



# Instruction Manual for S-Stage Bore Up Kit (115cc)

Item No.: **0 1 - 0 5 - 5 0 8**  
Applicable Models & Frame Nos  
Ape100 : HC07 - 1000001 ~  
          : HC13 - 1000001 ~  
XR100R : HE03 - 1200001 ~

Thank you for purchasing one of our TAKEGAWA's products. Please strictly follow the following instructions in installing and using the products. Before fitting the products, please be sure to check the contents of the kit. Should you have any questions about the products, please kindly contact your dealer.

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

## ! 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 takes place, and the engine cannot achieve its original performance. Moreover, it is highly likely that the piston will break down, leading to serious failure of the vehicle. Before installing, 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.

## ! Caution about spark plug !

Be sure to replace a spark plug with high thermal value of CR8HSA (NGK) or U24FSR-U(DENSO). Subsequently, choose and use a right spark plug with the right level, depending on the degree of burning of the spark plug electrode section.

## Please read the following instructions before installation.

The following show the envisioned possibility of injuries to human bodies, and physical loss or damage as a result of disregarding the following cautions. 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 them.

You are kindly requested not to contact us about the combination of our products with other manufacturers'.

This kit is designed for exclusive use in the above-mentioned types of motorcycles and frame numbers only. Please take note that this product cannot be mounted on other types of motorcycles.

Installation of this kit requires engine removal and mounting. We strongly recommend you to work strictly following HONDA genuine parts service manual for your vehicle.

For installation, please prepare tools (as specified on page 2) and work with reference to the installation procedures with enough care. Besides, this instruction manual, as well as HONDA's genuine parts service manual, is prepared for persons who have acquired basic skills and knowledge in tuning. We recommend those who are technically inexperienced or without enough tools to ask a technically-reliable specialist shop for the installation work.

These products alone do not give you the maxim performance when installed on the Ape. Please separately purchase a Carburetor Kit.

Ape100 : If the carburetor on this type of motorcycle with a frame No. of HC07-1600001 ~ or HC13-1000001 ~ is changed, the feed pipe stay for the exhaust muffler will interfere with the carburetor. Therefore, you are required to change the muffler to a full exhaust muffler.

We recommend you to install our TAKEGAWA' muffler to make your APE more powerful.

Some of bolts, nuts, dowel pins and packing will be reused. However, be sure to replace worn-down or severely-damaged ones with new ones.

Never use liquid packing. It may plug the oil passage, and in the worst case break the engine.

Installation of this product requires left side crank case cover gaskets (HONDA's item No. 11394-KN4-750), which please purchase.

### **CAUTION** The following show the envisioned possibility of injuries to human bodies and property loss as a result of disregarding the following cautions.

- 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.)
- Always use a torque wrench to screw bolts and nuts tight and securely to the specified torque.  
(Improper torque could cause these parts to get damaged or fall off.)
- As some products and frames have sharp-pointed or protruding portions, please work with your hands protected.  
(Otherwise, you will suffer injuries.)
- Before riding, always check every section for slack in parts like screws. If you find slack ones, screw them securely up to the specified torque.  
(Or improper torque may cause parts to come off.)
- Check carefully gaskets and packings, and in case wear or damage is detected, always replace them with new ones.

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

- Please always try to ride a motorcycle at legal speed on the public road, abiding by the law.
- Always drive the engine in a well-ventilated place, and do not switch the engine on in an airtight place.  
(Otherwise, you will suffer from carbon monoxide poisoning.)
- When you notice something abnormal with your motorcycle while riding down a road, stop riding immediately and park your motorcycle in a safe place.  
(Otherwise, the abnormality could lead to an accident.)
- Before doing work, place the motorcycle on level ground to stabilize the position of your motorcycle for safety's sake.  
(Otherwise, your motorcycle could fall down and injure you while you are working.)
- 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.)
- If you find damaged parts when checking and performing maintenance, 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 an accident.)

Please be informed that, mainly because of improvement in performance, design changes, and cost increase, the product specifications and prices are subject to change without prior notice.

This manual should be retained for future reference.

## About Screws

Usually, counterclockwise rotation loosens the bolts and nuts, and clockwise rotation tightens them.

When tightening a screw, at first tighten it by hand at tight as you can.

