

**COBB CAMSHAFTS INSTALLATION**  
**99-01 Impreza RS/TS**

Congratulations on your purchase of Cobb Camshafts. The following instructions should assist you through your installation process. Please read them first before beginning the install. If you feel that you can not properly perform this installation, we HIGHLY recommend you take the vehicle to a qualified mechanic. Also, make sure all components are clear of manufacturing residue and packing materials before installation.

**PARTS LIST**

- Instructions/Parts List.....\_\_\_\_\_
- COBB Camshafts (2).....\_\_\_\_\_
- New Cam Seals (2).....\_\_\_\_\_
- Assembly Lube.....\_\_\_\_\_

**Packed By**.....\_\_\_\_\_

**Date**.....\_\_\_\_\_

**TOOLS NEEDED**

The following tools are required:

- 22mm, 17mm, 14mm, 12mm, and 10mm Sockets
- TORX PLUS Socket (TORX 45 is close)
- 5mm and 2mm Hex Wrench
- Breaker Bar
- White paint marker
- Hydraulic Press
- Three Bond 1280B or other high quality liquid gasket
- Feeler Gauges (0.007"-0.009" and 0.040")
- Torque Wrench
- Air wrench (recommended)

**Timing Belt Removal**

1. Disconnect Battery.
2. Remove electric fans and overflow tank on radiator.
3. Loosen crankshaft pulley bolt (22mm) but to not remove yet.
4. Remove accessory belts.
5. Remove crankshaft pulley.
6. Remove A/C belt tensioner.
7. Remove timing belt covers.
8. Remove timing belt guide located directly above crankshaft pulley.
9. Using 22mm crankshaft pulley bolt, rotate crankshaft until cam sprocket marks align with marks on cylinder head and/or belt cover notch. **(FIGURE 1)**

10. Mark timing belt according to marks on RH cam sprocket, LH cam sprocket, and crankshaft with white paint which will be used for installation.
11. Loosen 17mm bolts for camshaft sprockets but do not remove.
12. Remove timing belt idler pulley (No. 2). **(FIGURE 2)**
13. Removing timing belt.
14. Removing automatic belt tension adjuster assembly.

### Cam Removal

1. Remove intake assembly and windshield washer tank to gain access to valve covers.
2. Remove spark plug wires and blow-by hoses from valve covers.
3. Doing one side at a time, place suitable oil catch container under vehicle and remove valve cover bolts (5 bolts) to remove cover.
4. Next, remove valve rocker arm assembly. Follow alphabetic sequence in **Figure 3** to loosen the bolts. Be careful not to damage assembly.
5. Remove camshaft sprocket.
6. Remove camshaft cap following alphabetic sequence in **Figure 4**. Take care not to strip out the small hex bolts.
7. Run a razorblade between camshaft cap and cylinder head to cut the factory installed liquid gasket and release the cap from the cylinder head. Be careful not to let the camshaft drop out when removing the camshaft cap. **DO NOT** attempt to pry the cap off with a screwdriver or you might cause serious damage to the soft aluminum parts.
8. Remove camshaft and rear camshaft plug from assembly.

### Camshaft Install

1. Clean old liquid gasket material off camshaft cap and cylinder head. Use compressed air to blow away any debris from the cylinder head.
2. Using assembly lube supplied with camshaft, coat new camshaft journals and lobes to protect camshaft during initial break in.
3. Prepare camshaft cap by applying liquid gasket to the camshaft cap according to **Figure 5**.
4. Install camshaft and rear camshaft cap.
5. While holding camshaft and rear plug in place, install camshaft cap and temporarily tighten bolts (g) through (j) to secure the assembly. **(FIGURE 4)**
6. Apply small amount of assembly lube to rollers at the end of the rocker arms. Install valvetrain assembly and tighten bolts in alphabetical sequence to **18 ft-lbs** of torque. **(FIGURE 3)**
7. Tighten TORX bolts (k) through (p) on camshaft cap in alphabetical sequence to **13 ft-lbs** of torque. **(FIGURE 4)**
8. Tighten 5mm Hex bolts (c) through (j) on camshaft cap, in alphabetical sequence, to **7 ft-lbs** of torque.
9. Finally, tighten the remaining two bolts (a) and (b) on the camshaft cap to **7 ft-lbs** of torque.
10. Apply coat of assembly lube to new camshaft oil seal (supplied with cam) and install oil seal to camshaft. Use large diameter, thin-walled deep socket, or other suitable tool to press seal in place.
11. Install rear timing belt cover and sensor (LH) and both camshaft sprockets. Torque camshaft sprocket bolts to **58 ft-lbs**.
12. For now, leave the valve covers off.

