

Hyper S-Stage KIT Instruction manual

Product number 01-05-0238 (A-TYPE)

Adaptation model Monkey / Gorilla (Z50J-1300017 ~ 1510400)

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

As this S-Stage Kit is so designed to achieve a higher compression ratio than stock engines, always use the high-octane gasoline. In case regular gasoline is used, unusual 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.

Caution about Spark Plug

Be sure to replace a spark plug with a supplied CR8HSA. And at a later stage, choose and use a right spark plug with the right number, depending on the degree of burning of the spark plug electrode section.

Caution about sprocket

The installation of this Kit will increase the power of your engine. So with the stock sprocket, every hardware will get worn out soon because of too low gear, not only adversely affecting the engine life, but also possibly breaking the engine in the worst case. Therefore, judge the right type of a driven sprocket, using the supplied drive sprocket. And make the gear ratio high.

※ The driven sprocket is not included in the Kit.

☆ Please read carefully before use ☆

- ◎ We do not take any responsibility for any accident or damage whatsoever arising from the use of the Kit not in conformity with the instructions in this Instruction 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 modifications to any product supplied here, we shall be held free from any guarantee of the product.
- ◎ You are requested not to contact us about the combination of our products with other manufacturers'.
- ◎ Please note that this Kit is designed for exclusive use in the above-mentioned compatible models with the specified frame numbers only and that it cannot be mounted on any other models.
- ◎ For installation, please prepare suitable tools and work with reference to the installation instructions with enough care. Besides, this Instruction Manual and genuine service manuals are prepared for those who have acquired basic skills and knowledge. We, therefore, recommend those who are technically inexperienced or without sufficient tools to ask a technically-reliable specialist shop for the installation work.
- ◎ Bolts, nuts, and dowel pins will be reused. However, be sure not to use the worn-down or severely-damaged ones, which please do replace with new ones.
- ◎ If you use a stock carburetor, do not remove an air cleaner box or air cleaner elements. If you change the carburetors, please do the setting to match various conditions. Disregarding these instructions will result in engine troubles and serious accidents.
- ◎ You may not run the motorcycle in the rain with the supplied filter installed. Otherwise, please note, it could cause the engine malfunction.

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

- Always try to drive your motorcycle at legal speed, abiding by the laws.
- Work only when the engine and muffler are cool. (Otherwise, you will get burned.)
- Do the installation with right tools. (Otherwise, breakage of parts or injuries to you may take place.)
- Always use a torque wrench to screw bolts and nuts tight and securely to the specified torque. (Otherwise, these parts may get damaged or fall off, resulting in accidents.)
- As some products and frames have sharp edges or protruding portions, please work with your hands protected. (Otherwise, you will suffer injuries.)
- Before riding, always check every hardware like screws for slack. If you find slack ones, screw them securely up to the specified torque. (Otherwise, improper tightening may cause parts to come off.)
- ※ As for the cylinder head among others, please be sure to tighten it up to the specified torque.
- Always use new gaskets and packings. And check those parts, to be reused, for wear and damage. If you find worn or damaged parts, replace them with new ones.

⚠ 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.)
- When you notice something unusual with your motorcycle while riding, immediately stop riding and park your motorcycle in a safe place to check what has gone wrong. (Otherwise, the malfunction could lead to accidents.)
- Before doing work, make sure your motorcycle is secure on level ground for safety's sake. (Otherwise, your motorcycle could overturn and injure you while you are working.)
- Carry out inspection and maintenance of your motorcycle correctly according to the instructions and guidelines in the instruction and service manuals. (Improper inspection or maintenance could lead to accidents.)
- If you find damaged parts when inspecting or 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.)
- 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.

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)

Product content

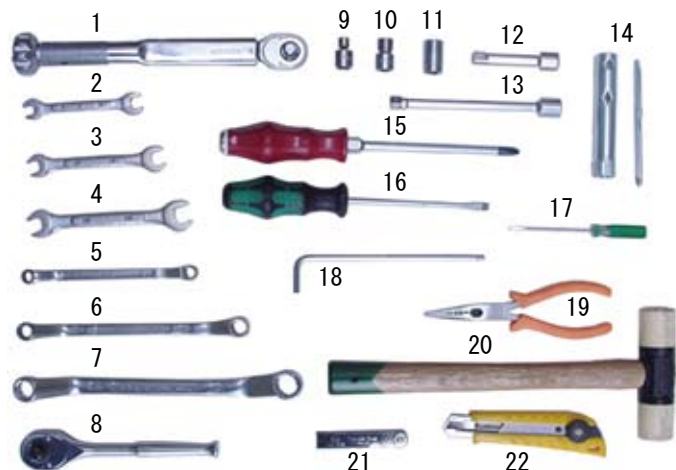


Number	Product content	Quantity	Item Number
1	Piston	1	00-00-1204
2	Piston ring set	1	01-15-014
3	Piston pin	1	00-01-0091 (with ④ clip)
4	Piston pin circlip	2	00-01-0003
5	Cylinder	1	01-01-0241H
6	Cylinder gasket	1	00-01-0067 (2 pcs)
7	Cylinder head gasket	1	00-00-1147
8	Cylinder head cover gasket	1	00-01-0156 (2 pcs)
9	Right side cover gasket	1	00-00-1181
10	Left side cover gasket	1	00-01-0158 (2 pcs)
11	Tappet cap O-ring	2	00-01-0034 (4 pcs)
12	Exhaust pipe gasket	1	00-01-0064 (2 pcs)
13	Rubber packing	1	00-01-0066 (2 pcs)