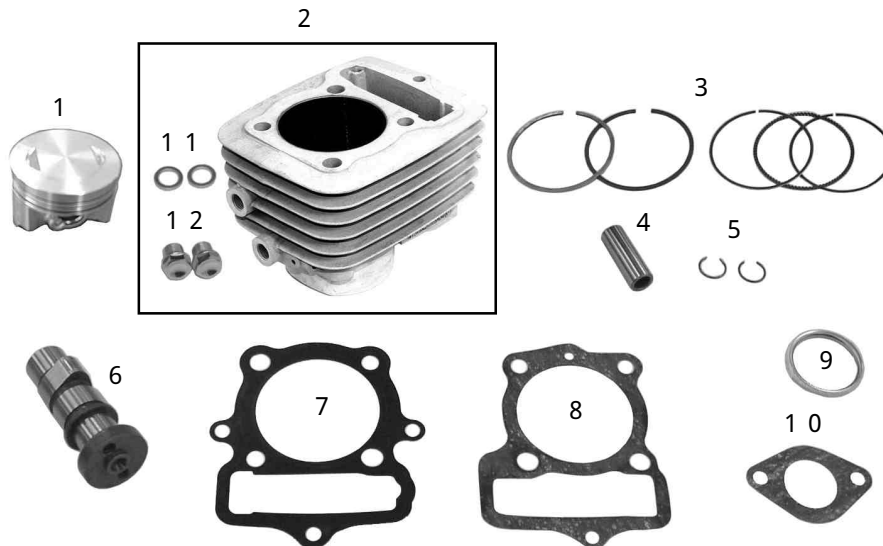
To loosen a screw means turning a tightened screw around three or four times counterclockwise, and to unscrew it means turning it around counterclockwise until it comes off.

To tighten a screw means to keep a screw from getting loose. The numeric value as a guide at which a screw will not break or get loose when tightened is the so-called "tightening torque."

If you do not have a torque wrench, please try to tighten a screw as tight as possible to the level where the screw will not break or get loose, though we can not take any responsibility for the screw breakage or getting loose. In case you do not use a torque wrench, you need to judge, only by intuition or using experience, the degree of tightening power at which the screw will break or get loose.

Improper use of tools will result in breakage of the top of a bolt or screw.

## ~ Kit Contents ~



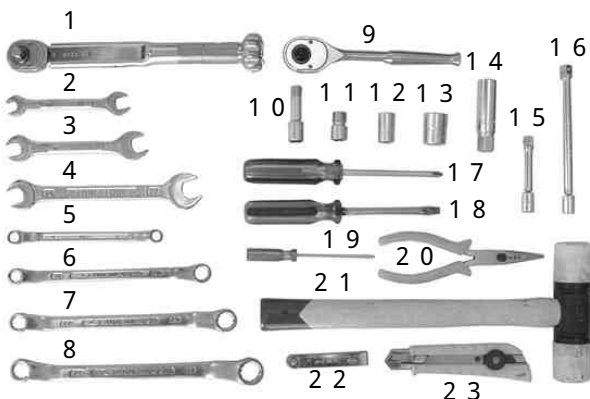
No.	Parts Name	Qty	Repair parts item No.	In packs of
1	Piston 57mm	1	13109-GPH-T10	1
2	Cylinder COMP. 57mm	1	12100-KN4-T00-C	1
3	Piston ring set 57mm	1	13011-GEY-T00	1SET
4	Piston pin 14mm	1	13111-KN4-T01	1
5	Piston pin circlip 14mm	2	00-01-0052	6
6	Cam shaft X20E68	1	01-08-042	1
7	Cylinder head gasket	1	01-13-022	1
8	Cylinder gasket	1		1
9	Exhaust pipe gasket	1		1
10	Inlet pipe gasket	1		1
11	Sealing washer	2	90145-GEY-T00	2
12	Oil plug bolt	2		1

Please order repair parts by indicating the Repair Part Item No. as listed above.

As you see from the list, there are some parts for which we are not in a position to accept your order in the quantity of one.

In this case, please order the required parts as a set part unit.

## ~ Required Tools for Installation ~



1	Torque wrench	16	Extension (medium)
2	Open-end wrench 10-12mm	17	Cross tip screwdriver (small)
3	Open-end wrench 12-14mm	18	Flat tip screwdriver (small)
4	Open-end wrench 14-17mm	19	Fine-shaft flat tip screwdriver
5	Offset box wrench 8- 9mm	20	Needle-nose plier
6	Offset box wrench 10-12mm	21	Plastic hammer
7	Offset box wrench 12-14mm	22	Thickness gauge
8	Offset box wrench 14-17mm	23	Cutter or scraper
9	Ratchet handle		Wire
10	Deep socket 8mm		Waste cloth or rag
11	Socket 10mm		Engine oil
12	Socket 12mm		Maintainance stand
13	Socket 17mm		Jack
14	Spark plug socket 16mm		Bar file
15	Extension (small)		

## ~ Installation Procedures ~

Shut off the fuel petcock.



Stabilize the body firmly with a racing stand or the like in order to remove the side stand.  
Work only when the engine and the muffler are cool.  
Take off all dirt like the dust and oil on each part as you detach it.  
Don't let the removed bolts and nuts go astray, and keep them orderly so you can recall where to fix them.  
Shift the tube clip to disconnect the fuel tube.