### Timing Belt Install

1. Place Automatic Belt Tension Adjuster assembly into hydraulic press and slowly push adjuster rod down. Press the rod gradually taking more than three minutes. Once

- compressed, use a 2mm hex wrench inserted into the stopper pen hold in the cylinder to secure the adjuster rod. **(FIGURES 6 & 7)**
2. Install Automatic Belt Tension Adjuster to block. Tighten bolt to **29 ft-lbs** of torque.
  3. Turn camshaft sprockets to position their alignment marks with those on the engine. **(FIGURE 8)**
  4. Once camshaft sprockets and crankshaft is in position, install the timing belt. Use your old alignment marks on belt to ensure belt alignment and direction are correct. **(FIGURE 9)**
  5. Install idler pulley (No. 2). Tighten to **29 ft-lbs** of torque.
  6. Double check alignment marks on timing belt. If correct, remove stopper pin (2mm hex wrench) from belt tensioner.
  7. Install timing belt guide located above crankshaft pulley. Use feeler gauge to set distance from belt to guide at **0.039" +/- 0.020"**.

### Valve Clearance

1. Turn engine clockwise through two full rotations.
2. Set #1 cylinder to Top Dead Center **(Figure 10)**, and check the valve clearances. **Intake: 0.007" Exhaust: 0.009"**. **(Figure 11)**
3. If adjustment is needed, loosen nut with 10mm wrench and turn screw until clearance is set. When done, tighten nut with holding screw in position. (TORQUE: **7 ft-lbs**)
4. Repeat adjustment procedures for #2, #3, and #4 cylinders. **(FIGURE 10)**

### Covers and Accessories

1. Install valve covers to cylinder heads. Tighten bolts to **4 ft-lbs** of torque.
2. Install timing belt cover. Tighten bolts to **4 ft-lbs** of torque.
3. Install Crankshaft Pulley. Tighten bolt to **130 ft-lbs** of torque.
4. Install A/C Idler pulley assembly.
5. Install belts.
6. Install electric fans and overflow tank to radiator.
7. Install spark plug wires and blow-by hoses to valve covers.
8. Install intake system assembly and windshield washer bottle.
9. Change oil. Recommend using premium grade petroleum based motor oil. Using synthetic during break in process is not recommended.
10. Reconnect battery.

### Camshaft Break In

1. Start car and fast idle at 2000 RPM for 15 minutes. Have assistant check for any leaks.
2. Once car has idled for 15 minutes, you can perform a test drive to ensure there are no leaks or problems.
3. After 3000 miles, it's recommend that you change the oil and check the valve clearances again. Some adjustment is typically required, as the camshaft will break in and your valve clearance will change.

