

INSTALLATION MANUAL

164CC / 181CC BIG BORE KIT



- Thank you for purchasing Kitaco product. Read and understand the instruction before installing.
 - There are special tools required to install this kit.
 - Use this instruction for setting manual afterwards.
- ※Keep this instruction since it is not included in repair parts.

ATTENTIONS (MUST READ)

- We are not responsible for damages and accidents caused by assembling mistake and improper setting.
- Follow the instructions and install correctly. Do not modify the way which is not listed, or it will cause damage and trouble.
- Ask a mechanic or a specialist at a specialty shop for assembling and setting if you do not understand the role of the surrounding parts.
- Bolts and nuts may get loosen by engine vibration. Make sure to check that each part of bolts and nuts are not loose before running.
- Refer to the HONDA service manual for each vehicle when installing.
- If you have any doubt or do not understand how to assemble, stop driving and ask your shop who installed this product.



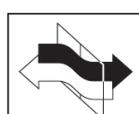
This sheet is for the person who has basic knowledge for maintenance.
Do not operate if you do not have skill and knowledge.



FLAMMABLES
Flammable high gasoline is used during operation.
The use of products causing fire or smoke is



HIGH VOLTAGE
Wear insulated gloves when checking the sparking outside the cylinder.



TOXIC
Toxic, highly-volatile gasoline is used during operating.
Make sure to ventilate the room and do not operate for hours in a hermetically closed room.



EXTREMELY HOT
Do not touch the engine parts (cylinder, crankcase, muffler, engine oil, etc...) right after engine operation.
Make sure to start the installation after the engine parts are completely cool.

**164CC 181CC BIG BORE KIT
OPTION PARTS**

● **HIGH CAMSHAFT**

| | |
|--------|-------------|
| TYPE 1 | 300-1432000 |
| TYPE 2 | 300-1432010 |



● **INJECTOR**

| | |
|-------|-------------|
| x 1.6 | 403-9000020 |
| x 1.9 | 403-9000030 |

※Flow rate is based on GROM



● **RECOMMENDED INJECTOR**

| | CT125 | GROM MONKEY125 |
|------------------|---------------|--------------------------------|
| 164cc + CAMSHAFT | X1.9 INJECTOR | X1.6 INJECTOR X1.9 INJECTOR |
| 181cc + CAMSHAFT | X1.9 INJECTOR | X1.6 INJECTOR X1.9 INJECTOR |

Fuel adjustment with FI controller is required.

⚠ Depending on other parts (throttle body, air cleaner, mufflers etc.) to install, the recommended injector in the table may not be good.

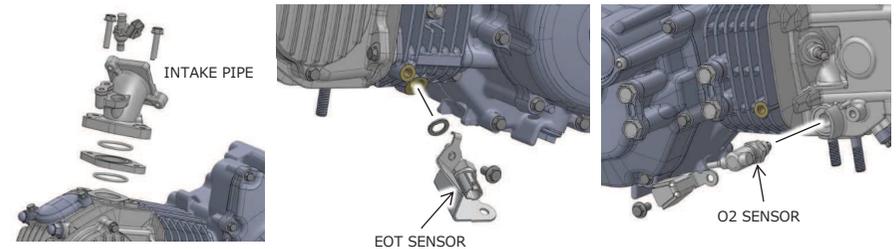
**164CC 181CC BIG BORE KIT
INSTALLATION MANUAL**

INSTALLATION PROGRESS

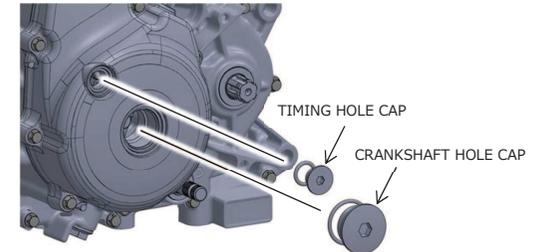
- Refer to service manual for disassembly and assembly if not described here.
- Clean all disassembled parts with cleaning solvent before inspection, use compressed air to dry the parts.
- Be sure to check the torque when installing.
- The engine in the illustration is not stock engine.

REMOVAL

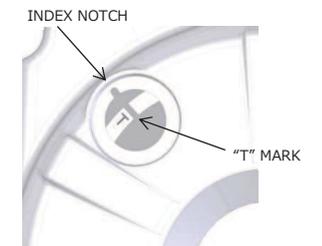
- Remove the following:
O2 sensor shield, and connector and release the wire from the clamps.
EOT sensor connector and release the wire from the clamps.
Intake pipe mounting bolts.



- Remove the crankshaft hole cap and timing hole cap from the left crankcase cover.