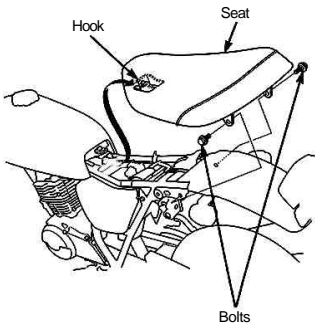


### Engine Removal

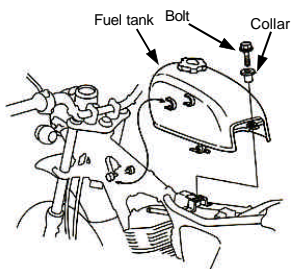
#### Seat and Tank Removal

##### XR100R

Remove the engine from the frame following the instructions on the owner's / service manual.  
Unscrew two bolts, and remove the seat by pulling it toward the back of the vehicle.  
Tool: Offset box wrench 10-12mm

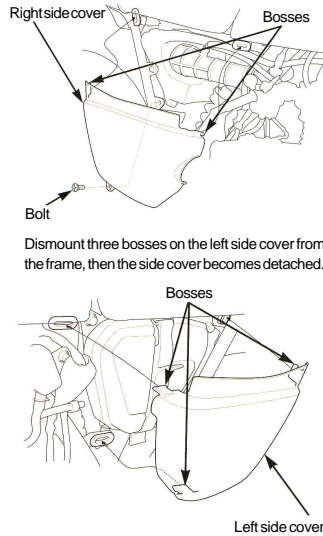


Unscrew a bolt and remove the fuel tank by pulling it toward the back of the vehicle.  
Tool: Offset box wrench 10-12mm



### Side Cover Removal

Unscrew a bolt on the right side cover.  
The cover can be removed by detaching two bosses from the frame.



### Carburetor Removal

Remove a carburetor's top cap, and pull out the throttle valve from the carburetor.



Loosen a screw on the connecting tube band.  
Tool: Cross slot screwdriver (small)



Unscrew two bolts, and remove a manifold and the carburetor from the cylinder head.  
Tool: Offset box wrench 8-9mm



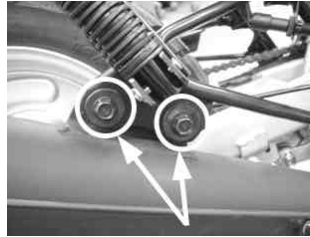
### Exhaust Muffler Removal

Take off two nuts on the cylinder head side.  
Tool: Open-end wrench 10-12mm



#### Ape

Unscrew and remove mounting bolts and washers, and detach an exhaust muffler.  
Tool: Offset box wrench 10-12mm



### Spark Plug Removal

Pull a plug cap to demount it. Be sure to pull the cap, not a wire.



Remove a spark plug.  
Tools: 16mm spark plug wrench, Ratchet handle



### Wiring Disconnection

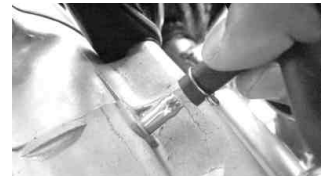
Disconnect the wiring.



Remove a wire band.



Disconnect the wiring of the breather hose.  
(in the case of Ape)



Loosen the nut on a clutch cable guide, and disconnect a clutch cable from a lifter lever.  
Tools: Open-end wrench 10-12mm  
Open-end wrench 12-14mm



Disconnect the clutch cable from the cable guide.

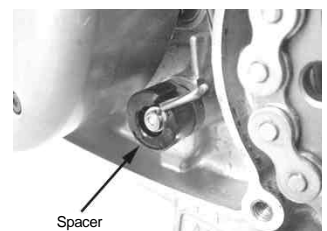


### Drive Sprocket Removal

Unscrew five bolts on the left side crankcase cover, and remove the left side crankcase cover.  
Tools: Deep socket 8mm  
Ratchet handle



If the gasket material remains on the mating surfaces, get rid of it with a cutter or a scraper.  
Remove a spacer in advance.





Unscrew two bolts on the drive sprocket, and remove a fixing plate and the drive sprocket.

Tools: 10mm socket,  
Extension bar (small), and  
Ratchet handle.



### Left Step Removal

Remove the side stand switch cord from the frame.



Unscrew two bolts, and remove the left step.  
Tool: Offset box wrench 14-17mm



### Engine Removal

Place a jack or substitute stand under the engine to hold up the engine.



Detach four nuts on a front engine hanger, take four bolts out, and remove the front engine hanger.

Tools: 10-12mm closed wrench,  
12mm socket, and  
Ratchet handle.