Number	Product content	Quantity	Item Number
14	Camshaft	1	01-08-0068
15	Carburetor ASSY.	1	03-03-0061
16	Intake manifold	1	00-00-1484
17	Air filter (with band)	1	03-01-104
18	Carburetor gasket	1	00-03-0417
19	Inlet pipe gasket	1	00-01-0159 (2 pcs)
20	Socket cap screw, 6x20	2	00-00-0721 (5 pcs)
21	Socket cap screw, 6x25	2	00-00-0722 (5 pcs)
22	Throttle cable, 710mm	1	09-02-0071
23	Spark plug, CR8HSA	1	00-00-2377
24	Drive sprocket (with plate) 15T	1	02-05-041
25	Main jet, #85	1	00-03-0041
26	Mark set	1	

※ 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.

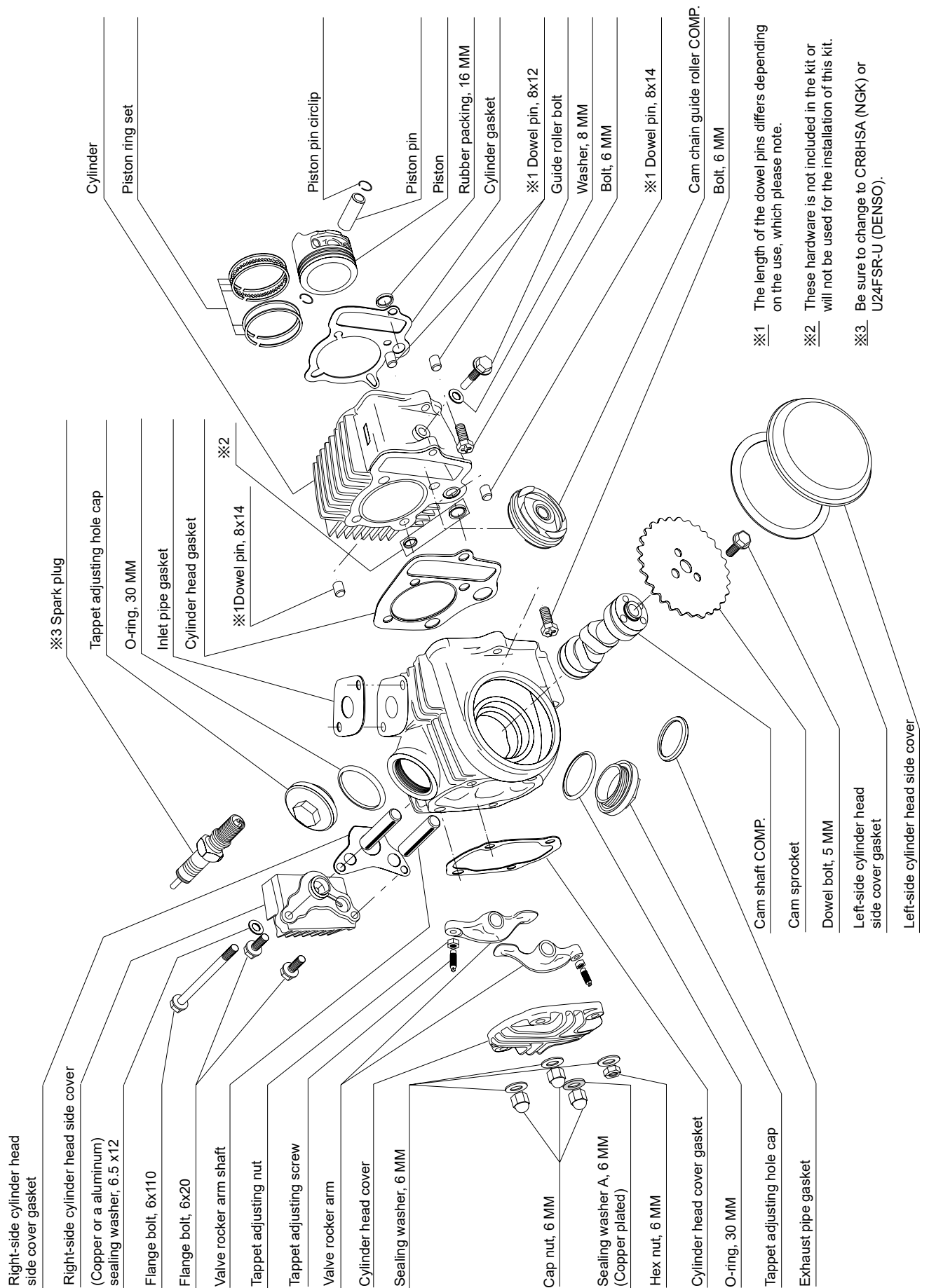
Tools to use for the installation:



