3.3844)
0.25 (0.010) oversize	86.194—86.214 (3.3935—3.3942)
0.50 (0.020) oversize	86.444—86.464 (3.4033—3.4041)

3. Check the piston to cylinder clearance.

## Clearance:

**0.036—0.075 mm (0.0014—0.0030 in)**

**Maximum: 0.15 mm (0.0059 in)**

4. If the clearance exceeds the maximum, replace the piston or rebore the cylinders to fit oversize pistons.

## Caution

**If the piston is replaced, replace the piston rings also.**

## Piston and Piston Ring

1. Measure the piston ring to ring land clearance around the entire circumference using a new piston ring.

## Clearance (Top and Second):

**0.03—0.07 mm (0.001—0.003 in)**

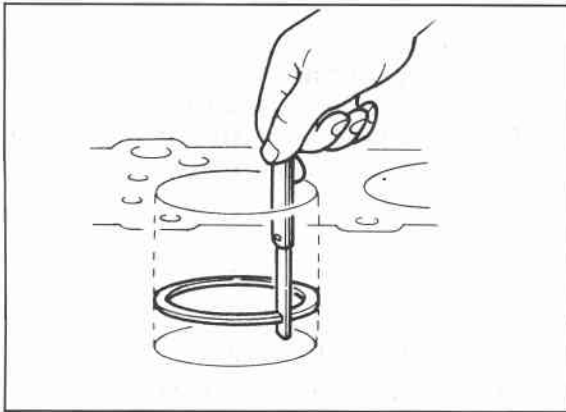
**Maximum: 0.15 mm (0.006 in)**

2. If the clearance exceeds the maximum, replace the piston.

3. Inspect the piston rings for damage, abnormal wear, or breakage. Replace if necessary.

4. Insert the piston ring into the cylinder by hand and push it to the bottom of the ring travel in using the piston.

## 1B INSPECTION AND REPAIR

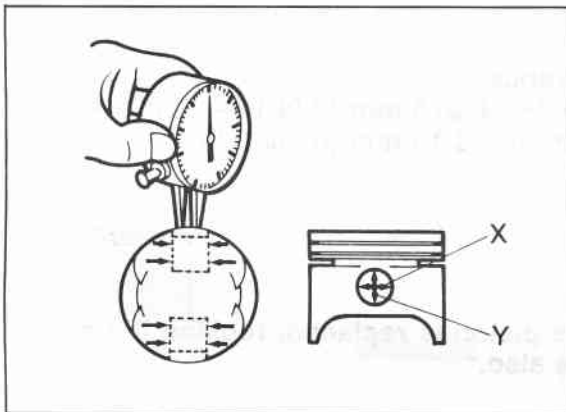


76G01B-065

5. Measure each piston ring end gap with a feeler gauge. Replace if necessary.

### End gap

**Top** : 0.20—0.35 mm (0.008—0.014 in)  
**Second**: 0.15—0.30 mm (0.006—0.012 in)  
**Oil rail** : 0.20—0.70 mm (0.008—0.028 in)  
**Maximum**: 1.0 mm (0.039 in)



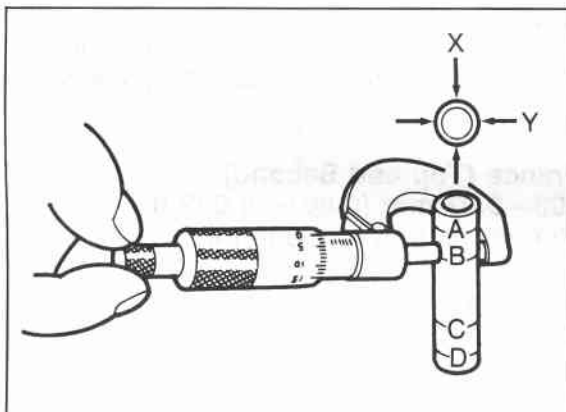
76G01B-066

### Piston and Piston Pin

1. Measure the piston pin hole diameter in X and Y directions at four points.

### Diameter:

**21.988—21.998 mm (0.8657—0.8661 in)**



76G01B-067

2. Measure the piston pin diameter.

### Diameter:

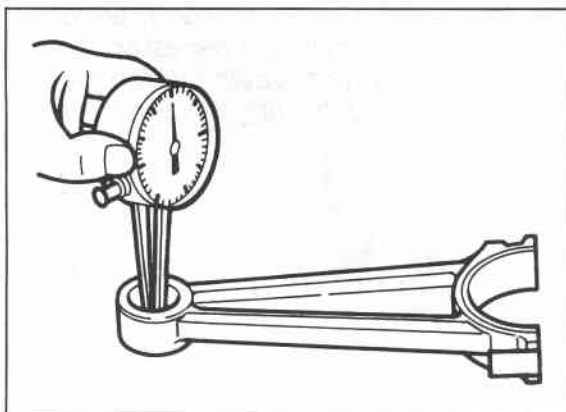
**21.987—21.993 mm (0.8656—0.8659 in)**

3. Determine the piston pin to piston clearance by subtracting the two figures.

### Clearance:

**-0.005—0.011 mm (-0.0002—0.0004 in)**

4. If the clearance exceeds the specification, replace the piston and/or piston pin.



76G01B-068

### Connecting Rod

1. Measure the connecting rod small end bore.

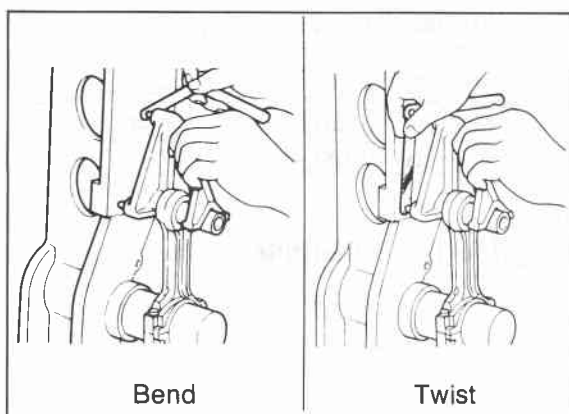
### Diameter:

**22.003—22.014 mm (0.8663—0.8667 in)**

2. Check the clearance between the small end bore and piston pin.

### Clearance:

**0.010—0.027 mm (0.0004—0.0011 in)**

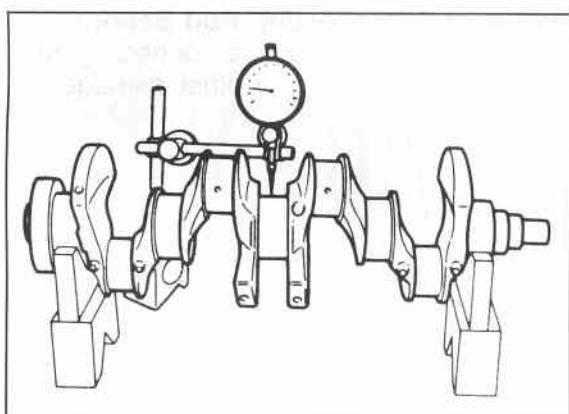


86U01X-108

3. Check each connecting rod for bending or twisting. Repair or replace if necessary.

**Bend: 0.06 mm (0.0024 in) max.**

**Twist: 0.06 mm (0.0024 in) max.**

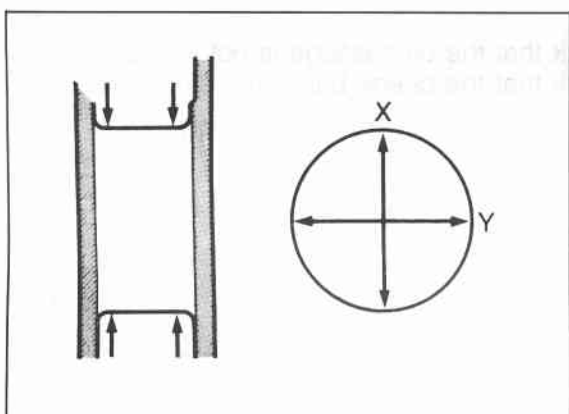


86U01X-109

## Crankshaft

1. Check the journals and pins for damage, scoring, or oil hole clogging.
2. Set the crankshaft on V-blocks.
3. Check the crankshaft runout at the center journal. Replace if necessary.

**Runout: 0.03 mm (0.0012 in) max.**



76G01A-131

4. Measure each journal diameter in X and Y directions at two points.

## Main journal

### Diameter:

**59.937—59.955 mm (2.3597—2.3604 in)**

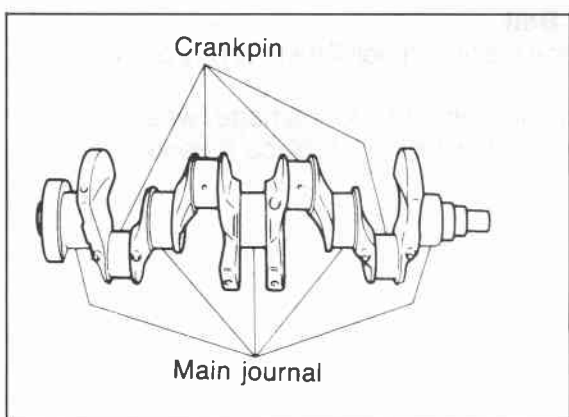
**Out-of-round: 0.05 mm (0.0020 in) max.**

## Crankpin journal

### Diameter:

**50.940—50.955 mm (2.0055—2.0061 in)**

**Out-of-round: 0.05 mm (0.0020 in) max.**



76G01A-132

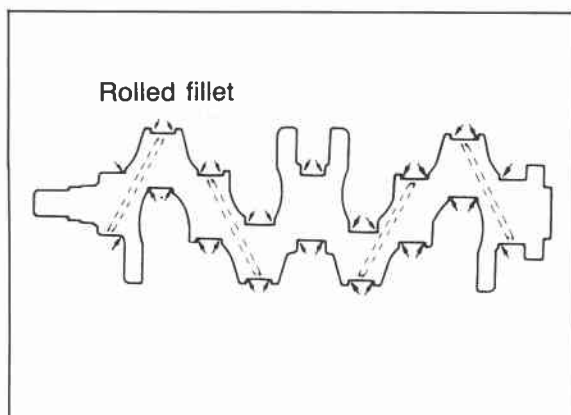
5. If the diameter is less than the minimum, grind the journals to match undersize bearings.

**Undersize bearing: 0.25 mm (0.010 in),  
0.50 mm (0.020 in), 0.75 mm (0.030 in)**

**Main journal diameter undersize mm (in)**

Bearing size		Journal diameter
0.25 (0.010) undersize	No.1,2,4,5	59.693—59.711 (2.3501—2.3508)
	No.3	59.687—59.705 (2.3499—2.3506)
0.50 (0.020) undersize	No.1,2,4,5	59.443—59.461 (2.3403—2.3410)
	No.3	59.437—59.455 (2.3400—2.3407)
0.75 (0.030) undersize	No.1,2,4,5	59.193—59.211 (2.3304—2.3311)
	No.3	59.187—59.205 (2.3302—2.3309)

# 1B INSPECTION AND REPAIR



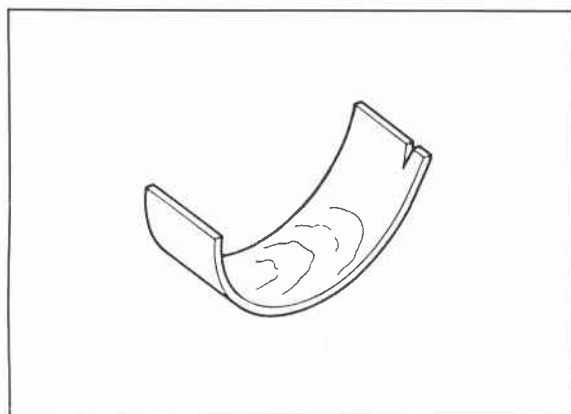
76G01A-133

## Crankpin journal diameter undersize mm (in)

Bearing size	Journal diameter
0.25 (0.010) undersize	50.690—50.705 (1.9957—1.9963)
0.50 (0.020) undersize	50.440—50.455 (1.9858—1.9864)
0.75 (0.030) undersize	50.190—50.205 (1.9760—1.9766)

### Caution

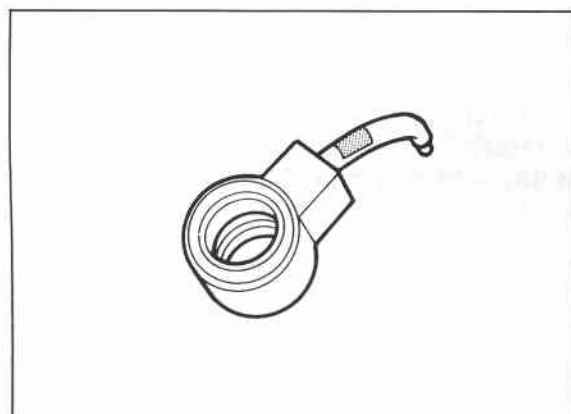
Do not grind the rolled fillet area.



79G01C-077

## Main Bearing and Connecting Rod Bearing

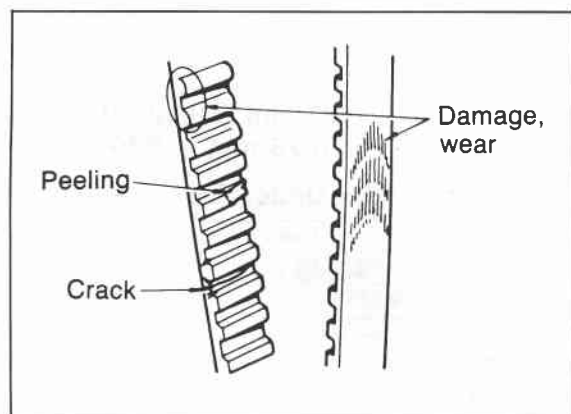
Check the main bearings and the connecting rod bearings for peeling, scoring, or other damage.



76G01B-069

### Oil Jet

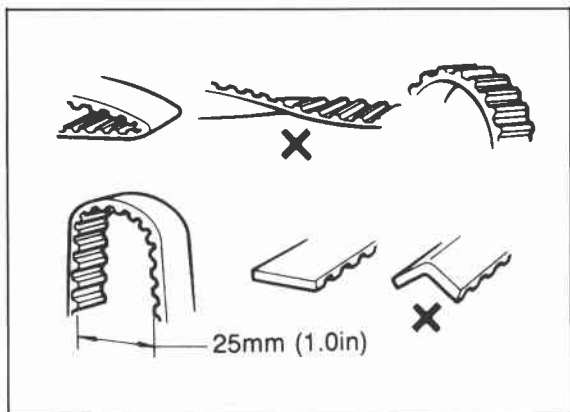
1. Check that the oil passage is not clogged.
2. Check that the check ball is not stuck.



86U01X-113

## Timing Belt

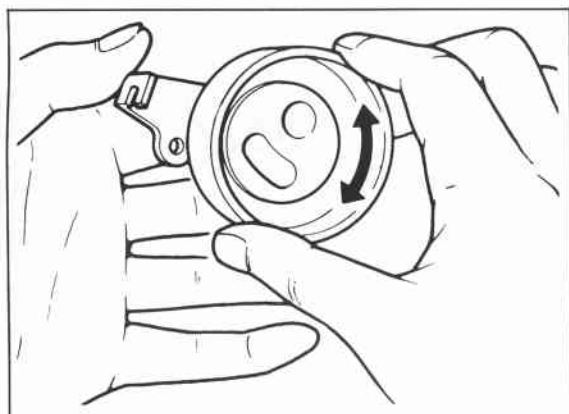
1. Replace the timing belt if there is any oil or grease on it.
2. Check the timing belt for damage, wear, peeling, cracks, or hardening. Replace if necessary.



86U01X-114

## Caution

- a) Never forcefully twist, turn inside out, or bend the timing belt.
- b) Be careful not to allow oil or grease on the belt.



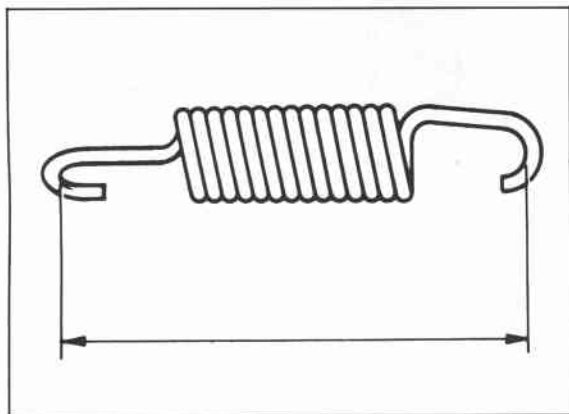
86U01X-115

## Timing Belt Tensioner and Idler Pulley

Check the timing belt tensioner and idler pulley for smooth rotation and abnormal noise. Replace if necessary.

## Caution

Do not clean the tensioner with cleaning fluids. If necessary, use a soft rag to wipe it clean, and avoid scratching it.

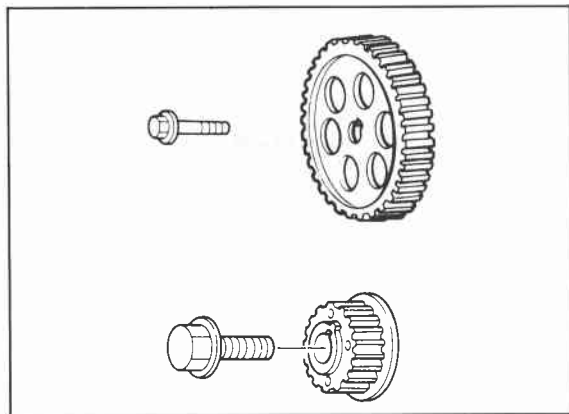


76G01B-126

## Timing Belt Tensioner Spring

Check the free length of the tensioner spring. Replace if necessary.

**Free length: 53.3 mm (2.098 in)**



86U01X-117

## Timing Belt Pulley and Camshaft Pulley

Inspect the pulley teeth for wear, deformation, or other damage. Replace if necessary.

## Caution

Do not clean the pulley with cleaning fluids. If necessary, use a rag to wipe it clean.

## Timing Belt Cover (lower and upper)

Inspect the timing belt covers for damage or cracks. Replace if necessary.

