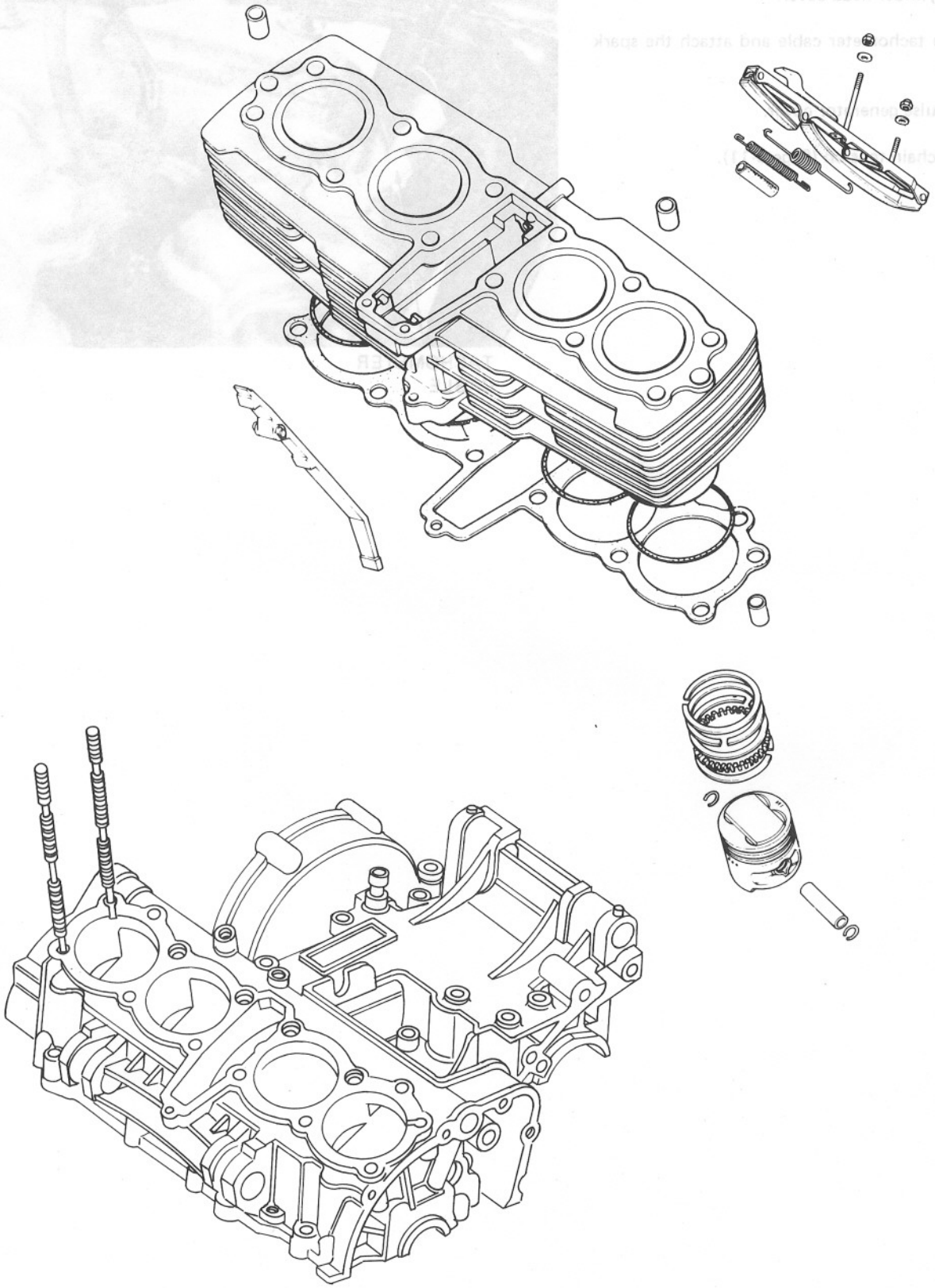

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7. CYLINDER/PISTON

SERVICE INFORMATION

GENERAL

- The engine must be removed to perform cylinder/piston maintenance and inspection.

