

# High comp piston kit Instruction manual

Product number 01-02-0047

Adaptation model	GROM (JC92-1000001 ~ 1099999)
	Monkey125 (JB03-1000001 ~ )
	CT125 (JA65-1000001 ~ )

Thank you very much for purchasing our products.

Thank you so you will comply with the following matters at the time of use. Before installation, please check your always kit contents. If there is a point of notice event, Please contact us the dealer of purchase.

◎ If the description, such as photos or Illustration different with this part.

## Caution about fuel to use

This product is so designed to achieve a higher compression ratio than stock engines. As for the fuel, high-octane gasoline should always be used. In case regular gasoline is used, abnormal combustion will take place, and the engine cannot achieve its original performance. Moreover, it is highly likely that the piston will be damaged, leading to a serious failure of the motorcycle. Before installing this kit, make sure that no regular gasoline remains in the fuel tank. In case regular gasoline is remaining in the fuel tank, do replace it with high-octane gasoline.

## About FI controller

Never use Stock ECU with this product (possibility of serious engine damage).  
Must use FI controller at the same time.

## About crankshaft

Increase engine power and torque, the burden of twisting and deflection on the crankshaft also increases. We recommend installing a crankshaft support adapter at the same time to reduce the burden on the crankshaft. The crankshaft support adapter has extra ball bearing (at the end of the crankshaft on the flywheel) which prevents twisting camshaft. Increases the durability of the crankshaft by suppressing deflection etc.  
For GROM (JC92-1000001 ~ 1099999), Monkey125 (JB03-1000001 ~ ):01-10-0149  
For CT125 (JA65-1000001 ~ ):01-10-0150

## Caution about camshaft

Recommend to using this product with our sports camshaft.  
Our sports camshaft N-10.....01-08-0190  
Our sports camshaft N-20.....01-08-0191

## Caution about spark plug

Use spark plug with a cold type equivalent to CPR7EA-9 (NGK) or higher. (colder) Chose spark plug heat range depending on the condition of the spark plug electrode.

☆ Please read carefully before use ☆

- ◎ The use ignoring the instructions that are written in the manual, if the accident or damage has occurred, we can not assume any responsibility for compensation.
- ◎ This product installation and use, when a problem occurs to after market goods, guarantee other than this product, also can not assume any in any such matters.
- ◎ If it was the case or mounting that has been processed like a product, it will not be covered under warranty.
- ◎ It is not possible to inquire of the combination of other manufacturers.
- ◎ This product is the above-mentioned vehicle exclusive goods. Is not possible attached to the other vehicle. Please note.
- ◎ Installation of product, go to ensure reference to a genuine service manual to adaptive models always.  
The instructions in this manual mainly describe the installation work of this product and omit other parts of the work. Please refer to the genuine service manual when performing work on the omitted parts.
- ◎ When installing, please prepare the tools and work carefully according to the installation instructions and genuine service manual.
- ◎ This manual and genuine service manual are intended for those who have a basic skills and knowledge.  
If no experience of mounting, etc., who preparation of such a tool is insufficient, we recommend that it is your request to the shop with a technical credit.
- ◎ Product may have edges or protrusions. Be sure to wear working gloves.  
(Please wear work gloves when working, even if a photo in this article show without work gloves.)
- ◎ Please perform the break-in.
- ◎ When this product and FI controller are installed, the higher limit of engine rpm will increase as well as the output power will increase. For long and high-load riding, we recommend installing our super oil pump kit (with relief valve mechanism) and oil cooler kit.
- ◎ Some of bolts, nuts, dowel pins, and packings will be reused. However, be sure to replace worn-down or severely-damaged ones with new ones.
- ◎ It may be necessary to change the secondary reduction ratio depending on the weight of the rider and riding conditions.
- ◎ The sealing washer for the guide roller part is not included. Must be purchased yourself. If the sealing washer is damaged, please use a new one.