Remove a nut on the upper rear engine mount.

Tools: Offset box wrench 10-12mm  
12mm socket,  
Extension bar (medium)  
Ratchet handle



Remove a bottom side nut also.

Tools: Offset box wrench 10-12mm  
12mm socket,  
Extension bar (small)  
Ratchet handle



First, pull out the upper side bolt and then remove a collar (Ape) and the clutch cable guide.



Take out the bolt on the lower side, and detach the engine from the left side of the frame. Be careful not to give scratches to the frame.



### Removal of Cylinder Head, Cylinder, and Piston

#### Cylinder Head Removal

Unscrew two bolts on the cylinder head cover, and remove the cylinder head cover and its gasket.

Tool: Offset box wrench 10-12mm



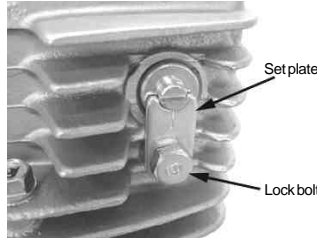
Fix a flywheel, and loosen two hex' bolts on a cam sprocket.

Tools: Offset box wrench 10-12mm  
17mm socket, and  
Ratchet handle.



Unfasten a lock bolt and a set plate, and remove an adjuster.

Tools: Offset box wrench 10-12mm  
Needle-nose plier,



Remove two hex' bolts from the cam sprocket.



Detach the cam sprocket from the cam shaft and then, from the cam chain.



Suspend the cam chain with a wire or the like to keep it from falling into the case.

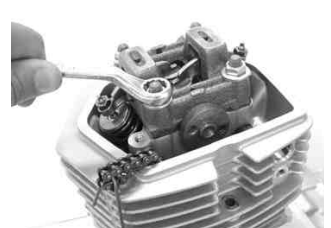


Demount a cylinder head mounting bolt.  
Tool: Offset box wrench 10-12mm



Loosen four cam shaft holder nuts in several steps diagonally, and remove four washers, a cam shaft holder, a cam shaft, and dowel pins.

Tool: Offset box wrench 10-12mm





Remove the cylinder head.



Detach two dowel pins in advance and keep them for re-use.

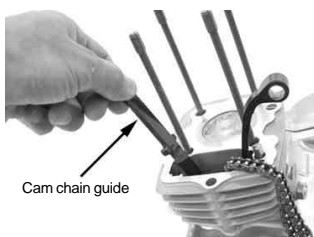


With a cutter or a scraper, get rid of the gasket scraps remaining on the cylinder head plane on which to fit a manifold.



## Cylinder Removal

Remove the cam chain guide, and pull out the cylinder. (If it is hard to pull it out, hit the cylinder lightly with a plastic hammer.)



Cam chain guide



Take off two dowel pins in advance and keep them for reuse.



Remove a lock nut and an adjust bolt from the cylinder.

Tools: Offset wrench 10-12mm  
Flat tip screwdriver (small)



Detach a spring, and remove a cam chain tensioner from the cylinder.



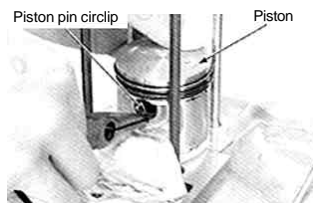
Plug the cylinder hole on the crankcase and a cam chain hole with a waste cloth or clean rag not to let any dirt or part fall into the hose.



## Piston Removal

Remove one of the two piston pin circlips. You can remove it by prising it open with a screwdriver with its tip on the notch.

Tool: Fine-shaft flat tip screwdriver, or needle nose plier



Piston pin circlip

Piston

Push out the piston pin with a driver or the like in the direction where one of the two circlips has just been removed.



Now you can take out the piston.

## Mating Surface Cleaning

Completely get rid of the gasket scraps on the mating surface with a cutter or a scraper. Be careful not to give scratches to the surface.

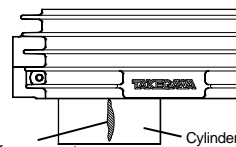


Wipe the surface with a waste cloth.



## Crankcase Modification

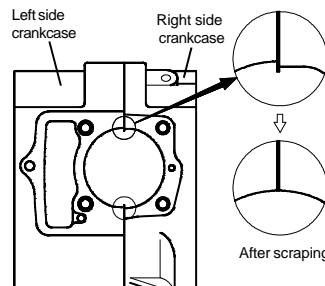
In fixing the cylinder onto the crankcase, there are some cases where a cylinder sleeve and a crankcase sleeve hole may interfere with each other, due to right and left crankcases being out of alignment and for other reasons. Since the use of such a crankcase with two parts interfering each other will lead to sleeve deformation and engine troubles, do not fail to check the crankcase for the interference.



