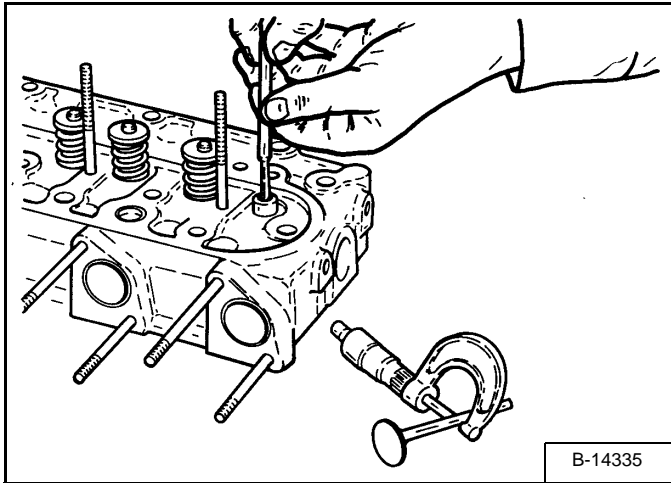


RECONDITIONING THE ENGINE (CONT'D)

Valve Guide Checking, Removal And Installation (Cont'd)

Figure 60-80-14



Measure the valve stem O.D. [Figure 60-80-14].

Measure the valve guide I.D. [Figure 60-80-14].

Calculate the clearance. If the clearance exceeds the allowable limit, replace the valve and/or valve guide.

Valve Guide I.D 0.2366-0.2372 in. (6,01-6,025 mm)

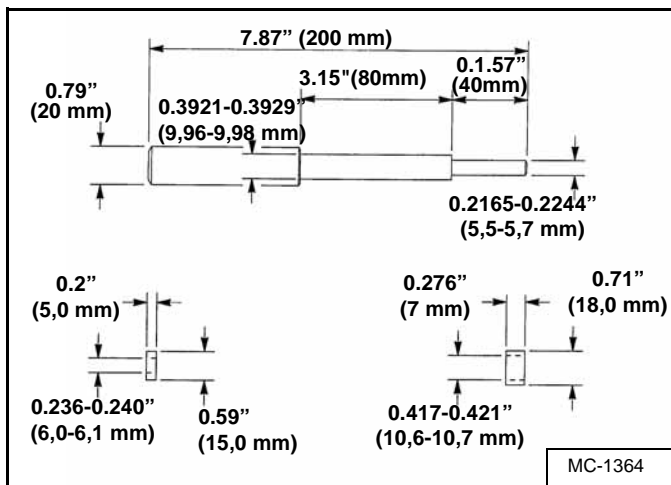
Valve Stem O.D 0.2350-0.2354 in. (5,9168-5,980 mm)

Clearance Between Valve Stem and Guide

0.0012-0.0022 in. (0,03-0,057 mm)

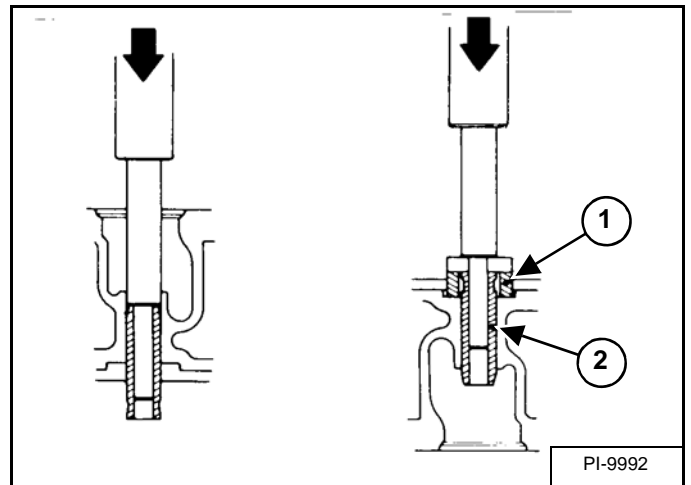
Allowable Limit 0.0039 in. (0,1 mm)

Figure 60-80-15



To remove and replace the valve guide, make the driver tools as shown in figure [Figure 60-80-15].