SPECIFICATIONS

			STANDARD	SERVICE LIMIT
Cylinder	I.D.		67.00–67.01 mm (2.6378–2.6382 in)	67.1 mm (2.641 in)
	Warpage		–	0.10 mm (0.004 in)
Piston, piston rings and piston pin	Piston ring-to-groove clearance	TOP	0.015–0.045 mm (0.0006–0.0018 in)	0.09 mm (0.004 in)
		SECOND	0.015–0.045 mm (0.0006–0.0018 in)	0.09 mm (0.004 in)
	Ring end gap	TOP	0.10–0.25 mm (0.004–0.0010 in)	0.45 mm (0.018 in)
		SECOND	0.10–0.25 mm (0.004–0.0010 in)	0.45 mm (0.018 in)
		OIL (SIDE RAIL)	0.30–0.90 mm (0.012–0.035 in)	1.1 mm (0.04 in)
	Piston O.D.		66.96–66.99 mm (2.636–2.637 in)	66.90 mm (2.63 in)
	Piston pin bore		17.002–17.008 mm (0.6694–0.6696 in)	17.05 mm (0.671 in)
	Connecting rod small end I.D.		17.016–17.034 mm (0.6706–0.6699 in)	17.076 mm (0.672 in)
	Piston pin O.D.		16.994–17.000 mm (0.6690–0.6693 in)	16.98 mm (0.669 in)
	Piston-to-piston pin clearance		0.002–0.014 mm (0.0001–0.0006 in)	0.04 mm (0.002 in)
	Cylinder-to-piston clearance		0.010–0.050 mm (0.0004–0.002 in)	0.10 mm (0.004 in)
	Piston pin-to-connecting rod clearance		0.016–0.040 mm (0.0006–0.0016 in)	0.060 mm (0.0024 in)

TOOLS

Special

Piston Base (2 required)	07958–3000000
Piston Ring Compressor (2 required)	07954–3690000

TROUBLESHOOTING

Compression low
1. Worn cylinder or piston rings.

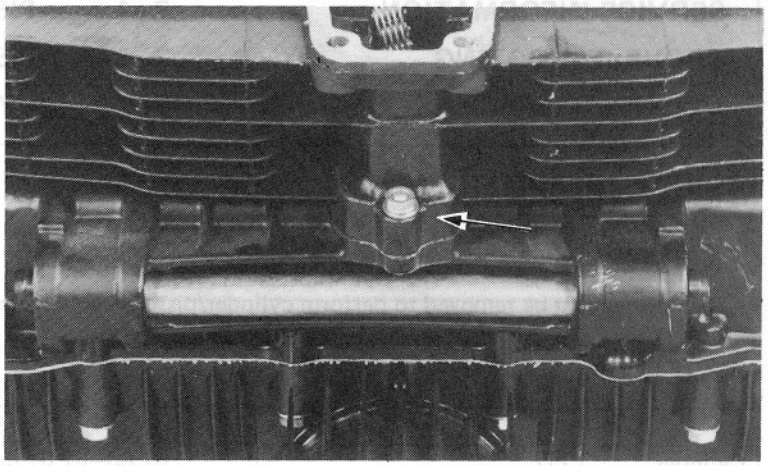
Excessive smoke
1. Worn cylinder or piston.
2. Improper installation of piston rings.
3. Scored or scratched piston or cylinder wall.

Overheating
1. Excessive carbon build-up on the piston or combustion chamber wall.

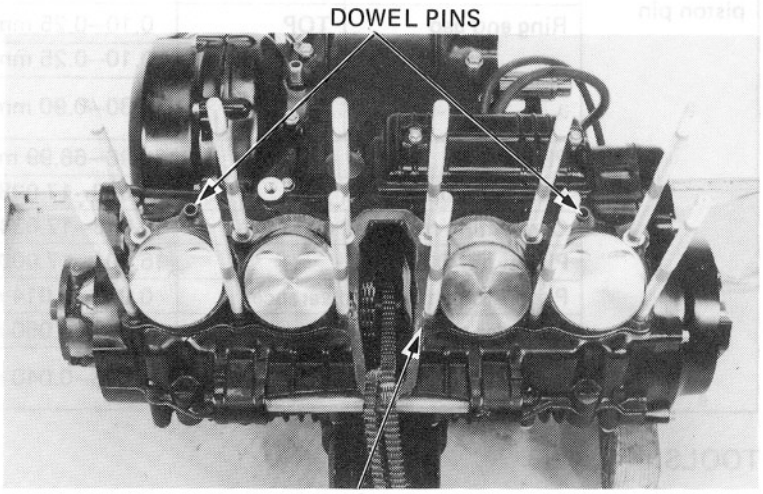
Knocking or abnormal noise
1. Worn piston and cylinder.
2. Excessive carbon build-up.