Interference part

Cylinder sleeve

Plug the hole in the crankcase with a waste cloth not to let cutting chips get into the case. Scrape the convex parts on both right and left crankcases till the mating surfaces become level. After scraping, remove the cloth with enough care not to let any chip get into the case.



Left side crankcase

Right side crankcase

After scraping

Stuff up the sleeve hole with some clean cloths. After installation of the kit, idle away the engine for a few minutes, and replace the engine oil with the new one without delay.

## S-Stage Kit Installation

### Piston Installation

Fix one of kit's piston pin circlips to a pin hole.

Place a circlip so its end gap does not meet with the notch on the pin hole.

You can rather easily install it by pressing it into the piston with a screwdriver, but taking care not to damage the piston with a screwdriver.

Do the job carefully as, in some cases, the circlip comes off flying while you press it inside.

Tools: Fine-shaft flat tip screwdriver, or needle nose plier

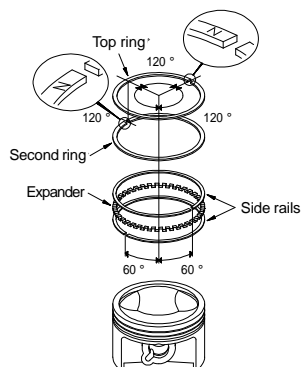


Fix piston rings according to the figure below.

Piston ring colors

Top ring : Gold

2nd ring : Black



Fix the oil ring expander.



Fix the lower oil ring side rail.



Fix the upper oil ring side rail.



Fix the second ring, turning up the side with an engraved letter "N".



Fix the top ring, turning up the side with an engraved letter "N".



Apply engine oil to the piston pin hole.



Apply engine oil to a piston pin hole in the con'rod.



Apply engine oil to the piston pin and place the piston in a position so the "EX" mark on the upper side of the piston faces the front or exhaust side.



Fix the other piston pin circlip, included in the kit, to the pin hole.

Place the circlip in a position so the end-gaps of a piston pin circlip do not meet with the notch on the hole.

It is relatively easier to press it by a driver with care not to give scratches to the piston.

Do the job carefully as, in some cases, the piston pin circlip may come off flying while you press it inside.

Tools: Fine-shaft flat tip screwdriver, or needle nose plier



### Cylinder Installation

Insert the cam chain tensioner into kit's cylinder, and hang the hook of the spring on the cylinder.



Place the cam chain tensioner in a position so the end of the rod will be nearly on the same level as the clamp face.

Fix it with an adjust bolt and tighten the lock nut.

Tools: Flat tip screwdriver (small)

Offset box wrench 10-12mm



Remove the waste cloth.



Degrease the mating surfaces of the crankcase and the cylinder with thinner or the like.



Attach two dowel pins and a cylinder gasket to the crankcase.



Apply engine oil to the inside of the cylinder and spread it with fingers to be equally applied all over.



Apply engine oil to whole surface of the piston, and the piston rings.



Let the cylinder in.





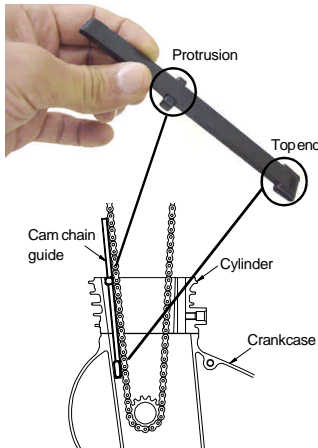
Insert the piston into the cylinder gradually by hand with care not to shift the piston ring's end gaps out of the position.



When the piston is completely in the cylinder, pass the cam chain through the cylinder and install the cylinder to the crankcase.



Insert the cylinder, fitting the end of a cam chain guide into grooves in the crankcase and the protrusion into grooves in the cylinder.

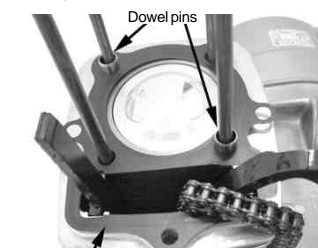


### Cylinder Head Installation

Degrease the mating surfaces of the cylinder and the cylinder head with thinner or the like.



Attach two dowel pins and a cylinder head gasket to the cylinder.



Cylinder head gasket

Pass the cam chain through the cylinder head and install the cylinder head to the cylinder.



Install an adjuster, passing it through the cam chain tensioner and the cylinder head.



Temporarily attach a set plate with a lock bolt.



Temporarily tighten the cylinder head mounting bolts.



### Installation of Cam Shaft and Cam Sprocket

Check the camshaft holder and rocker arm for the interference with the camshaft.