# 1B ASSEMBLY (CYLINDER BLOCK)

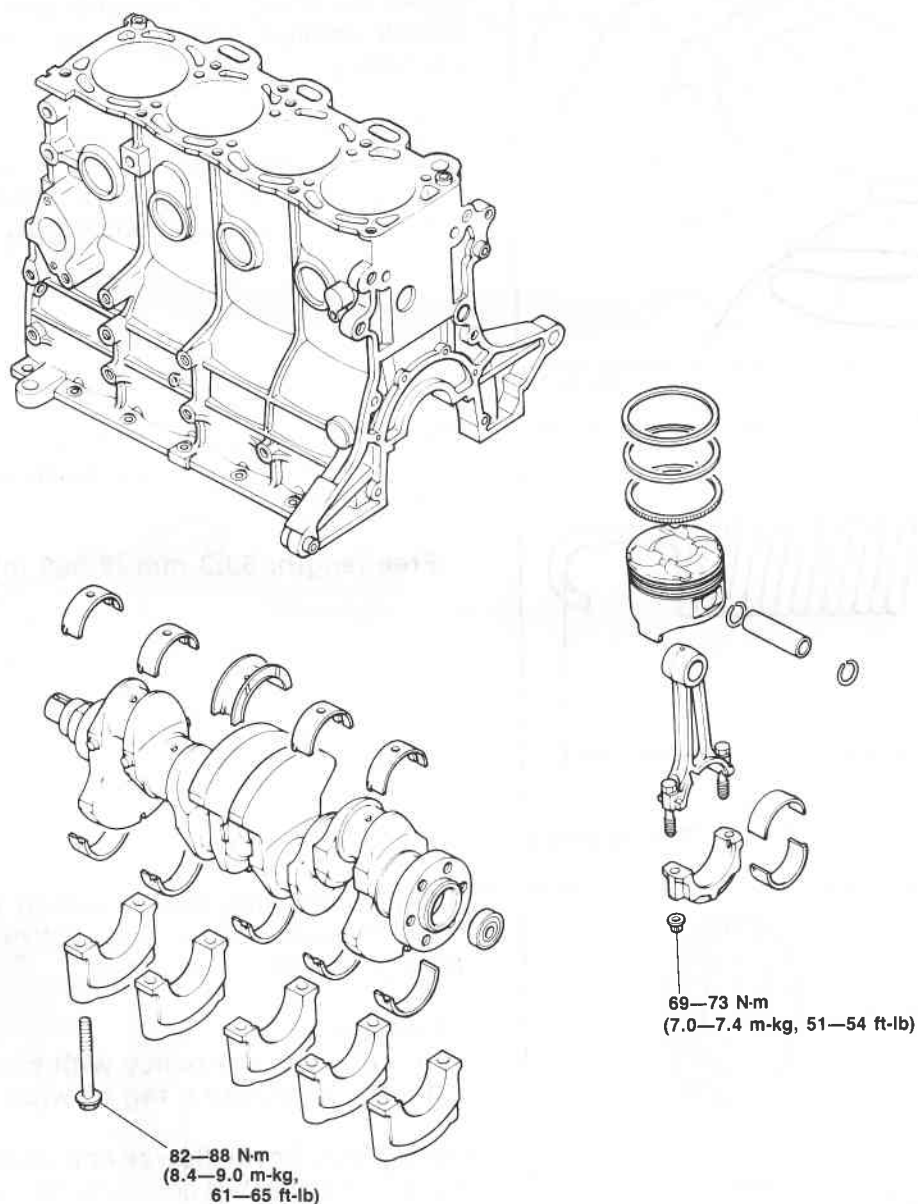
## ASSEMBLY

1. Clean all parts before reinstallation.
2. Apply new engine oil to all sliding and rotating parts.
3. Replace plain bearings if they are peeling, burned, or otherwise damaged.
4. Tighten all bolts and nuts to the specified torques.

### Caution

Do not reuse gaskets or oil seals.

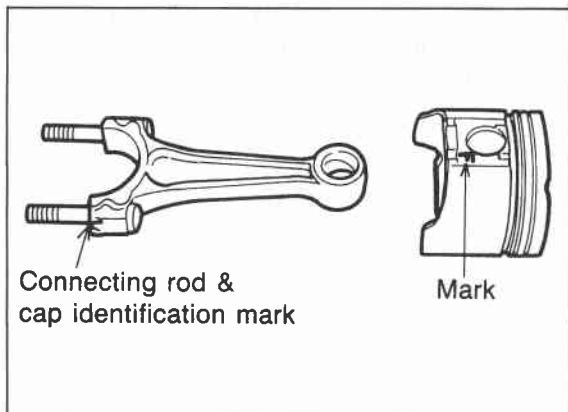
### CYLINDER BLOCK—I Torque Specifications



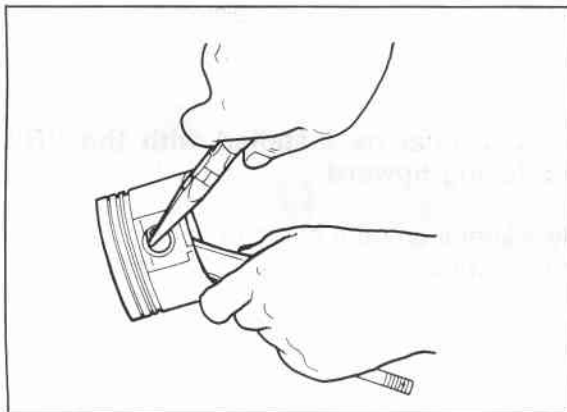
69G01A-139



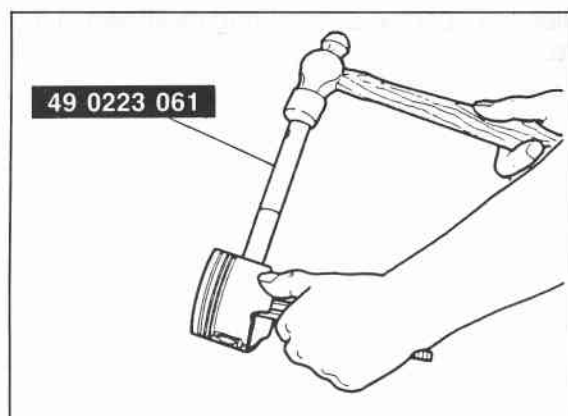
## ASSEMBLY (CYLINDER BLOCK) 1B



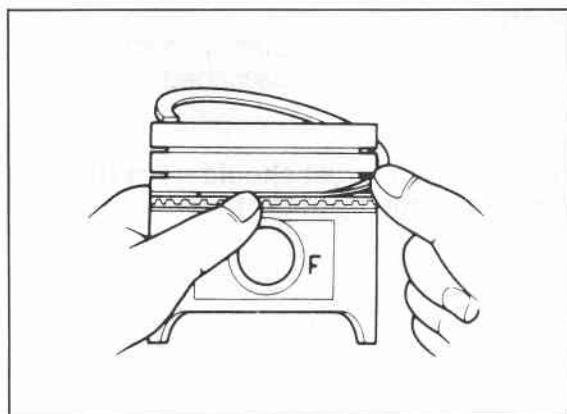
76G01B-070



76G01B-071



76G01B-072



69G01A-144

### Connecting Rod

1. Align the identification mark to the cap of large end of connecting rod and **F** mark on the piston as shown in the figure.
2. Apply a coat of engine oil to the circumference of each piston pin and to the small end of each connecting rod.

3. Set a clip into the clip groove in one side of the piston.

4. Insert the piston pin into the piston and connecting rod from the opposite side of the piston with the **SST**.
5. Tap the piston pin in until it touches the clip. Install the other clip into the groove in the piston.
6. Check the oscillation torque of the connecting rod. (Refer to page 1B—33.)

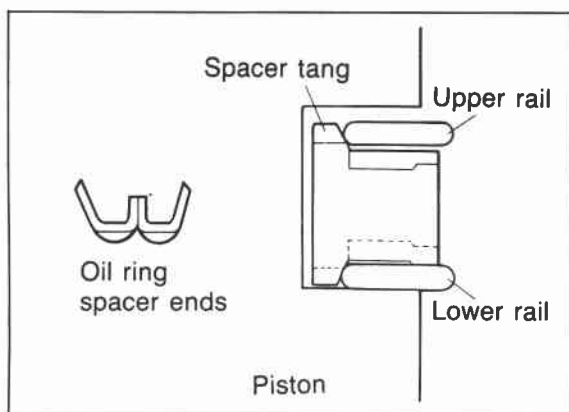
### Piston Ring

1. Install the three-piece oil rings on the pistons.
  - (1) Apply engine oil to the oil ring spacer and rails.
  - (2) Install the oil ring spacer so that the opening faces upward.
  - (3) Install the upper rail and lower rail.

#### Note

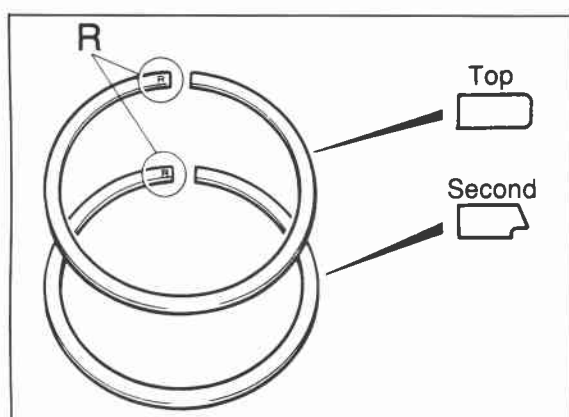
- a) The upper rail and lower rail are the same.
- b) Each rail can be installed with either face upward.

# 1B ASSEMBLY (CYLINDER BLOCK)



69G01A-145

2. Check that both rails are expanded by the spacer tangs as shown in the figure by checking that both rails turn smoothly in both directions.



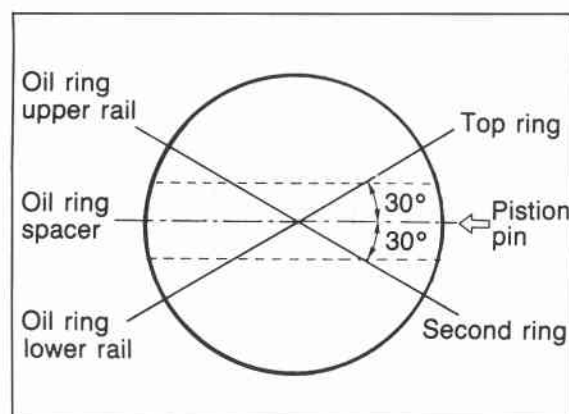
86U01X-121

3. Install the second ring to the piston first, then install the top ring. Use a piston ring expander.

## Caution

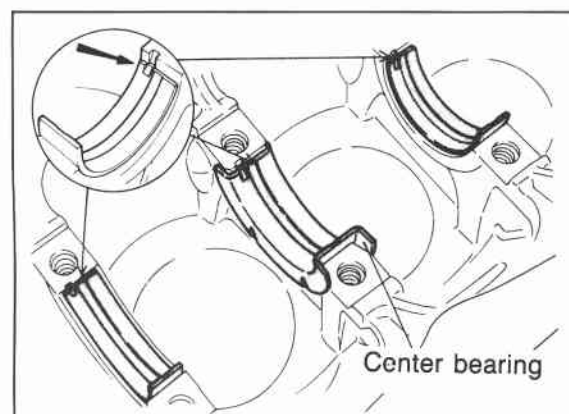
**The rings must be installed with the "R" marks facing upward.**

4. Apply a liberal amount of clean engine oil to the second and top piston rings.



69G01A-147

5. Position the opening of each ring as shown in the figure.



86U01X-215

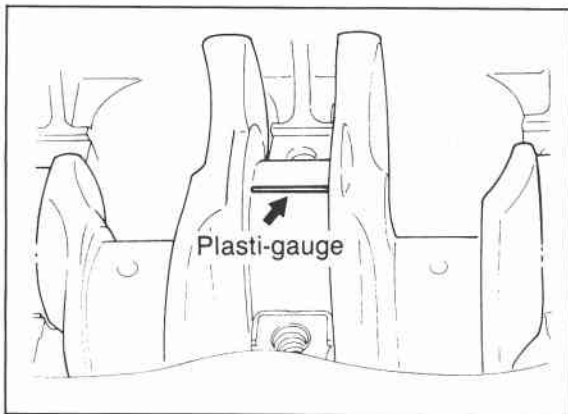
## Crankshaft

1. Before installing the crankshaft, inspect the main bearing oil clearances as described.

## Note

**The bearing with thrust shoulders is the center bearing in the cylinder block.**

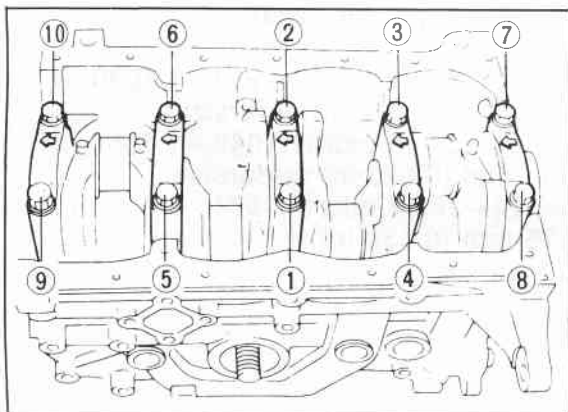
## ASSEMBLY (CYLINDER BLOCK) 1B



86U01X-122

### Oil clearance inspection

- (1) Remove any foreign material and oil from the journals and bearings.
- (2) Install the upper main bearings in the cylinder block.
- (3) Set the crankshaft into the cylinder block.
- (4) Position the plasti-gauge on top of the journals in the axial direction.



86U01X-123

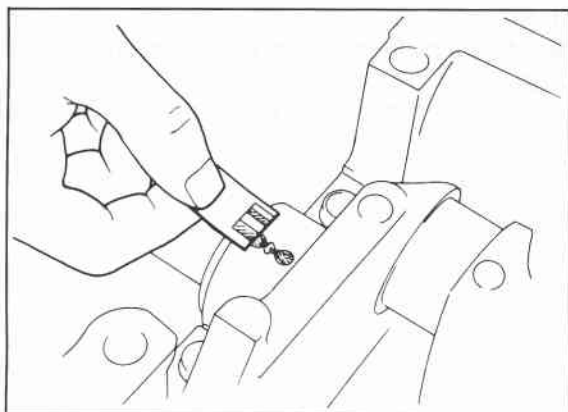
- (5) Install the main bearing caps along with the lower main bearings according to the cap number and ← mark.
- (6) Tighten the caps in two or three steps in the order in the figure.

### Tightening torque:

**82—88 N·m (8.4—9.0 m·kg, 61—65 ft·lb)**

### Caution

**Do not rotate the crankshaft when measuring the oil clearances.**



76G01B-073

- (7) Remove the main bearing caps, and measure the plasti-gauge at each journal at the widest point for the smallest clearance, and at the narrowest point for the largest clearance. If the oil clearance exceeds specification, grind the crankshaft and use undersize main bearings. (Refer to page 1B—45.)

### Oil clearance

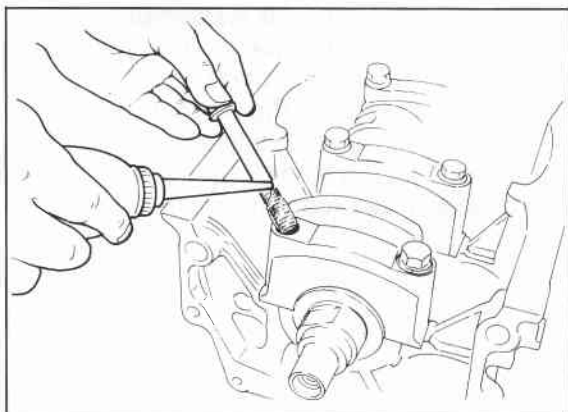
**No. 1, 2, 4, 5:**

**0.025—0.043 mm (0.0010—0.0017 in)**

**No. 3:**

**0.031—0.049 mm (0.0012—0.0019 in)**

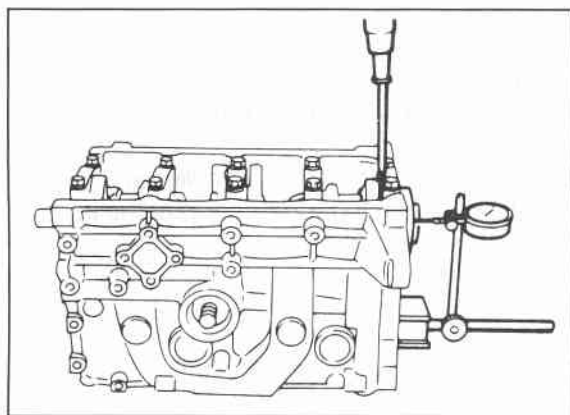
**Maximum: 0.08 mm (0.0031 in)**



86U01X-125

2. Apply a liberal amount of engine oil to the main bearings and main journals.
3. Install the crankshaft and the main bearing caps according to the cap number and ← mark.

# 1B ASSEMBLY (CYLINDER BLOCK)



76G01A-074

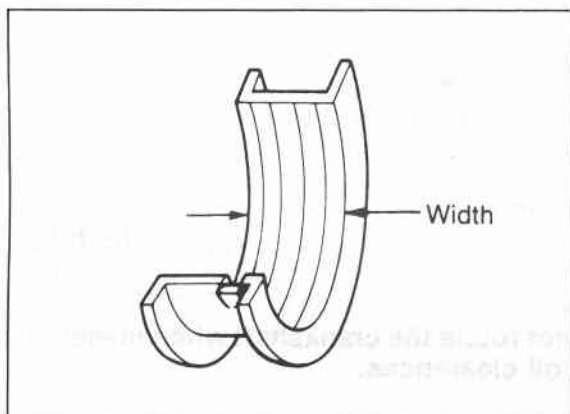
4. Inspect the crankshaft end play.