Figure 60-80-16



Press the used valve guide out of the cylinder head using the special driver tool [Figure 60-80-16].

Put oil on the outside diameter of the new valve guide. Press the new valve guide into the cylinder head from the top side. Use the special driver tools (Item 1 & 2) [Figure 60-80-16], press the new guide until the tools contact the cylinder head.

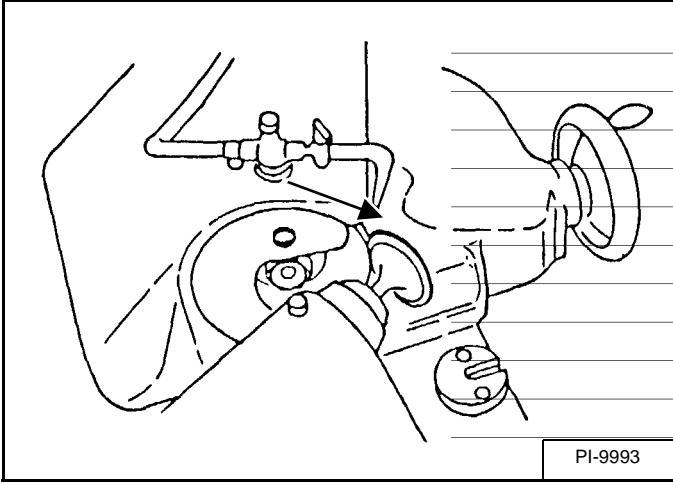
Ream the valve guide to the correct specifications.

NOTE: Valve guide I.D. (Intake and Exhaust) factory spec. is .2366-.2372 in. (6,01-6,03 mm)

RECONDITIONING THE ENGINE (CONT'D)

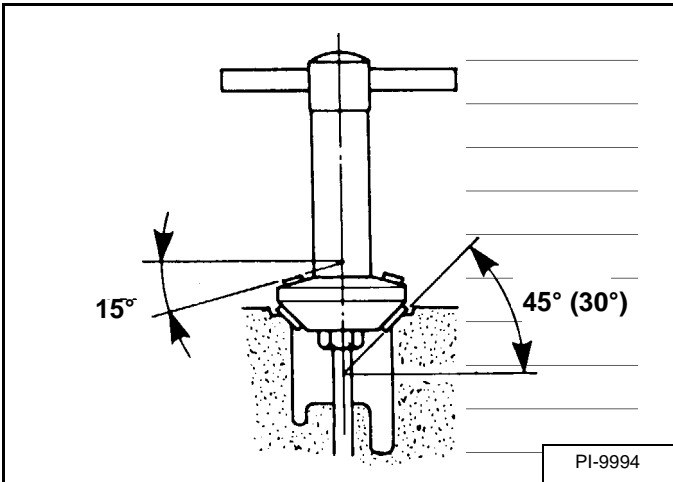
Valve And Valve Seat Reconditioning

Figure 60-80-17



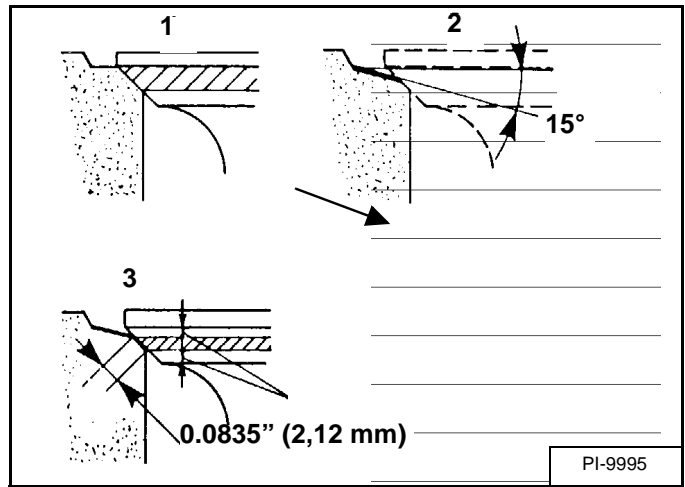
Grind the valve face to the correct angle using a valve refacer [Figure 60-80-17] & [Figure 60-80-19].

