



# R-Stage+D | Instruction Manual for Cylinder Kit

Exclusively for our *R-Stage+D*

Item Nos : 0 1 - 0 4 - 7 0 8 8 V ( 88cc )  
0 1 - 0 4 - 7 0 8 8 V A ( 88cc ) Plated cylinder  
0 1 - 0 4 - 7 0 8 8 V A S ( 88cc ) Plated cylinder  
0 1 - 0 4 - 7 1 0 6 V ( 106cc )  
0 1 0 4 7 1 0 6 V A ( 106cc ) Plated cylinder

- Thank you for purchasing one of our TAKEGAWA's products.
- This is a piston and cylinder set exclusively for R-Stage+D of our own manufacture. In using this set, please strictly observe the following.

## Please read the following instructions before installation.

Please note that, in some cases, the illustrations and photos may vary from the actual hardware.

We do not take any responsibility for any accident or damage whatsoever arising from the use of the products not in conformity with the instructions in the manual.

We shall be held free from any kind of warranty whatsoever of products other than this product if the glitch takes place on the other products than this one after the installation and use of this product.

If you make alterations to the products, we shall be held free from any guarantee of the products.

This set is exclusively for R-Stage+D of our TAKEGAWA's manufacture.

Boring of a crankcase of Item Nos 01-04-7088VA and 01-04-7106VA is required. After reading carefully the attached sheet, please either send the crankcase to us or consult your local specialist shop handling internal combustion products or motorcycle dealer about the processing.

Processing of a stock crankcase requires detachment and installation of the engine and separation of the crankcase. Please install the products correctly, referring to HONDA's genuine parts service manual for the applicable model numbers of the motorcycles. And this assembly requires gaskets, etc., which please purchase separately.

Please be informed that we shall be held harmless against any claim against us whatsoever arising out of use of the products in racing and the like.



### Caution

The following show the envisioned possibility of injuries to human bodies or property damages as a result of disregarding the following cautions.

- Since this kit is designed and developed for driving in closed races, do not use the kit for running on public roads.
- Work only when the engine and the muffler are cool. (Otherwise, you will burn yourself.)
- Prepare right tools for the work, and do the work in the proper and right way.  
(Otherwise, improper work could cause breakage of parts or injuries to yourself.)
- As some products and frames have sharp-pointed or protruding portions, please work with greatest care. (Otherwise, you will suffer injuries.)



### Warning

The following show the envisioned possibility of human death or serious injuries to human bodies as a result of disregarding the following cautions.