## End play:

**0.08—0.18 mm (0.0031—0.0071 in)**

**Maximum: 0.30 mm (0.012 in)**

5. If the end play exceeds specification, grind the crankshaft and use undersize center main bearing.



86U01X-216

## Center main bearing width

### Standard:

**27.94—27.99 mm (1.1000—1.1020 in)**

**0.25 mm (0.010 in) undersize:**

**28.04—28.09 mm (1.1040—1.1059 in)**

**0.50 mm (0.020 in) undersize:**

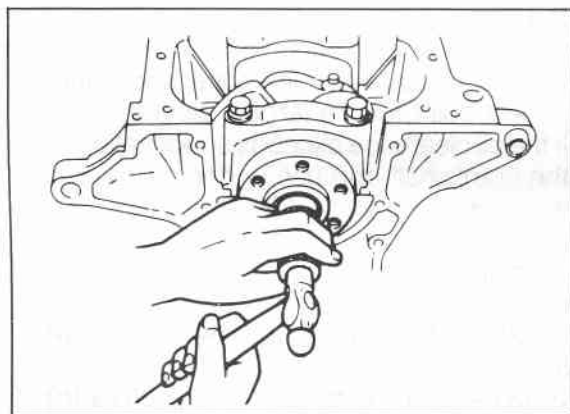
**28.12—28.17 mm (1.1071—1.1091 in)**

**0.75 mm (0.030 in) undersize:**

**28.20—28.25 mm (1.1102—1.1122 in)**

## Note

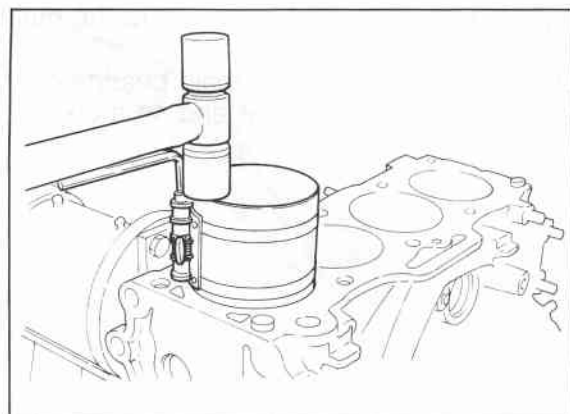
**Wider thrust width is available only in undersize center main bearing.**



76G01B-075

## Pilot Bearing

1. Apply engine oil to the outer circumference of the bearing.
2. Set a piece of pipe (outer diameter 30—34 mm, 1.18—1.34 in) against the outer race of the bearing, then tap it evenly into the crankshaft.
3. Lubricate the bearing with grease.

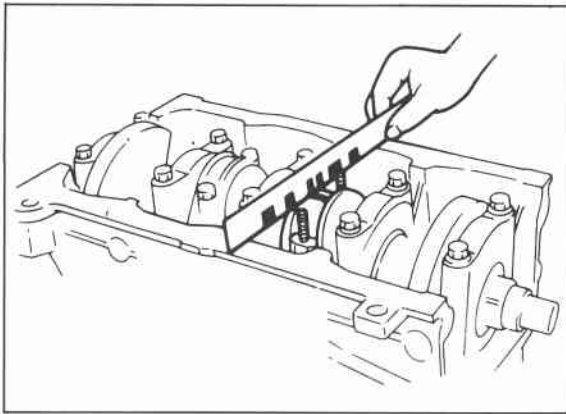


76G01A-136

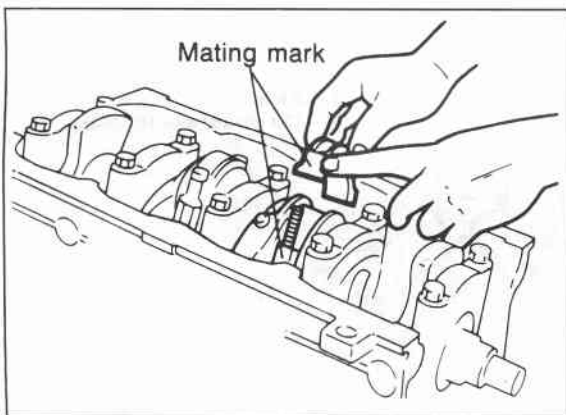
## Piston and Connecting Rod Assembly

1. Apply a liberal amount of clean engine oil to the cylinder walls, piston, and rings.
2. Check the piston rings for the end gap alignment.
3. Insert each piston assembly into the cylinder block with the **F** mark facing the front of the engine. Use a piston installer tool (commercially available).

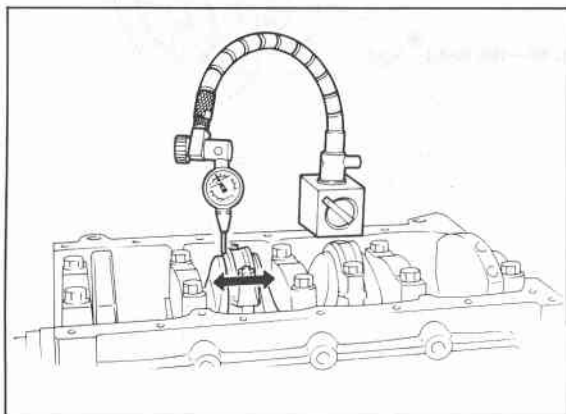
## ASSEMBLY (CYLINDER BLOCK) 1B



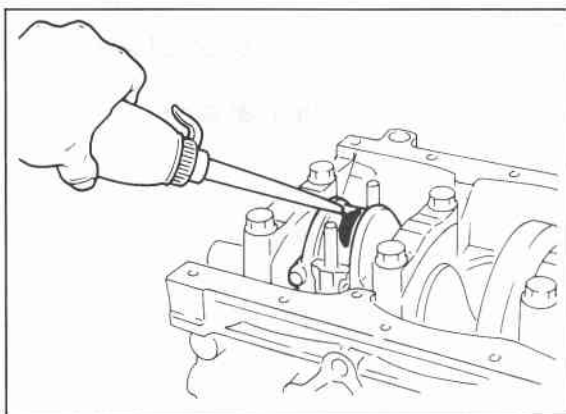
76G01B-076



76G01B-077



69G01B-139



76G01B-078

### Connecting Rod Cap

1. Check the connecting rod bearing clearances using the same procedure as used for the main bearing oil clearance.

### Connecting rod cap tightening torque:

69—73 N·m (7.0—7.4 m·kg, 51—54 ft·lb)

### Oil clearance:

0.027—0.067 mm (0.0011—0.0026 in)

Maximum: 0.10 mm (0.0039 in)

### Caution

Align the alignment marks on the cap and on the connecting rod when installing the connecting rod cap.

2. If the oil clearance exceeds specification grind the crankshaft and use undersize bearings. (Refer to page 1B—46.)

3. Check the side clearance of each connecting rod without the cap installed.

### Side clearance:

0.110—0.262 mm (0.004—0.0103 in)

Maximum: 0.30 mm (0.012 in)

If the clearance exceeds the maximum, replace the connecting rod.

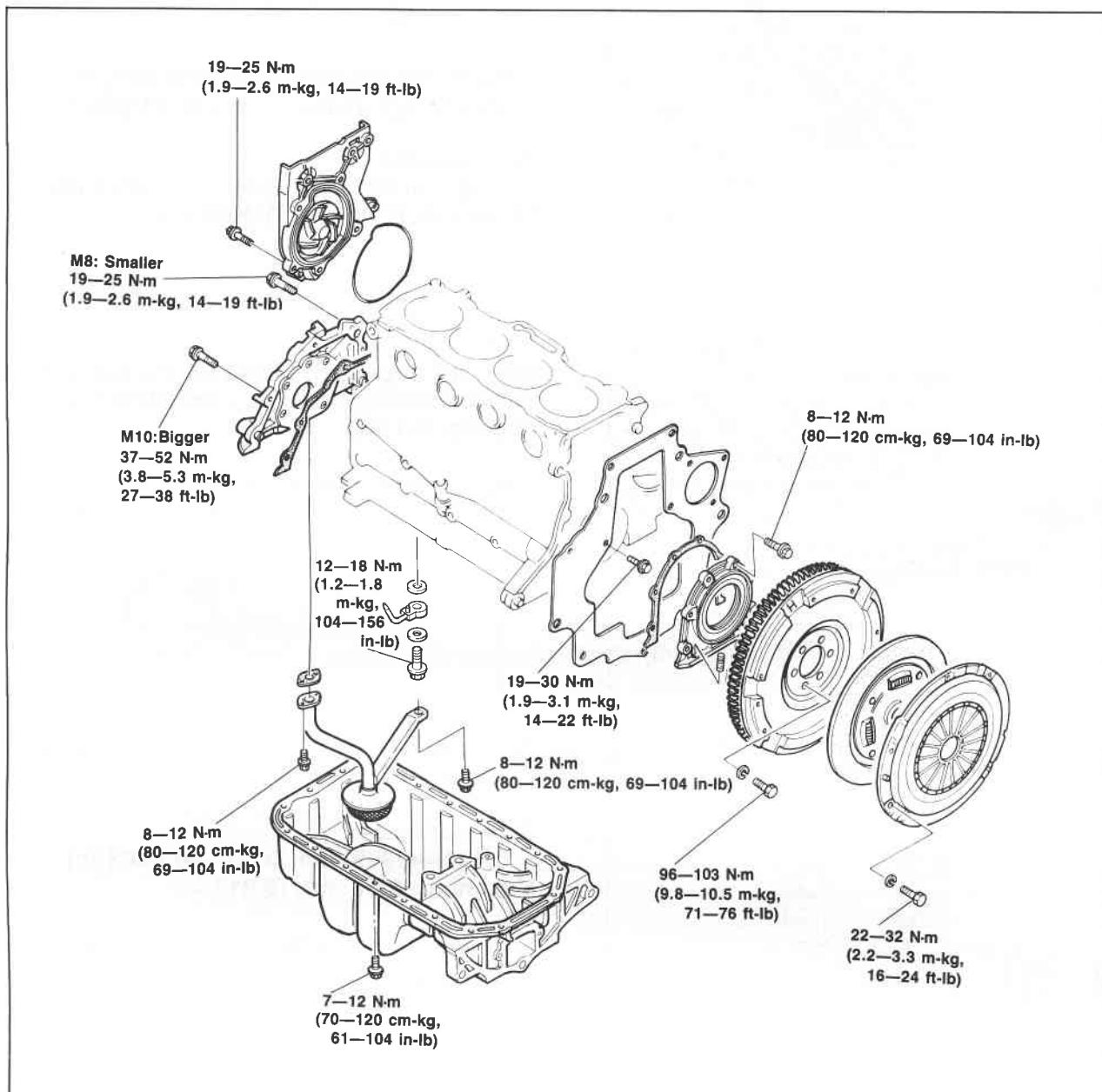
4. Apply a liberal amount of engine oil to the crankpin journal and connecting rod bearing.
5. Install the connecting rod cap with the alignment marks aligned.

### Tightening torque:

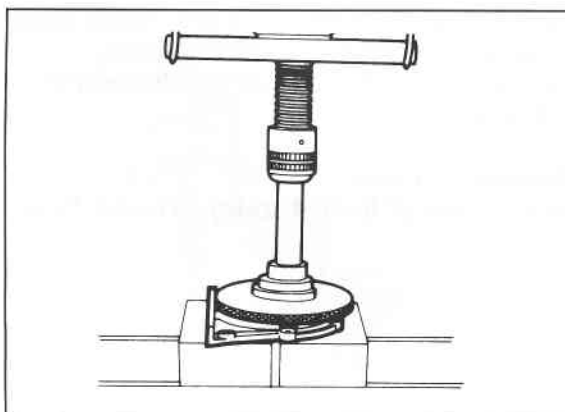
69—73 N·m (7.0—7.4 m·kg, 51—54 ft·lb)

# 1B ASSEMBLY (CYLINDER BLOCK)

## CYLINDER BLOCK—II Torque Specifications



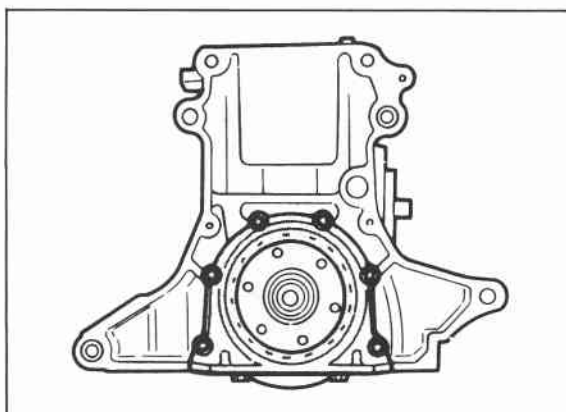
69G01A-166



### Rear Cover

1. Apply engine oil to the rear cover, oil seal and oil seal lip.
2. Press the oil seal into the rear cover.

## ASSEMBLY (CYLINDER BLOCK) 1B

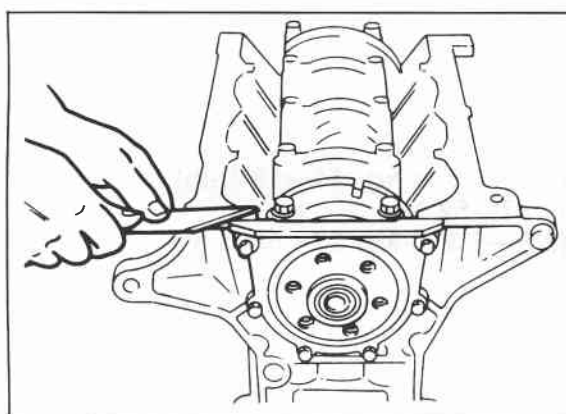


86U01X-131

3. Install the rear cover and a new gasket.

### **Tightening torque:**

**8—12 N·m (80—120 cm·kg, 69—104 in·lb)**

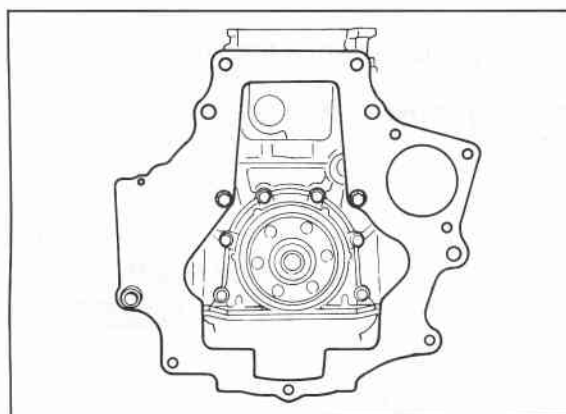


86U01X-132

4. Cut away the portion of the gasket that projects out from the rear cover assembly toward the oil pan side.

### **Caution**

**Do not scratch the rear cover assembly.**



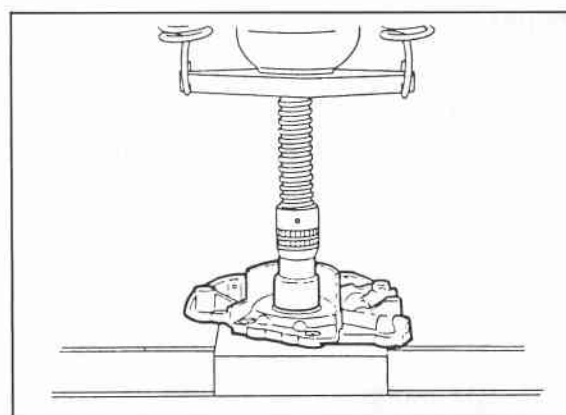
4BG01A-160

### **End Plate**

Install the end plate.

### **Tightening torque:**

**19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)**

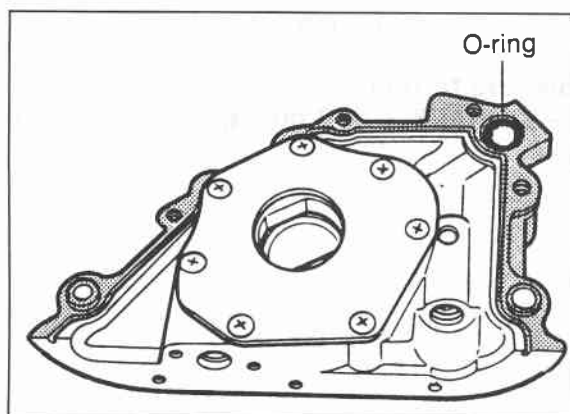


79G01C-085

### **Oil Pump**

1. Apply engine oil to a new oil pump oil seal and the oil pump body.
2. Press the oil seal into the oil pump body.

# 1B ASSEMBLY (CYLINDER BLOCK)

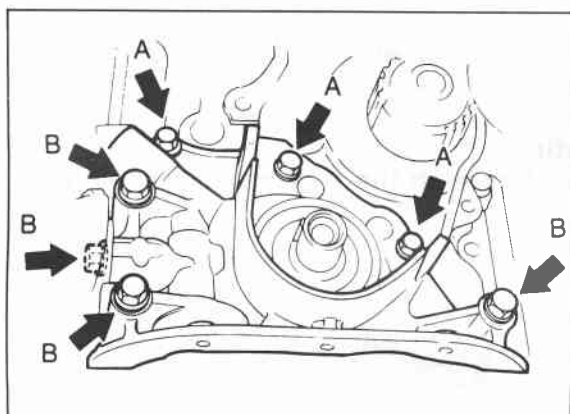


86U01X-133

3. Apply engine oil to the oil seal lip.
4. Remove any dirt or other material from the contact surfaces.
5. Apply a continuous bead of silicon sealant to the contact surface of the oil pump.

### Caution

**Do not allow any sealant to get into the oil hole.**



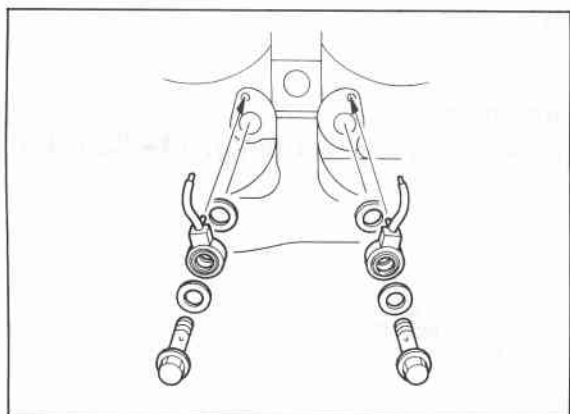
76G01A-137

6. Install a new O-ring into the pump body.
7. Install the oil pump.

### Tightening torque

- Ⓐ: 19—25 N·m  
(1.9—2.6 m·kg, 14—19 ft·lb)
- Ⓑ: 37—52 N·m  
(3.8—5.3 m·kg, 27—38 ft·lb)

8. Remove any sealant which has been squeezed out.



76G01B-079

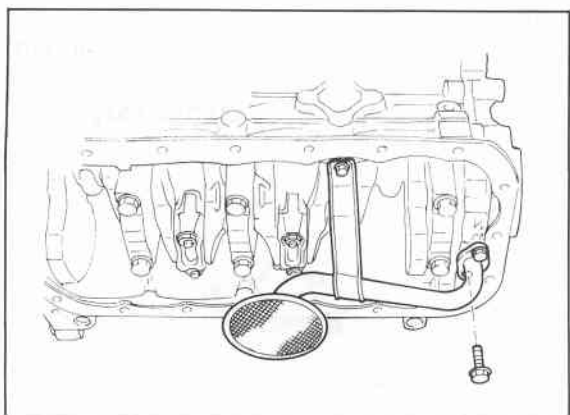
### Oil Jet

Install the oil jet as shown in the figure.