CYLINDER REMOVAL

Remove the cylinder head (Section 6).
Remove the bolt at the lower front cylinder base and remove the cylinder.
Remove the cam chain tensioner from the cylinder.



Remove the cylinder gasket and dowel pins.

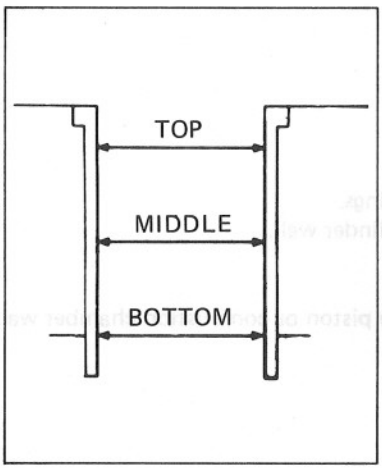


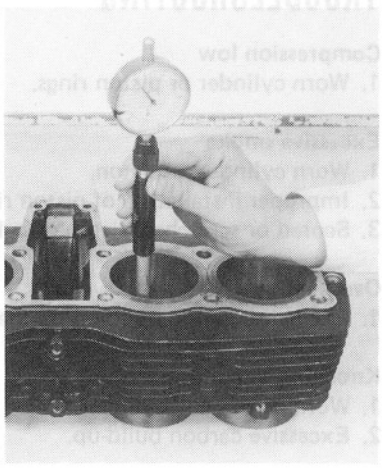
CYLINDER INSPECTION

Inspect the cylinder bores for wear or damage.
Measure the cylinder I.D. at three levels in X and Y axis.

STANDARD: 67.00–67.01 mm (2.6378–2.6382 in)

SERVICE LIMIT: 67.1 mm (2.641 in)





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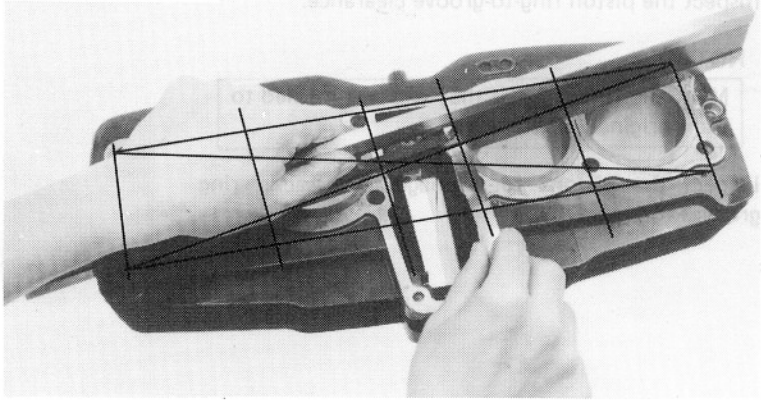
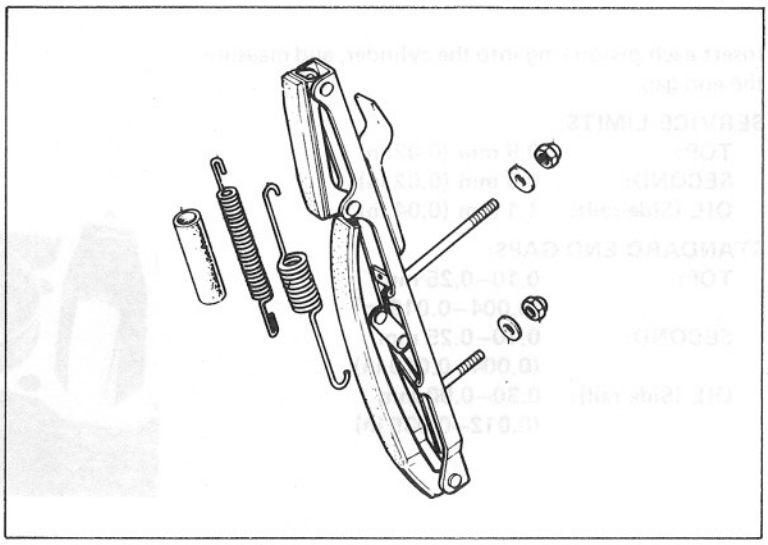
Inspect the top of the cylinder for warpage.
Check in an X pattern as shown.