***Have fun and enjoy the added performance from your new COBB Tuning Performance Camshafts.***

Figure 1

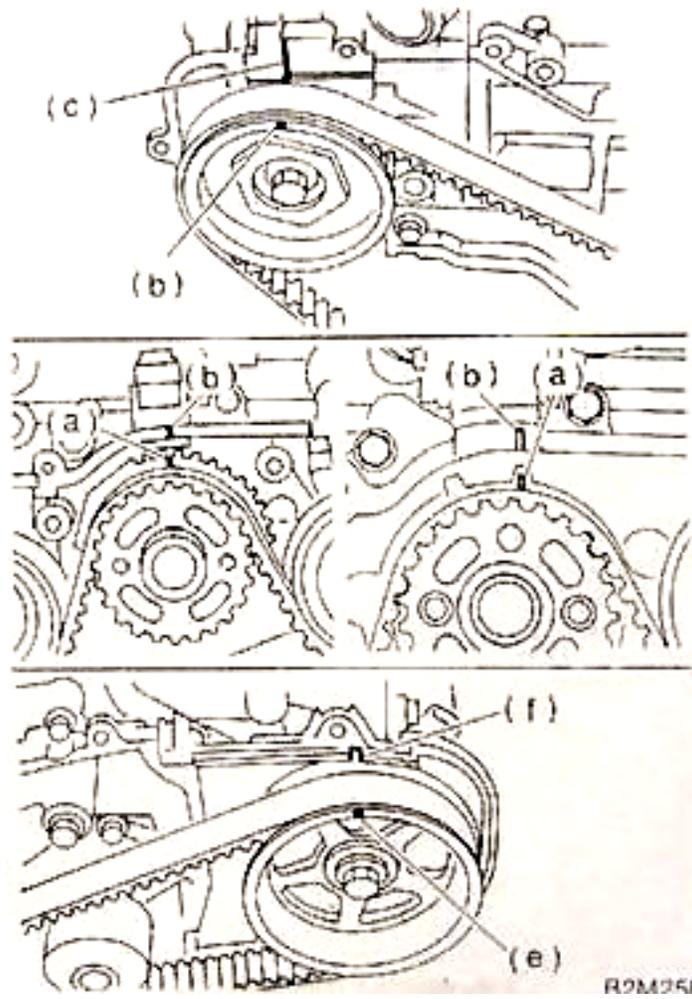


Figure 2