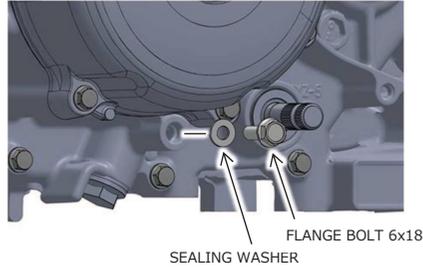


- Rotate the crankshaft counterclockwise, and align the "T" mark on the flywheel with the index notch on the left crankcase cover.

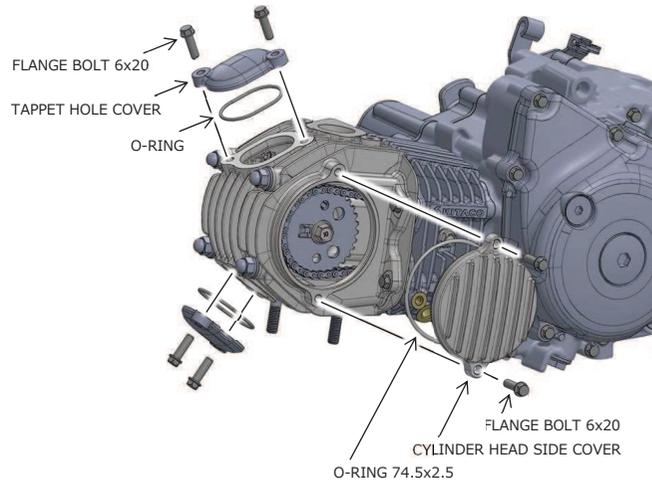


REMOVAL

- Remove the flange bolt and sealing washer.

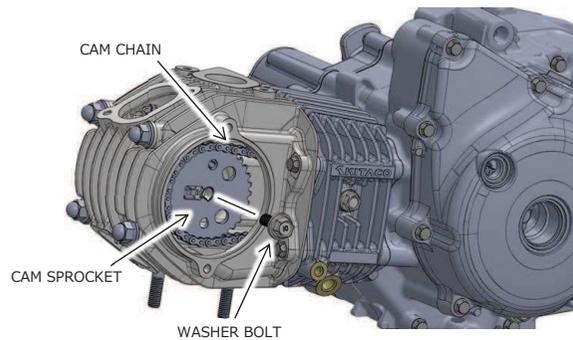


- Remove the bolts, cylinder head side cover and tappet hole cover.



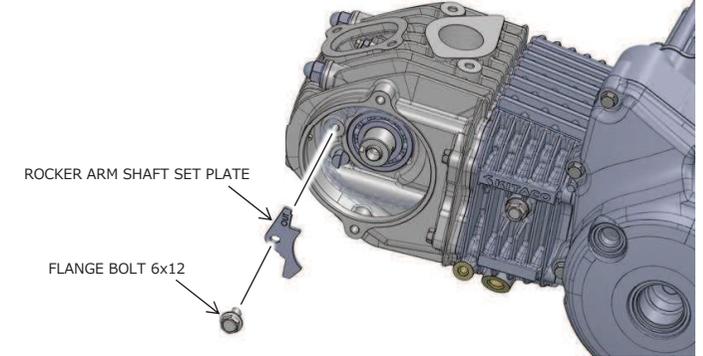
- Hold the cam sprocket by using the Universal holder. Remove the washer bolt, cam sprocket from the camshaft and cam chain off the cam sprocket. Attach a piece of wire to the cam chain to prevent it from falling into the crankcase.

TOOL: UNIVERSAL HOLDER
KITACO Parts No, 674-0500000

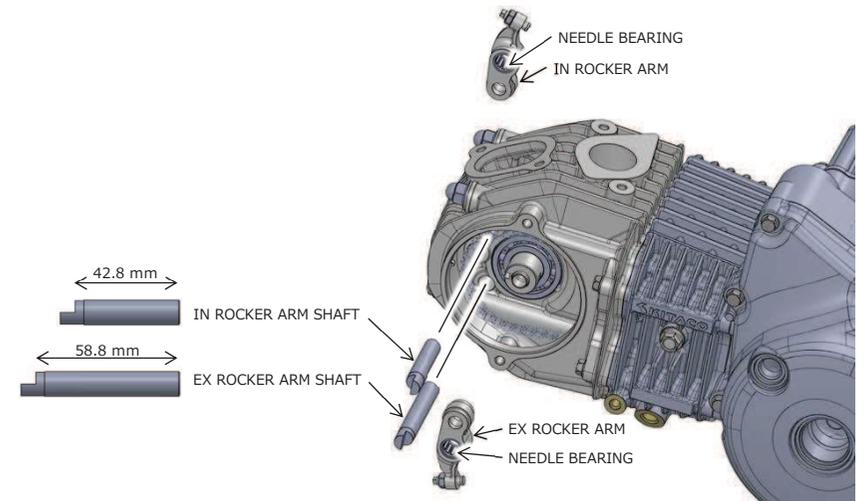


REMOVAL

- Remove the bolt and rocker arm shaft set plate from the cylinder head.



