170DV–01

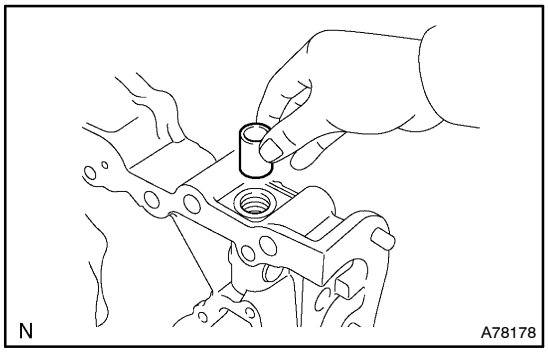
OVERHAUL

1. REMOVE OIL PUMP RELIEF VALVE

(a) Remove the plug, gasket, spring and relief valve.

2. REMOVE OIL PUMP GEAR

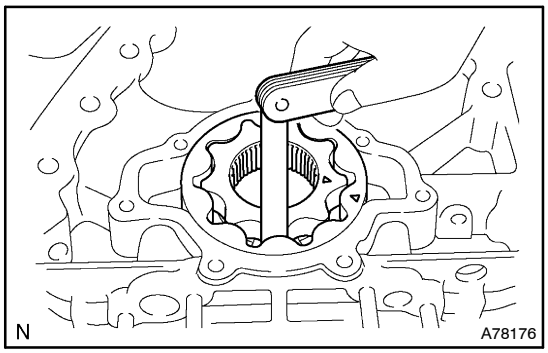
(a) Remove the 7 screws, oil pump cover, drive gear and driven gear.



3. INSPECT OIL PUMP RELIEF VALVE

(a) Coat the valve with engine oil and check that it falls smoothly into the valve hole by its own weight.

If it doesn't, replace the relief valve. If necessary, replace the oil pump assy.



4. INSPECT OIL PUMP GEAR

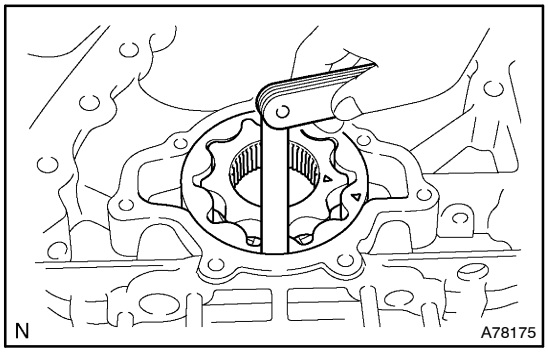
(a) Insert the gears into the timing belt case with the marks facing the pump body cover side (See step 8).

(b) Inspect the gear tip clearance.

(1) Using a feeler gauge, measure the clearance between the drive gear and driven gear tips.

Standard tip clearance:
0.110 – 0.240 mm (0.0043 – 0.0094 in.)
Maximum tip clearance: 0.30 mm (0.0118 in.)

If the tip clearance is greater than the maximum, replace the gears as a set.

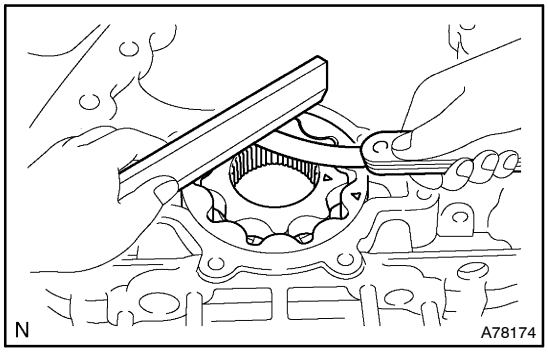


(c) Inspect the gear body clearance.

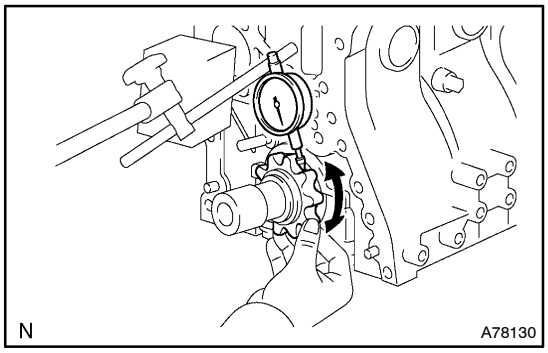
(1) Using a feeler gauge, measure the clearance between the driven gear and gear case.

Standard body clearance:
0.100 – 0.175 mm (0.0039 – 0.0069 in.)
Maximum body clearance: 0.40 mm (0.0157 in.)

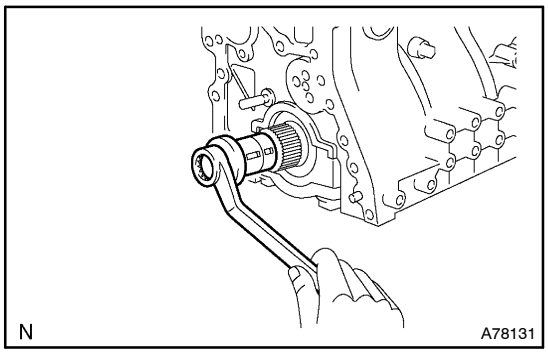
If the body clearance is greater than the maximum, replace the gears as a set. If necessary, replace the oil pump assy.