SERVICE LIMIT:
0.10 mm (0.004 in)



CAM CHAIN TENSIONER INSPECTION

Inspect the slipper of the cam chain tensioner for damage or excessive wear.
Inspect the tension spring for weakness.



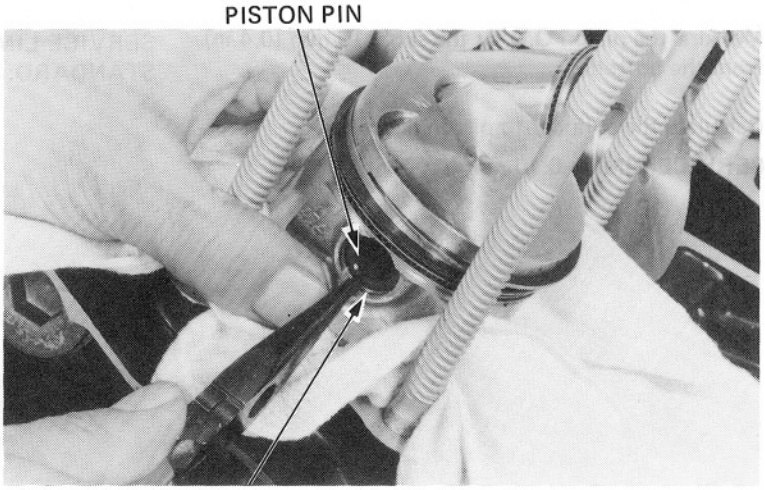
PISTON REMOVAL

Remove each piston pin clip with needle nose pliers being careful not to allow clips to fall into the crankcase.

Press the piston pin out.

NOTE

Mark the pistons to indicate their cylinder positions.



PISTON/PISTON RING INSPECTION

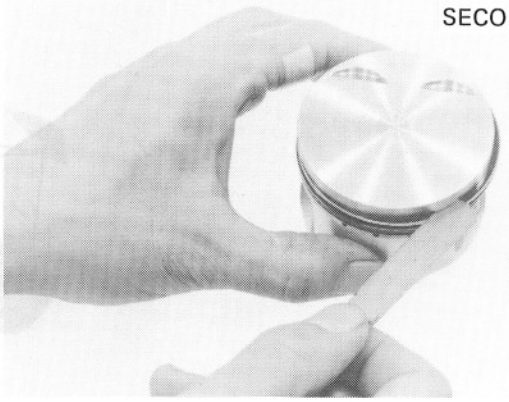
Inspect the piston ring-to-groove clearance.

NOTE

Mark the rings so that they can be returned to their original locations.

Inspect the pistons for damage and cracks; ring grooves for wear.

SERVICE LIMIT:
TOP 0.09 mm (0.004 in)
SECOND 0.09 mm (0.004 in)



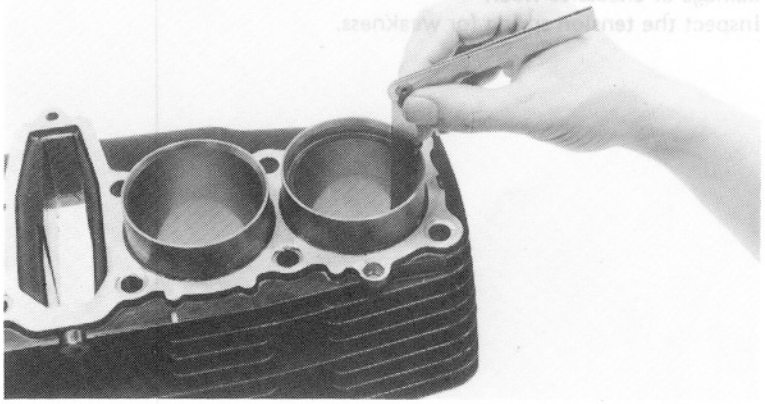
Insert each piston ring into the cylinder, and measure the end gap.