- Remove the rocker arm shafts, rocker arms and needle bearings. The exhaust rocker arm shaft is longer than the intake rocker arm shaft.

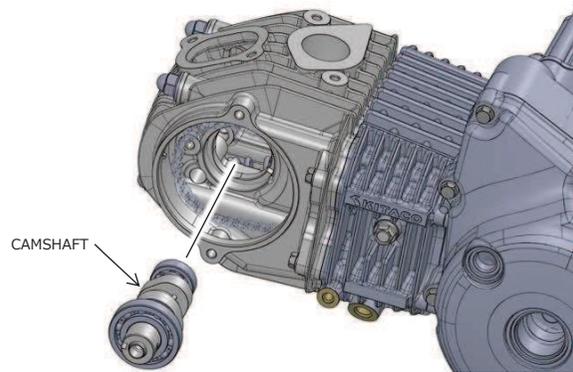


The exhaust rocker arm has a projection to push the decompressor cam

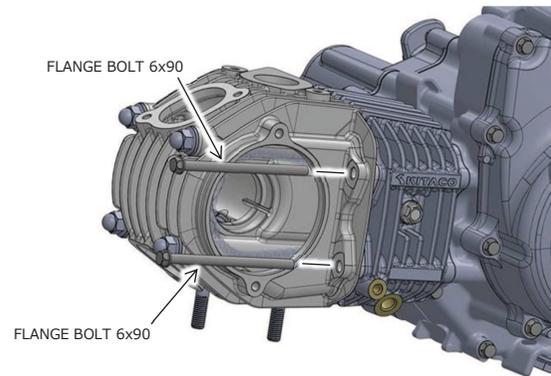


REMOVAL

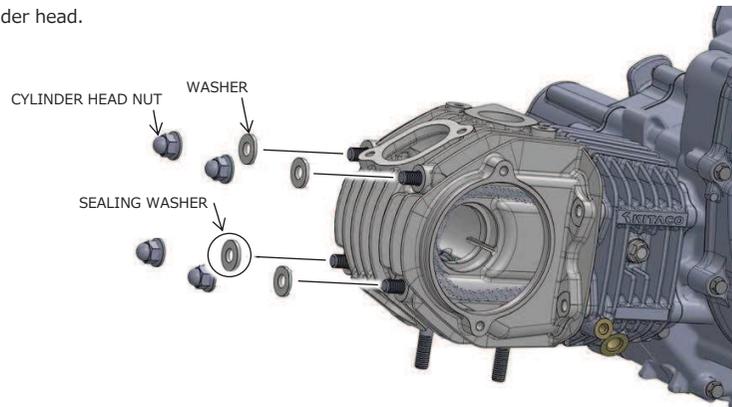
- Remove the camshaft from the cylinder head.



- Remove the flange bolt.

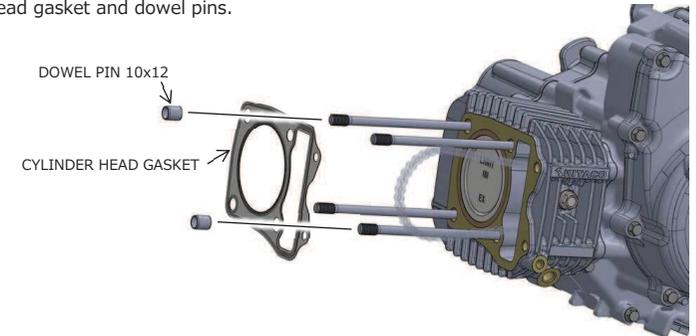


- Loosen the cylinder head nuts in a crisscross pattern in two or three steps. Remove the four nuts, sealing washer and three washers. Remove the cylinder head.



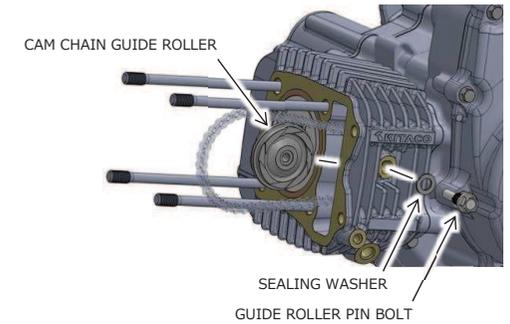
REMOVAL

- Remove the cylinder head gasket and dowel pins.



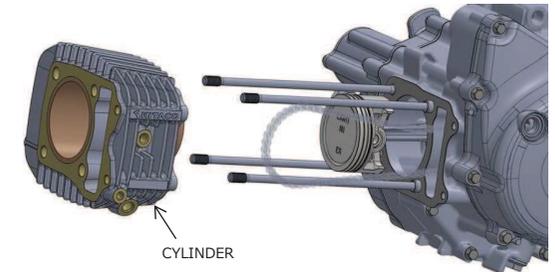
- Remove the cam chain guide roller pin bolt, sealing washer and guide roller.