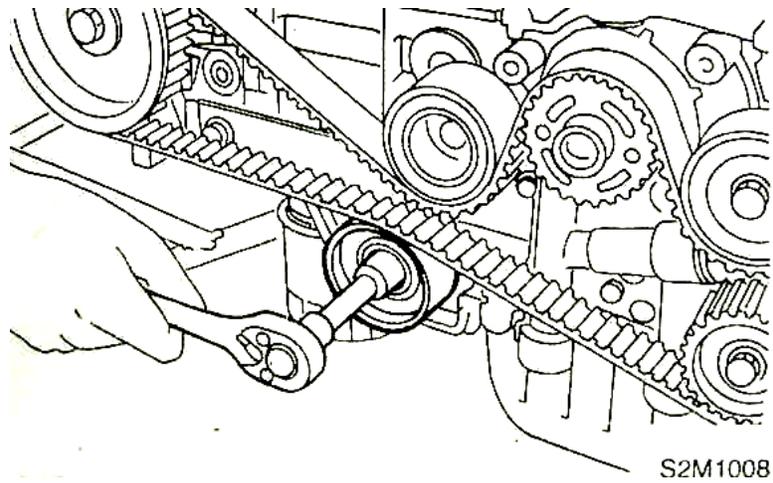


Figure 3

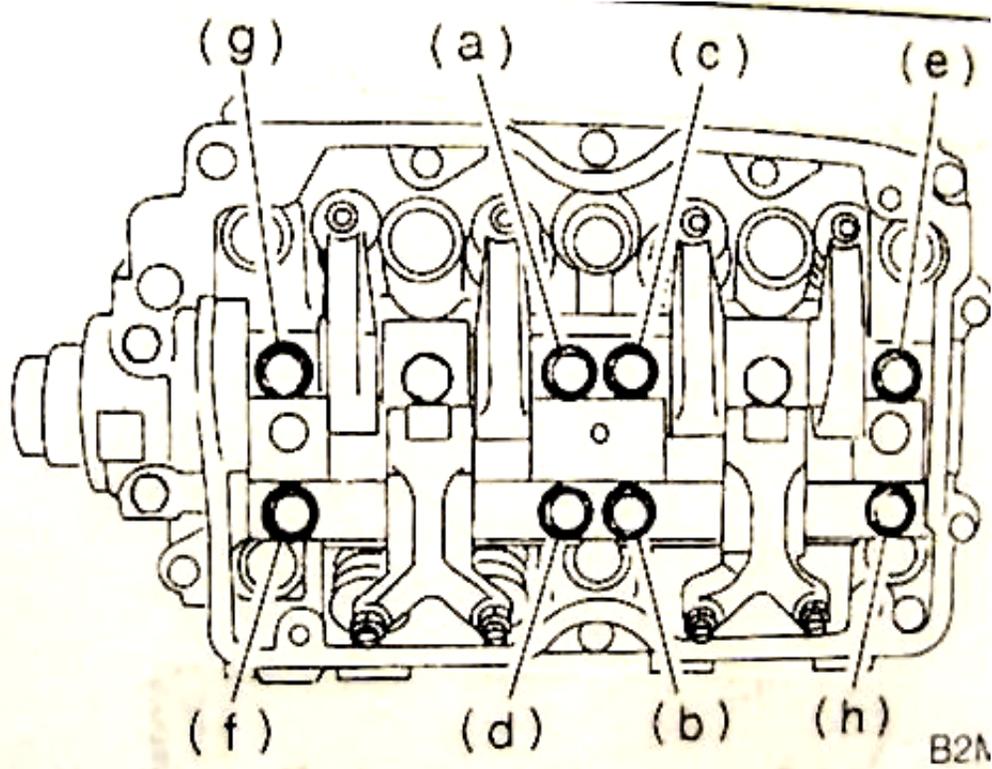
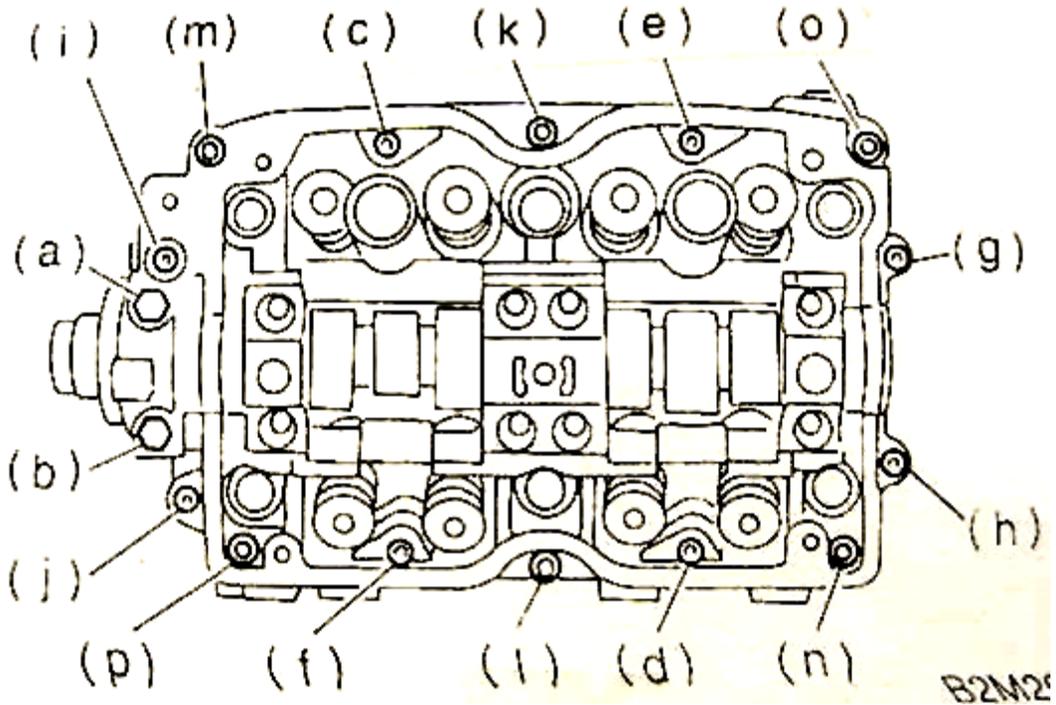
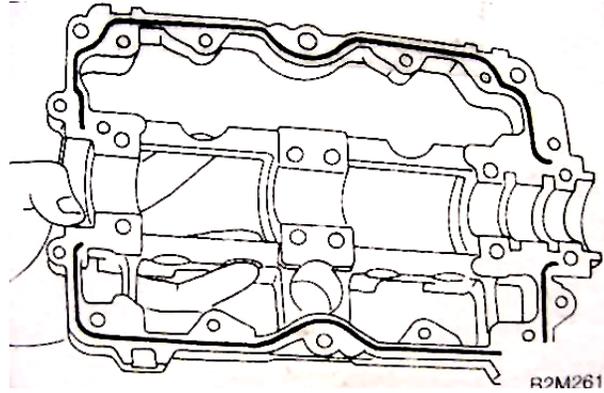