SERVICE LIMITS:

TOP:	**0.5 mm (0.02 in)**
SECOND:	**0.5 mm (0.02 in)**
OIL (Side rail):	**1.1 mm (0.04 in)**

STANDARD END GAPS:

TOP:	**0.10–0.25 mm (0.004–0.010 in)**
SECOND:	**0.10–0.25 mm (0.004–0.010 in)**
OIL (Side rail):	**0.30–0.90 mm (0.012–0.035 in)**

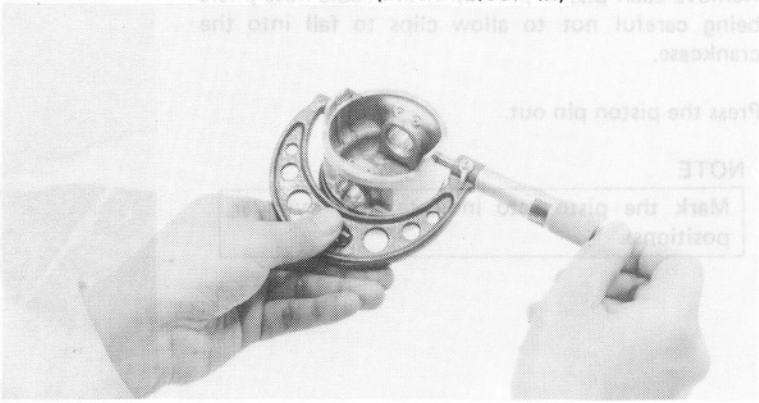


Measure the piston O.D. at the skirt, 10 mm (0.4 in) from the bottom.

Calculate the cylinder-to-piston clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)

SERVICE LIMIT: 66.90 mm (2.634 in)
STANDARD: 66.96–66.99 mm (2.636–2.637 in)



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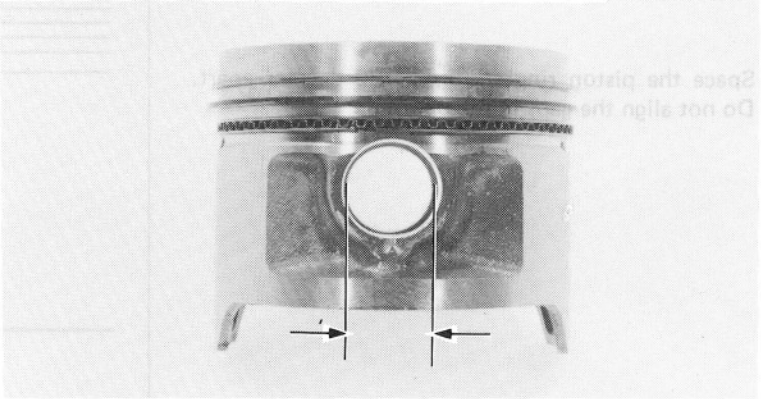
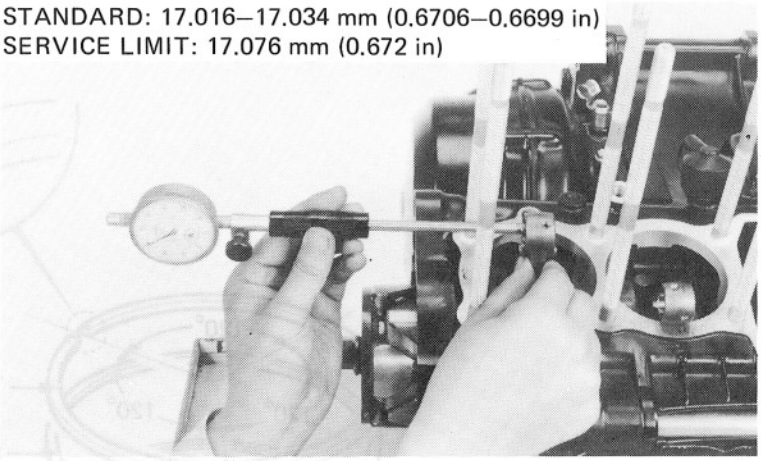
Measure the piston pin hole I.D.