Honda genuine part number:90475-KWB-600

**SPECIAL PARTS**  
**TAKEGAWA**

CONTACT Address : 3-5-16 Nishikiorihigashi Tondabayashi Osaka JAPAN  
TEL: +81-721-25-1357 FAX: +81-721-24-5059 e-mail: english@takegawa.co.jp URL http://www.takegawa.co.jp  
Please contact with your name and country name provided. (Only English please)

~ feature ~

- It is to genuine same bore diameter and same displacement with high output and high compression pistons.
- We focused on increasing the compression ratio of the piston, achieving highly efficient combustion, and reducing friction, making it possible to achieve high output. compression ratio 12.5:1
- Made of forged aluminum with high rigidity to withstand high compression ratios.
- Bring out higher potential by using our sports camshaft and our FI controller together.

**⚠ Caution** When the handling of ignoring this display, property damage and human shows the assumption of what injury.

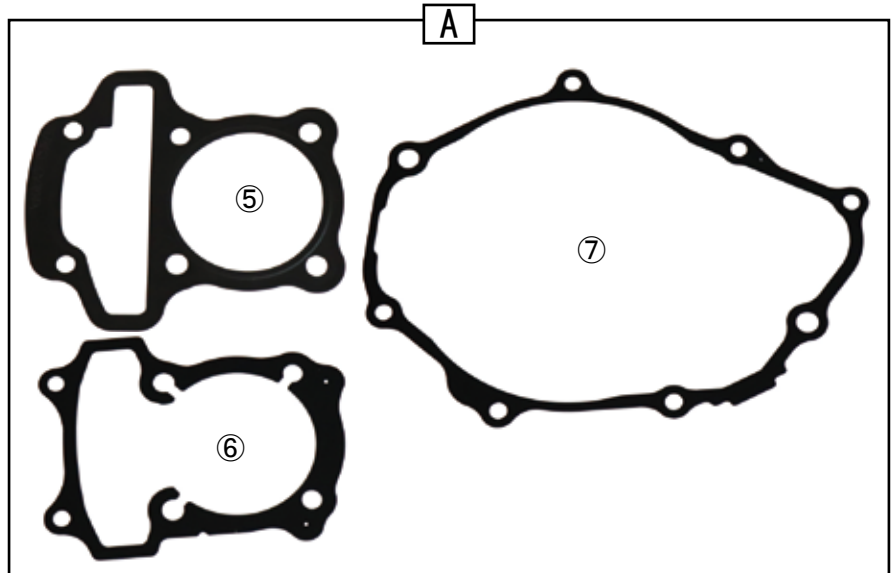
- Driving on a public road in a vehicle that does not meet the safety standards of the Road Transport Vehicle Act is a violation and the driver will be punished.
- When performing the work, etc., be sure during the cold (when the engine and the muffler is cold). (It may cause burns.)
- When performing the work, it should be made to prepare the tools for the job. (Breakage of parts, it may cause injury.)
- Do the work must always specified torque using a torque wrench. (Damage of bolts and nuts, and cause of dropout.)
- The product and the frame, might have edges or protrusions. When working, please wear work gloves to protect your hands. (It may cause injury.)
- Be sure to each part inspection before operation, check the loosening of the threaded portion, be sure to securely tighten the specified torque if there is loose. (It may cause detachment of the parts.)
- Gasket always use new parts. Also, parts can be re-used may be checked, if wear or damage, it is always replaced with new parts.

**⚠ Warning** When the handling of ignoring this display people died, shows the contents of the serious injury possibility is assumed.

- Always start the engine in a well-ventilated place, and do not turn on the engine in an airtight place. (Otherwise, you will suffer from carbon monoxide poisoning.)
- During operation, when an abnormality occurs, immediately stop the vehicle in a safe place, please stop running. (It may lead to an accident.)
- When performing the work, do the work safely stabilize the vehicle in a horizontal location. (There is a risk of injury vehicle collapsed while working.)
- Inspection, maintenance, the instruction manual or, inspection methods such as service manuals, to protect the way, should be done correctly. (unsuitable inspection and maintenance, there is a risk that result to an accident.)
- When carrying out the inspection and maintenance, etc., if found damaged parts, replace the damaged parts to avoid possible to reuse the parts. (There is a risk that lead to accidents Continued use.)
- As gasoline is highly flammable, never place it close to fire. Make sure that nothing flammable is near the gasoline. Since vaporized accumulation of gasoline is at high risk of explosion, work in a well-ventilated place. (Otherwise it may cause a fire.)

