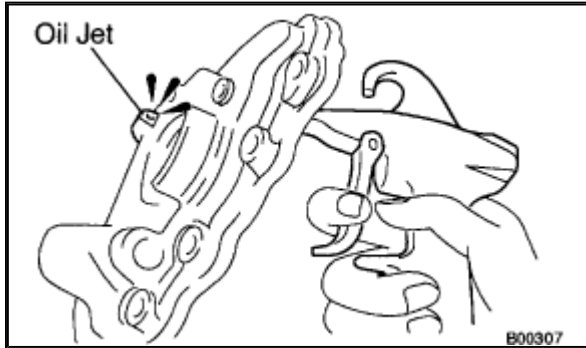


DISASSEMBLY

1. REMOVE RELIEF VALVE Remove the plug, spring and relief valve.
2. REMOVE DRIVE AND DRIVEN ROTORS
 - a. 1ZZ-FE: Remove the 3 screws, pump body cover, drive and driven rotors.
 - b. 2ZZ-GE: Remove the 5 screws, pump body cover, drive and driven rotors.

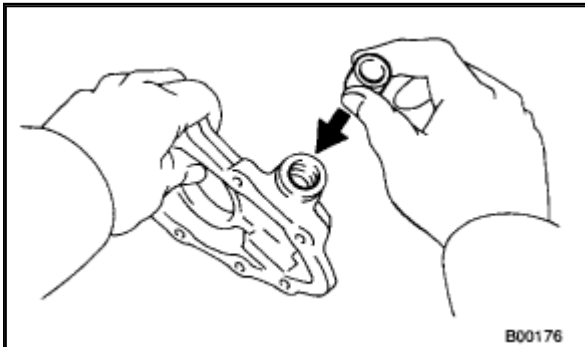
INSPECTION



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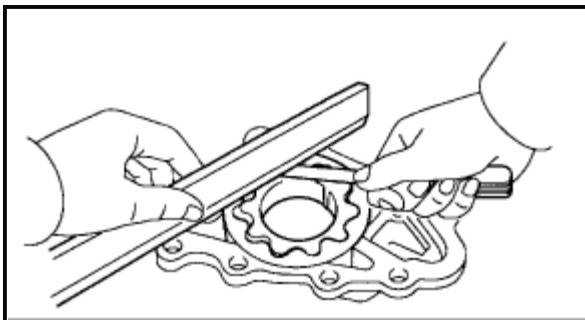
1. INSPECT OIL JET Check the oil jet for damage or clogging. If necessary, replace the oil pump assembly.



ZOOM

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2. INSPECT RELIEF VALVE Coat the valve with engine oil and check that it falls smoothly into the valve hole by its own weight. If it does not, replace the relief valve. If necessary, replace the oil pump assembly.

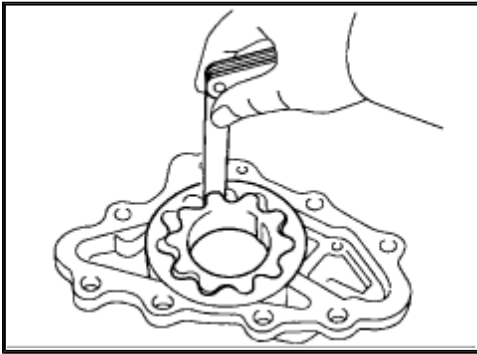


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3. INSPECT ROTOR SIDE CLEARANCE Using a feeler gauge and precision straight edge, measure the clearance

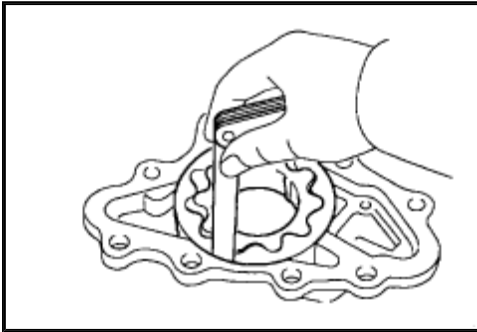
between the rotors and precision straight edge. Standard side clearance: **0.030 - 0.080 mm (0.0012 - 0.0031 inch)**
Maximum side clearance: **0.16 mm (0.0062 inch)** If the side clearance is greater than maximum, replace the rotors as a set. If necessary, replace the oil pump assembly.



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4. **INSPECT ROTOR TIP CLEARANCE** Using a feeler gauge, measure the clearance between the drive and driven rotor tips. Standard tip clearance: **0.060 - 0.180 mm (0.0024 - 0.0071 inch)** Maximum tip clearance: **0.35 mm (0.0138 inch)** If the tip clearance is greater than maximum, replace the rotors as a set.

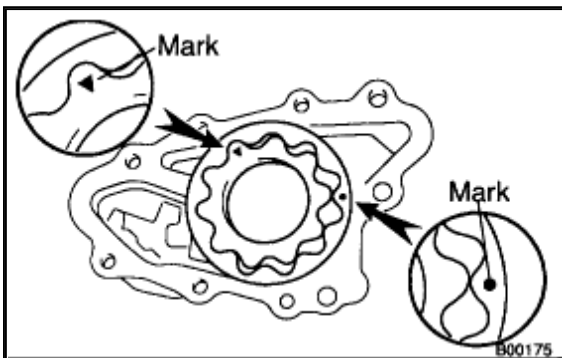


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5. **INSPECT ROTOR BODY CLEARANCE** Using a feeler gauge, measure the clearance between the driven rotor and body. Standard body clearance: **0.125 - 0.180 mm (0.00492 - 0.00709 inch)** Maximum body clearance: **0.325 mm (0.01280 inch)** If the body clearance is greater than maximum, replace the rotors as a set. If necessary, replace the oil pump assembly.

REASSEMBLY



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1. **INSTALL DRIVE AND DRIVEN ROTORS**

- a. Place the drive and driven rotors into pump body with the marks facing the pump body cover side.
 - b. 1ZZ-FE: Install the pump body cover with the 3 screws. Torque: **10.5 Nm (107 kgf-cm, 8 ft. lbs.)**
 - c. 2ZZ-GE: Install the pump body cover with the 5 screws. Torque: **10.5 Nm (107 kgf-cm, 8 ft. lbs.)**
2. **INSTALL RELIEF VALVE** Insert the relief valve and spring into the pump body hole, and install the plug. Torque:
1ZZ-FE: **37 Nm (375 kgf-cm, 27 ft. lbs.)** 2ZZ-GE: **49 Nm (500 kgf-cm, 36 ft. lbs.)**