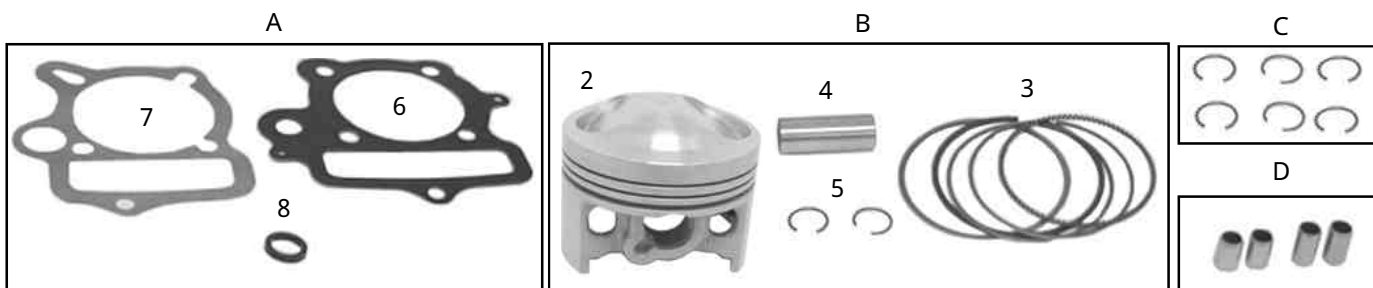
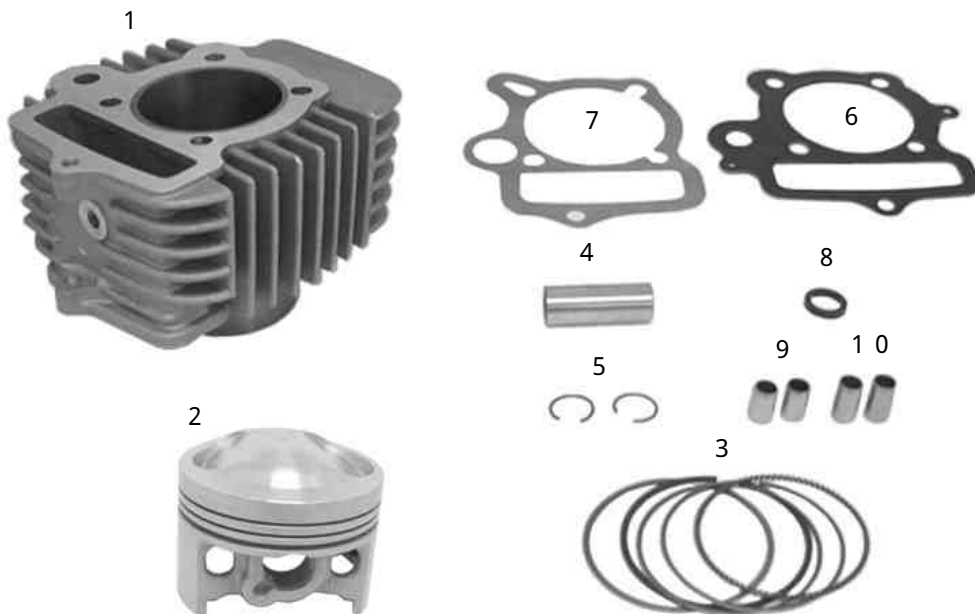
- Those who are technically unskilled or inexperienced are required not to do the work.  
(Improper installation due to unskilled technique or lack of knowledge could lead to parts breakage and consequently to accidents.)
- Always use new piston pin circlips, gaskets and packing. (Wear and damage to these parts are likely to cause parts breakage and accidents.)
- Before doing work, place the motorcycle on level ground to stabilize the position of your motorcycle for safety's sake.  
(Otherwise, your motorcycle could overturn and injure you while you are working.)
- If you find damaged parts when checking and performing maintenance of your motorcycle, do not use these parts any longer, and replace them with new ones. The continued use of these damaged parts as they are could lead to accidents.)
- Always start the engine in a well-ventilated place, and do not start it in an airtight place. (Otherwise, you will suffer from carbon monoxide poisoning.)
- Before riding, always check every section for slack in parts like screws. If you find slack ones, screw them up securely to the specified torque.  
(Or improper torque may cause parts to come off, leading to accidents.)
- When you notice something abnormal with your motorcycle while riding down a road, immediately stop riding and park your motorcycle in a safe place.  
(Otherwise, the abnormality could lead to accidents.)
- As gasoline is highly flammable, never place it close to fire. Make sure that nothing flammable is near the gasoline.  
(Otherwise, there will be a danger of causing fires.)
- Check or perform maintenance of parts correctly according to the procedures in the instruction manual or a service manual.  
(Improper checking or maintenance could lead to an accident.)
- Never use any other part than the specified parts. (Otherwise, there is a possibility of parts breakage, leading to accidents.)
- Always use a torque wrench to screw bolts and nuts tight and securely to the specified torque.  
(Otherwise, improper torque may result in the breakage or coming off of the bolts and nuts, leading to accidents.)
- As the accumulation of vaporized gasoline is at the high risk of explosion, work in a well-ventilated place.
- Always use high-octane gasoline. (Otherwise, troubles such as engine knocking may cause accidents.)

Please be informed that the product specifications, design and prices are subject to change without prior notice.