⚠ Be careful not to drop the guide roller into the crankcase.



- Remove the cylinder.

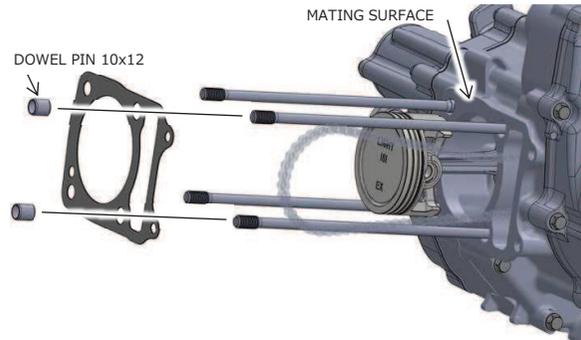
⚠ Do not strike the cylinder too hard and do not damage the mating surface with a screwdriver.



REMOVAL

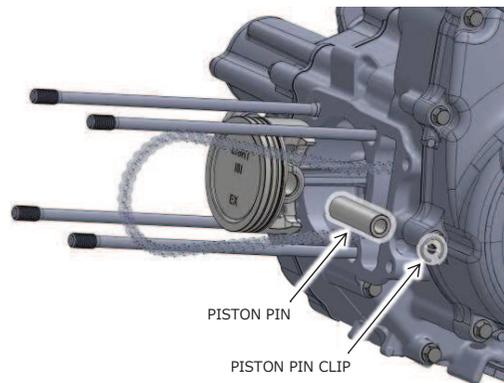
- Remove the gasket and dowel pins.
Remove any gasket material from the cylinder gasket surface of the crankcase.

Be careful not to damage the cylinder surface and not to let the dust or dirt fall into the crankcase.

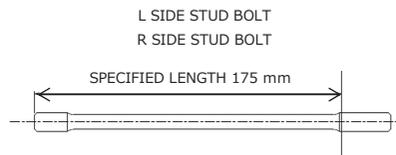


- Remove the piston pin clip with pliers.
Remove the piston pin and piston.

Place a clean shop towel in the crankcase to prevent the piston pin clips or other parts from falling into the crankcase.



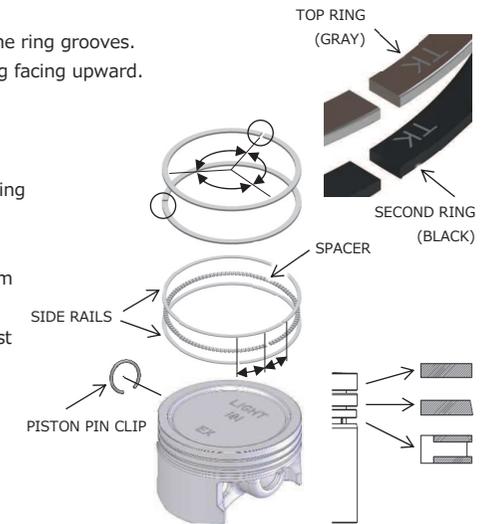
- Check that the length from the bolt head to the crankcase surface is within specification.



PISTON INSTALLATION

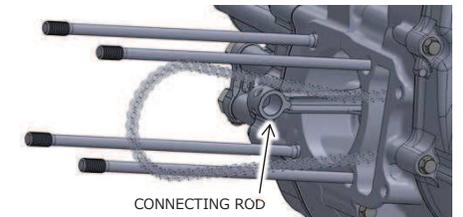
- Clean the piston head, ring land and skirt.
Apply engine oil to the piston ring surface and the ring grooves.
Carefully install the piston rings with the marking facing upward.
Set the piston pin clip in the groove properly.

Carefully install the piston rings into the piston ring grooves with the markings facing up.
Do not confuse the top ring and second ring.
Stagger the piston ring end gaps 120° apart from each other.
When installing the oil ring, install the spacer first and then the side rails.
Do not align the gaps of the oil ring side rails.
Stagger the side rail end gaps as shown.

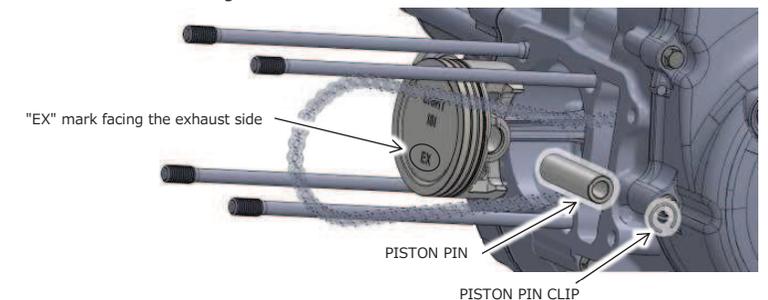


After installation, the piston rings should be free to rotate in the grooves.