1	Torque wrench	14	Spark plug wrench set (in-vehicle tool set)
2	Open-end wrench 8-10mm	15	Cross tip screwdriver (large)
3	Open-end wrench 10-12mm	16	Flat tip screwdriver (medium)
4	Open-end wrench 12-14mm	17	Fine-shaft flat tip screwdriver
5	Offset box wrench 8- 9mm	18	Hex wrench, 5mm
6	Offset box wrench 10-12mm	19	Needle-nose plier
7	Offset box wrench 14-17mm	20	Plastic hammer
8	Ratchet handle	21	Thickness gauge
9	Socket 8mm	22	Cutter knife or scraper
10	Socket 10mm		Wire
11	Socket 12mm		Waste cloth or rag
12	Extension bar (short)		Engine oil
13	Extension bar (medium)		

About bolts:

- Usually, counterclockwise rotation loosens the bolts and nuts, and clockwise rotation tightens them.
- When tightening a screw, at first finger-tighten it as tight as you can, without using a tool.
- To loosen a tightened screw means turning it three or four times counterclockwise, and to remove it means turning it around counterclockwise until it comes off.
- To tighten a screw means to tighten it to keep it from getting loose. However, the bolts may break when overtightened, or may get loose or come off because of the vehicle's vibrations when tightened too loosely. The numeric value as a guide at which a screw will not break or get loose when tightened is the specified torque. And the numeric value varies among the size of the bolts.
- If you do not have a torque wrench, please try to tighten a screw as tight as possible to the extent that the screw will not break or get loose, though we can not take any responsibility for the screw's 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 with which the screw will break or get loose.



● Removal of standard parts

○ Remove a seat.

- ◇ Remove a side cover.



- ◇ Loosen a nut under the seat to unfasten a bolt.



- ◇ Loosen two nuts on the rear shock absorber.



- ◇ Dismantle a seat by pulling it backwards.



○ Remove a fuel tank.

- ◇ Turn off a fuel cock.



- ◇ Shift the tube clip to disconnect the fuel tube of the carburetor.



- ◇ Unfasten a bolt holding the fuel tank to the frame.



- ◇ Dismantle a fuel tank by pulling it backwards.



○ Remove the carburetor.

- ◇ Remove a top cap and pull out a throttle valve, from the carburetor.



- ◇ Unfasten a bolt on the air-cleaner stay.



- ◇ Unfasten two bolts attaching an inlet pipe to the cylinder head to remove the inlet pipe, carburetor, and air cleaner.



- ◇ Move the wire harness so it sits under the frame.



○ Remove a muffler.

- ◇ Remove two nuts on the exhaust pipe by turning them counterclockwise.



- ◇ Remove the hex nut securing the muffler by turning it counterclockwise.



- ◇ Remove the nut, fastened on the rear side of the muffler, by turning it counterclockwise.



- ◇ Detach two collars of the flange and then detach the muffler from the motorcycle by pulling it outwards.



○ Remove a front fender.

- ◇ Remove two hex bolts on the reverse side of the front fender by turning them counterclockwise.



○ Remove a spark plug.

- ◇ Detach a plug cap from the plug by pulling it out. Be sure to hold the cap in pulling it out.

- ◇ With an in-vehicle tool of a spark plug wrench, turn the plug counterclockwise to remove it.



○ Remove a cylinder-head left-side cover.

- ◇ The left-side cover will come off when a hex bolt in the middle of the cylinder-head right-side cover is removed. (In case the left-side cover does not come off by so doing, screw a few threads of the hex bolt, and strike the bolt head with a hammer lightly. Then the bolt will come off.)



○ Remove a crankcase left-side cover.

- ◇ Unfasten a hex bolt on the shift pedal and remove the shift pedal by turning it counterclockwise.



- ◇ Remove three screws which are holding a crankcase left side cover by turning them counterclockwise.



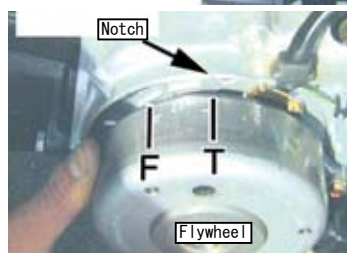
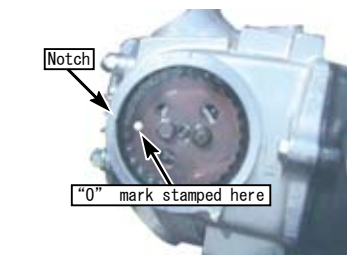
○ Remove two tappet caps.

- ◇ Remove two tappet caps by turning them counterclockwise.



○ Remove a cam sprocket.

- ◇ Turn the flywheel counterclockwise so a "T" mark on the flywheel and "0" mark on the cam sprocket align with each notch.



- ◇ Holding the flywheel, remove three hex bolts on the cam sprocket by turning them counterclockwise.



- ◇ Prize the cam sprocket from the camshaft with a small-sized flat tip screwdriver.



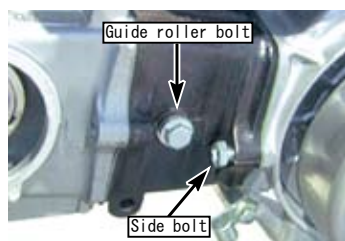
- ◇ Detach the cam chain from the cam sprocket, and take out the cam sprocket.
- ◇ Detach a dowel pin fixed in the center of the camshaft.

○ Remove cylinder-head side bolt.

- ◇ Remove the cylinder-head side bolt, which holds the cylinder head and cylinder, by turning it counter clockwise.



- ◇ Turn counterclockwise the guide roller bolt on the cylinder and the side bolt between the cylinder and the crankcase to loosen these bolts.