**Tightening torque: 12—18 N·m**  
(1.2—1.8 m·kg, 104—156 in·lb)

### Caution

**The shapes of the No.1, 3 cylinders jet valves and No.2, 4 jet valves are different.**



86U01X-136

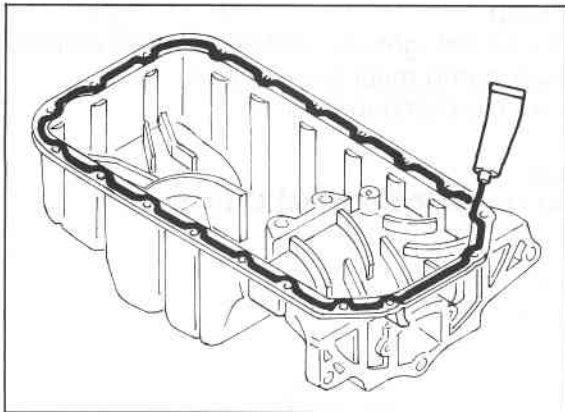
### Oil Strainer

Install the oil strainer and a new gasket.

**Tightening torque:**  
**8—12 N·m (80—120 cm·kg, 69—104 in·lb)**



## ASSEMBLY (CYLINDER BLOCK) 1B



76G01B-080

### Oil Pan

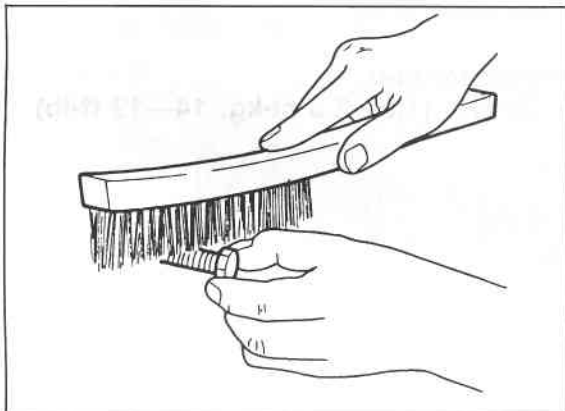
1. Apply a continuous bead of silicon sealant to the oil pan around inside of the bolt holes and overlap the ends.
2. Install the oil pan.

### Tightening torque:

7—12 N·m (70—120 cm·kg, 61—104 in·lb)

### Caution

Oil pan projection and recession from the end of the cylinder block must not be more than 1.5 mm (0.06 in).



76G01B-081

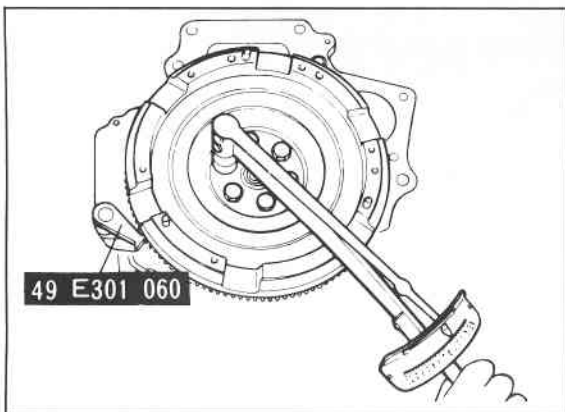
### Flywheel

1. Remove any old sealant from the bolts and bolt holes. If old sealant can not be removed from the bolt, replace it.
2. Apply sealant to the bolt threads.

3. Install, and tighten the flywheel with the SST.

### Tightening torque:

96—103 N·m (9.8—10.5 m·kg, 71—76 ft·lb)



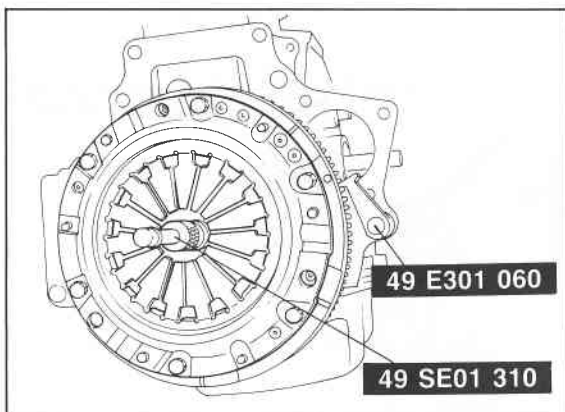
76G01B-082

### Clutch Disc and Clutch Cover

Install the clutch disc and clutch cover using the SST.  
(Refer to Section 6.)

### Tightening torque:

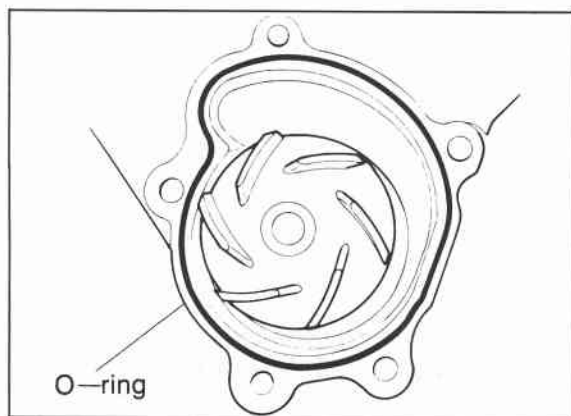
22—32 N·m (2.2—3.3 m·kg, 16—24 ft·lb)



76G01B-083

# 1B ASSEMBLY (CYLINDER BLOCK)

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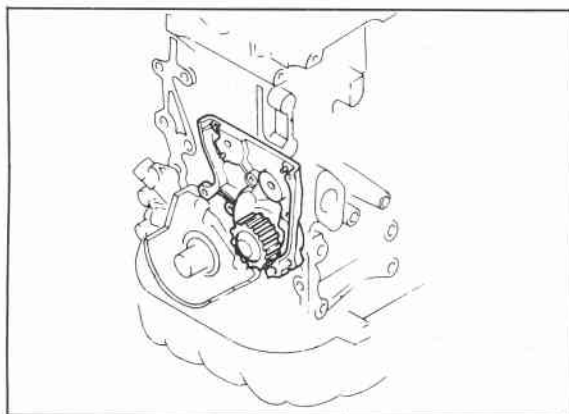
86U01X-142

## Water Pump

1. Remove all dirt, grease, and other material from the water pump mounting surface.
2. Place a new O-ring in position.

## Caution

**Do not reuse the original O-ring.**



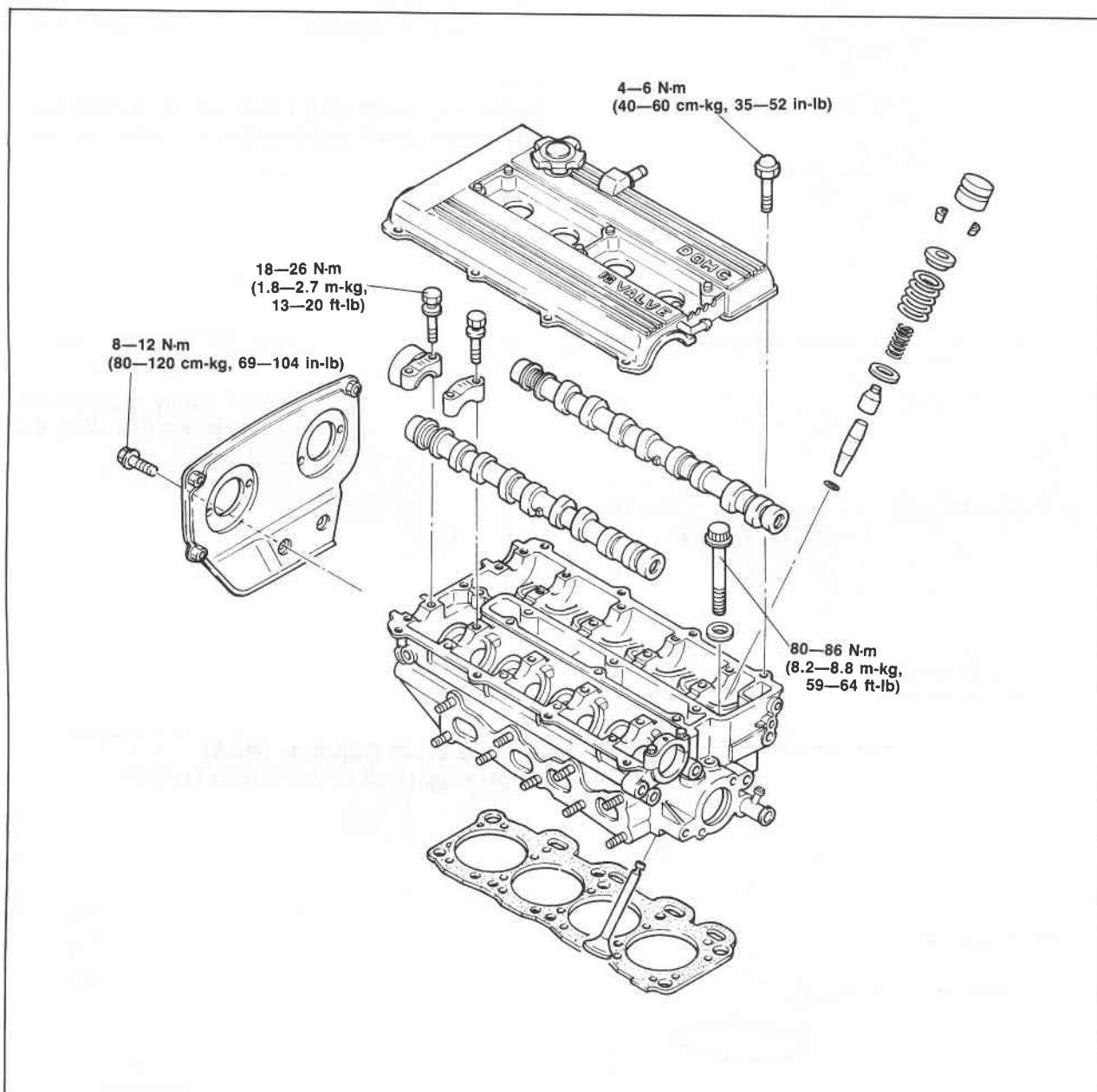
7BU01B-103

3. Install the water pump.

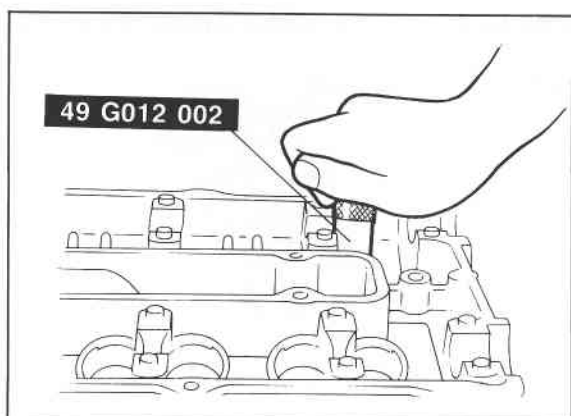
## Tightening torque:

**19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)**

## CYLINDER HEAD Torque Specifications



69G01B-152

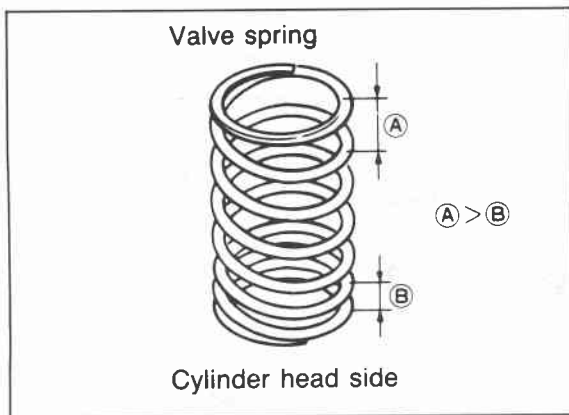


86U01X-143

### Valve Seal

1. Apply engine oil to the inside of the new valve seal.
2. Install the valve seal onto the valve guide with the SST.

# 1B ASSEMBLY (CYLINDER HEAD)



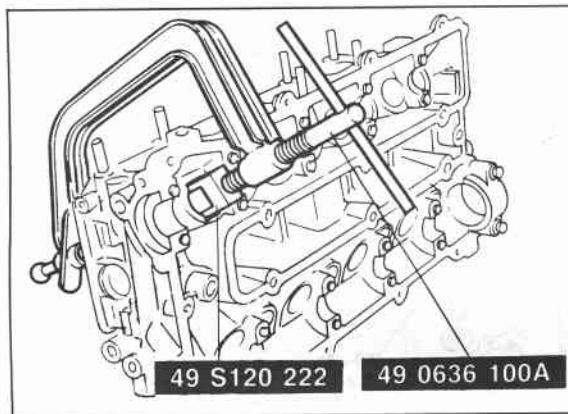
76G01B-084

## Valve and Valve Spring

1. Install the lower spring seat.
2. Install the valve.
3. Install the valve springs and the upper spring seat.

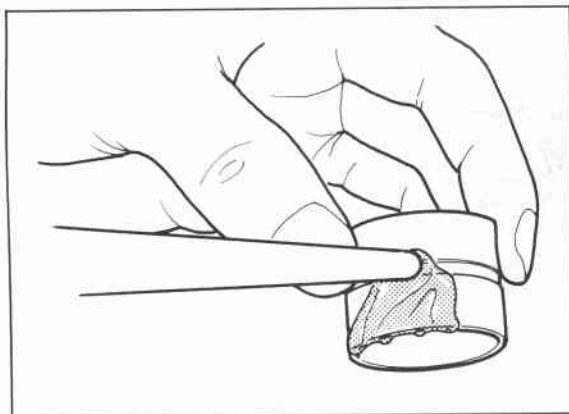
### Note

Install the outer and inner valve spring with the closer pitch toward the cylinder head.



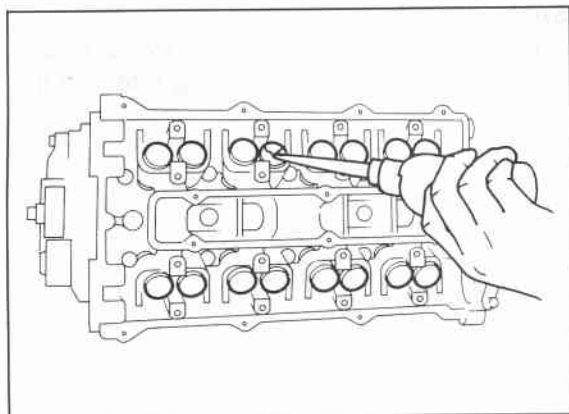
86U01X-145

4. Compress the valve spring with the **SST**; then install the valve keepers.
5. Tap the end of the valve stem lightly two or three times with a plastic hammer to confirm that the keepers are all fully seated.



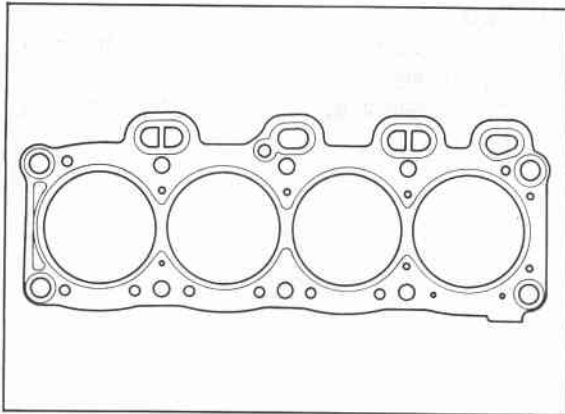
## Hydraulic Lash Adjuster (HLA)

1. Apply engine oil to the sliding surface.

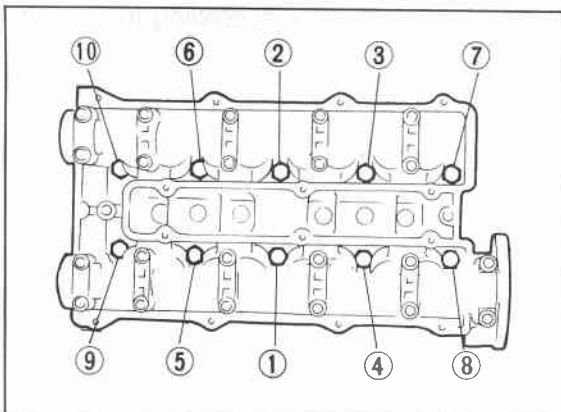


2. Install the HLA in the position from which they were removed.
3. Check for free movement.

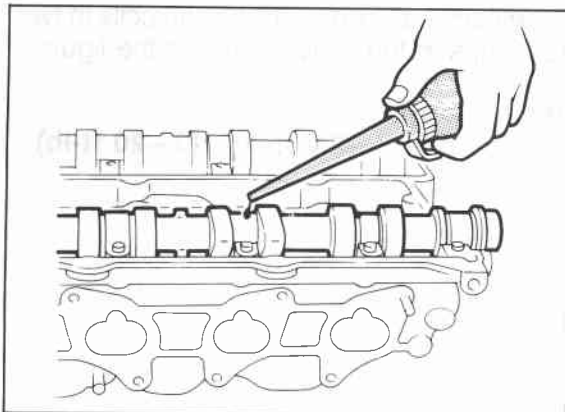
## ASSEMBLY (CYLINDER HEAD) 1B



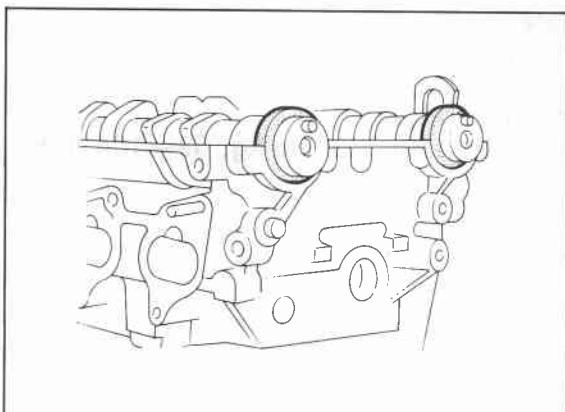
86U01X-146



86U01X-147



86U01X-148



76G01B-087

### Cylinder Head

1. Thoroughly remove all dirt, oil, or other material from the top of the cylinder block.
2. Place the new cylinder head gasket in position.