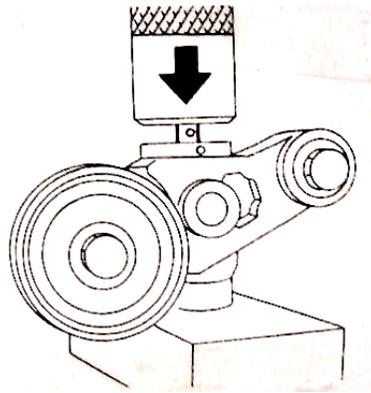
Figure 4



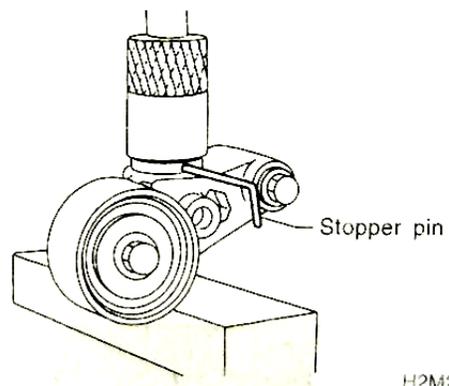
**Figure 5**



**Figure 6**



**Figure 7**



H2M2

Figure 8

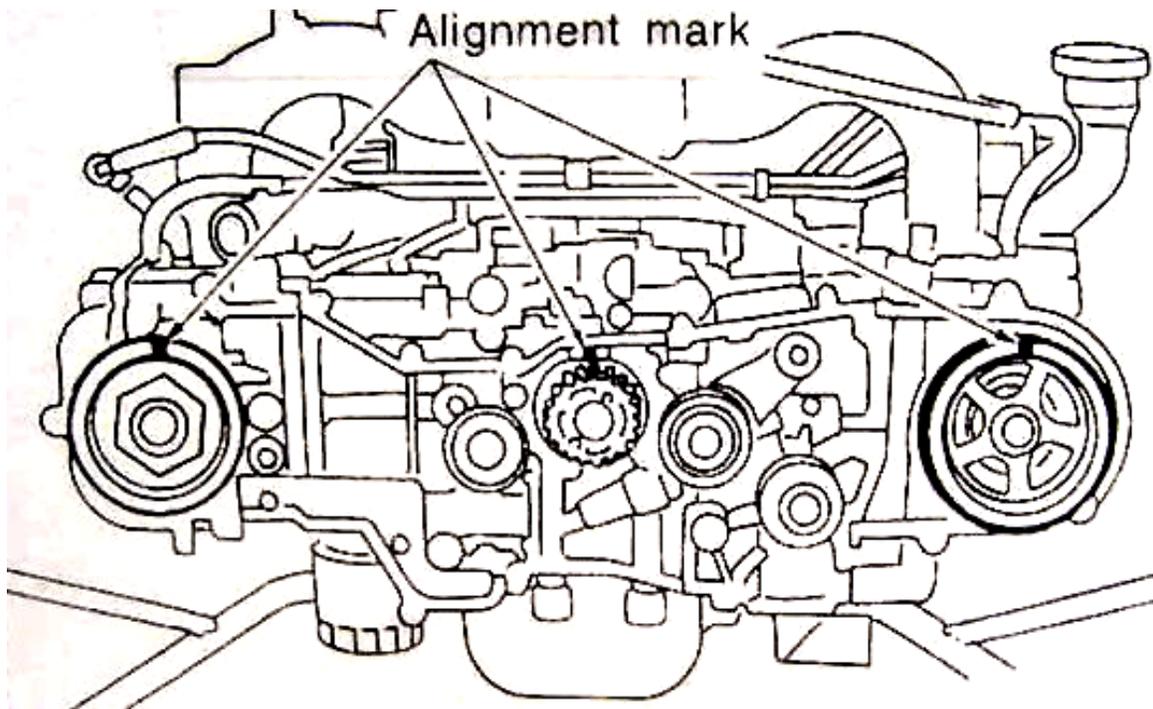