- ◎ Please note. Performance up, the design change, the product and the price in the cost up, etc. are subject to change without notice.
- ◎ 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.
- ◎ Keep this manual stored until this product is discarded.

Product content



Number	Product content	Quantity	Item Number
1	Piston, 50.0mm	1	00-01-0070
2	Piston ring set, 50.0mm	1	01-15-018
3	Piston pin, 12x30	1	00-01-0071 (with ④ clip)
4	Piston pin circlip, 12x1.0	2	00-01-0478 (6 pcs)
5	Cylinder head gasket	1	00-01-0479
6	Cylinder gasket	1	00-01-0480
7	L. crankcase cover gasket	1	00-02-0498

Symbol	Product content	Product number
A	Gasket set	01-13-0128

- ※ Please order in the repair parts are always repair part number.
- If it is not the part number order, you may not be able to order. Please be forewarned.
- It should be noted, In the case of parts that can not be separately shipment, please order a set part number.
- ※ Repair parts may differ slightly from the kit contents in terms of shape, etc.
- There is no problem to use it. Please be forewarned.

■ Mounting procedure ※ Please refer to the Genuine Service Manual for detailed mounting methods and specified torques that are not specifically described.

- Park the motorcycle in a horizontal place with a maintenance stand, etc
- When installing the FI controller, carefully read the installation manual.

### ● Removal of exterior parts

- If necessary, remove the exterior parts and drive sprocket cover referring to the service manual.
- L. Disconnect the harness from the crankcase cover.

### ● Exhaust muffler (stock) removal

- Refer to the service manual and remove the exhaust muffler.
- ※ If the exhaust muffler already changed, remove it following to their instruction manual.

### ● Removal of air cleaner case, inlet pipe / throttle body

- Refer to the service manual and remove the air cleaner case, inlet pipe / throttle body.

### ● Disconnect all sensor

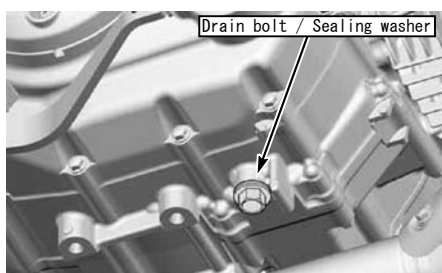
- Refer to the service manual and disconnect the O<sub>2</sub> sensor and EOT sensor.

### ● Removal of Cylinder head, Cylinder and Piston

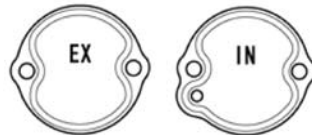
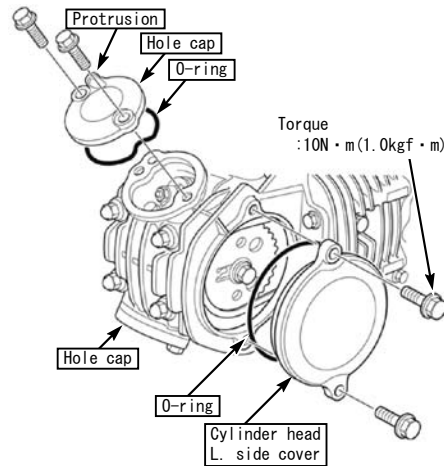
- Remove the spark plug cap and spark plug.