- Place a clean shop towel in the crankcase to prevent the gasket or other parts from falling into the crankcase.
Clean the gasket mating surfaces of the crankcase and cylinder thoroughly.
Apply engine oil to the connecting rod small end hole.



- Apply engine oil to the piston pin.
Install the piston with the "EX" mark facing the exhaust side.

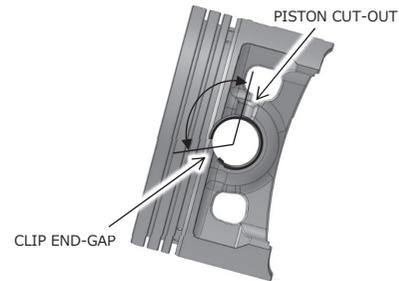


PISTON INSTALLATION

- Set the piston pin clip in the groove properly.
Do not align the piston pin clip end gap with the piston cut-out.

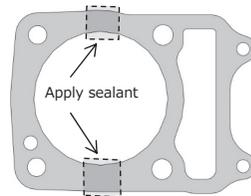
Always use new piston pin clips.

- ⚠ Reinstalling used piston pin clips may lead to serious engine damage.

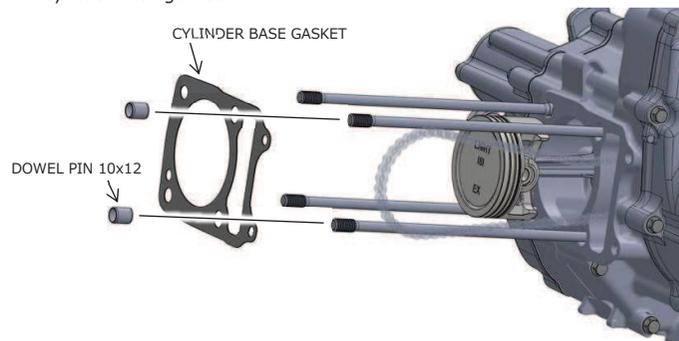


CYLINDER INSTALLATION

- Camshaft and rocker arm lubricating oil is fed through an oil passage in the cylinder. Clean the oil passage before installing cylinder.
- Apply liquid sealant to the crankcase hatched area as shown.



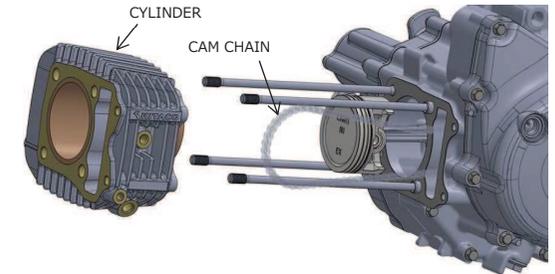
- Install the dowel pins and a cylinder base gasket.



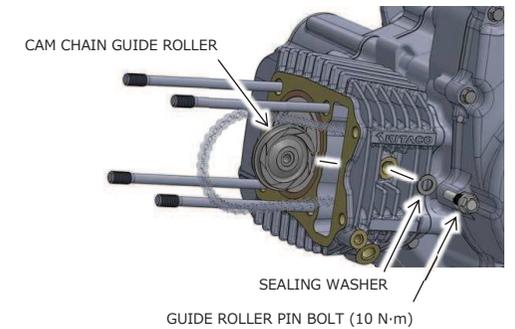
CYLINDER INSTALLATION

- Apply clean engine oil to the cylinder inner surface, piston rings/grooves and piston.
Route the cam chain through the cylinder.
Install the cylinder over the piston while compressing the piston rings with your fingers.

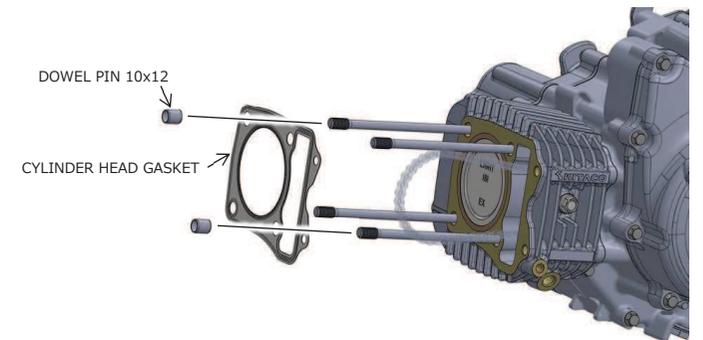
- ⚠ Be careful not to damage the piston ring and cylinder wall while installation.
Do not let the cam chain fall into the crankcase.