We shall be held free from any guarantee whatsoever of any trouble caused by the combined use of our products with parts not specified by us.

This manual should be retained for future reference.

~ Kit Contents ~



No.	Parts Name	Qty
1	Aluminum cylinder	1
2	Piston	1
3	Piston ring set ( top, 2nd, oil )	1
4	Piston pin 13x36	1
5	Piston pin circlip	2
6	Cylinder head gasket	1
7	Cylinder gasket	1
8	Rubber packing ( black )	2
9	Dowel pin 8x12	2
10	Dowel pin 8x14	2

No.	Repair Parts Item No.	Parts Name
A	88 / 106	01-13-7003V Gasket kit , B set
B	88	01-02-7080 Piston kit
	106	01-02-7060 Piston kit
C	000-02-120	Piston pin circlip set ( 6 pieces )
D	000-03-123	Dowel pin set
1	52V	01-01-0222 Aluminum cylinder
	52VA ( Plated )	01-01-0222VA ( Plated cylinder )
	52VAS ( Plated )	12101-GEF-T20 ( VAS Plated cylinder )
2	52	13101-RSH-T01 ( for 88cc ) Piston
	52	13101-RSH-T01-L ( for 106cc )
3	52	13011-181-T10 Piston ring kit
4		13111-GEF-T01 Piston pin 13X36

In placing repair parts order with us, please quote the Repair Parts Item Nos.  
 In some cases, we may not be able to accept your orders for the disassembled components of the above-mention assembled unit. In this case, please order the components in units of a set component.

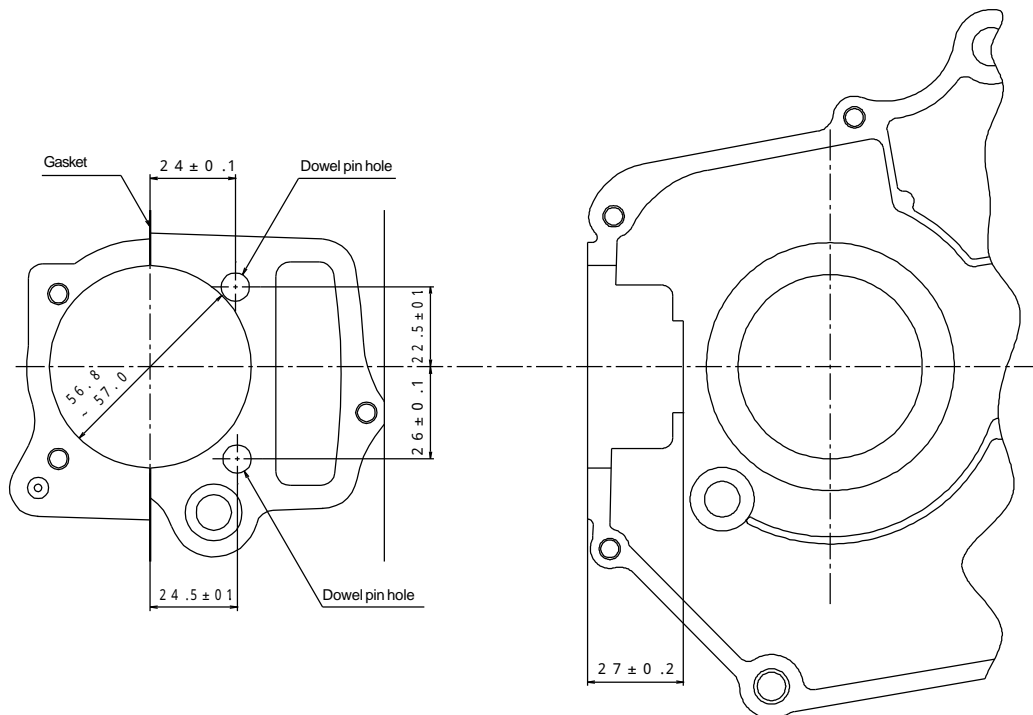
# In case of 01-04-7088VA (88CC plated cylinder) and 01-04-7106VA (106cc plated cylinder) cylinder kits

## Boring of a Crankcase

### To those who ask other specialist shop than us to do the work

Joining the cylinders together, process the crankcase little by little until the size is 56.8 ~ 57.0 mm with a crankcase gasket placed in between.