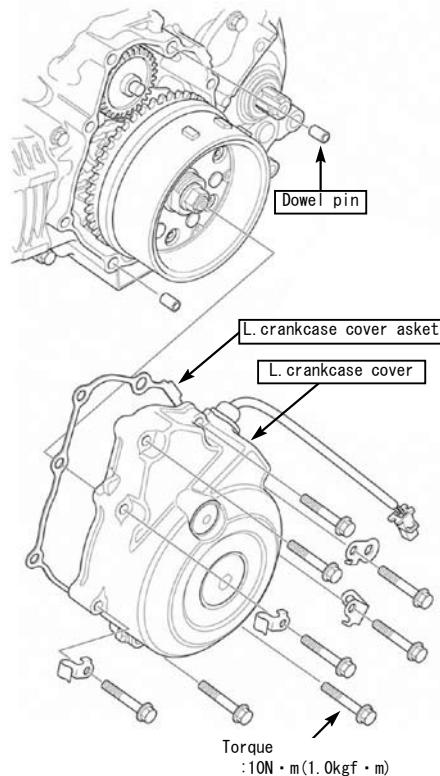
- Prepare the pan, remove the drain bolt/sealing washer, filler cap, and drain the engine oil.



- Remove the two bolts and remove the cylinder head L. side cover/O-ring, intake side, and exhaust side hole cap/O-ring.
- ※ Prepare the pan for oil to drip.



- Loosen and remove the bolts diagonally in several steps. Remove the crankcase cover.
- ※ The L. crankcase cover is pulled in by magnetic force, so be careful not to get your fingers pinched.
- Remove the two dowel pins and clean off the gasket remaining on the crankcase and L. crankcase cover mounting surface.



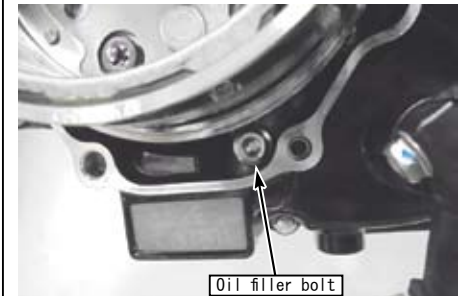
- Turn the crankshaft counterclockwise and align the "O" mark on the cam sprocket with the protrusion on the cylinder head.



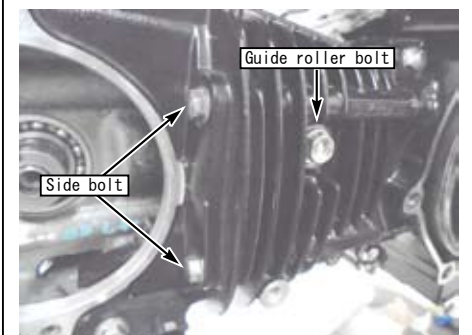
- Fix the cam sprocket with a universal holder, remove the cam sprocket bolt/washer, and remove the cam sprocket.



- Remove the tensioner rod oil filler bolt.

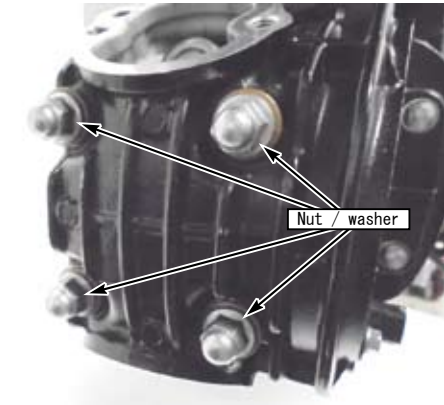


- Loosen the cylinder guide roller bolt. Remove the two side bolts of the cylinder head.

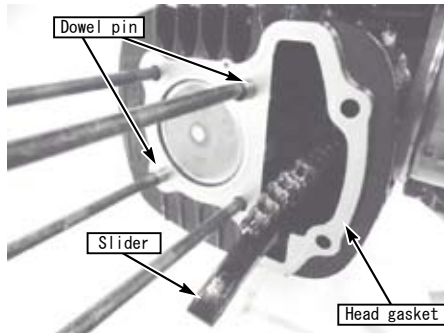


■ Mounting procedure ※ Please refer to the Genuine Service Manual for detailed mounting methods and specified torques that are not specifically described.