- Install the cam chain guide roller, new sealing washer and cam chain guide roller pin bolt.
Tighten the roller pin bolt to the specified torque.



- Install the dowel pins and new cylinder head gasket.



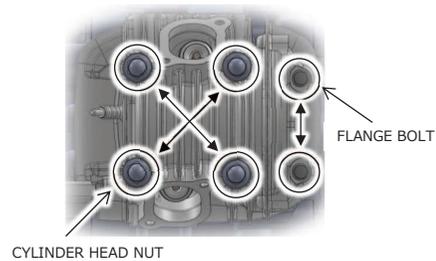
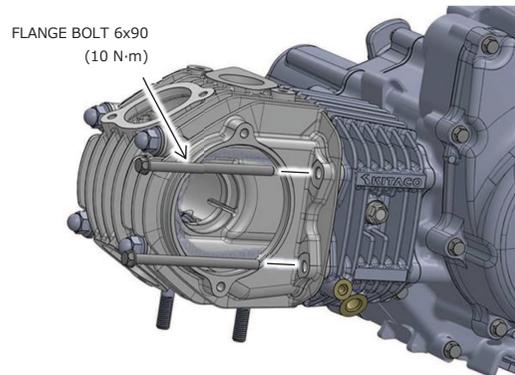
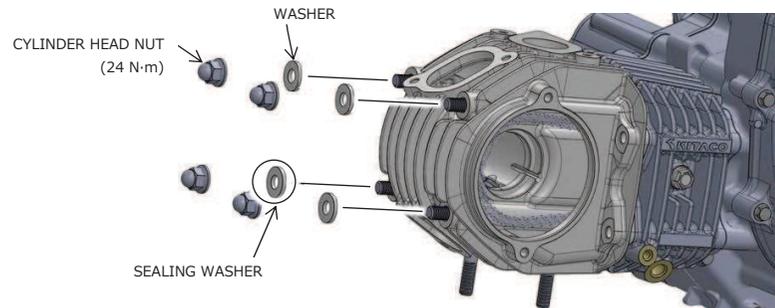
CYLINDER HEAD INSTALLATION

- Install the cylinder head.

Apply engine oil to the thread and seating surface of the head nut.

Install new sealing washer, three washers and tighten the cylinder head nuts in a crisscross pattern in two or three steps to the specified torque.

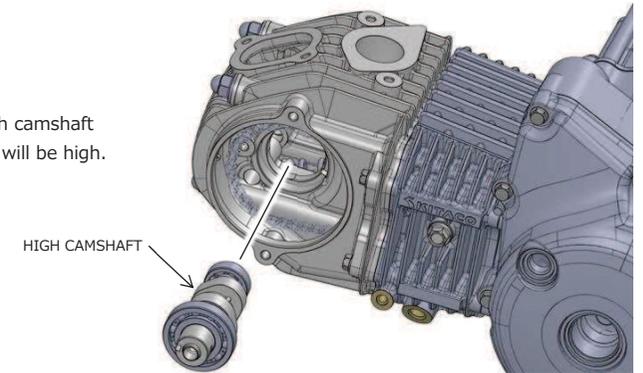
Then tighten the flange bolt.



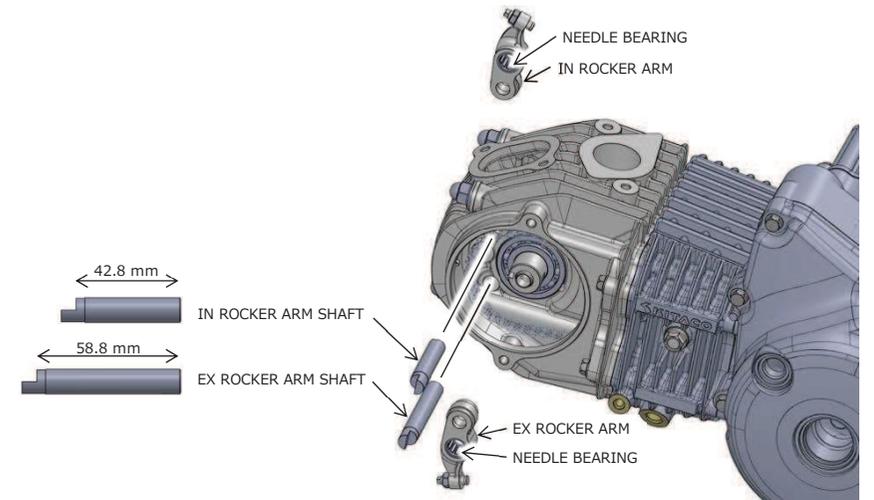
CAMSHAFT INSTALLATION

- Apply engine oil to the camshaft whole surface.
Install the camshaft.

⚠ Be sure to use the optional high camshaft because the compression ratio will be high.