Figure 60-80-18



Grind the valve surface in the cylinder head to the correct angle [Figure 60-80-18].

Figure 60-80-19



Check the seat surface and valve face (Item 1) [Figure 60-80-19].

If the seat surface is too wide, use a 15 degree cutter (Item 2) to get the correct width (Item 3) [Figure 60-80-19].

Valve Seat Width

Intake	0.0835 in. (2,12 mm)
Exhaust	0.0835 in. (2,12 mm)

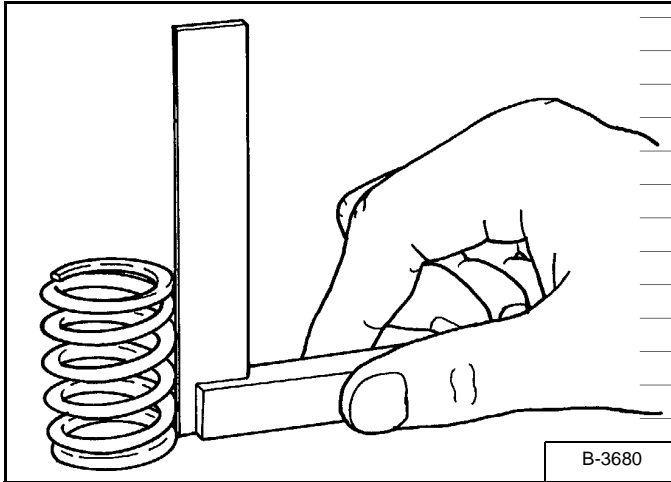
Valve Seat & Face Angle

Intake	45°
Exhaust	45°

RECONDITIONING THE ENGINE (CONT'D)

Valve Spring

Figure 60-80-20



Measure the length of the valve spring. If the measurement is less than the allowable limit, replace the spring [Figure 60-80-20].

Free Length 1.244 in. (31,6 mm)

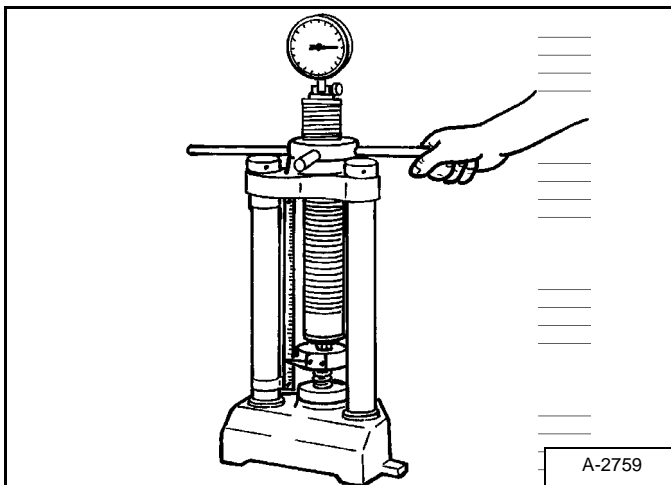
Allowable Limit 1.118 in. (28,4 mm)

Put the spring on a flat surface, place a square on the side of the spring [Figure 60-80-20].

Rotate the spring and measure the maximum tilt. If the measurement is in excess of the allowable limit, replace the spring.

Tilt 0.047 in. (1,2 mm)

Figure 60-80-21



Put the spring on a tester and compress to specified length [Figure 60-80-21].