Processing of the crankcase will thin the thickness of wall adjoining dowel pin holes. So the durability of the crankcase will be reduced, resulting in the damage of the crankcase in some cases, which please take note.



### Caution

Since crankcase boring thins the wall thickness and reduces hardness, be careful in tightening stud bolts.

Please take note that in some cases the crankcase may get damaged during use. Furthermore, please be informed that we shall assume no liability to users for compensation or damages whatsoever of any kind.

**SPECIAL PARTS TAKEGAWA** Co.,Ltd.

3-5-16 Nishikiorihigashi Tondabayashi Osaka Japan

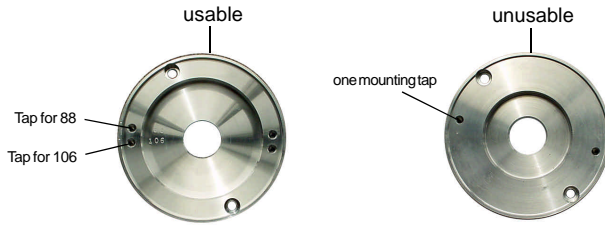
TEL : 81-721-25-1357 FAX : 81-721-24-5059

URL : <http://www.takegawa.co.jp>

## ~ Installation Procedures ~

- ⚠ **Caution:** Always be sure to tighten parts to the specified torque using a torque wrench.
- ⚠ **Notice:** The unskilled or those without proper knowledge are requested not to do the installation work.

The following show the products of our own make to which this kit cannot be installed.

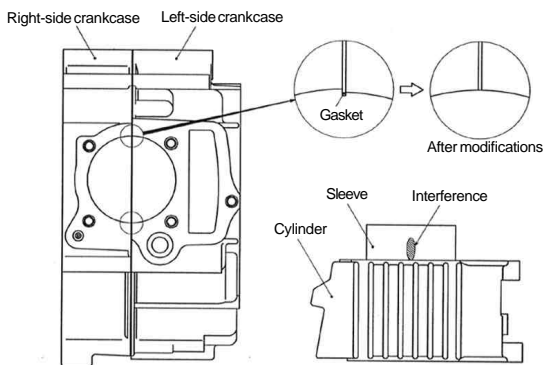


Some products involve detachment and installation of an engine and separation of a crankcase, etc. Do the installation work infallibly, following Honda's genuine parts service manual.

Referring to the service manual, detach the engine from the frame and disassemble it.

The products for Item Nos 01-04-7124V (124cc), 01-04-7106VA (106cc plated cylinder) and 01-04-7088VA (88cc plated cylinder) entail the boring of the crankcases. Please process the boring of the crankcases referring to the attached sheet.

As for the products for Item Nos 01-04-7088V, 01-04-7088VAS (88cc) and 01-04-7106V (106cc), they do not entail the boring of the crankcases. However, depending on the individual crankcases, the crankcase may interfere with the cylinder sleeve in some cases. In such a case, please modify the crankcase.

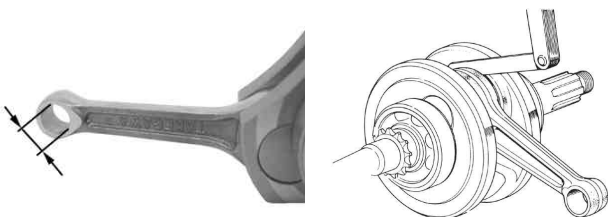


Check every part.