○ Remove cylinder-head cover.

- ◇ Remove four nuts, which hold the cylinder head cover, by turning them alternately, diagonally, and counterclockwise.
- ◇ Remove four washers beneath the nuts.



- ◇ Remove the head cover. (If it does not come off easily, strike it lightly with a plastic hammer, and it will come off.) If some gaskets remain on the cylinder head, wipe them off completely with a scraper or a cutter.



○ Remove cylinder head.

- ◇ Let air out of a front tire. (At the press of the valve with something like a tip of a cross slot screwdriver, the tire will deflate. Continue pressing it till the whoosh of air cannot be heard any longer.)
- ◇ Remove the cylinder head from the cylinder by pulling the head away from the cylinder. (If it does not come off easily, strike the cylinder head lightly with a plastic hammer, and it will come off.)



- ◇ Pressing the front tire, remove the cylinder head.
- ◇ Be sure to save two dowel pins for use later.



○ Remove the cylinder.

- ◇ Remove the loosened guide roller bolt and cylinder side bolt by turning them counterclockwise.



- ◇ Remove the cylinder by pulling it out. (If it is hard to pull it out, hit the cylinder lightly with a plastic hammer.)



- ◇ While removing the cylinder, the cam chain guide roller will come out, which please remove.



- ◇ Once the piston has come out, pull out the cylinder forward, holding the tire with a hand.



○ Remove the piston.

- ◇ Plug in a waste cloth so as never to get the dust or component in the cylinder hole in the crankcase or cam chain.



- ◇ Remove one of two piston circlips. It will come off rather easily if you prize it open with a screwdriver with its tip on the notch.



- ◇ Remove the piston pin in the direction where the piston circlip is not attached. You can easily remove the piston pin by pressing it with a flat tip screwdriver from the direction where a piston pin circlip is attached.

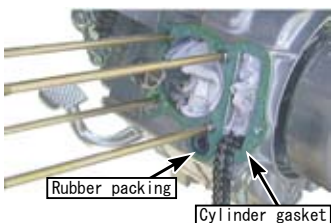


- ◇ Remove the piston.



○ Remove cylinder gasket, rubber packing and dowel pin.

- ◇ In case you cannot remove all the gaskets completely, rasp or wipe them off with a scraper or something else, exercising great caution not to scratch the crankcase. In case the crankcase center gaskets squeeze out into the cylinder base or into the cylinder hole, cut them off. Never let any dust or hardware into the crankcase.



- ◇ Cut off the gasket squeezing out at the section pointed by a finger as shown in the above picture.

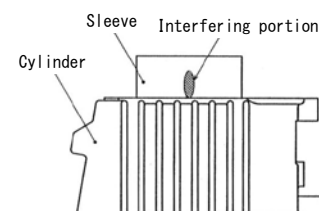
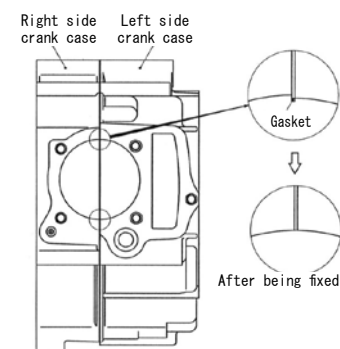


◎ Cautions for installing aluminum cylinder

- ◇ In fixing the cylinder onto the crankcase, in some cases there is interference in the sleeve hole in the crankcase mating surface, circled portions, the shaded area of the cylinder sleeve, and inside of the crankcase, because the right and left crank cases are not meshing correctly. Since the continued use of such crankcase will lead to sleeve deformation and engine troubles, do not fail to check the crankcase for the interference, and correct the interference, if any. The difficulty level of the work is quite high. So, you may feel like having come close to the professional level if you have successfully completed the job.

◎ Tips on how to fix the interference

1. Cover the crankcase securely with a waste cloth so the shavings will not get into it.
2. Rasp the higher mating surface of the crankcases till it becomes level with the lower one.
3. After scraping, remove the cloth with enough care so any chip will not get into the case.
4. After removing the waste cloth, stuff up the crankcase opening with a clean waste cloth.
5. After the installation of the Kit, idle away the engine for a few minutes, and replace the engine oil with new one without delay. And there is nothing more to do.



● Installation of S-Stage Kit

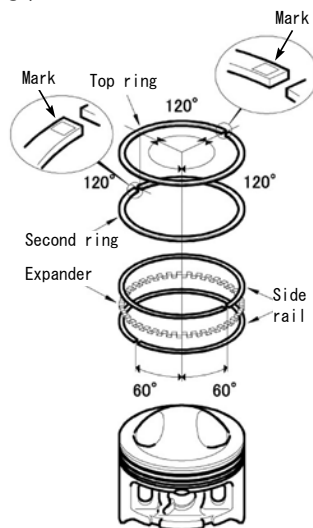
○ Fabrication of piston.

- ◇ Fix a supplied piston pin circlip securely to the grooves in the circlip on one side of the piston. Be sure to set the circlip so its ring-end gap is not on the notch.