Read the compressed load on the gauge. If the measurement exceeds allowable limit, replace the spring.

Setting Length 1.063 in. (27 mm)

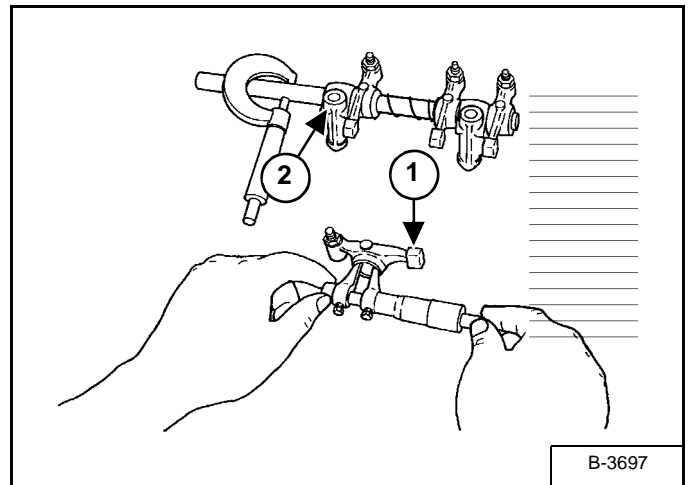
Setting Load 14.6 lbs. (64,7 N)

Allowable Limit (setting load)

12.3 lbs. (54,9 N)

Rocker Arm And Shaft, Checking

Figure 60-80-22



Measure the rocker arm I.D. (Item 1) [Figure 60-80-22] with an inside micrometer.

Measure the rocker shaft O.D. (Item 2) [Figure 60-80-22] with an outside micrometer.

If the clearance exceeds the allowable limit, replace the rocker arm and measure the clearance again.

If the clearance still exceeds the allowable limit after the rocker arm is replaced, replace the rocker arm shaft.

Oil Clearance Between Rocker Arm & Shaft

0.0006-0.0018 in. (0,016-0,045 mm)

Allowable Limit 0.0059 in. (0,15 mm)

Rocker Arm Shaft 0.4123-0.4128 in. (10,47-10,48 mm)

Rocker Arm I.D. 0.4134-0.4141 in. (10,5-10,52 mm)

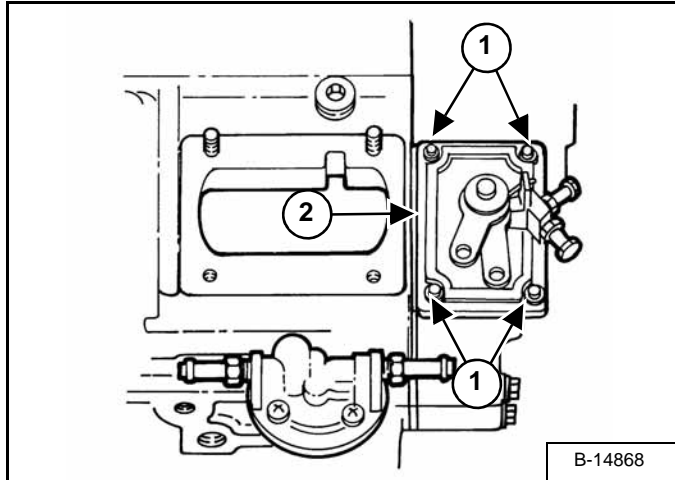
RECONDITIONING THE ENGINE (CONT'D)

Timing Gearcase Cover Removal And Installation

Remove the fuel injection pump. (See Fuel Injection Pump Removal and Installation on Page 60-50-4.)