(The supplied camshaft is designed to have higher lift than a stock camshaft. Some of the camshaft holders and rocker arms may interfere with the camshaft because of the size difference of these parts. So, never fail to check them for the interference.)

Fit the provided camshaft into the camshaft holder to see whether the camshaft top, camshaft holder and rocker arm do not interfere with one another.



In case of there is no interference, continue the installation work.

If there is interference, modify the camshaft holder and rocker arm by rasping the interfering portions. Do the following work marked with .

Pull out the rocker arm shaft from the camshaft holder in order to remove the rocker arm.



Modify the rocker arm by rasping its interfering portions.

Tools to use:

For modifying the camshaft holder:

Bar rasp

Hand grinder or electric hand grinder

For modifying the rocker arm:

Hand grinder or electric hand grinder

Diamond file

⚠ CAUTION : Do not shave off more than needed.

⚠ CAUTION : Work with great care not to give scratches to the camshaft holder's journal, and clamp faces for the rocker arm and the cylinder head.

⚠ WARNING : In case you use a hand grinder, do the work, protecting your eyes to prevent chips from getting into your eyes.



After shaving, check for any burr, and clean up the camshaft holder.

Apply molybdenum solution to the rocker arm shaft. Install the rocker arm onto the camshaft holder.



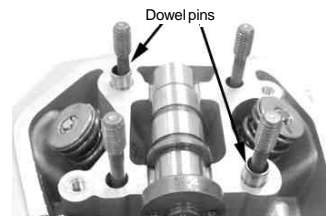
Fit the camshaft into the camshaft holder to see if there is no interference with a cam top and rocker arm.



Apply engine oil to the journals and cams of a kit's camshaft. And install the camshaft to the cylinder head with the cam's top faces downward.



Attach two dowel pins.



Install the camshaft holder.



Fix four washers.



Install and diagonally tighten four nuts equally in a few steps.

Tools: 12mm socket, and torque wrench

Torque: 20N · m (2.0 kgf · m)



Fully tighten the cylinder head mounting bolts.

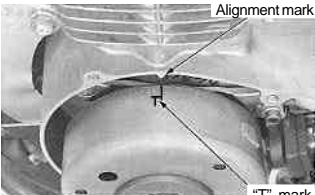
Tools: 10mm socket,

extension bar (small), and  
torque wrench

Torque: **12 N · m (1.2 kgf · m)**



Check that "T" mark on the flywheel is aligned with the " " mark on the crankcase.

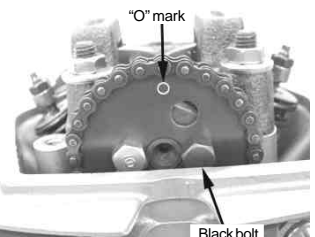


Install the cam chain in the position so the "O" mark on the cam sprocket is right at the top. Fit the cam sprocket into the cam shaft.



Rotate the flywheel a little, and then rotate the cam sprocket to mark it easy to install hex' bolts.

Align cam shaft's bolt-holes with the cam sprocket. Then attach two hex' bolts to the holes by hand temporarily. At this point, attach and tighten a dowel bolt (black) to the intake side.



Fix the flywheel and fully tighten the hex' bolts on the cam sprocket.

Tools: 10mm socket,

torque wrench, and  
Offset box wrench 14-17mm

Torque: **12 N · m (1.2 kgf · m)**

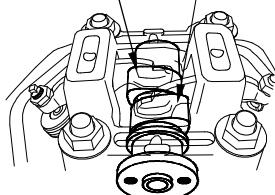


## Cam Chain Adjustment

A camchain, whether tightly or loosely stretched, will impair the engine conditions. Perform this procedure correctly.

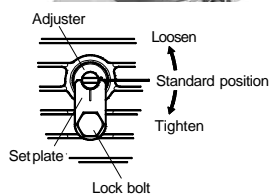
Rotate the flywheel till both cam tops of the cam shaft point up.

Cam tops should point this way.



Rotate the flywheel a little by hand. Depending on how tensely or loosely the camchain is stretched to the camsprocket, turn the flywheel in either direction to get the proper tension of the camchain, watching the "O" mark on the adjuster.

Tool: Flat tip screwdriver (small)



Tighten the lock bolt fully when the cam chain is found stretched properly and you can move the flywheel without difficulty, and fix the adjuster.

Tools: 10mm socket, and  
Torque wrench.

Torque: **10 N · m (1.0 kgf · m)**



In case you can not get the proper tension of the camchain only by adjusting the adjuster, then adjust the tension with the adjust bolt on the cylinder.

Fix the adjuster where it has the best tension. Then loosen a lock nut on the cylinder, and loosen the adjust bolt a little bit.



Fix the adjust bolt with a flat tip screwdriver, and tighten the lock nut.