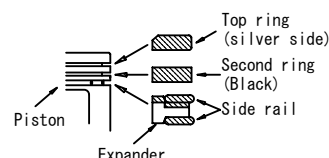


Left side

- ◇ You can rather easily install the piston pin circlip by pressing it with a screwdriver, but taking care not to scratch the piston with the screwdriver.
- ◇ Apply engine oil to the piston-ring grooves, and fix piston rings in the order of an oil ring expander, lower oil ring side rail, upper oil ring side rail, second ring, and top ring.
- ◇ Referring to the figure below, mesh the each piston ring-end gap with each other.



Stamped on the top ring and the second ring.



Pay attention to the cross section as we

- ◇ Attach the oil ring expanders.



- ◇ Attach the lower oil ring side rail.



- ◇ Attach the upper oil ring side rail.



- ◇ Attach the second ring.



- ◇ Attach the top ring.



- ◇ Apply engine oil to the piston pin and con' rod, and install the piston pin.



- ◇ Install with the "IN" mark on the piston head facing the intake side.

Intake side



- ◇ It will also be an easy way of installing the piston to insert the piston pin a third into the piston.



- ◇ Fix a supplied piston pin circlip securely to the grooves on circlip.
- ◇ You can rather easily install the piston pin circlip by pressing it with a screwdriver, but taking care not to scratch the piston with the screwdriver.
- ※ Do the work carefully as, in some cases, the circlip comes off flying while you are pressing it inside. So, wear protective eyeglasses for your eyes lest it should get into your eyes.



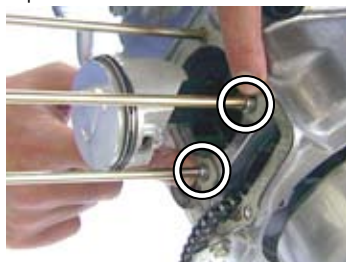
- ◇ Remove the stuffed waste cloth.

○ Installation of cylinder.

- ◇ Degrease the gasket-mounting surfaces of the cylinder and crankcase.
- ◇ Install the cylinder gaskets and rubber packing.



- ◇ Check that two dowel pins are present.



- ◇ Apply engine oil onto the inside of the supplied cylinder and spread the oil evenly with fingers.



- ◇ Pressing the tire, install the cylinder.



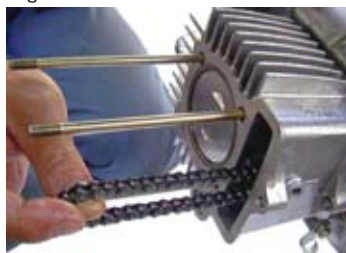
- ◇ Install the cylinder, by pressing it inch by inch with fingers, being careful not to move the piston ring-end gaps out of alignment.



- ◇ Once the rings have been fixed into the cylinder, pass the cam chain through the cylinder, and fix the cylinder into the crankcase.



- ◇ Pulling the cam chain, fix the guide roller.



- ◇ Press in the guide roller so the center of the guide roller and guide-roller bolt hole on the cylinder just mesh together.



- ◇ Install the guide roller bolt. (Tighten it only finger tight at this point.)



- ◇ Install a cylinder side bolt. (Tighten it only finger tight at this point.)



○ Change of camshaft.

- ◇ Detach tappet nuts and bolts on the rocker arm assembled into the cylinder head.
- ◇ At the time the tappet nuts are loosened, detach the tappet bolts and nuts together.



- ◇ Install a cam-sprocket bolt into the camshaft. Turning the camshaft, detach it. Do not pull it out by force.



- ◇ Install the supplied camshaft in the reverse order of removal. Apply clean engine oil to the cam top and journal of the camshaft. Even if you cannot easily fix the camshaft, fix it manually without striking it with a hammer.

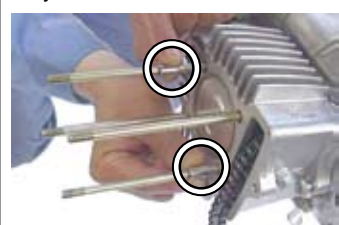


- ◇ Tighten the tappet screw on the rocker arm by turning it clockwise.



○ Installation of cylinder head.

- ◇ With thinner, degrease the cylinder head surface and upper surface of the cylinder.
- ◇ Fix two dowel pins into the cylinder.



- ◇ Attach a head gasket.



- ◇ Pressing the tire with a hand, fit the cylinder head into the stud bolts.
- ◇ Passing the cam chain through the cylinder head, install the cam chain.



- ◇ Hold the cam chain by sticking the screwdriver through the cam chain into a middle hole on the camshaft so the cam chain will not fall into the cylinder.



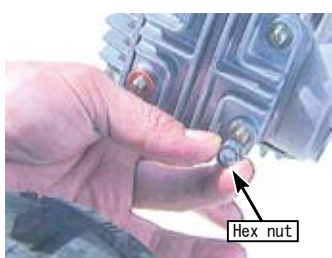
- ◇ Attach the cylinder-head-cover gasket and head cover.



- ◇ The arrow should face downward.



- ◇ Install the head-cover washers and the nuts.
(Attach a copper washer and three iron washers at the lower left, and a hex nut and three cap nuts at the lower right, when the engine viewed from the front.)



- ◇ Tighten up the head nuts evenly.
(In case a torque wrench is not available, tighten them diagonally, securely and little by little.)

▲ Note: Be sure that you protect specified torque.

Head nut
Torque : 12N · m (1.2kgf · m)



- ◇ Attach a head-side bolt.
Tighten fully the guide roller bolts and the cylinder side bolts which were tightened temporarily.