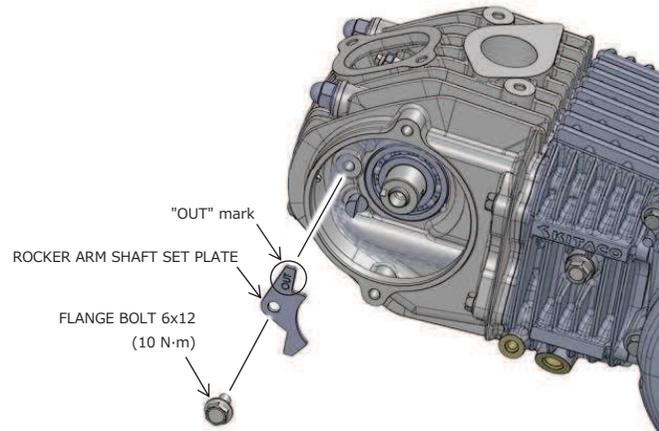


- Apply engine oil to the sliding surfaces of the rocker arm shafts and needle bearings.
Apply engine oil to the inner surfaces of the rocker arms and sliding surfaces of the rollers.
The exhaust rocker arm shaft is longer than the intake rocker arm shaft.



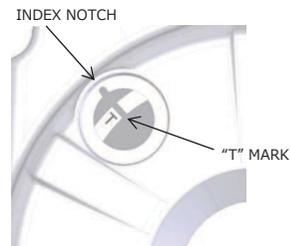
CAMSHAFT INSTALLATION

- Install the rocker arms, needle bearings and rocker arm shafts into the cylinder head.
Install the rocker arm shaft set plate with its "OUT" mark facing out as shown.
Install and tighten the bolt.



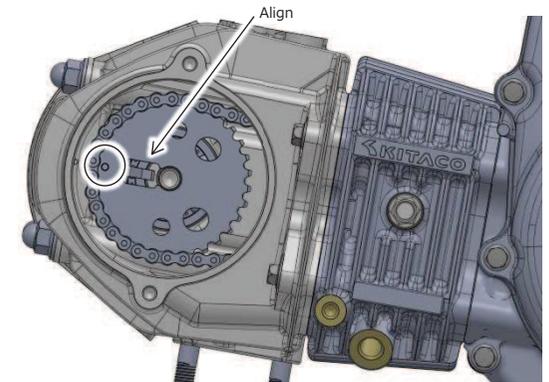
- Rotate the crankshaft counterclockwise, and align the "T" mark on the flywheel with the index notch on the left crankcase cover.

⚠ Be careful not to jam the cam chain and timing sprocket on the crankshaft when rotating the crankshaft.

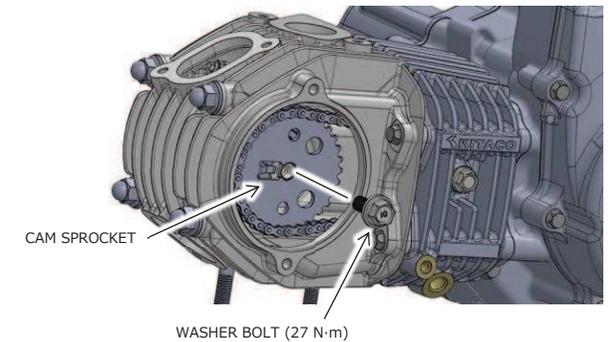


CAMSHAFT INSTALLATION

- Apply engine oil to the cam chain and cam sprocket teeth.
Install the cam chain on the cam sprocket with its "O" mark facing out as shown by aligning its tab with the groove of the camshaft.
Install the cam sprocket to the camshaft.



- Hold the cam sprocket by using the Universal holder.
Apply engine oil to the cam sprocket washer bolt threads and seating surface.
Install and tighten the cam sprocket washer bolt to specified torque.



VALVE CLEARANCE

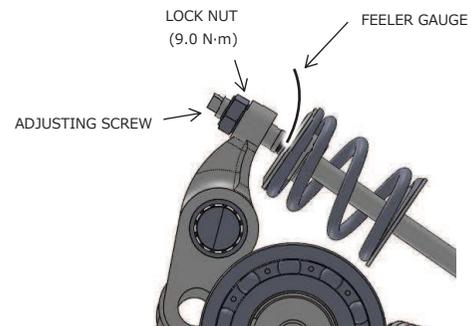
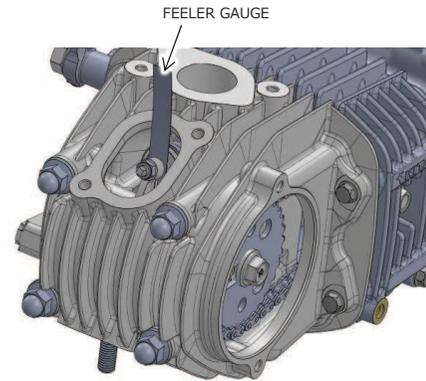
- Check the valve clearance by inserting a feeler gauge between the rocker arm and adjusting screw. Adjust by loosening the lock nut and turning the adjusting screw until there is a slight drag on a feeler gauge. Apply engine oil to the lock nut. Hold the adjusting screw and tighten the lock nut to the specified torque.