STANDARD: 17.002–17.008 mm (0.6694–0.6696 in)
SERVICE LIMIT: 17.05 mm (0.671 in)



Measure the connecting rod small end I.D.
(See Section 12 for replacement procedure)

STANDARD: 17.016–17.034 mm (0.6706–0.6699 in)
SERVICE LIMIT: 17.076 mm (0.672 in)

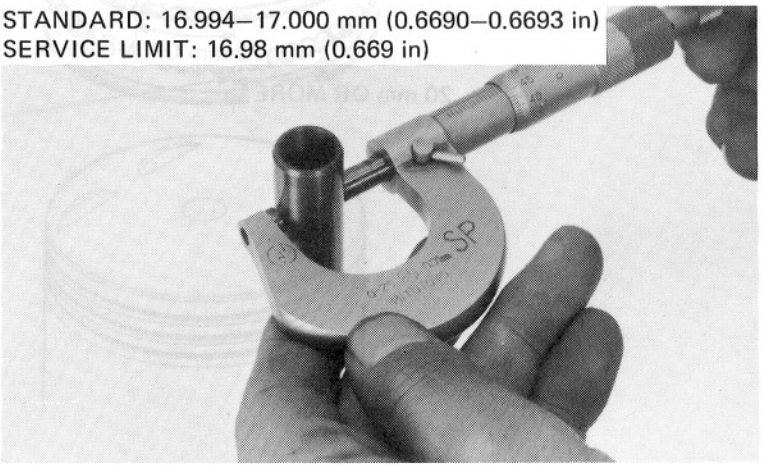


Measure the piston pin O.D.

Determine the piston-to-piston pin clearance.

SERVICE LIMIT: 0.04 mm (0.002 in)

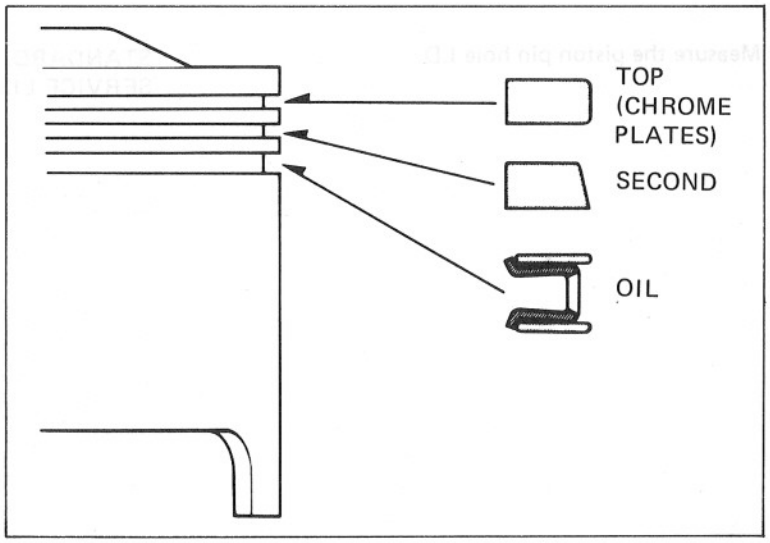
STANDARD: 16.994–17.000 mm (0.6690–0.6693 in)
SERVICE LIMIT: 16.98 mm (0.669 in)