▲ Note: Be sure that you protect specified torque.

Guide roller bolt
Torque : 10N · m (1.0kgf · m)
lower and upper side bolt
Torque : 10N · m (1.0kgf · m)



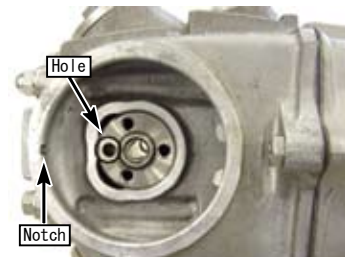
○ Installation of cam sprocket.

- ◇ Align the "T" mark on the flywheel with the notch on the crankcase.



- ◇ Turn the cam shaft hole to the notch on the cylinder head.
This arrangement places the cam shaft at TDC (Top Dead Center) on the compression stroke.

※ In installing the optional cam, please refer to its instruction manual.



- ◇ After fixing the cam sprocket, attach the bolt. While attaching the cam sprocket to the cam chain, install the cam chain so the "0" mark on the cam sprocket and the notch on the cylinder head mesh together. Then, attach the cam sprocket to the camshaft.

- ◇ Install the camshaft washer.



- ◇ Holding the flywheel, tighten up three cam sprocket bolts.

▲ Note: Be sure that you protect specified torque.

Sprocket bolt
Torque : 9N · m (0.9kgf · m)

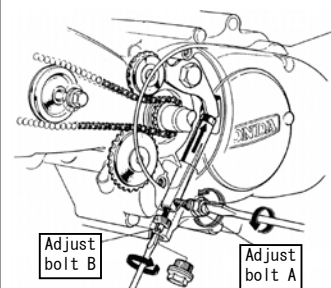


○ Adjust the cam chain.

- ◆ When adjusted the cam chain, please perform "Inspection and adjustment of ignition timing" as well.

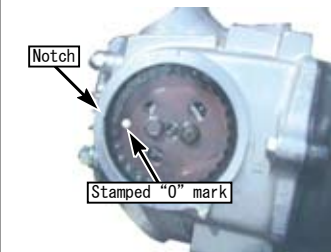
- ◇ Loosen the 8mm nut and the adjust bolt A, then the cam chain will be adjusted automatically by the spring. But in case the cam chain is not stretched tight, keep the loosened adjust bolt A as it is, and gradually tighten the adjust bolt B so that the cam sprocket and cam chain fit together even when the flywheel is turned.

- ◇ Tighten the adjust bolt A, and then 8mm nut.

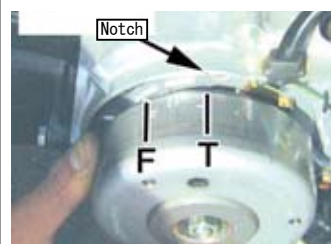


○ Adjust valve timing and tappet.

- ◇ Turn the flywheel until the "0" mark on the camshaft and the "T" mark on the flywheel mesh with each notch. Though the flywheel will not stop right at the required position because the magnet repels each other, it is all right if "0" and "T" marks mesh with each notch at the same time after fixing the cam sprocket.



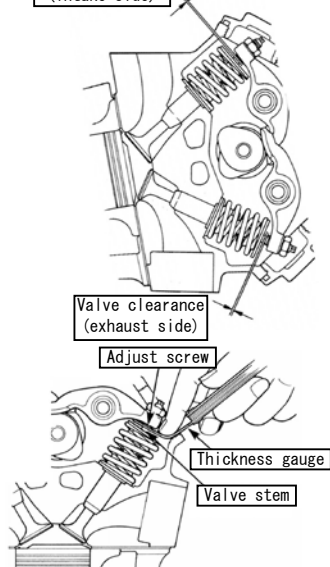
Cylinder head side



Flywheel side

◇ While tightening a rocker arm's tappet screw, tighten the tappet nut to the extent that a 0.05mm thickness gauge, placed between the tappet screw and the valve stem end, can be pulled out with only a little resistance. If you have no idea of the proper resistance in pulling out the 0.05mm thickness gauge, then prepare a 0.07mm and 0.03mm thickness gauges. When the 0.07mm gauge won't go in between the space but the 0.03mm gauge goes in quite loosely, this means that roughly 0.05mm clearance is secured. Set the space at 0.05 mm both for intake and exhaust.

Valve clearance
(intake side)



◇ After adjusting the tappet, turn the flywheel counterclockwise twice by hand, and then, align "I" and "O" marks each other.



◇ Check if there is any change in the tappet clearance. If the clearance has not changed, there is no need to readjust it. However, in case there is a change, readjust the clearance.



◇ Install two tappet caps.

▲ Note: Be sure that you protect specified torque.

Tappet cap
Torque : 12N · m (1.2kgf · m)



○ Installation of cylinder-head left-side cover.

◇ Attach a cylinder-head left-side cover gasket and left-side cover. (Set the anti-rotation stopper of the left-side cover to prevent the cover from turning to the right when the bolt is being tightened.)



◇ Tighten a hex bolt on the right side of the cylinder head as shown by an arrow.

▲ Note: Be sure that you protect specified torque.

Hex bolt
Torque : 12N · m (1.2kgf · m)



○ Installation of spark plug.

◇ Install a provided plug with in-vehicle tools or spark plug wrench.