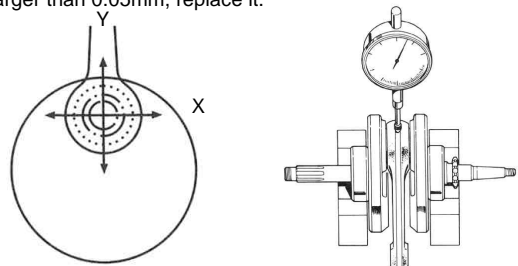
- ⚠ **Caution:** Infallibly inspect every part and check consumable parts for damage and wear.

### What to check:

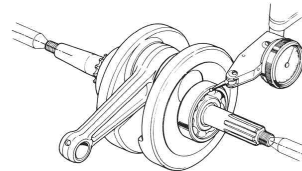
- Measure the internal diameter at the small end of the con'rod.  
If larger than 13.03 mm, replace it.
- Measure the clearance at the big end of the con'rod in the axial direction.  
If larger than 0.6mm, replace it.



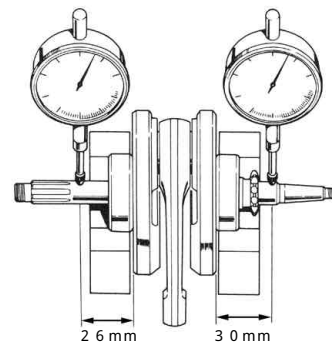
- Measure the misalignment at two points at the big end of the con'rod at right angles to the shaft as shown in the figure on the right.  
If larger than 0.05mm, replace it.



- Measure the misalignment on the journal bearing of the crank shaft.  
Shaft direction: If larger than 0.10 mm, replace it.  
Bearing direction: If larger than 0.05 mm, replace it.



- Measure the deflection of the crank shaft.  
If larger than 0.10 mm, replace it.



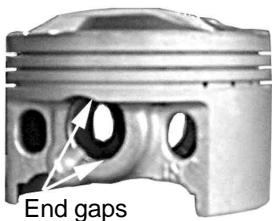
- o Assemble the crankcase referring to the service manual.

## ~ Cylinder Installation Procedures ~

Attach a piston pin circlip to one of two pin holes on the piston.



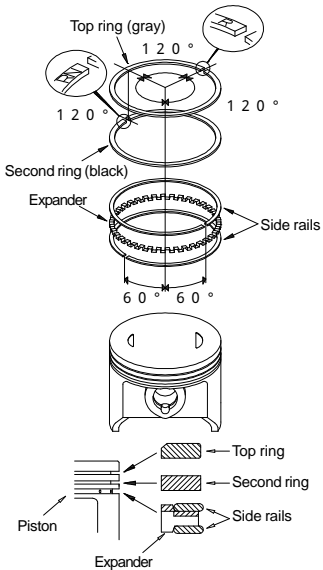
Attach the piston pin circlip so the ring end gap does not meet with the notch on the piston pin hole, and it should be either on the top or at the bottom of the piston as illustrated in the fig. 1 below.



End gaps

Air-blow the piston rings and the piston pin, and check for jamming of any foreign material by these parts.

Apply engine oil to grooves for piston rings, and, with reference to the figure below, fix piston rings and arrange the location of piston ring end gaps.



**Pay attention to the cross section as well !!**

Apply molybdenum solution to the piston pin and the holes on the connecting rod small end.



Install the piston to the connecting rod so the EX mark on the piston faces the exhaust side.



Plug the sleeve hole and the cam chain hole on the crankcase with a clean cloth, and fix a piston pin circlip.

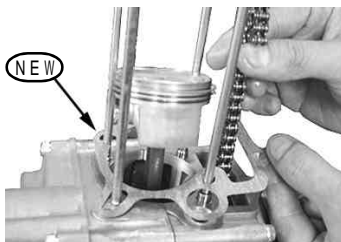


Remove the cloth used to plug holes.