3. Install the cylinder head.

4. Apply engine oil to the bolt threads and seat faces.

5. Tighten the cylinder head bolts in two or three steps in the order shown in the figure.

### Tightening torque:

**80—86 N·m (8.2—8.8 m·kg, 59—64 ft·lb)**

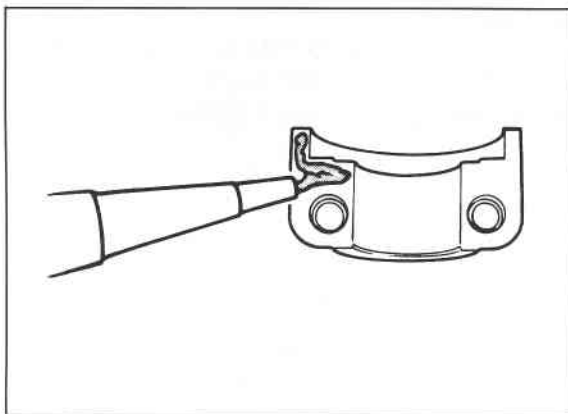
### Camshaft

1. Apply a liberal amount of engine oil to the journals and bearings.
2. Place the camshaft in position with the dowel pin facing straight up.

### Camshaft Oil Seal

1. Apply liberal amount of clean engine oil to the camshaft oil seal and cylinder head.
2. Install the camshaft oil seal.

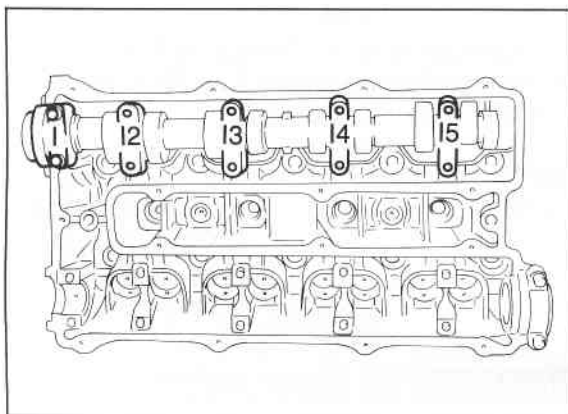
# 1B ASSEMBLY (CYLINDER HEAD)



76G01B-088

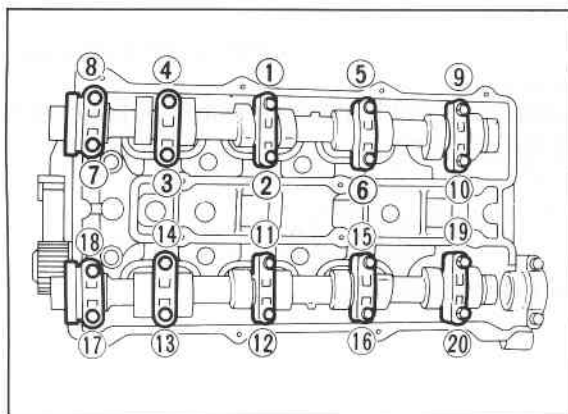
## Camshaft Cap

1. Apply liberal amount of clean engine oil to the cam lobes and journals.
2. Apply silicon sealant to the front camshaft cap surface.



76G01B-089

3. Position the camshaft caps according to the cap number and mark.

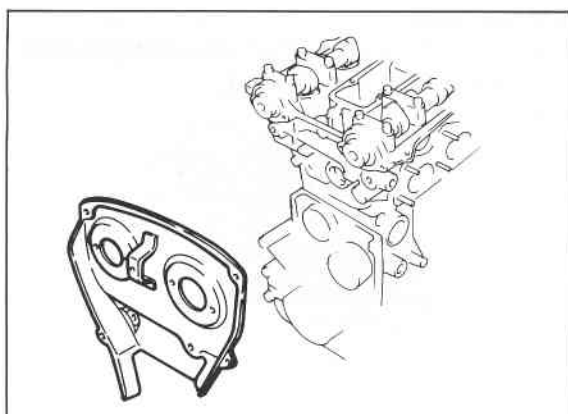


76G01B-090

4. Install the camshaft caps. Tighten the bolts in two or three steps in the order shown in the figure.

## Tightening torque:

18—26 N·m (1.8—2.7 m·kg, 13—20 ft·lb)



76G01B-091

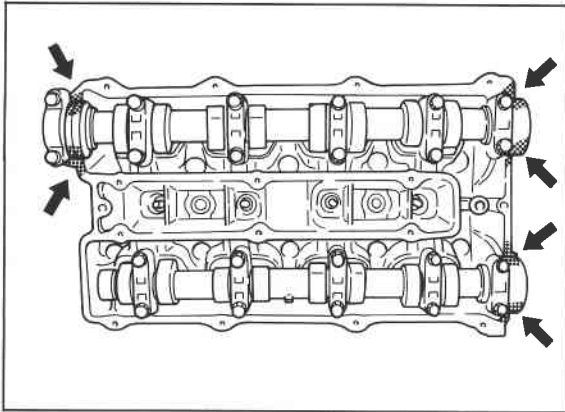
## Seal Plate

Install the seal plate.

## Tightening torque:

8—12 N·m (80—120 cm·kg, 69—104 in·lb)

## ASSEMBLY (CYLINDER HEAD) **1B**



76G01B-092

### **Cylinder Head Cover**

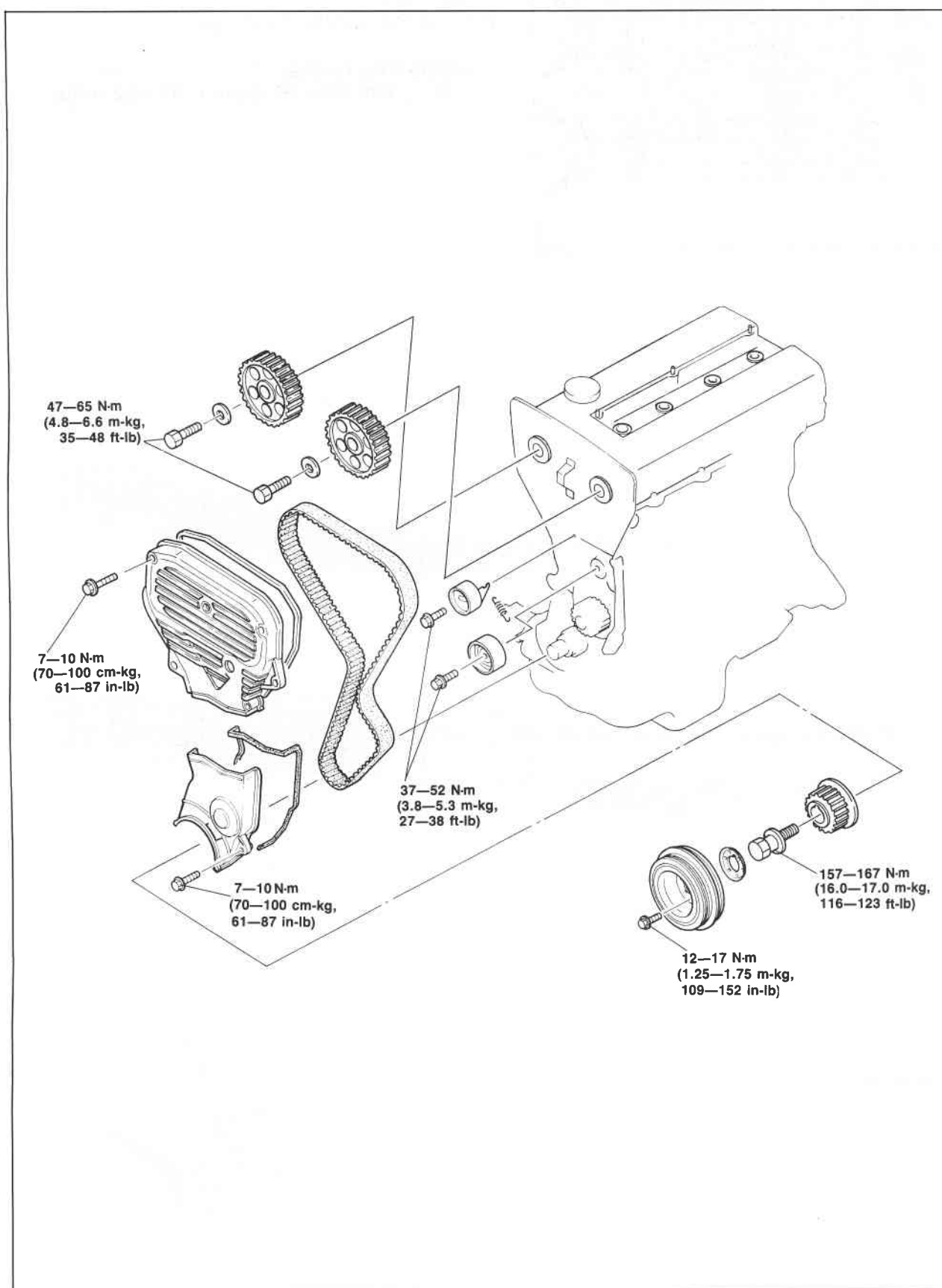
1. Apply silicon sealant to the shaded area shown in the figure.
2. Install the cylinder head cover.

### **Tightening torque:**

**4—6 N·m (40—60 cm·kg, 35—52 in·lb)**

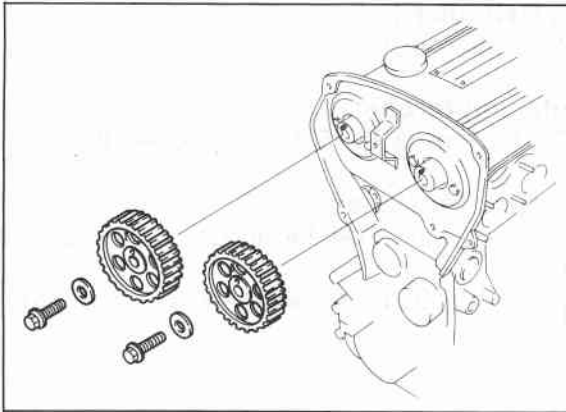
# 1B ASSEMBLY (TIMING BELT)

## TIMING BELT Torque Specifications



69G01B-160





76G01B-127

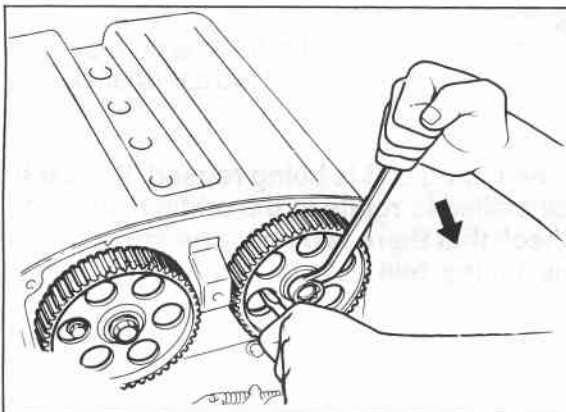
## Camshaft Pulley

1. Install the camshaft pulley on the camshaft with the dowel pin fit into the hole at the **I** mark (intake side) and **E** mark (exhaust side).

2. Tighten the camshaft pulley lock bolt.

## Tightening torque:

**47—65 N·m (4.8—6.6 m·kg, 35—48 ft·lb)**



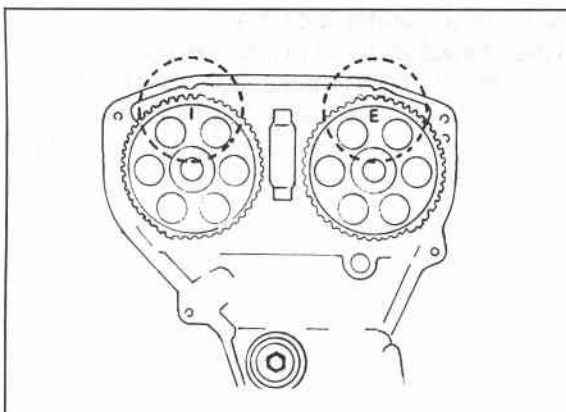
76G01A-141

3. Align the mating mark on the camshaft pulleys with the alignment mark on the seal plate.

## Note

**For intake side camshaft pulley, align “I” mark.**

**For exhaust side camshaft pulley, align “E” mark.**



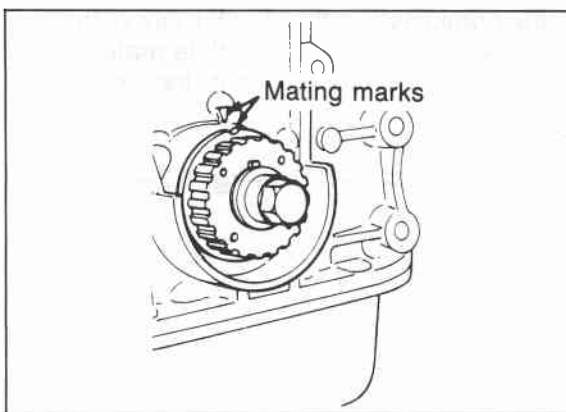
76G01B-094

## Timing Belt Pulley

1. Reverse the direction of the **SST** (ring gear brake).
2. Install the crankshaft key.
3. Install the timing belt pulley on the crankshaft.

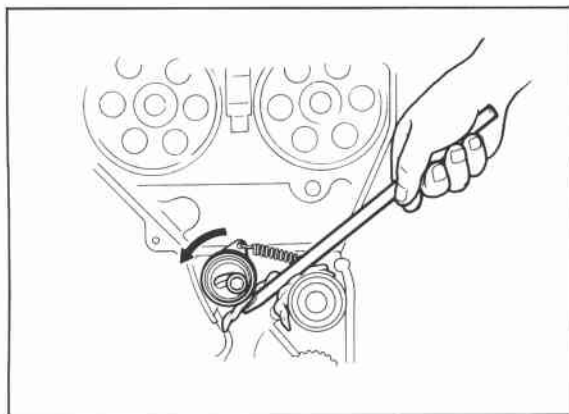
**Tightening torque: 157—167 N·m  
(16.0—17.0 m·kg, 116—123 ft·lb)**

4. Release the ring gear brake.
5. Align the timing belt pulley and the pump body alignment marks.



86U01X-160

# 1B ASSEMBLY (TIMING BELT)



69G01B-165

## Timing Belt Idler Pulley

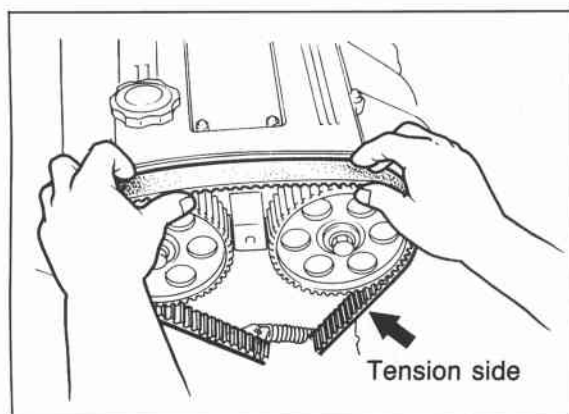
Install the timing belt idler pulley.

### Tightening torque:

**37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**

## Timing Belt Tensioner

1. Install the timing belt tensioner and tensioner spring.
2. Tentatively secure the tensioner with the spring fully extended.



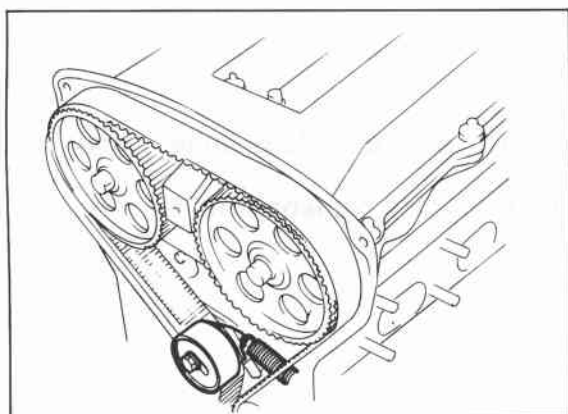
76G01B-095

## Timing Belt

1. Install the timing belt so that there is no looseness at the tension side, and at the two camshaft pulleys.

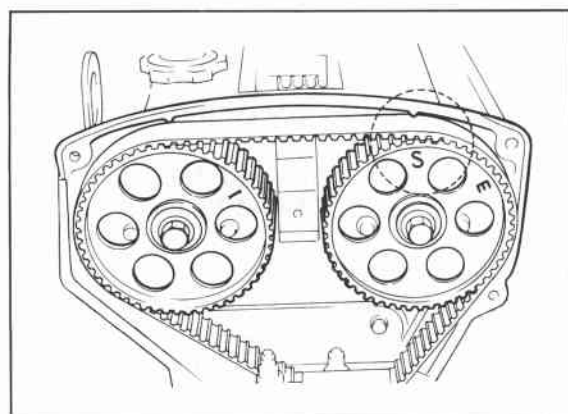
### Caution

- a) If the timing belt is being reused, it must be reinstalled to rotate in the original direction.
- b) Check that there is no oil, grease, or dirt on the timing belt.



79G01C-097

2. Loosen the tensioner lock bolt.
3. Turn the crankshaft twice in the direction of rotation.
4. Check that the mating marks are correctly aligned. If not aligned, remove the timing belt and tensioner, and repeat the above-mentioned procedure.



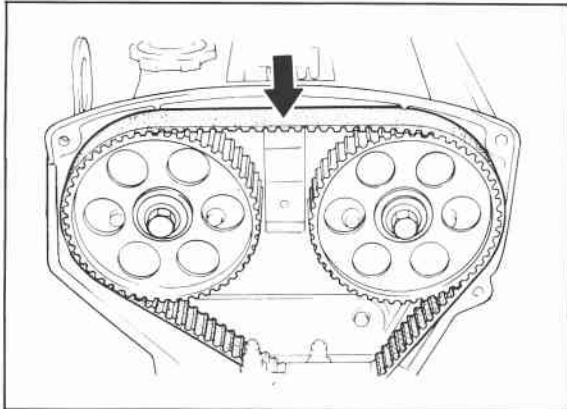
76G01B-096

5. Turn the crankshaft to align the **S** mark of the right side camshaft pulley with seal plate mating mark.
6. Tighten the timing belt tensioner lock bolt.

