

Piston Rings

End Gap

1. Using a piston, push a new ring into the cylinder bore 15–20 mm (0.6–0.8 in) from the bottom.
2. Measure the piston ring end-gap with a feeler gauge:
 - If the gap is too small, check to see if you have the proper rings for your engine.
 - If the gap is too large, recheck the cylinder bore diameter against the wear limits on page 7-12. If the bore is over the service limit, the cylinder block must be rebored.

Piston Ring End-Gap:

Top Ring

Standard (New): 0.15–0.30 mm
(0.006–0.012 in)
Service Limit: 0.60 mm (0.024 in)

Second Ring

Standard (New): 0.30–0.45 mm
(0.012–0.018 in)
Service Limit: 0.70 mm (0.028 in)

Oil Ring

D16Y2 engine:

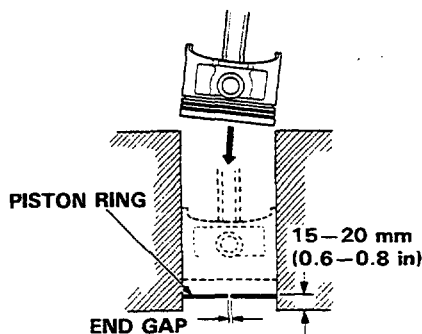
Standard (New): 0.20–0.80 mm
(0.008–0.031 in)*1
0.20–0.50 mm
(0.008–0.020 in)*2
Service Limit: 0.90 mm (0.035 in)*1
0.70 mm (0.028 in)*2

D15Z3 engine:

Standard (New): 0.20–0.70 mm
(0.008–0.028 in)*1
0.20–0.50 mm
(0.008–0.020 in)*2
Service limit: 0.80 mm (0.031 in)*1
0.70 mm (0.028 in)*2

D16Y3, D14A2 engines:

Standard (New): 0.20–0.80 mm
(0.008–0.031 in)
Service Limit: 0.90 mm (0.035 in)



*1: RIKEN manufactured piston ring

*2: TEIKOKU PISTON RING manufactured piston ring

Replacement

1. Using a ring expander, remove the old piston rings.
2. Clean all ring grooves thoroughly.

NOTE:

- Use a squared-off broken ring or ring groove cleaner with blade to fit piston grooves.
- Top ring groove is 1.0 mm (0.039 in) wide (D15Z3 engine) or 1.2 mm (0.047 in) wide (except D15Z3 engine).
- Second ring groove is 1.2 mm (0.047 in) wide (D15Z3 engine) or 1.5 mm (0.059 in) wide (except D15Z3 engine).
- Oil ring groove is 2.8 mm (0.11 in) wide.
- File down blade if necessary.

CAUTION: Do not use a wire brush to clean ring lands, or cut ring lands deeper with cleaning tool.

NOTE: If piston is to be separated from connecting rod, do not install new rings yet.

3. Install new rings in proper sequence and position (see page 7-17).

NOTE: Do not reuse old piston rings.