Tools: Flat tip screwdriver (small),  
12mm socket, and

Torque wrench

Specified torque: **12 N · m (1.2 kgf · m)**

Again, move the adjuster and hold it where the camchain has no slackness and you do not feel it hard to rotate the flywheel. Then tighten the lock bolt to fix the adjuster.

## Valve Clearance Adjustment

Rotate the flywheel counterclockwise, and stop rotating it where the "O" mark on the cam sprocket is on the top and the "T" mark on the flywheel is aligned with the " " mark on the crankcase.

Insert a 0.05mm thickness gauge between the adjust screw and the end face of the valve (or, valve clearance).

Tool: Thickness gauge



Adjust the position of the adjust screw so that there is a little resistance to pulling the gauge out. Then tighten the nut.

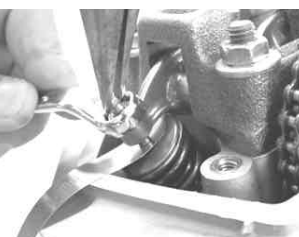
Tools: Thickness gauge,

Offset box wrench 8-9mm,

XR100 Needle nose plier, and

Ape Flat tip screwdriver (small)

Torque: **10 N · m (1.0 kgf · m)**



After tightening the nut, double check the valve clearance with the 0.05mm thickness gauge. Pour fresh engine oil to a oil pool on the cylinder head to the brim.



Install the cylinder head cover and its gasket to the cylinder head by tightening two cylinder head cover bolts.

Tool: Offset box wrench 10-12mm

Torque: **12 N · m (1.2 kgf · m)**



## Engine Mounting

### Engine Mounting

#### XR100R

Mount the engine on the frame following the instructions of the owner's / service manual.

Place a jack or a proper stand under the engine to support the engine. Then mount the engine from the left side of the vehicle.

Insert a bolt into the lower part of the rear engine mount from the left side.



Attach a collar and a clutch cable guide, and insert a bolt into the upper part of the rear engine mount.



Temporarily tighten the two nuts.



Attach a front engine hanger, and insert four bolts from the left side and temporarily tighten four nuts.



Fix the drive sprocket with the drive chain to the counter shaft.

If it is hard to fix the drive sprocket, fix it while shaking the engine lightly.





Stretching the drive chain moderately loosely, fully tighten the two nuts on the rear engine mount and the four nuts on the front engine hanger plate.

Tools: Offset box wrench 10-12mm,  
12mm socket,  
Extension bar (small),  
Extension bar (mid-size), and  
Ratchet handle

Torque:

for rear engine mount nuts

: **44 N · m (4.5 kgf · m)**

for front engine hanger plate nut

: **26 N · m (2.7 kgf · m)**

Fit the fixing plate into the counter shaft to align with the threaded holes on the drive sprocket, and fix two bolts.

Tool: Offset box wrench 10-12mm  
Torque: **10 N · m (1.0 kgf · m)**



## Installation of Left Side Crankcase

Degrease the clamp faces of the left side crankcase cover and the crankcase with thinner or the like.

Attach a spacer, and install the left crankcase cover and a new gasket to the crankcase by tightening five bolts.

Tools: 8mm deep socket,  
Ratchet handle

Torque: **12 N · m (1.2 kgf · m)**



Spacer



## Installation of Left Side Step (for Ape)

Install the left side step to the frame with two bolts.

Tool: Offset box wrench 14-17mm  
Torque: **26 N · m (2.7 kgf · m)**



Fix the side stand switch cord on the clamp of the frame.

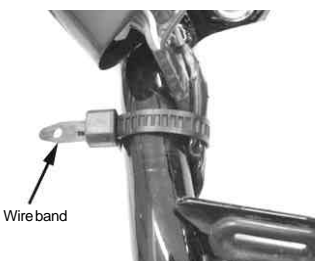


## Wiring

Connect the wiring.



Fix the cords with a wire band.



Wire band

Connect the breather hose.  
(for Ape)



Attach the clutch cable to the lifter lever and install it to the clutch cable guide. Then tighten the nut.

Tools: Offset box wrench 10-12mm  
Offset box wrench 12-14mm



## Spark Plug Installation

At first, screw the spark plug by hand.

Then tighten it with a plug wrench.

Tools: Spark plug wrench 16mm, and  
Ratchet handle

Torque: **14 N · m (1.4 kgf · m)**



Fix a plug cap.



## Exhaust Muffler Installation

### XR100R

Mount the engine on the frame following the instructions on the owner's / service manual. Temporarily tighten two nuts on the cylinder head side.

