

## INSTALLATION OF CYLINDER HEAD

(See page EM-54)

### 1. CHECK PISTON PROTRUSION AND SELECT CYLINDER HEAD GASKET

#### A. Check piston protrusions each cylinder

- Clean the cylinder block solvent.
- Set the piston of the cylinder to be measured to slightly before TDC.
- Place a dial indicator on the cylinder block, and set the dial indicator at 0 mm (0 in.)

#### HINT:

- Use a dial indicator measuring tip as shown in the illustration.
  - Make sure that the measuring tip is square to the cylinder block gasket surface and piston head when taking the measurements.
- Find where the piston head protrudes most by slowly turning the crankshaft clockwise and counterclockwise.
  - Measure each cylinder at two places as shown in the illustration, making a total of ten measurements (1PZ) or twelve measurements (1HZ and 1HD-T).
  - For the piston protrusion value of each cylinder, use the average of the two measurements of each cylinder.

#### Protrusion:

##### 1PZ and 1HZ

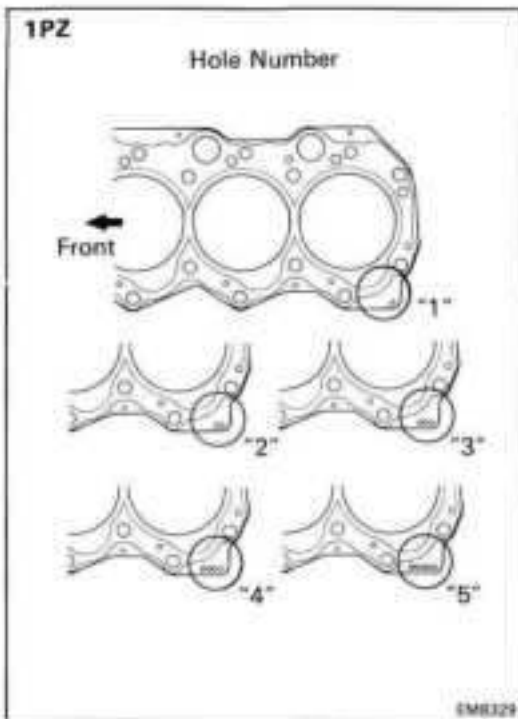
0.405-0.655 mm (0.0159-0.0258 in.)

##### 1HD-T

0.475-0.725 mm (0.0187-0.0285 in.)

(When removing piston and connecting rod assembly)

If the protrusion is not as specified, remove the piston and connecting rod assembly (See page EM-86) and reinstall it (See page EM-108).



**B. Select new cylinder head gasket (1PZ)**

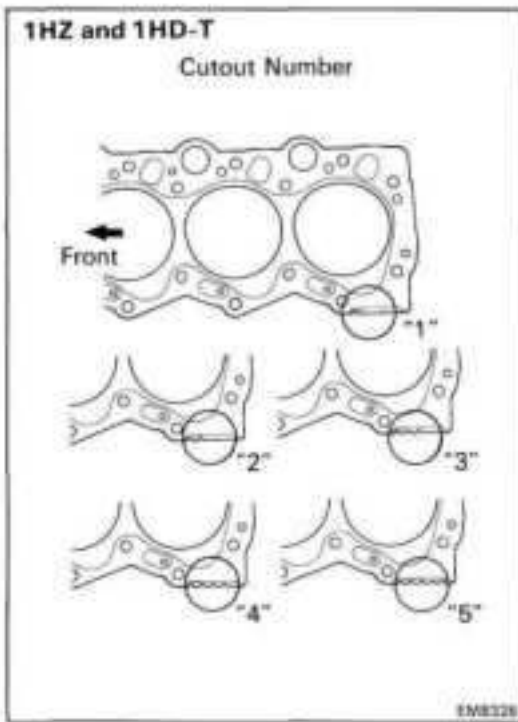
HINT: There are five types of cylinder head gasket (hole number 1 to 5) installed at factory, but only three types for supply parts (hole number "1", "3" and "5"), so when replacing the gasket select from one of three types above.

**New cylinder head gasket thickness:**

- Hole number "1" 1.16-1.24 mm (0.0457-0.0488 in.)
- Hole number "3" 1.26-1.34 mm (0.0496-0.0528 in.)
- Hole number "5" 1.36-1.44 mm (0.0535-0.0567 in.)

Select the largest piston protrusion value from the measurements made, then select the appropriate cylinder head gasket according to the table below.

Piston protrusion mm (in.)	Gasket size
0.455 (0.0179) or less	Use "1"
0.456 - 0.555 (0.0180 - 0.0219)	Use "3"
0.556 (0.0219) or more	User "5"



**(1HZ and 1HD-T)**

HINT: There are five types of cylinder head gasket (cutout number 1 to 5) installed at factory, but only three types for supply parts (cutout number "1", "3" and "5"), so when replacing the gasket select from one of three types above.

**New cylinder head gasket thickness:**

- Cutout number "1" 1.15-1.25 mm (0.0453-0.0492 in.)
- Cutout number "3" 1.25-1.35 mm (0.0492-0.0531 in.)
- Cutout number "5" 1.35-1.45 mm (0.0531 -0.0571 in.)

Select the largest piston protrusion value from the measurements made, then select the appropriate cylinder head gasket according to the table below.

**1HZ**

**1HD-T**

Poston protrusion mm (in.)	Gasket size	Piston protrusion mm (in.)	Gasket size
0.455 (0.0179) or less	Use "1"	0.525 (0.0207) or less	Use "1"
0.456 - 0.555 (0.0180 - 0.0219)	Use "3"	0.526 - 0.625 (0.0207 - 0.0246)	Use "3"
0.556 (0.0246) or more	Use "5"	0.626 (0.0246) or more	Use "5"