Remove the cylinder head, rocker arms and push rods. (See Cylinder Head Removal And Installation on Page 60-80-1)

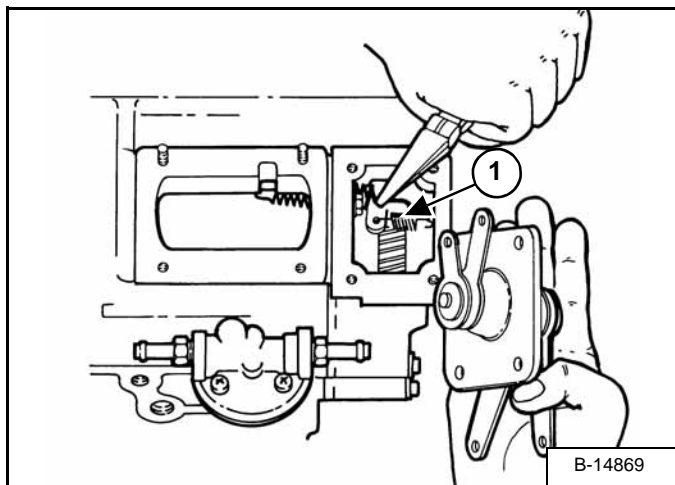
Figure 60-80-23



Remove the screws (Item 1) from the speed control plate (Item 2) [Figure 60-80-23].

NOTE: Take care not to damage the spring.

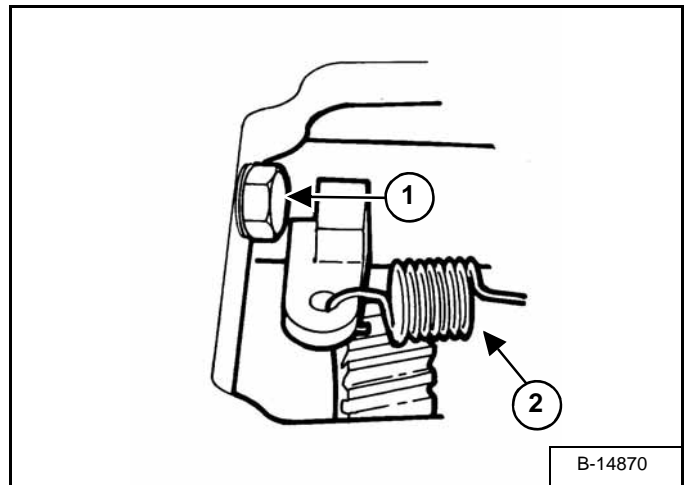
Figure 60-80-24



Separate the speed control plate from the engine and remove the spring (Item 1) [Figure 60-80-24].

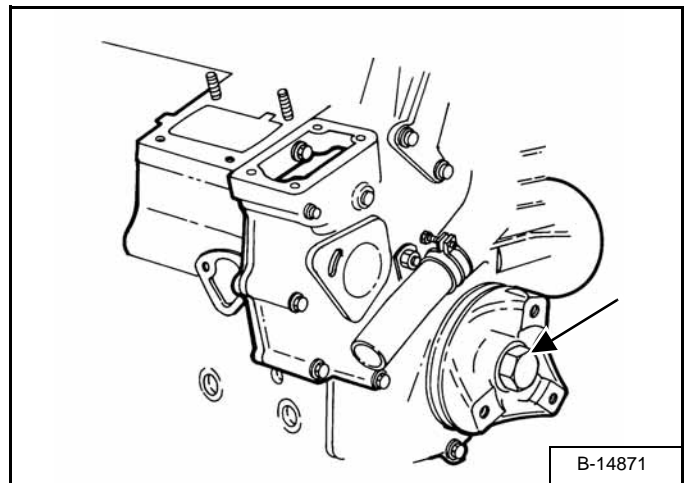
Remove the speed control plate.

Figure 60-80-25



Remove the bolt (Item 1) and disconnect the shaft spring (Item 2) [Figure 60-80-25].

Figure 60-80-26



Remove the crankshaft pulley bolt [Figure 60-80-26].