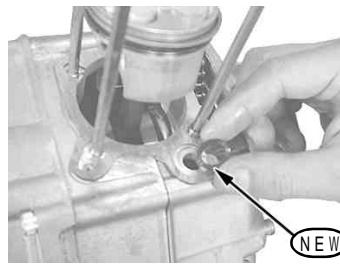
Degrease the cylinder base of the crankcase, and fix 8x12 dowel pins onto the dowel pin holes.



Fix a cylinder gasket of the kit into the cylinder base of the crankcase.



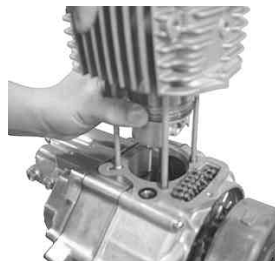
Fix a new rubber packing (black) of the kit onto the oil-return hole on the cylinder base of the crankcase.



Apply engine oil to the entire inner surface of the aluminum cylinder bore.



Insert the aluminum cylinder into the stud bolts.



Compressing the piston rings, install the cylinder with care not to move the piston-ring end gaps out of place. Their end gaps will not be out of place.

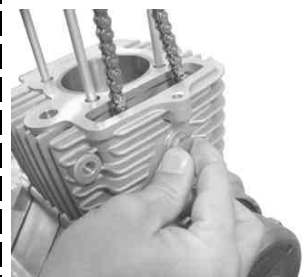
**CAUTION:** Be careful not to damage the piston rings.



Place the cam chain guide roller on the cam chains.



Loosely tighten the cam chain guide roller and the cylinder side bolt.



Loosely tighten an original hex bolt which holds the crankcase on the cylinder side.

Install the cylinder head with reference to the instruction manual.

# Owner's Manual



## WARNING

Since this cylinder manual is prepared for those who have acquired basic skills and knowledge in tuning, those who are technically unskilled or inexperienced are required not to do the work.

### Specification List

Item No.	Bore stroke	Displacement	Compression ratio
01-04-7088V			
01-04-7088VA	52 x 41.4	87.9 cm <sup>3</sup>	13.4 : 1
01-04-7088VAS			
01-04-7106V	52 x 50	106.1 cm <sup>3</sup>	13.3 : 1
01-04-7106VA			

### Specification List for Cylinder & Piston

Item		Stock	Service limit	Remarks
Cylinder	Distortion	_____	0.05 mm	Replace
	Internal diameter	52.015 ~ 52.070 mm 52.000 ~ 52.015 mm	52.10 mm 52.05 mm	Replace Replace
Piston	External diameter (6 mm from the hem of a skirt)	51.980 ~ 52.000 mm	51.96 mm	Replace
	Internal diameter of a pin hole	13.002 ~ 13.008 mm	13.03 mm	Replace
	External diameter of a piston pin	12.994 ~ 13.000 mm	12.98 mm	Replace
	Piston ring end gap size	0.15 ~ 0.38 mm 0.20 ~ 0.45 mm 0.20 ~ 0.70 mm	0.50 mm 0.50 mm 0.90 mm	Replace Replace Replace
Clearance between cylinder and piston		_____	0.12 mm	Replace
Clearance between piston and pin		0.002 ~ 0.014 mm	0.03 mm 0.05 mm	Replace Replace

Torque unit

1 kgf · m = 9.80665 N · m (=newton meter)



This mark shows molybdenum solution.

This solution is a mixture of molybdenum grease and engine oil (in the ratio of 1:1).

Apply molybdenum solution or assembly paste to the portions where it is indicated that molybdenum solution needs to be applied.



This mark shows those parts to be replaced with every overhaul.  
Do not fail to replace these parts every time they are overhauled.



Engine oil mark  
Apply engine oil where so indicated.