Inspect and adjust the valve clearance while the Engine is cold (below 35°C/95°F).

VALVE CLEARANCE:

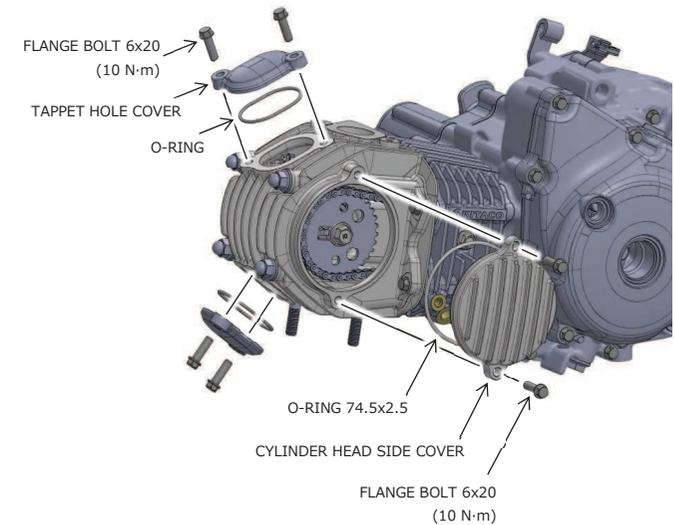
IN : 0.10 ± 0.02 mm
EX : 0.17 ± 0.02 mm

Recheck the valve clearance.

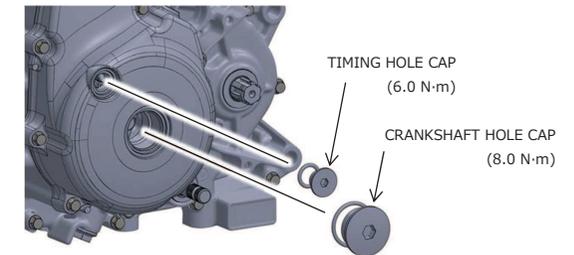


COVER INSTALLATION

- Apply engine oil to O-ring and install it into the cam sprocket cover groove. Install the cam sprocket cover and tighten the bolts. Install the O-ring into grooves of the tappet hole covers. Install the tappet hole covers to the cylinder head and tighten the bolts.

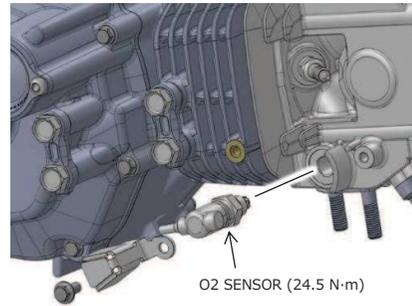


- Apply engine oil to crankshaft hole cap O-ring and timing hole cap O-ring, then install them to the caps. Install and tighten the crankshaft hole cap and timing hole cap to the specified torque.

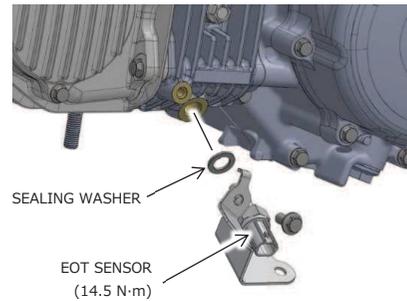


SENSOR INSTALLATION

- Install the O2 sensor onto the cylinder head.
Tighten the O2 sensor to the specified torque.

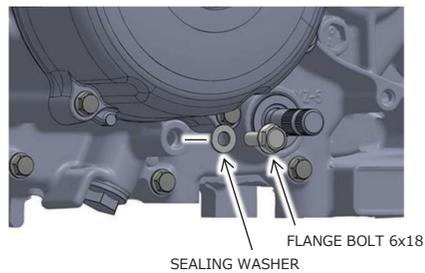


- Apply engine oil to the EOT sensor threads and seating surface then install a new sealing washer and EOT sensor.
Tighten the EOT sensor to the specified torque.



CAM CHAIN TENSIONER

- Pour 4.0 cc minimum of engine oil into the push rod.
Install a new sealing washer and bolt, then tighten it.



Kitaco assumes no responsibility for accuracy, completeness or sufficiency of the information contained in this document.



3-8-13, NAGATA, HIGASHI-OSAKA, OSAKA, 577-0015, JAPAN
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