▲ Note: Be sure that you protect specified torque.

Plug
Torque : 11N · m (1.1kgf · m)



◇ Attach a plug cap to the plug.

○ Installation of stock muffler.

◇ In installing the muffler, route the tail pipe inside the rear shock absorber first, and then set the flange to be roughly under the exhaust port.



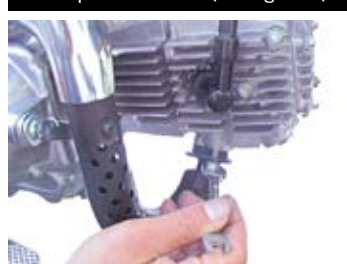
◇ Install two flange collars squeezing the exhaust pipe.



◇ Tighten two nuts on the exhaust pipe, loosely for the moment.

▲ Note: Be sure that you protect specified torque.

Nut
Torque : 10N · m (1.0kgf · m)



◇ Attach a nut on the reverse side of the muffler loosely for now.

▲ Note: Be sure that you protect specified torque.

Nut
Torque : 10N · m (1.0kgf · m)



◇ Install loosely for now a hex bolt to hold the muffler.

▲ Note: Be sure that you protect specified torque.

Hex bolt
Torque : 26N · m (2.7kgf · m)



◇ Tighten up three portions which have just been loosely tightened for the moment.

○ Installation of front fender.

◇ Fasten two hex bolts on the reverse side of the front fender.

▲ Note: Be sure that you protect specified torque.

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



◇ Pump a tire.

○ Installation of throttle cables.

◇ Disconnect wiring on the stock throttle cable.

◇ Loosen the hex nut.



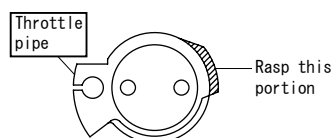
◇ Unfasten two screws to remove an upper throttle housing.



◇ Detach an inner cable in the throttle cable from the throttle pipe.



- ◇ Rasp the shaded part of the throttle pipe as indicated in the figure below.



- ◇ Remove a stock throttle cable from the lower throttle housing.



- ◇ Attach a provided throttle cable to the lower throttle housing.



- ◇ Connect the inner cable to the throttle pipe.



- ◇ Fix the upper throttle housing with two screws.

- ※ Tighten up the screw in the front first, and then the one in the back.



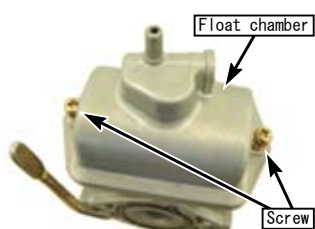
- ※ In the case of a stock steering handle, align the joint on the throttle housing with an "0" mark on the steering handle.



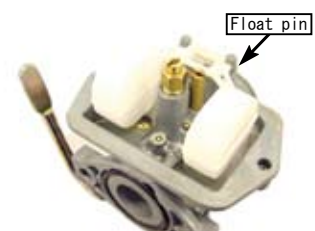
- ◇ Tighten up the hex nut.

○ Change of main jet.

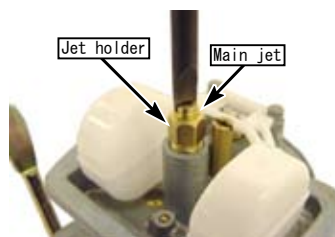
- ◇ Unfasten two screws to remove the float chamber.



- ※ Bear in mind that the float pin is apt to come off.



- ◇ Remove the main jet from the jet holder.



- ◇ Install a provided main jet.



- ◇ Install the float chamber, and attach it to the carburetor with two screws.



○ Installation of carburetor.

- ◇ Put the inlet pipe gasket between the intake manifold and cylinder head, and fix the gasket with two 6x25 socket cap screws.

▲ Note: Be sure that you protect specified torque.
Socket cap screw
Torque : 12N · m (1.2kgf · m)



- ◇ Put the carburetor gasket between carburetor and intake manifold, and fix the gasket with two 6x20 socket cap screws.

▲ Note: Be sure that you protect specified torque.
Socket cap screw
Torque : 12N · m (1.2kgf · m)



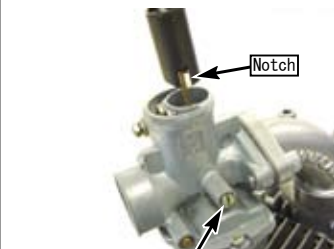
- ◇ Remove a top cap from carburetor, and pull out a spring and throttle valve.



- ◇ Fix the top cap onto the throttle cable, and fix the spring, and install the throttle valve onto the inner cable.



- ◇ Align the notch on the throttle valve with the throttle stop screw, and fit the throttle valve into the carburetor.



- ◇ Fit the top cover into the carburetor, aligning the convex section on the top cover with the concave section on the carburetor.



○ Adjustment of throttle free play.

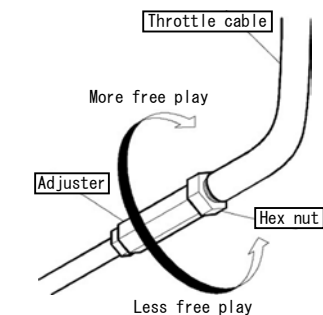
- ◇ Roll up a throttle cable's boot to expose an adjuster.