### Tightening torque:

**37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**

## ASSEMBLY (TIMING BELT) 1B

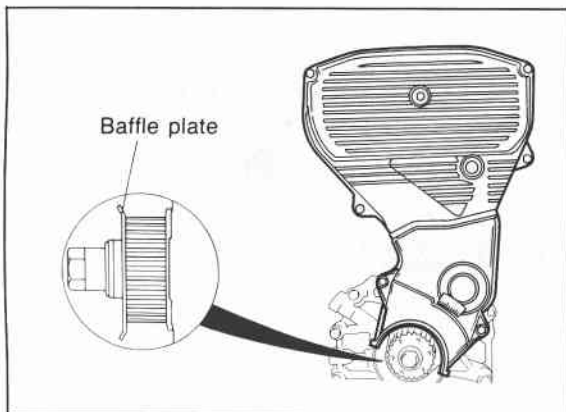


76G01B-097

7. Check the timing belt deflection. If the deflection is not correct, loosen the tensioner lock bolt and repeat steps 3—5 above. Replace the tensioner spring if necessary.

### Belt deflection:

7.5—8.5 mm (0.30—0.33 in)  
/ 98 N (10 kg, 22 lb)



86U01X-163

### Baffle Plate

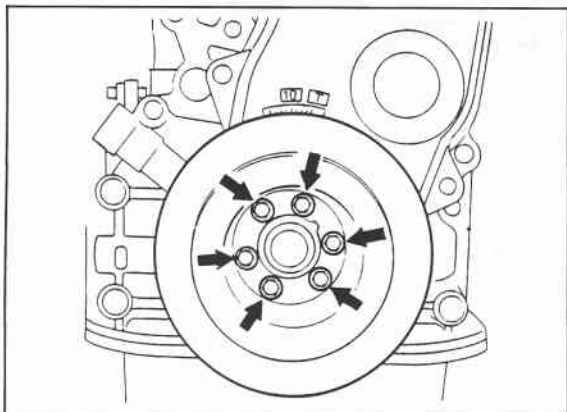
Position the baffle plate on the timing belt pulley.

### Timing Belt Cover

Install the lower timing belt cover, upper timing belt cover, and new gaskets.

### Tightening torque:

7—10 N·m (70—100 cm·kg, 61—87 in·lb)



69G01B-170

### Crankshaft Pulley

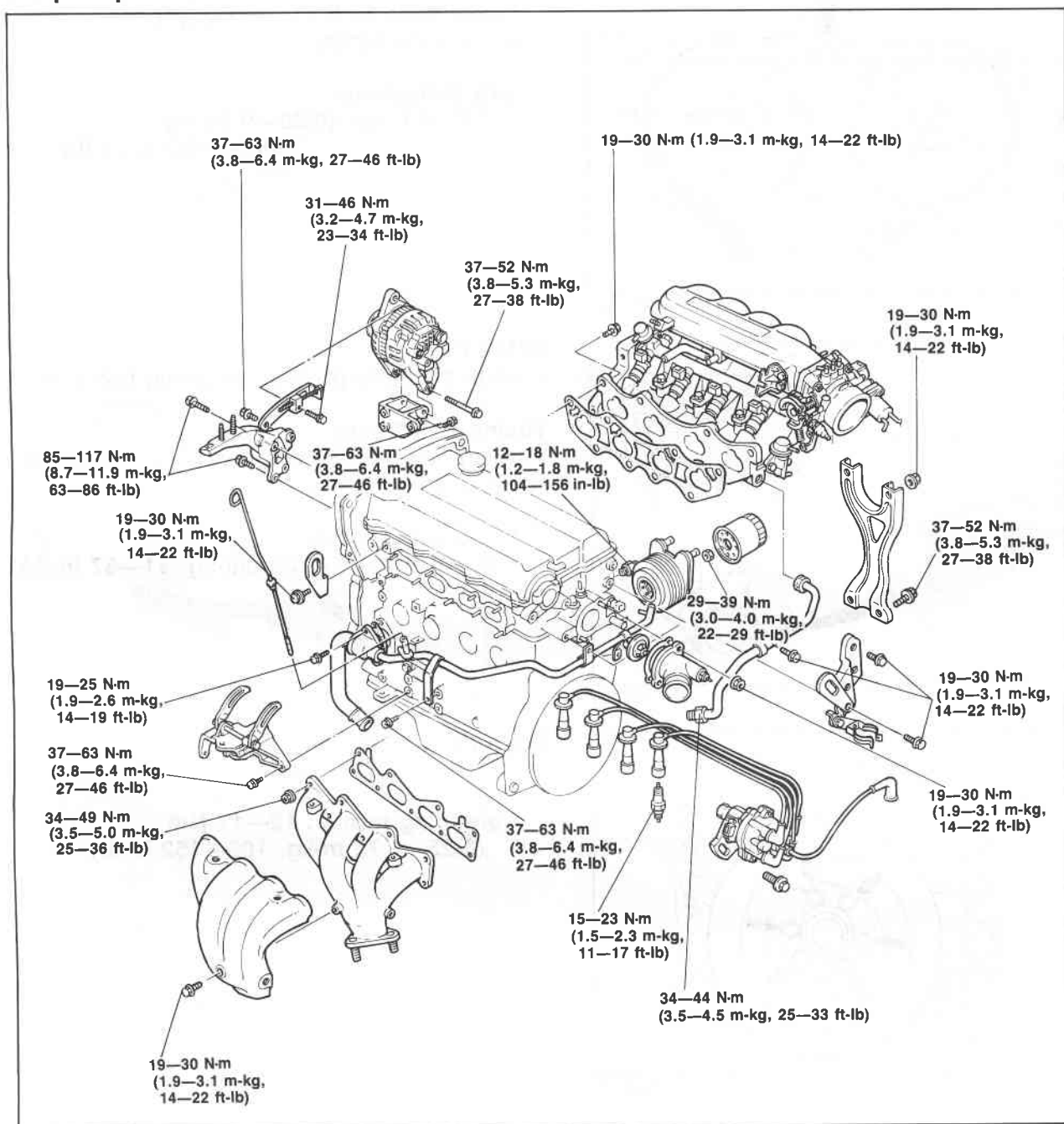
Install the crankshaft pulley.

### Tightening torque: 12—17 N·m

(1.25—1.75 m·kg, 109—152 in·lb)

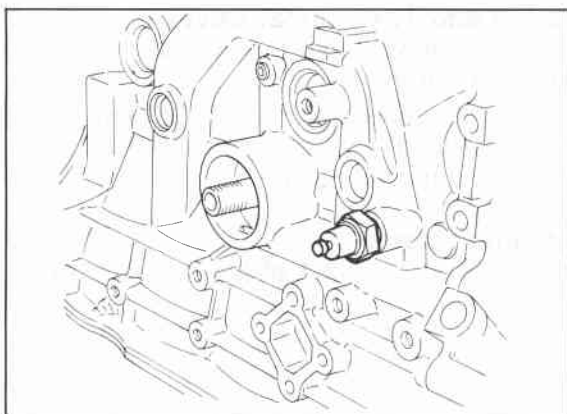
# 1B ASSEMBLY (AUXILIARY PARTS)

## AUXILIARY PARTS Torque Specifications



86U01X-164

## ASSEMBLY (AUXILIARY PARTS) 1B

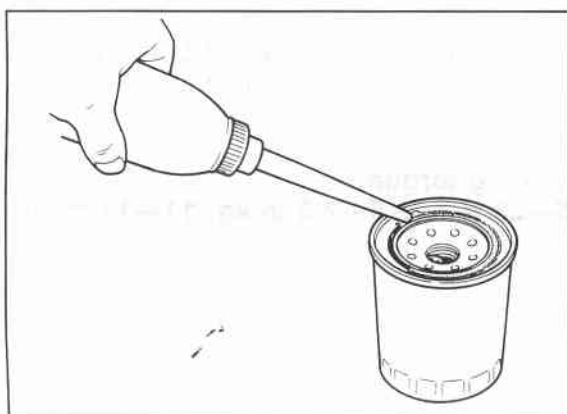


76G01A-087

### Oil Pressure Switch

Install the oil pressure switch.

**Tightening torque: 12—18 N·m  
(1.2—1.8 m·kg, 104—156 in·lb)**



76G01B-099

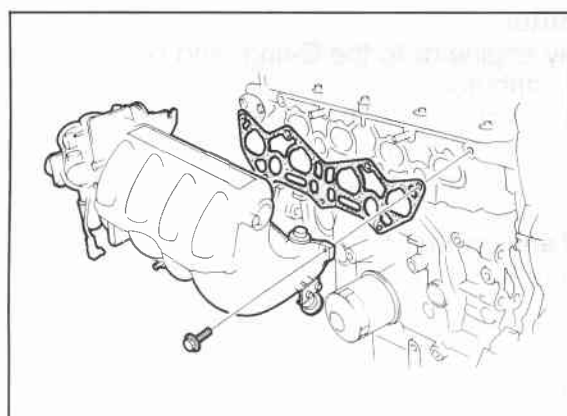
### Oil Cooler

Install the oil cooler.

**Tightening torque:  
29—39 N·m (3.0—4.0 m·kg, 22—29 ft·lb)**

### Oil Filter

1. Apply a small amount of engine oil to the rubber seal of the new filter.
2. Install the oil filter and tighten it by hand until the rubber seal contacts the base.
3. Then tighten the filter 1 and 1/6 turn with a wrench.

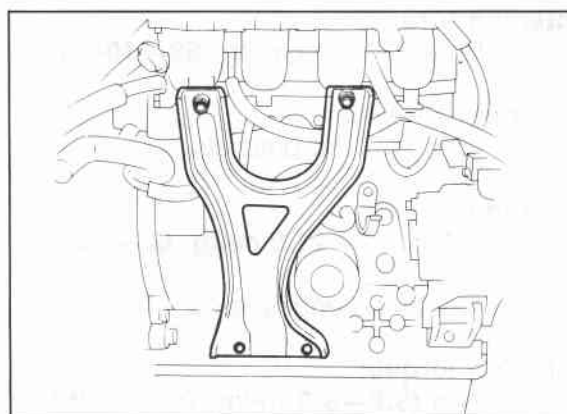


86U01X-167

### Intake Manifold Assembly

1. Place the new gasket in position.
2. Install the intake manifold assembly.
3. Tighten the nuts in two or three steps.

**Tightening torque:  
19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)**



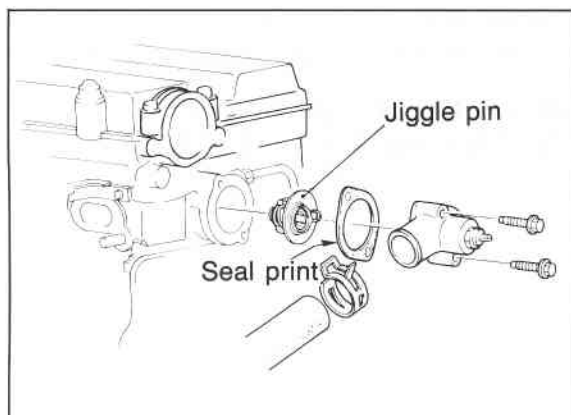
86U01X-168

### Intake Manifold Bracket

Install the intake manifold bracket.

**Tightening torque:  
19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)**

## 1B ASSEMBLY (AUXILIARY PARTS)



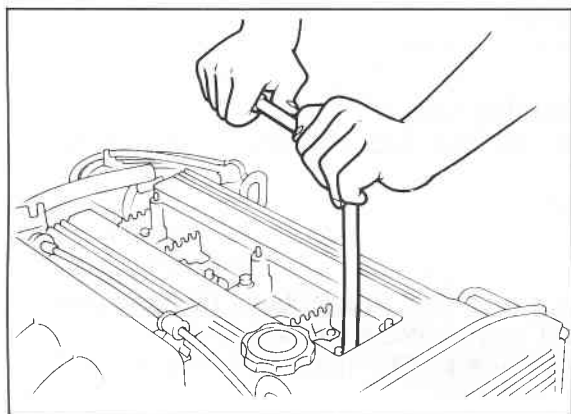
86U01X-169

### Thermostat and Thermostat Cover

1. Install the thermostat into the cylinder head with the jiggle pin at the top.
2. Position a new gasket with the printed side facing the cylinder head.
3. Install the thermostat cover.

#### Tightening torque:

**19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)**



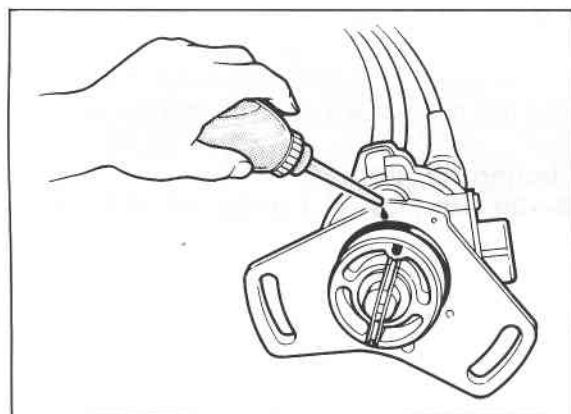
86U01X-219

### Spark Plug

1. Apply anti-seize compound or molybdenum-based lubricant to the spark plug threads.
2. Install the spark plugs.

#### Tightening torque:

**15—23 N·m (1.5—2.3 m·kg, 11—17 ft·lb)**



76G01B-100

### Distributor

1. Apply engine oil to the O-ring, and position it on the distributor.
2. Apply engine oil to the blade.
3. Install the distributor.
4. Loosely tighten the distributor mounting bolt.

### High-Tension Lead

Install the high-tension leads.

### Center Cover

Install the center cover.

#### Tightening torque:

**8—12 N·m (80—120 cm·kg, 69—104 in·lb)**

### Engine Mount Bracket

1. Install the engine mount bracket.

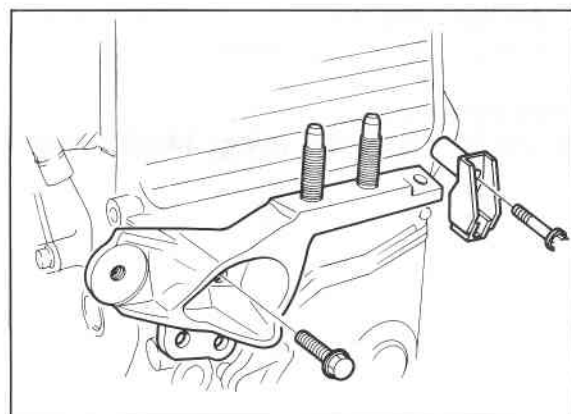
#### Tightening torque:

**85—117 N·m (8.7—11.9 m·kg, 63—86 ft·lb)**

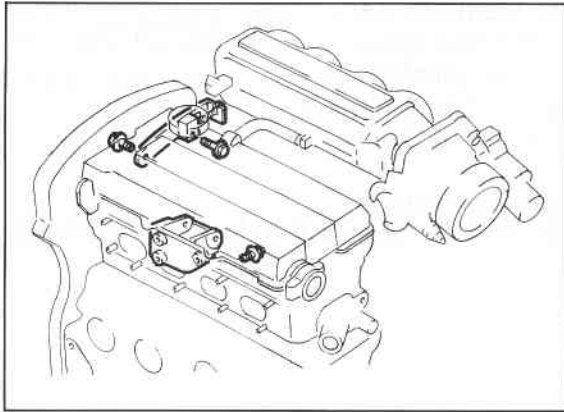
2. Install the stay to the engine mount bracket.

#### Tightening torque:

**37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**



76G01B-101



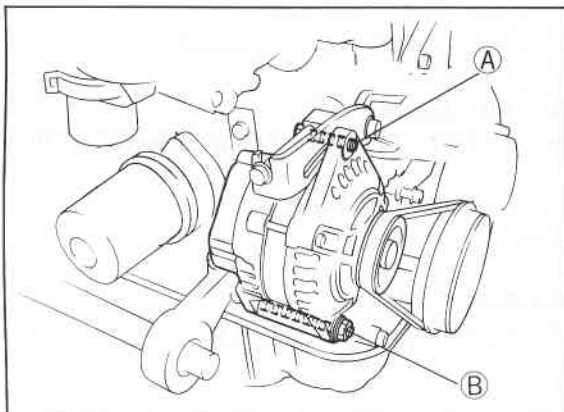
86U01X-171

### Alternator

1. Install the alternator strap and bracket.

#### Tightening torque:

37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)



76G01B-102

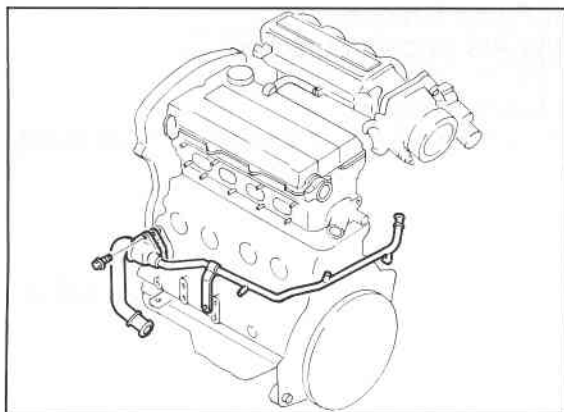
2. Install the alternator.

#### Tightening torque

**A** : 31—46 N·m  
(3.2—4.7 m·kg, 23—34 ft·lb)

**B** : 37—52 N·m  
(3.8—5.3 m·kg, 27—38 ft·lb)

3. Install the alternator drive belt, and adjust the belt deflection. (Refer to page 1B—6.)



76G01B-103

### Coolant Inlet Pipe and Bypass Pipe

1. Install the coolant inlet pipe.

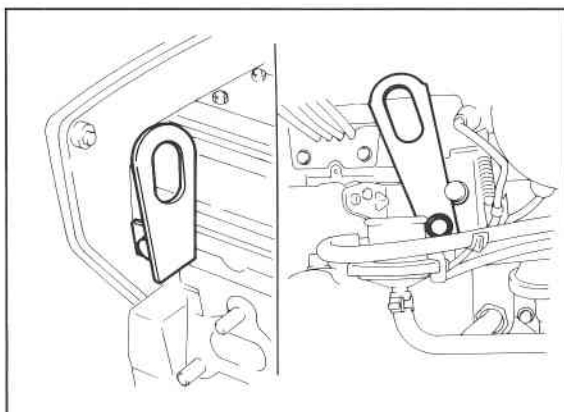
#### Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

2. Apply vegetable oil to the O-ring.
3. Install the coolant bypass pipe.

#### Tightening torque:

37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)



76G01A-092

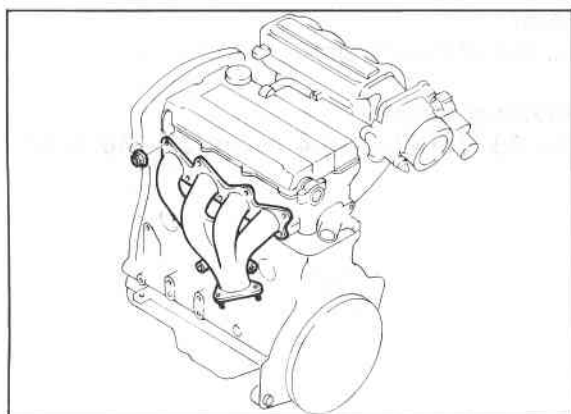
### Engine Hanger

- Install the front and rear engine hangers.