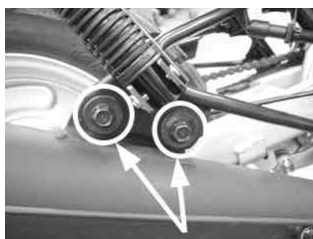
Tool: Open-end wrench 10-12mm



### Ape

Temporarily tighten two mounting bolts and washers.

Tools: Offset box wrench 10-12mm, and  
Offset box wrench 14-17mm



Fully tighten them.

Torque:

for two nuts: **12 N · m (1.2 kgf · m)**

for mounting bolts: **20 N · m (2.0 kgf · m)**

## Carburetor Installation

### Ape

This kit will not display its potential high performance when used with a stock carburetor. Please purchase separately a Carburetor Kit. For the installation, please refer to the Instruction Manual of the Carburetor Kit.

### XR100R

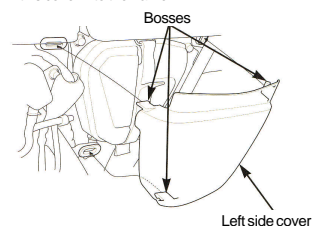
Install the carburetor with reference to the owner's / service manual.

## Side Cover Installation

(In the case of the Ape)

(In the case of using a stock air cleaner box)

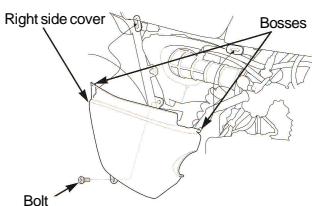
Fix the left side cover by fitting three bosses on this cover into the frame.



Bosses

Left side cover

Fit two bosses on the right side cover into the frame, and fix the bolt.



Right side cover

Bosses

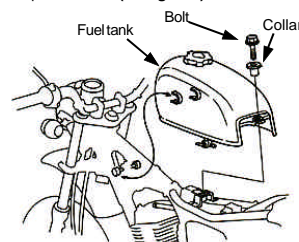
Bolt

## Installation of Seat and Tank (for Ape)

Install the fuel tank to the frame with the bolt.

Tool: Offset box wrench 10-12 mm

Torque: **26N · m (2.7 kgf · m)**



Fuel tank

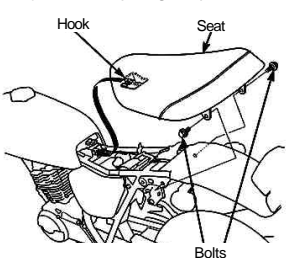
Bolt

Collar

Fit the hook in the front on the back side of the seat into the frame and fix it by tightening two bolts.

Tool: Offset box wrench 10-12 mm

Torque: **26N · m (2.7 kgf · m)**



Hook

Seat

Bolts

## Fuel Hose Connection

Connect the fuel tube with the fuel petcock, and fix it with a tube clip.




## Engine Starting

After checking that the ignition key and the fuel cock are turned OFF, remove the spark plug.

Kick the starter for a while to circulate the engine oil all around the engine.

Reinstall the spark plug, turn ON the fuel cock and ignition key, and pull the choke lever to start the engine.

 **CAUTION:** Be sure to tighten to the specified torque.

 **WARNING:** Work in a well-ventilated area.

Check for any abnormality such as abnormal noises.

If no problem is detected, do running-in at least 100 to 150 km.

After the initial running-in, check for abnormality such as abnormal noises or blow-by.

(If there is a problem, disassemble the engine again to check each part.)

 **WARNING:** Do not re-use wrist pin circlips.

## Caution

Even bolts and nuts tightened to the specified torque may get loose by repeated heat expansion through warm-up at the time of engine assembly. Retighten bolts and nuts periodically.

 **CAUTION:** Be sure to tighten to the specified torque.

## Cautions Before Running

### About fuel

Always replace the gasoline with high-octane gasoline when regular gasoline is remaining in the fuel tank.

### Sprocket (for APE only)

Adjust the sprockets depending on how you ride your vehicle. However, setting in too low gears will result in severe wears of parts, not only adversely affecting the engine life, but also breaking the engine in the worst case. Please drive your vehicle at proper setting.

## Other notes

### Oil Cooler (for APE only)

The installation of this Kit increases the heat release value of the engine, set off by the increase in power. Therefore, we recommend that you equip your machine with an Oil Cooler Kit (09-07-121: Black core, 09-07-221: Silver core, 09-07-208: Solid) for long-hour, high-load driving.

### Cam Chain

We recommend you to install our TAKEGAWA's solid cam chain, and die-hard (01-14-005) to cope with the increase in power and in heat release value of the engine.

### Thermometer

A stick-type temperature sensor is installable on the cylinder side of this kit.

TAKEGAWA's meters listed below are available.

- Medium LCD tachometer & thermometer: 09-05-0141 (up to 150 °)
- Digital thermometer: 07-04-053 (up to 99 °)

**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>