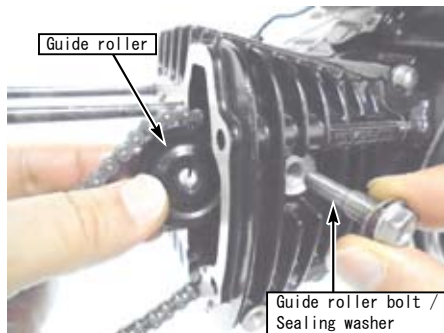
- Loosen the 4 cylinder head nuts diagonally (in several steps) and remove (with the 4 washers).  
Remove the cylinder head.



- Remove the cylinder head gasket and 2 dowel pins. Remove the slider.



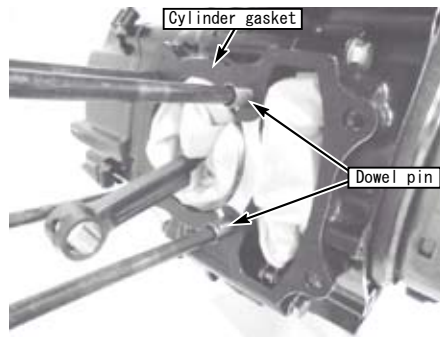
- Remove the guide roller bolt / sealing washer from the cylinder and take out the guide roller.



- Remove the cylinder.  
※ cover the crankcase opening with a rag, etc. to prevent parts from entering the crankcase.
- Remove one side of the piston pin circlip, remove the piston pin and the piston.

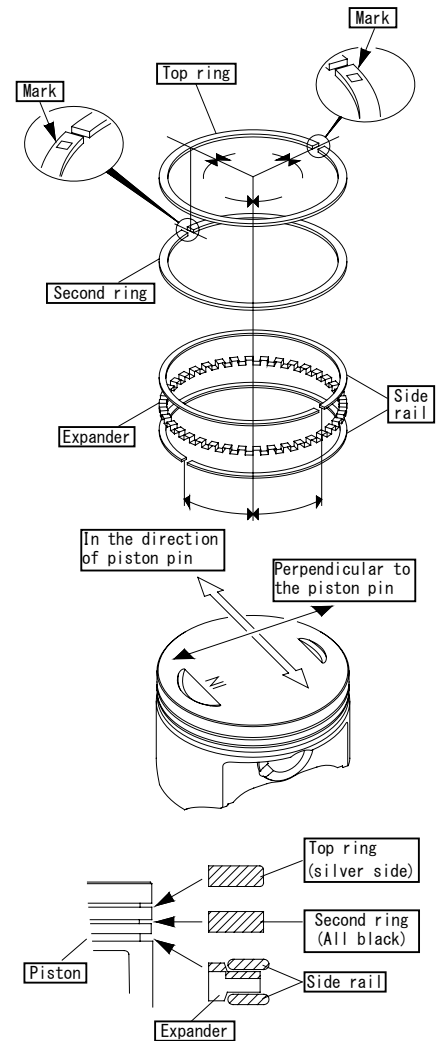


- Remove the cylinder gasket and 2 dowel pins. The cylinder gasket must be removed clearly.



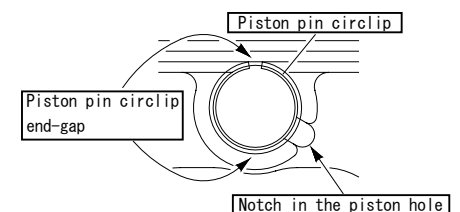
## ● Installation of Piston and Cylinder

- Install each piston ring. (blow the piston ring groove with air to clean)
- ※ Install the TOP ring and 2ND ring with the mark facing up.
- ※ Do not damage the piston/piston rings.
- ※ After installation, check that the ring rotates smoothly.
- ※ Install the ring openings at 120 degree intervals as shown in the diagram.
- ※ Install the expander then side rails.