#### Tightening torque:

19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)

## 1B ASSEMBLY (AUXILIARY PARTS)



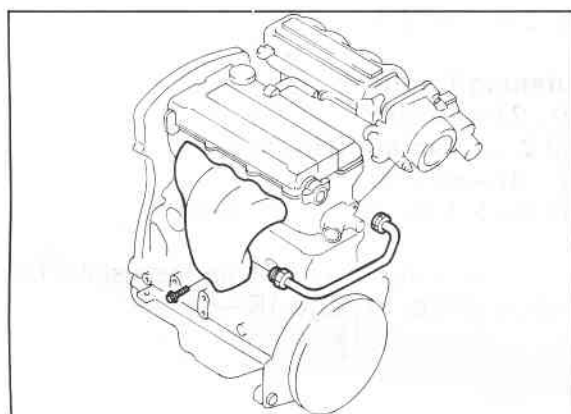
76G01B-105

### Exhaust Manifold Assembly

1. Place the new gaskets in position with the ridge facing the cylinder head.
2. Install the exhaust manifold assembly.
3. Tighten the nuts in two or three steps.

#### Tightening torque:

**34—49 N·m (3.5—5.0 m·kg, 25—36 ft·lb)**



76G01B-106

### Exhaust Manifold Insulator

Install the exhaust manifold insulator.

#### Tightening torque:

**19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)**

### EGR Pipe (Unleaded fuel)

Install the EGR pipe.

#### Tightening torque:

**34—44 N·m (3.5—4.5 m·kg, 25—33 ft·lb)**



86U01X-178

### P/S Oil Pump Bracket

Install the P/S oil pump bracket.

#### Tightening torque:

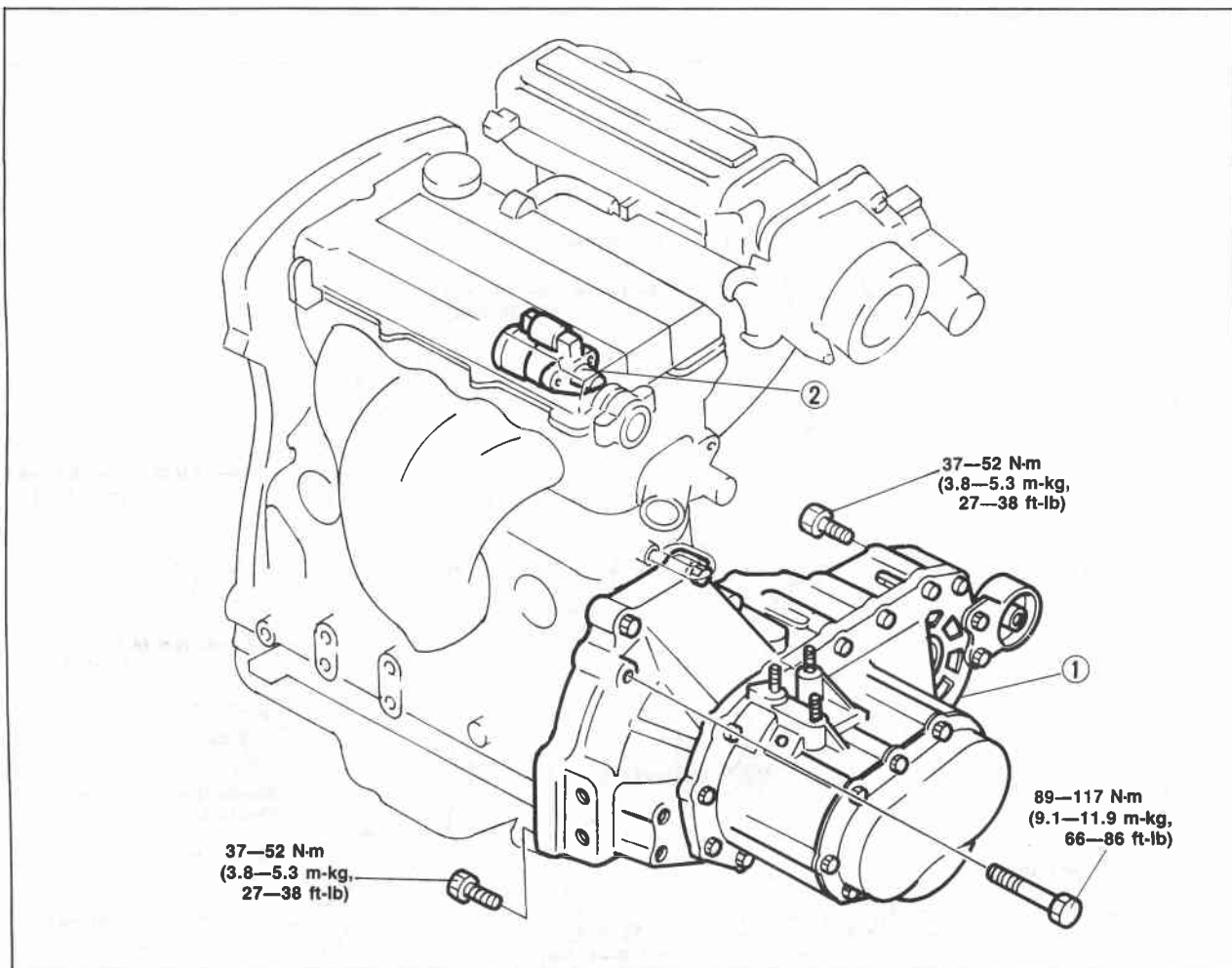
**37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)**



## INSTALLATION

### TRANSAXLE ASSEMBLY

Assemble the transaxle to the engine in the sequence shown in the figure.



76G01B-107

1. Transaxle

2. Starter

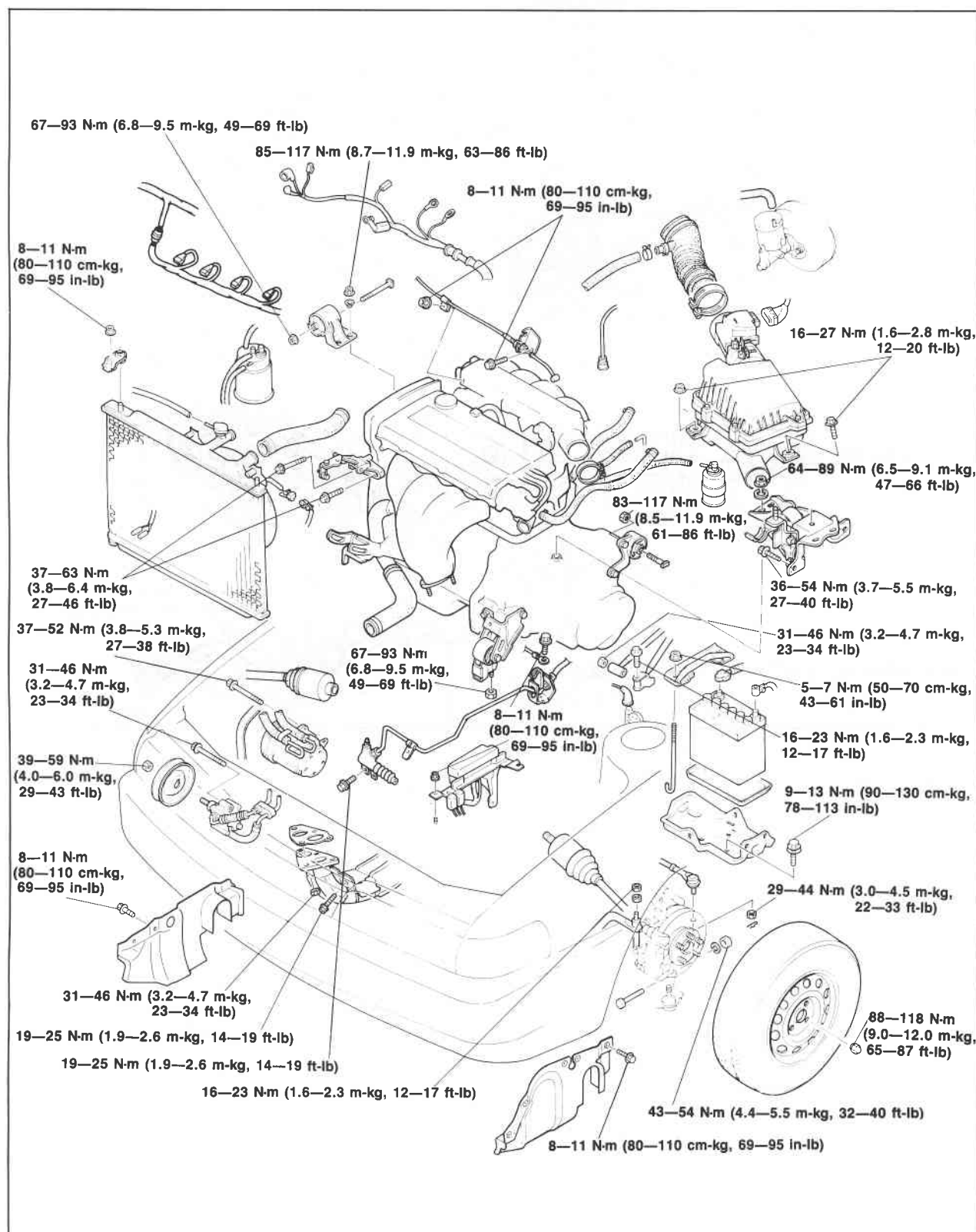
# 1B INSTALLATION

## ENGINE INSTALLATION

Install the engine and transaxle assembly.

**Warning:** Be sure the vehicle is securely supported.

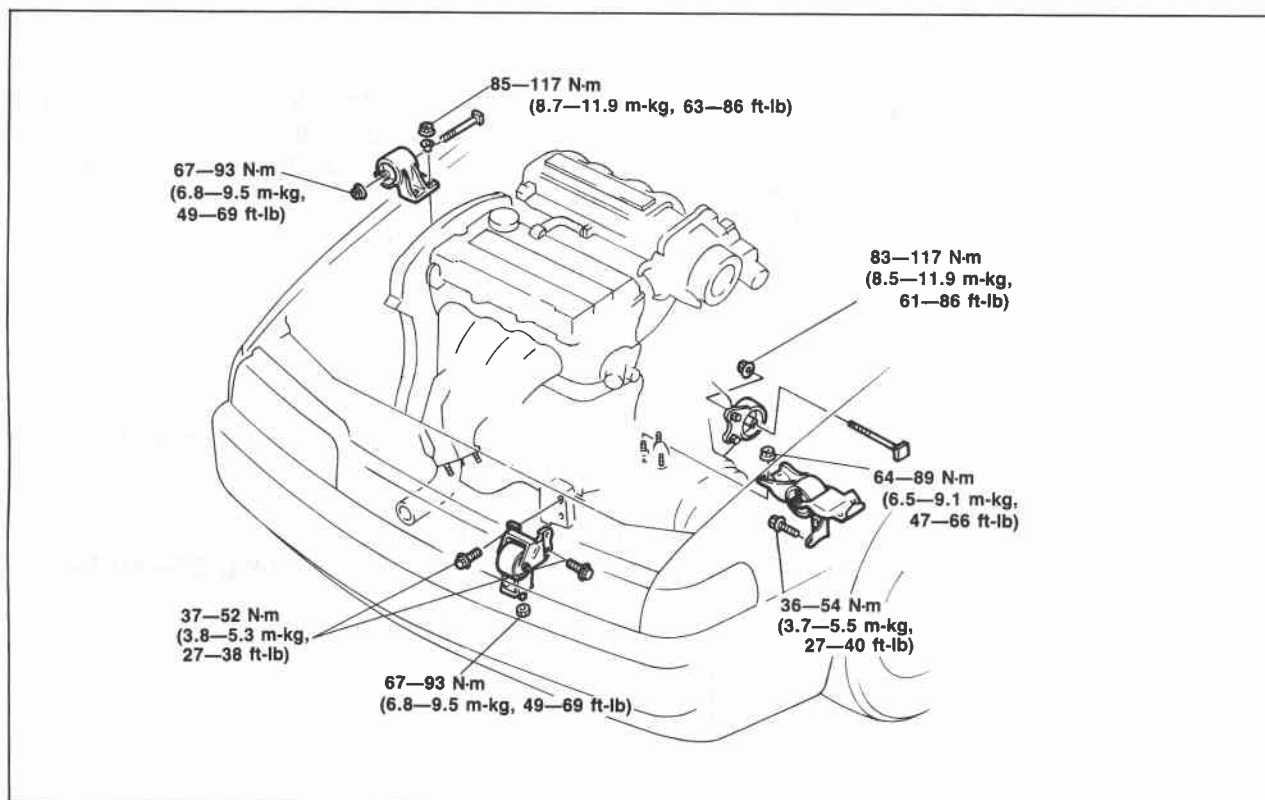
### Torque Specifications



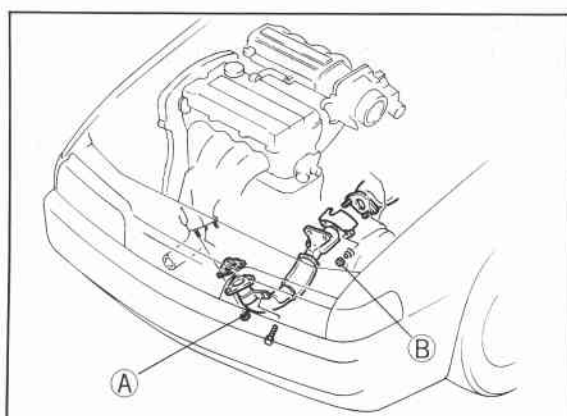
86U01X-180

## Engine Mount

Install the engine mount.



86U01X-181



86U01X-182

## Exhaust Pipe

1. Install the exhaust pipe.

### Tightening torque

- Ⓐ : 31—46 N-m  
(3.2—4.7 m-kg, 23—34 ft-lb)
- Ⓑ : 64—89 N-m  
(6.5—9.1 m-kg, 47—66 ft-lb)

2. Tighten the bracket bolt.

### Tightening torque:

19—25 N-m (1.9—2.6 m-kg, 14—19 ft-lb)

## Extension Bar

Install the extension bar to the transaxle.

### Tightening torque:

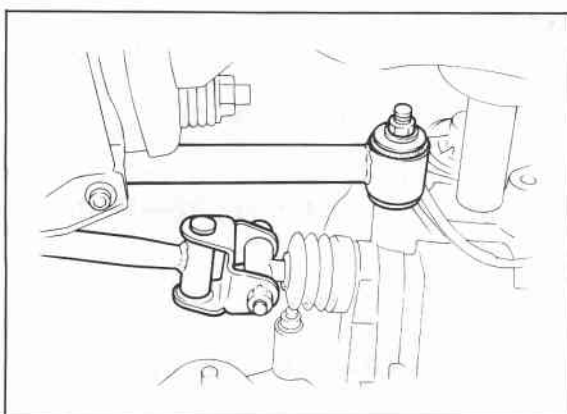
31—46 N-m (3.2—4.7 m-kg, 23—34 ft-lb)

## Change Rod

Install the change rod to the transaxle.

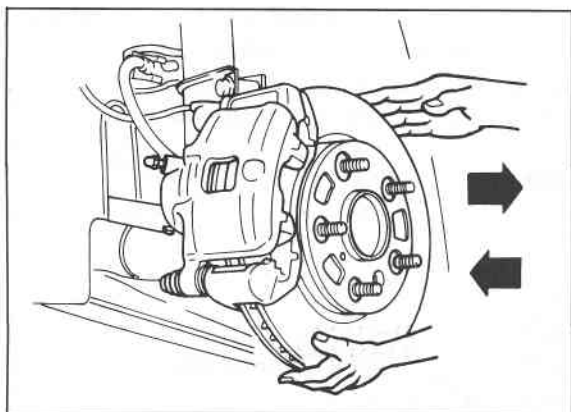
### Tightening torque:

16—23 N-m (1.6—2.3 m-kg, 12—17 ft-lb)



76G01B-108

# 1B INSTALLATION



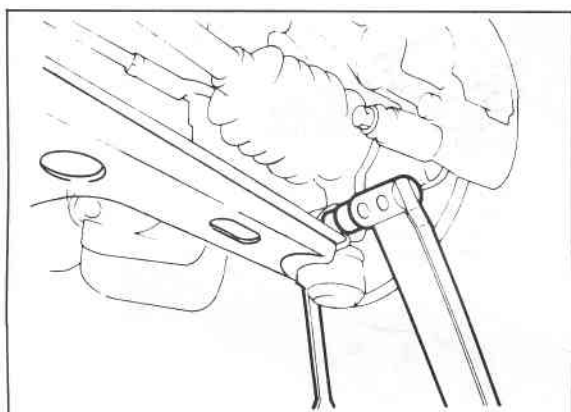
86U01X-184

## Driveshaft

1. Apply grease to the end of the driveshaft.
2. Install the driveshaft and a new clip.

### Caution

- a) When installing the driveshaft, be careful not to damage the oil seal.
- b) After installation, pull the front hub outward to confirm that the driveshaft is securely held by the clip.



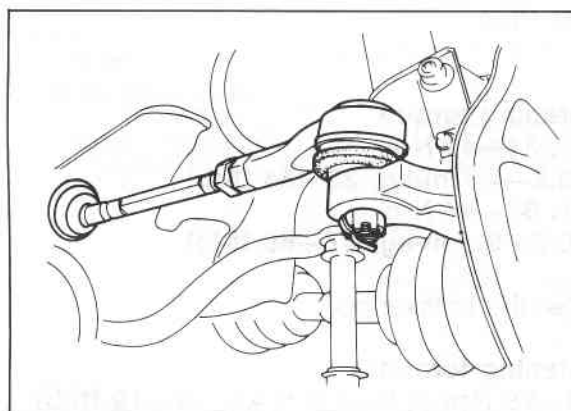
86U01X-185

## Lower Arm

Install the lower arm ball-joint to the knuckle; then tighten the lock nut.