Figure 9

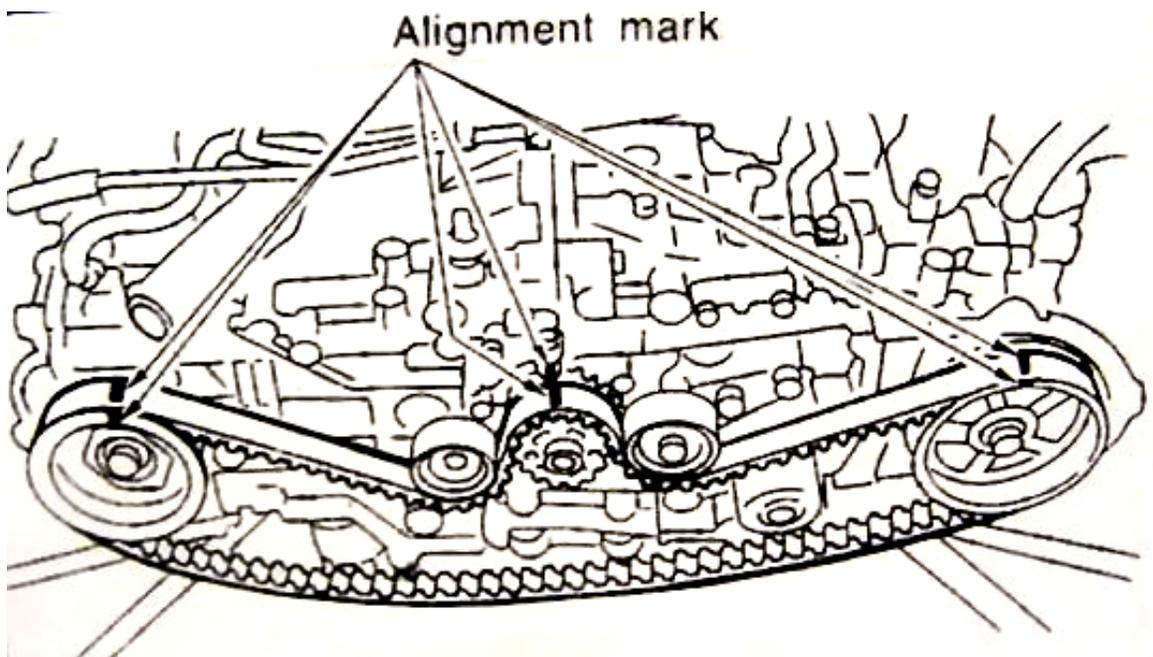


Figure 10

Position of compression stroke  
top dead center

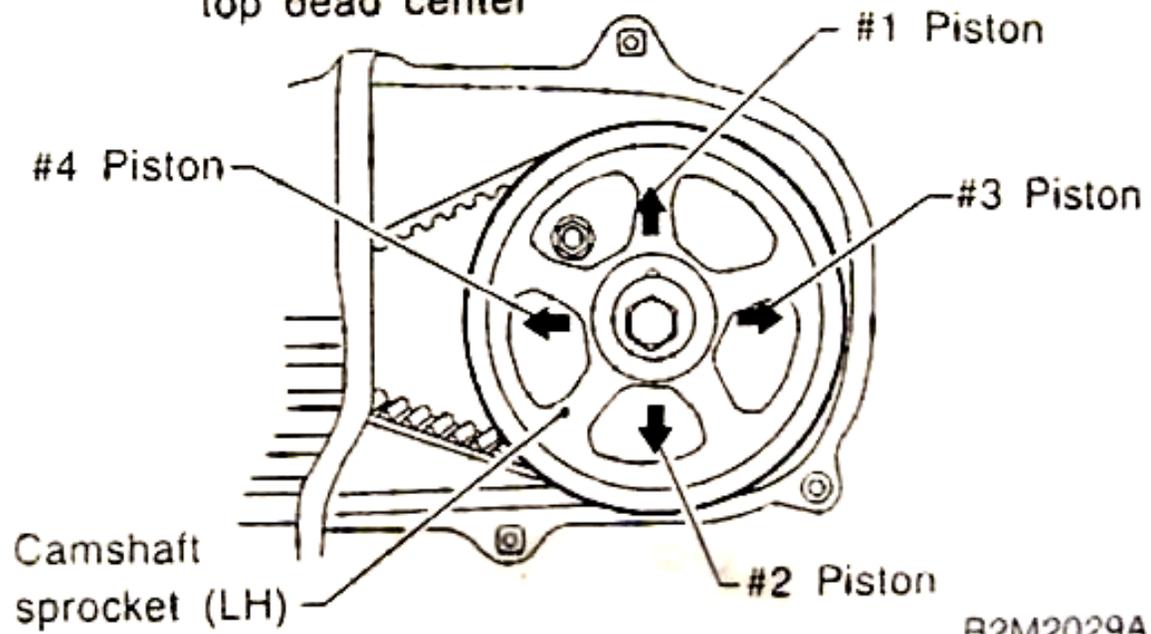


Figure 11