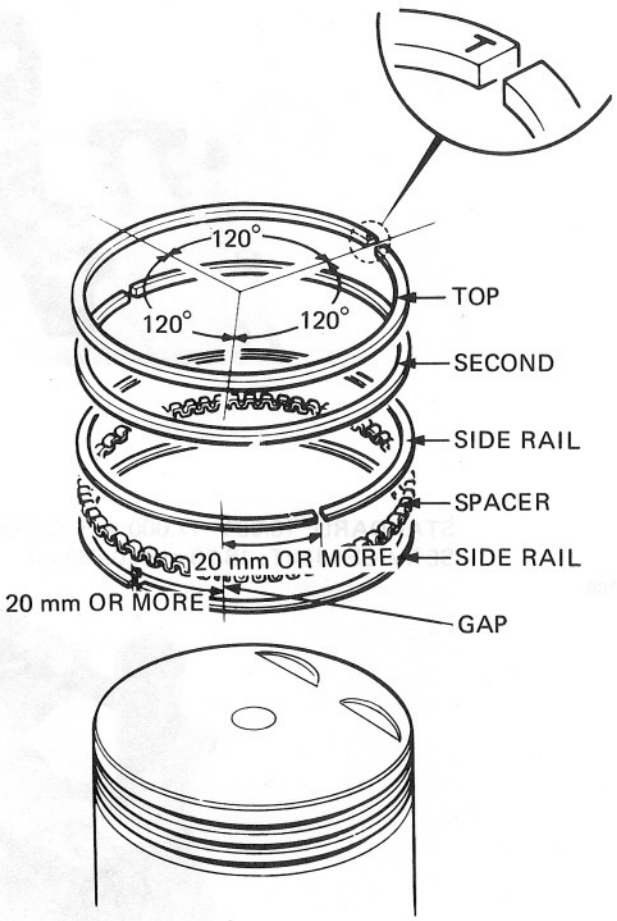


PISTON RING INSTALLATION

Install the piston rings with the markings facing up. After installation, the rings should rotate freely.

Space the piston ring end gaps 120 degrees apart. Do not align the gaps in the oil rings.





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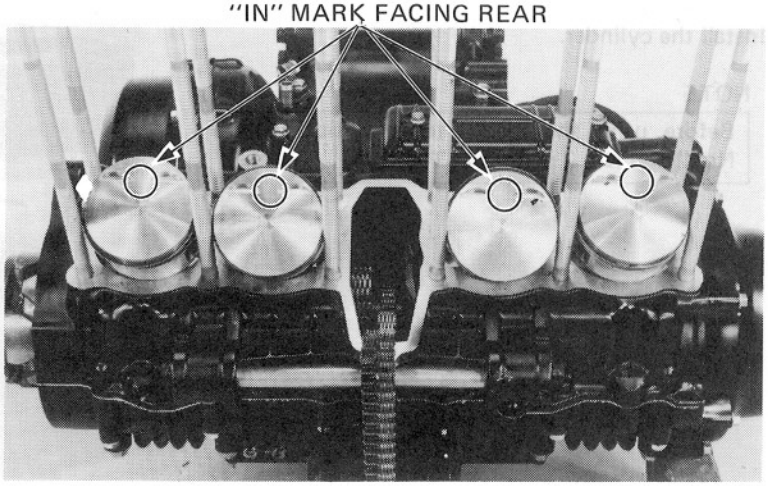
PISTON INSTALLATION

Apply molybdenum disulfide grease to the connecting rod small ends.
Install the pistons, piston pins and clips.
Install the pistons with the "IN" mark toward the carburetor side. Install the piston pins and clips, being careful not to drop the clips into the crankcase.

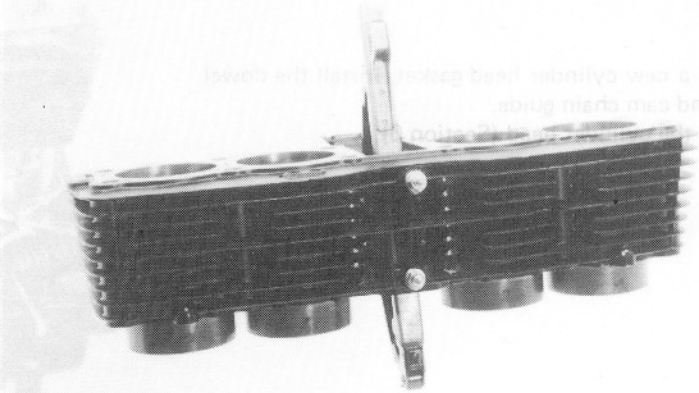
NOTE

- Install the pistons in their original positions.
- Stuff shop towels into the crankcase to catch dropped clips.