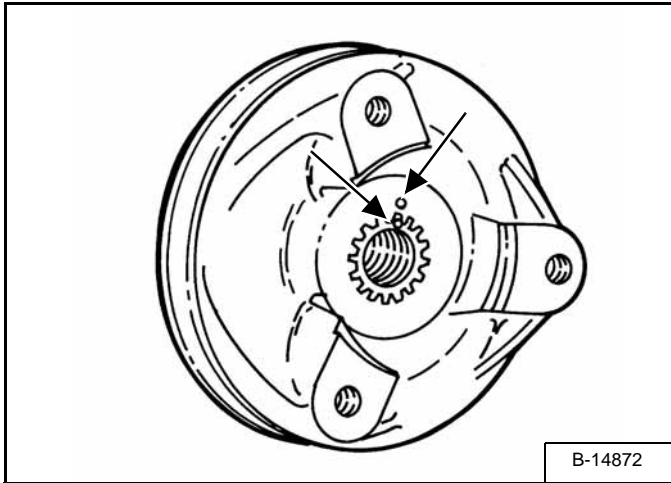
Installation: Tighten the bolt 72-80 ft.-lbs. (98-108 Nm) torque.

Use a puller and remove the crankshaft pulley.

RECONDITIONING THE ENGINE (CONT'D)

Timing Gearcase Cover Removal And Installation (Cont'd)

Figure 60-80-27

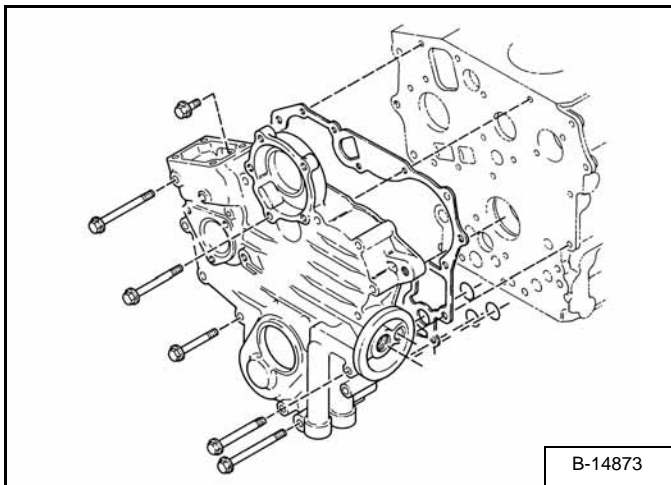


When installing the crank shaft pulley, make sure the alignment marks are aligned [Figure 60-80-27].

Remove the timing gear case cover bolts.

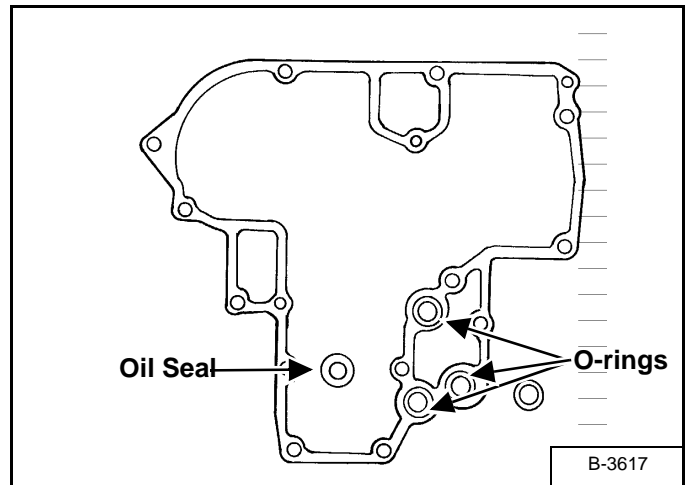
Installation: Tighten the bolts to 7-8 ft.-lbs. (10-11 Nm) torque.

Figure 60-80-28



Remove the timing gear case [Figure 60-80-28].

Figure 60-80-29



Installation: Install three new O-rings and the oil seal into the timing gear case cover [Figure 60-80-29].