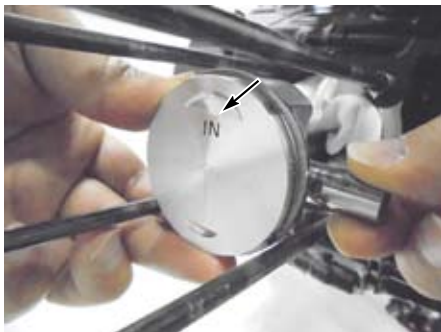
**Pay attention to the cross section as well**

- Install the piston pin circlip into the groove of the piston pin hole on one side.
- ※ Install the piston pin circlip so that it faces upward/downward, avoiding the notch.

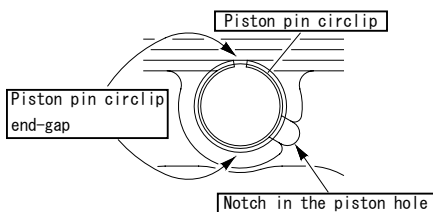


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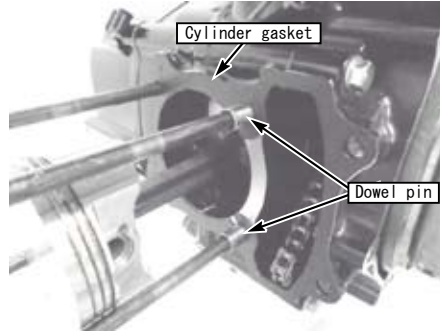
- Apply engine oil to the small end of the connecting rod and the piston pin hole, apply molybdenum solution to the piston pin, and turn the piston pin with the "IN" mark on the piston head facing the intake side.



- Install the piston pin circlip into the groove
- ※ Install the piston pin circlip so that it faces upward/downward, avoiding the notch.



- Clean the cylinder mounting surface of the crankcase and remove the rag that was stuck in the crankcase opening.
- Install the two dowel pins and cylinder gasket to the crankcase.



- Apply engine oil to the piston ring and let it blend in. Apply engine oil after cleaning the inner circumference of the cylinder.
- Install the cylinder with the cam chain through the cylinder and compressing the piston ring with fingers.

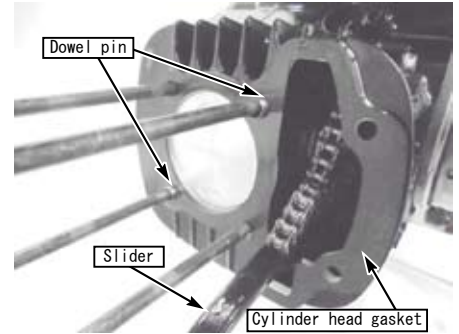


- Align the guide roller with the cylinder mounting hole and temporarily tighten the guide roller bolt/new sealing washer.



## ● Installation of Cylinder head

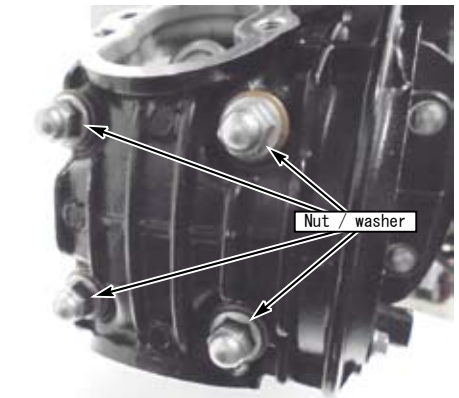
- Set the slider on the cylinder and crankcase. Clean the mating surfaces of the cylinder and cylinder head. Attach the dowel pin and cylinder head gasket to the cylinder.



- Place the cam chain through the cylinder head and install the cylinder head.



- Install x4 washers, head nuts and x2 cylinder head side bolts.



- Tighten the four cylinder head nuts diagonally in several steps to the specified torque.

▲ Note: Be sure that you protect specified torque.