### Tightening torque:

**43—54 N·m (4.4—5.5 m·kg, 32—40 ft·lb)**



86U01X-186

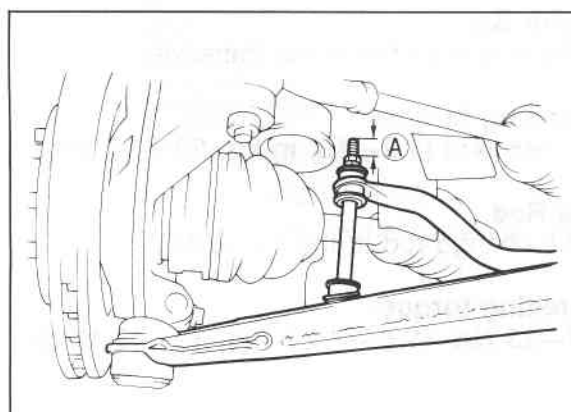
## Tie-Rod End

1. Install the tie-rod end to the knuckle.

### Tightening torque:

**29—44 N·m (3.0—4.5 m·kg, 22—33 ft·lb)**

2. Install the cotter pin.



86U01X-187

## Stabilizer Control Rod

Install and adjust the front stabilizer control rods.

**Dimension A: 20.1 mm (0.79 in)**

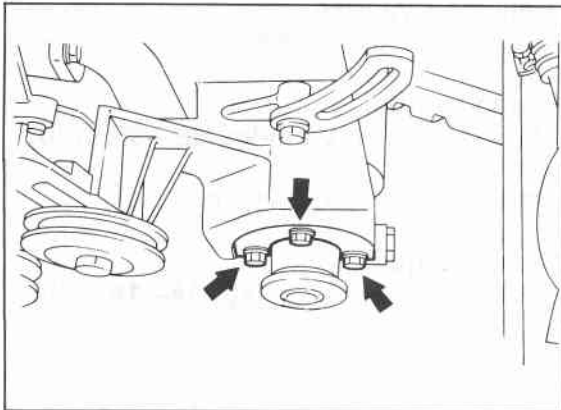
### Tightening torque:

**16—23 N·m (1.6—2.3 m·kg, 12—17 ft·lb)**

Install the front wheel.

### Tightening torque:

**88—118 N·m (9.0—12.0 m·kg, 65—87 ft·lb)**



86U01X-188

## P/S Oil Pump

1. Install the P/S oil pump.

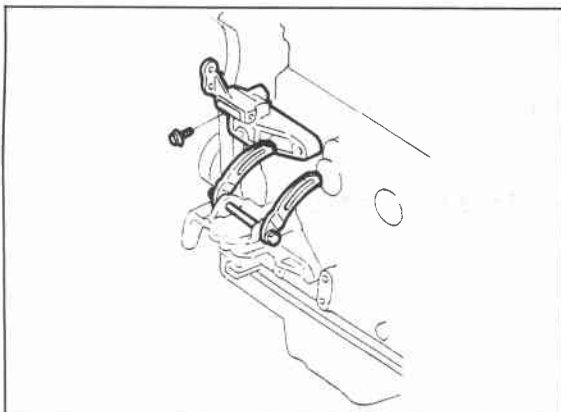
### Tightening torque:

**31—46 N·m (3.2—4.7 m·kg, 23—34 ft·lb)**

2. Tighten the pulley lock nut.

### Tightening torque:

**39—59 N·m (4.0—6.0 m·kg, 29—43 ft·lb)**



86U01X-189

## A/C Compressor

1. Install the A/C compressor strap to the P/S oil pump bracket.

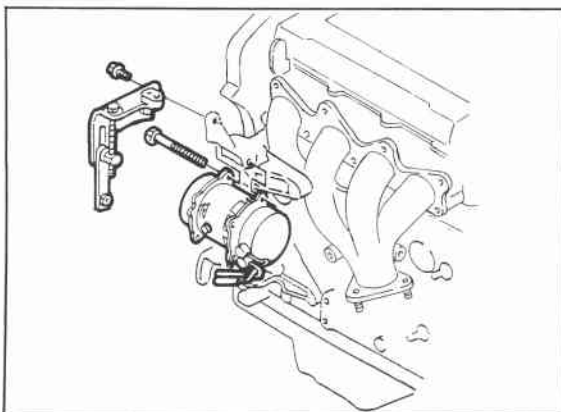
### Tightening torque:

**19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)**

2. Install the A/C compressor bracket.

### Tightening torque:

**37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)**



86U01X-190

3. Install the A/C compressor.

4. Install the A/C compressor upper bracket.

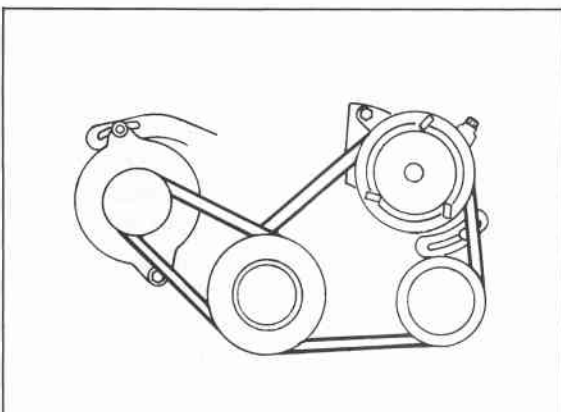
### Tightening torque:

**37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)**

5. Tighten to the lock nut and mounting bolts.

### Tightening torque:

**37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**



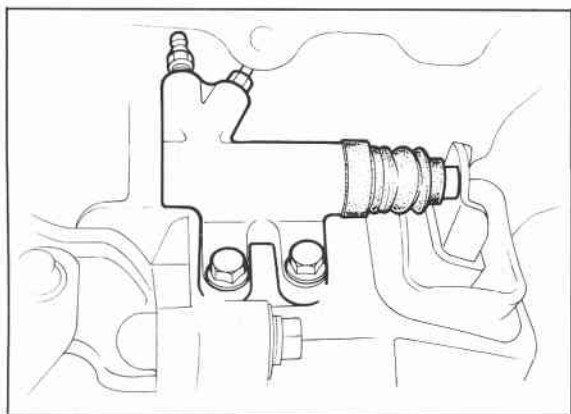
76G01B-109

## Drive Belt

Install the drive belt and adjust the belt deflection. (Refer to page 1B—6.)

# 1B INSTALLATION

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76G01B-110

## Clutch Release Cylinder

1. Set the pipe bracket in position.

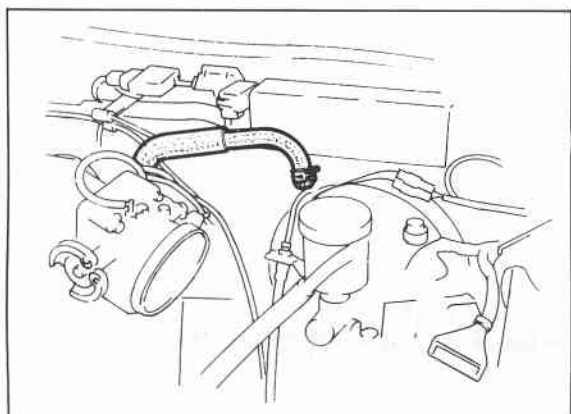
### Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

2. Install the clutch release cylinder.

### Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



76G01B-111

## Speedometer Cable

Install the speedometer cable.

## Brake Vacuum Hose

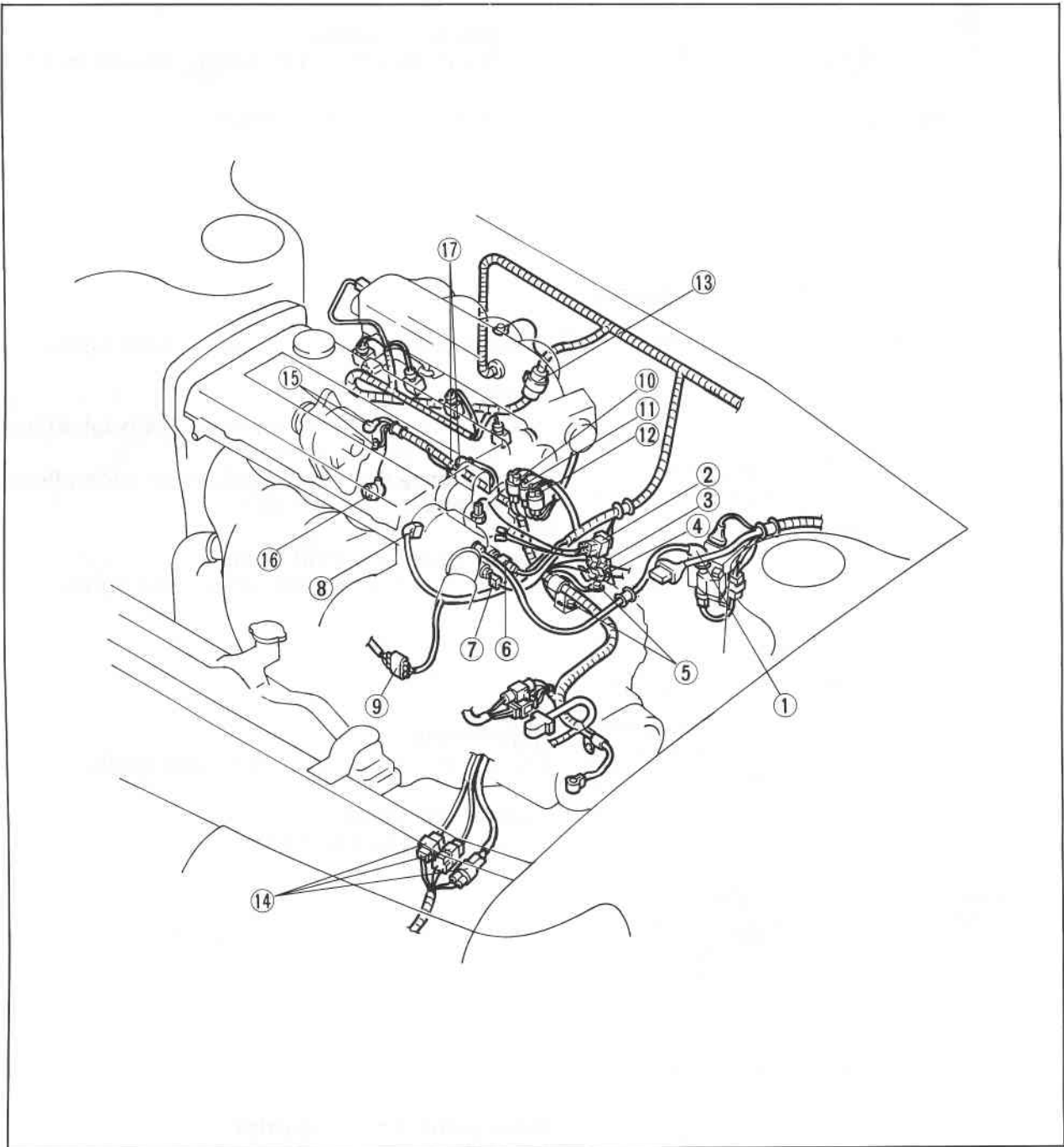
Connect the brake vacuum hose.

## Canister Hose (Unleaded fuel)

Connect the canister hoses.

## Connector Location

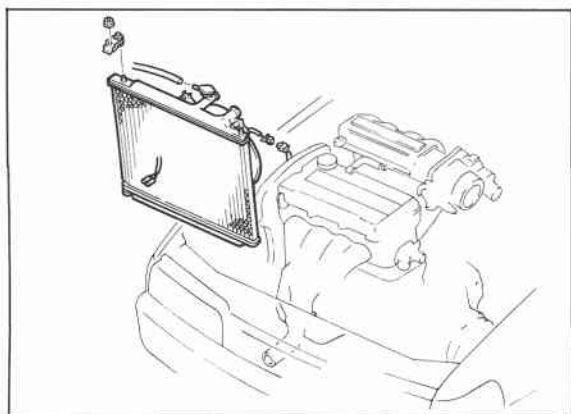
Install each harness as shown in the figure.



76G01B-112

- |                             |   |
|-----------------------------|---|
| 1. IG coil                  | 10. Linear solenoid                     |
| 2. Heat gauge unit          | 11. Solenoid valve (idle speed control) |
| 3. Speed sensor             | 12. Throttle position sensor            |
| 4. P/S switch               | 13. Injection harness                   |
| 5. Engine ground            | 14. Transmission harness                |
| 6. Water temperature sensor | 15. Alternator                          |
| 7. Water thermo switch      | 16. Oil pressure switch                 |
| 8. Crank angle sensor       | 17. Starter                             |
| 9. Oxygen sensor            |   |

# 1B INSTALLATION



76G01B-113

## Radiator

1. Install the radiator and cooling fan.

### Tightening torque:

**8—11 N·m (80—110 cm·kg, 69—95 in·lb)**

2. Connect the radiator harness.

3. Connect the upper and lower radiator hoses.

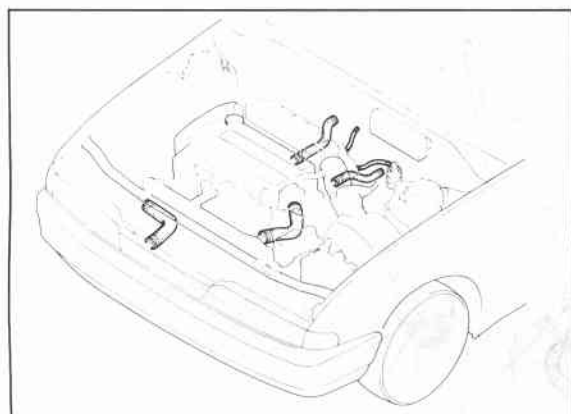
### Note

a) Position the hose clamp in the original location on the hose.

b) Squeeze the clamp lightly with large pliers to ensure a good fit.

## Heater Hose and Fuel Hose

Connect the heater hoses and the fuel hoses.



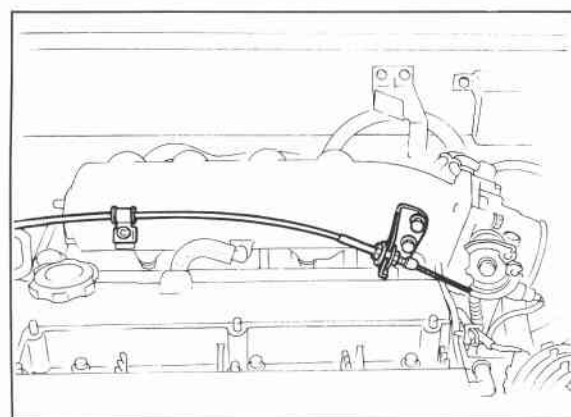
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## High-Tension Lead

Connect the high-tension lead to the ignition coil.

## Accelerator Cable

Install the accelerator cable.



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## Battery and Battery Carrier

1. Install the battery carrier.

### Tightening torque:

**9—13 N·m (90—130 cm·kg, 78—113 in·lb)**

2. Install the fuse box.

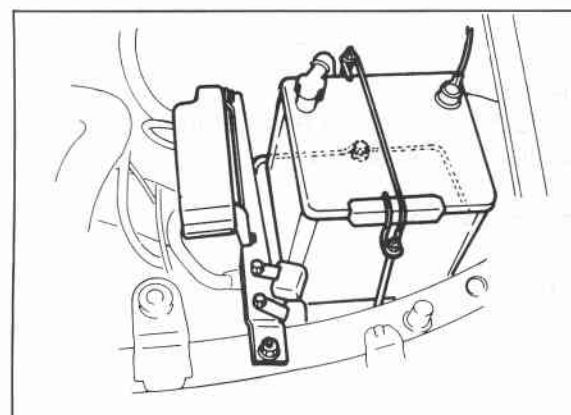
### Tightening torque:

**8—11 N·m (80—110 cm·kg, 69—95 in·lb)**

3. Install the battery tray and battery.

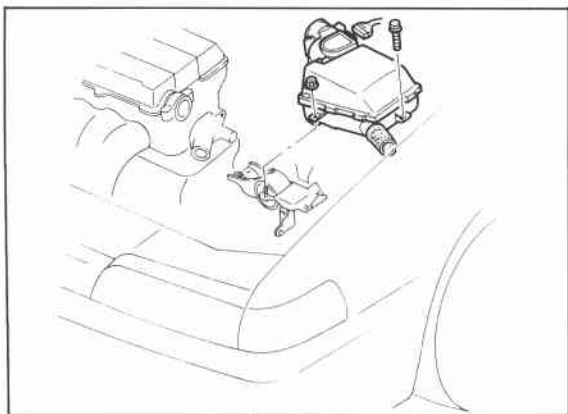
### Tightening torque:

**5—7 N·m (50—70 cm·kg, 43—61 in·lb)**



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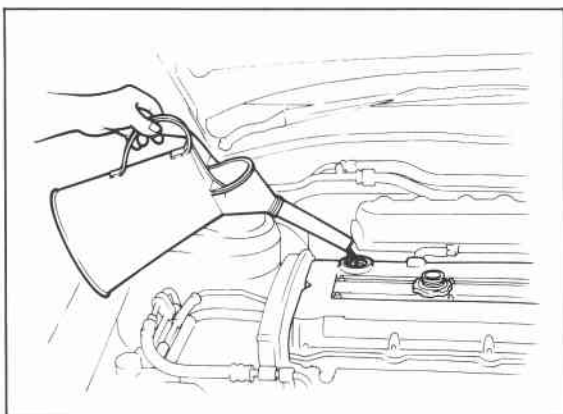
## Air Cleaner Assembly

1. Install the air cleaner assembly.

### Tightening torque:

**16—27 N·m (1.6—2.8 m·kg, 12—20 ft·lb)**

2. Connect the air flow sensor connector and air intake pipe.



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## Engine Oil

Add the specified amount and type of engine oil. (Refer to Section 2A.)

## Coolant

Close the drain plug, fill the radiator and reservoir tank with the specified amount and type of coolant. (Refer to Section 3A.)



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## Check Engine Condition

1. Check for leaks.
2. Perform engine adjustments if necessary.
3. Perform a road test.
4. Recheck the oil and coolant levels.