# Owner's Manual

## Inspection of Cylinder

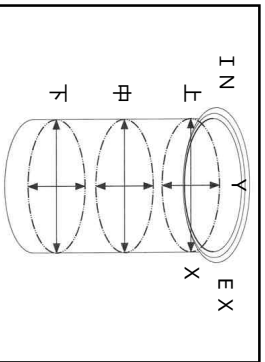
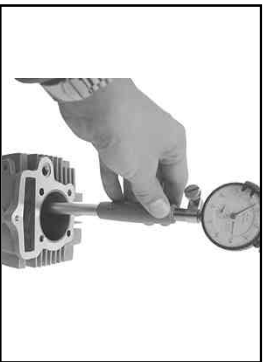
- Check the inside of cylinder for wear and damage.
- Measure the internal diameters of the cylinder bore at 6 positions; at the piston pin angle and at the right angle to it (X-Y) each at upper, middle and lower parts of the cylinder bore.

Treat the largest value as its internal diameter.

If larger than 52.10mm at 52, replace it.

If larger than 54.10mm at 52, replace it.

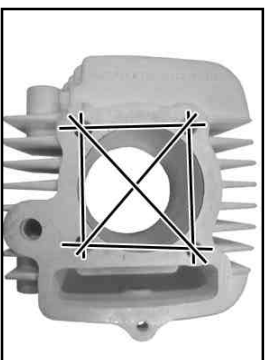
Calculate the clearance between a cylinder and a piston.



- Check the top surface of the cylinder for scratches and damages.

- Check the cylinder top surface for distortion with a straight edge and thickness gauge.

Service limit: If the distortion is more than 0.05 mm, replace the cylinder.



## Inspection of Piston

- Clear the piston of the remaining carbon residue.
- Fit a piston ring into the piston, and measure the clearance between the piston ring and ring groove with a thickness gauge.

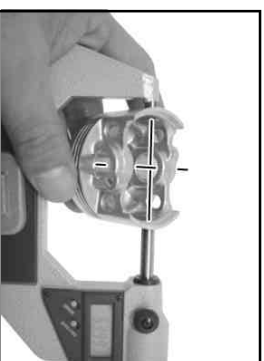
If larger than 0.17mm, replace it.



- Check the piston for damages.

- Measure the external diameter of the piston at the specified place at the bottom edge of the piston skirt at the right angle to the piston holes.

If smaller than 51.96mm at 52, replace it.



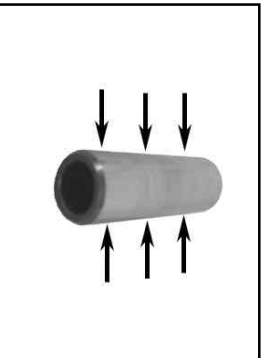
# Owner's Manual

## Inspection of Piston Ring

• Measure the internal diameter of the piston pin hole.  
If larger than 13.03mm, replace it.

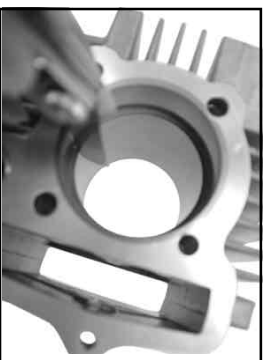


• Measure the external diameter of the piston pin.  
Piston pin service limit : If it is below 12.98 mm,  
replace the piston pin.



• Calculate the clearance between the piston and the piston pin.

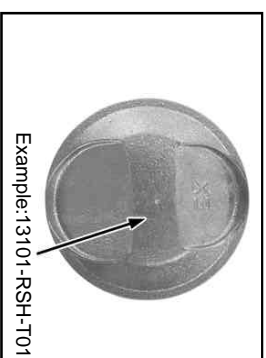
• Press down a piston ring into the piston with the piston head, and measure the clearance of the ring-end gap at the horizontal position with a thickness gauge.  
Top and 2nd : If larger than 0.5mm, replace them.  
Oil : If larger than 0.9mm, replace it.



## Supplement:

• If you intend to change the piston with a new one, you can order the one from us by the number stamped on the top of the piston.

• After removing the carbon stuck on the piston top, take a note of the No. stamped on the piston top.



• Order the piston by the No. stamped on the piston top.