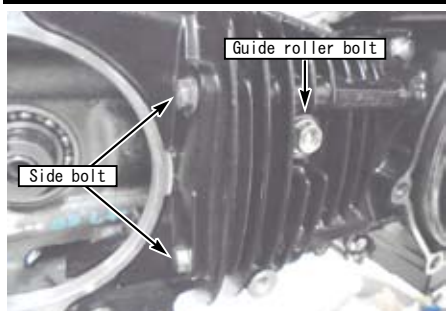
Cylinder head nut  
Torque : 18N · m (1.8kgf · m)

■ Mounting procedure ※ Please refer to the Genuine Service Manual for detailed mounting methods and specified torques that are not specifically described.

- Tighten the two side bolts of the cylinder head alternately in several steps to the specified torque.

⚠ Note: Be sure that you protect specified torque.

Side bolt  
Torque : 10N · m (1.0kgf · m)

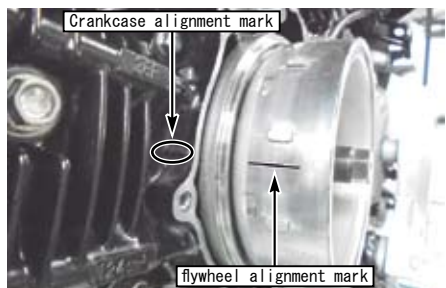


- Tighten the guide roller bolt of the cylinder to the specified torque.

⚠ Note: Be sure that you protect specified torque.

Guide roller bolt  
Torque : 10N · m (1.0kgf · m)

- Make sure that the alignment mark on the flywheel matches the alignment mark on the crankcase, and align the cam sprocket so that the "O" mark on the cam sprocket aligns with the protrusion on the cylinder head. Attach the cam chain and align the protrusion of the cam sprocket with the groove of the camshaft.



- Hold the cam sprocket (with a universal holder) and tighten the cam sprocket bolt / washer to the specified torque.

⚠ Note: Be sure that you protect specified torque.

Bolt / Washer  
Torque : 27N · m (2.8kgf · m)



- Turn the crankshaft two revolutions counterclockwise until the alignment mark on the flywheel aligns with the alignment mark on the crankcase, and the "O" mark on the cam sprocket aligns with the cylinder. Make sure it matches the protrusion on the head.
- Inject a small amount of engine oil into the tensioner rod bolt hole and install the oil filler bolt.

⚠ Note: Be sure that you protect specified torque.

Oil filler bolt  
Torque : 10N · m (1.0kgf · m)



### ● Adjustment of valve clearance

- Check that the alignment mark on the flywheel aligns with the alignment mark on the crankcase, and the "O" mark on the cam sprocket aligns with the protrusion on the cylinder head at the same time.
- Insert the thickness gauge between the rocker arm adjustment screw and the valve stem end, and tighten the adjustment screw until the thickness gauge shows some resistance. Tighten the adjustment nut until it can be pulled out.

#### Valve clearance

For Takegawa camshaft

0.08 ± 0.02mm for both intake and exhaust.

⚠ Note: Be sure that you protect specified torque.

Adjust nut  
Torque : 9N · m (0.9kgf · m)



### ● Installing each parts

- For MONKEY 125, install the injector (included in the kit). (Only equipped with our big throttle body)
  - Refer to the genuine service manual and install the removed parts and connect the wiring.
  - When installing the FI controller, carefully read the installation manual.
  - Attach the drain bolt with a new sealing washer to the crankcase and pour the specified amount of engine oil.
- ※ If the drain bolt has been changed, follow the instruction manual for that drain bolt. Install the filler cap.

#### Engine oil

	GROM Monkey125	CT125
At draining	0.9 ℓ	0.8 ℓ
At replacing the oil filter	0.9 ℓ	0.85 ℓ
At disassembly	1.05 ℓ	1.0 ℓ

⚠ Note: Be sure that you protect specified torque.

Drain bolt  
Torque : 24N · m (2.4kgf · m)

- Inspect each part to make sure there are no loose screws or nuts.
- Start the engine carefully and check that there are no oil leaks or abnormal noises from the engine. (do this in well-ventilated and safe place) Refer to the genuine service manual and check if the oil level is within the standard range. Once again check for loose screws, nuts, etc.