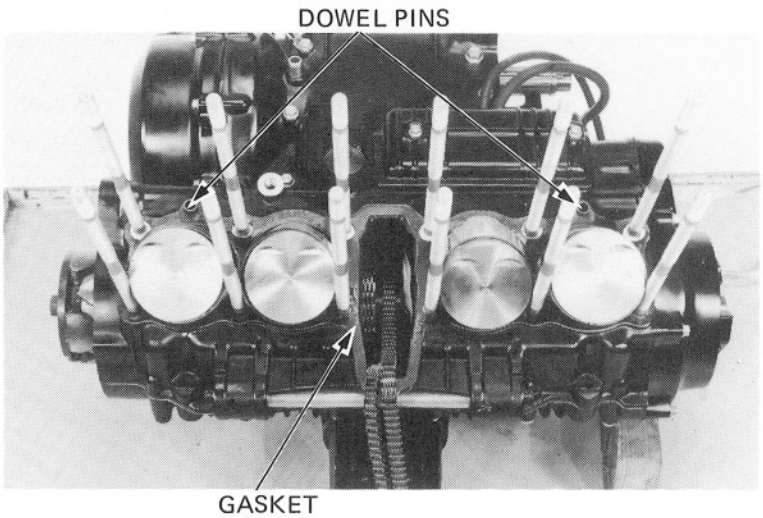


CYLINDER INSTALLATION

Install the cam chain tensioner.



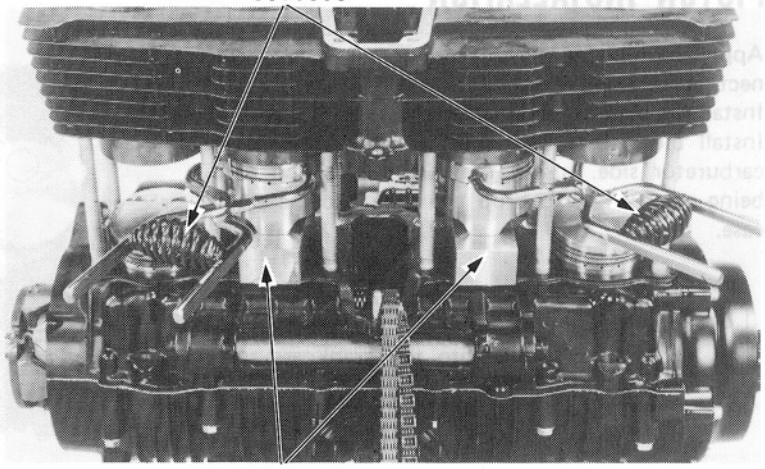
Install the dowel pins and gasket.



Install the cylinder.

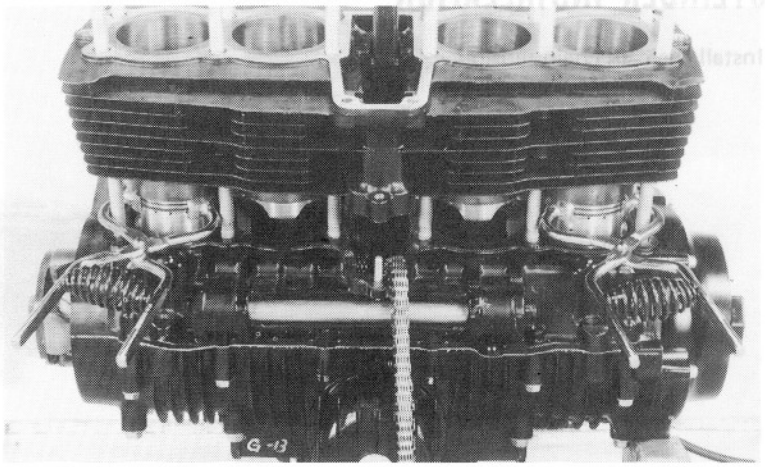
NOTE

Before using the special tools, position the No. 2 and No. 3 pistons at T.D.C.



Tighten the cylinder base nut securely after installation.

Install a new cylinder head gasket. Install the dowel pins and cam chain guide.
Install the cylinder head (Section 6).



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