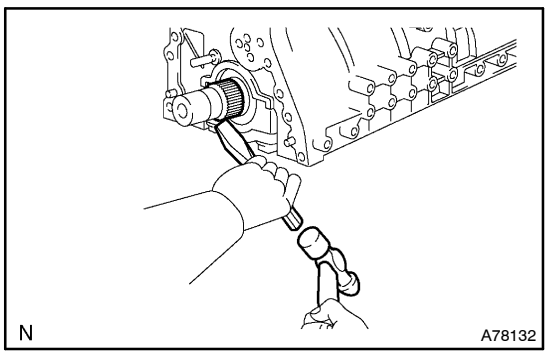
(d) Inspect the gear side clearance.
(1) Using a feeler gauge and precision straight edge, measure the clearance between the gears and precision straight edge.
Standard side clearance:
0.035 – 0.090 mm (0.0014 – 0.0035 in.)
Maximum side clearance: 0.15 mm (0.0059 in.)
If the side clearance is greater than the maximum, replace the gears as a set. If necessary, replace the oil pump assy.



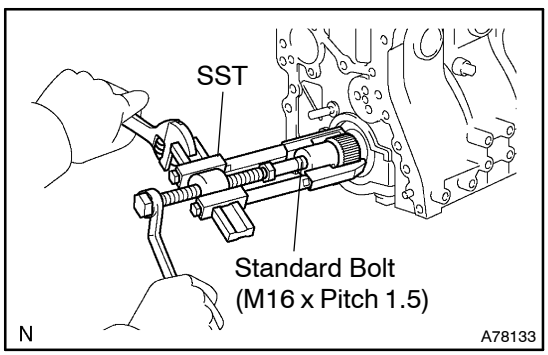
5. INSPECT OIL PUMP DRIVE SPLINE
(a) Using a dial indicator, measure the backlash while turning the drive gear clockwise and counterclockwise in several points.
Standard backlash:
0.541 – 0.790 mm (0.0213 – 0.0311 in.)
Maximum backlash: 1.00 mm (0.0394 in.)
If the backlash is greater than the maximum, replace the gears as a set and also replace the spline.



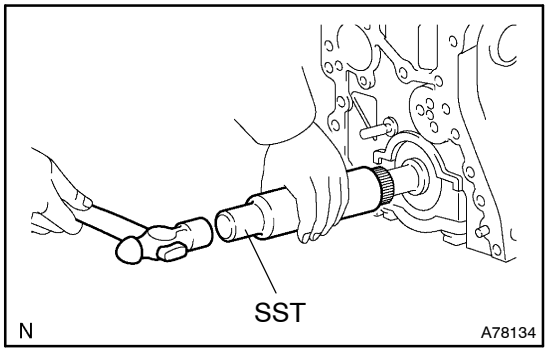
6. REMOVE OIL PUMP DRIVE SPLINE
(a) Remove the 2 set keys.
(b) Set the drive spline with the hole facing downward by turning the crankshaft.



(c) Using a chisel and hammer, tap the drive spline out of the hole until SST can be hooked to the spline's end.



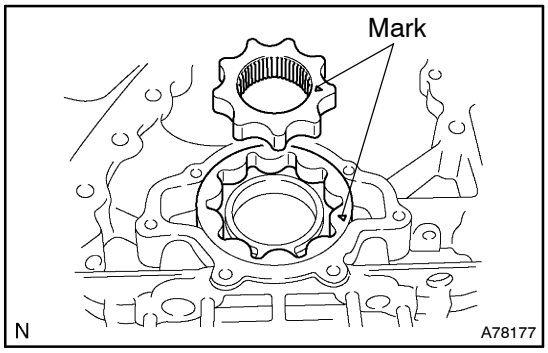
(d) Install a standard bolt (Part No. 90101–16027: 16 mm normal diameter, 1.5 mm pitch) to the crankshaft.
(e) Using SST, remove the drive spline.
SST 09950–40011 (09951–04010, 09952–04010, 09953–04030, 09954–04030, 09955–04061)
(f) Remove the standard bolt.



7. INSTALL OIL PUMP DRIVE SPLINE

(a) Using SST and a hammer, tap in a new drive spline.
SST 09608–06041

(b) Install 2 new set keys.



8. INSTALL OIL PUMP GEAR

(a) Insert the drive gear and driven gear into the timing gear case with the marks facing the oil pump cover side.

(b) Install the oil pump cover with the 7 screws.
Torque: 10.5 N·m (105 kgf·cm, 8 ft·lbf)

9. INSTALL OIL PUMP RELIEF VALVE

(a) Insert the relief valve and spring into the installation hole of the timing gear case.

(b) Install a new gasket and the plug.
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)