⚠ Warning : Start the engine and perform inspections in a well-ventilated area. Do not start the engine in a closed place. (There is a risk of carbon monoxide poisoning.)

### ● About increasing the amount of engine oil (Stock oil pump)

- By installing this product and FI controller, the upper limit of engine rpm will be higher than stock. In running speed is 9500 rpm or higher, we recommend increasing the oil amount about 100 cc.

★ We recommend to use our super oil pump kit (with relief valve mechanism)

※ When using a super oil pump, please follow the instruction manual.

**For inspection of parts**

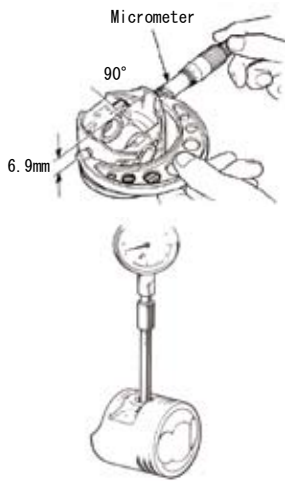
**Inspection of piston**

- Piston outer periphery, piston ring grooves, to confirm wear and tear of piston pin hole.

- Carbon and oil component was removed, to measure various parts.

Piston outer diameter and piston pin from bottom of skirt of perpendicular measured 6.9 mm.

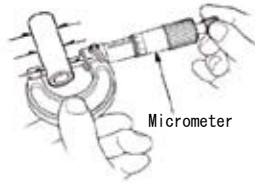
Piston pin hole inner diameter measures piston horizontal and vertical directions, is evaluated by the maximum value.



**Inspection of piston pin**

- Wear and tear of piston pin outer periphery, bend, it will confirm seizure such as.

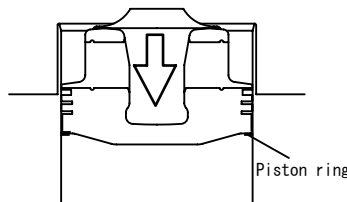
- A sliding portion of piston pin outer periphery measure.



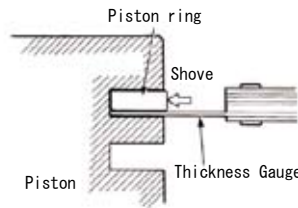
**Inspection of piston ring**

- Check wear and tear of piston ring.

- Place the piston ring in cylinder bottom, and push the ring with the piston, to measure opening gap after horizontal.



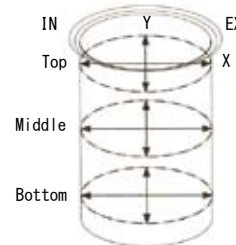
- Install piston rings on piston, with thickness gage to measure top ring and piston rings groove clearance.



**Inspection of cylinder**

- Check wear and tear of cylinder inner surface.

- The cylinder inner diameter and its perpendicular direction piston pin direction, and measuring six points in the Top Middle Bottom, is evaluated at the maximum value.



**Inspection connecting rod small end**

- Check the wear and tear connecting rod small end inner surface.

- Measure the connecting rod small end inside diameter.



Item		Use limits
Piston	Outer diameter (6.9mm position from skirt lower end)	49.90 mm
	Piston pin hole inside diameter	12.02 mm
Piston pin	Outer diameter	11.98 mm
	Top ring opening gap	0.22 mm
	Second ring opening gap	0.32 mm
Piston ring	Side rail opening gap	0.55 mm
	Top ring and piston ring groove clearance	0.09 mm
	Second ring and piston ring groove clearance	0.09 mm
Cylinder	Inner diameter	50.10 mm
	Roundness of inner diameter	0.05 mm
	Inner diameter of cylindrical degree	0.05 mm
Connecting rod small end	Inner diameter	12.038mm

The above shows main inspections of places related to our products and it.

Each clearance swap the modification or parts If it departing from the scope of above, verify inspection and clearance again. Others sure to inspection in accordance with vehicle dedicated genuine service manual.