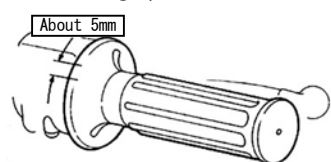
- ◇ Holding a hex nut, loosen the adjuster.



- ◇ Turning of the adjuster will adjust the free play.



- ◇ Adjust the free play at the throttle grip to be about 5mm.



- ◇ Hold the adjuster and tighten the hex nut.
- ◇ By snapping the throttle, check that the throttle valve moves smoothly and without a hitch.
- ◇ Check that there is a little free play in the throttle even when you turn the steering handle all the way to the right and left.
- ◇ Cover the adjuster with the boot.

○ Installation of air filter.

- ◇ Attach the band to the air filter, and fit it into the carburetor. And fasten the band.



○ Installation of fuel tank.

- ◇ Install the fuel tank onto the frame.



- ◇ Install the fuel tank onto the frame with a bolt.

⚠ Note: Be sure that you protect specified torque.

Bolt
Torque : 12N · m (1.2kgf · m)



- ◇ Connect a fuel tube to the carburetor.



○ Installation of seat.

- ◇ Put a hook of the seat stay in between two washers of the rear shock absorber to install the seat.



- ◇ Insert a bolt beneath the seat, and attach a nut.

⚠ Note: Be sure that you protect specified torque.

Nut
Torque : 22N · m (2.2kgf · m)



- ◇ Tighten two nuts on the rear shock absorber.

⚠ Note: Be sure that you protect specified torque.

Nut
Torque : 34N · m (3.5kgf · m)



- ◇ Install the side cover.

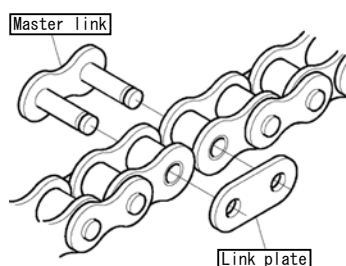


○ Installation of drive sprocket. (on the engine side)

- ◇ Detach a clip from the drive chain.



- ◇ Detach a link plate and master link to remove the drive chain.
- ※ Be sure to stop the engine while you are working.



- ◇ Applying the rear brake, unfasten two bolts.



- ◇ Remove a plate.



- ◇ Pull out a stock sprocket from the shaft, and remove the chain.



- ◇ Fit a provided sprocket into the shaft.



- ◇ Install a provided plate, and tighten two bolts loosely for now.



○ About a Driven (rear tire side) sprocket.

- ※ With change of a drive sprocket, a driven sprocket is also changed and high gear-ization of a sprocket is performed.
- ※ A driven sprocket changes with clutch form or tire size. Please make a lower table reference.
- ※ The driven sprocket is not contained in the kit. Please purchase separately.
- ※ When changing a driven sprocket, the circumference of a rear tire is removed.

Vehicles are supported certainly in a racing stand etc. and please float a rear wheel.

Hyper-S stage kit A type recommendation sprocket(In the case of 65kg weight)

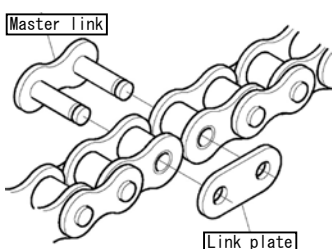
Tire size	Clutch	Drive sprocket	Driven sprocket	Ratio
8inc	Centrifugal 3speed	16	30	1.87
	Stock manual	15	25	1.67
	Strengthening, special	16	25	1.56
10inc	Stock	16	25	1.56
	Strengthening, special	16	28	1.75

○ About a drive chain.

- ※ If it changes into a recommendation sprocket from the sprocket of stock, the slack of a drive chain cannot be abolished only by adjustment. It is necessary to use a chain cutter etc. and to shorten a chain. Moreover, the length of a chain also changes with the length of a swing arm. Please make a lower table reference.
- ※ It is surely suspending engine in the case of work.

The number of links of a sprocket and a chain

Drive sprocket	Driven sprocket	The length of a swing arm, and the number of links of a chain				
		Stock swing arm	4cm Stretch	8cm Stretch	12cm Stretch	16cm Stretch
12 (Stock)	31 (Stock)	72 (Stock)	—	—	—	—
12 (Stock)	31 (Stock)	76 (Stock)	—	—	—	—
16	30	74	78	84	92	100
15	25	72	76	84	90	98
16	25	72	76	84	90	98
16	28	—	—	—	92	100



- ◇ Fit the master link from inside to connect the drive chain, and attach a link plate.



- ◇ Attach a clip.
- ※ Be sure to attach the clip with its end-gap in the opposite direction of driving.



- ◇ Fully tighten the loosely-installed drive sprocket bolt.

⚠ Note: Be sure that you protect specified torque.
Bolt
Torque : 12N · m (1.2kgf · m)

○ Installation of crankcase left-side cover.



- ◇ Install three bolts to hold a crankcase left-side cover.

⚠ Note: Be sure that you protect specified torque.
Screw
Torque : 12N · m (1.2kgf · m)

- ◇ Install a change pedal.

⚠ Note: Be sure that you protect specified torque.
Change pedal
Torque : 10N · m (1.0kgf · m)



- ◇ Check for slack in the bolts and the like fixed all the way from the engine to the suspension.
- ◇ Turn on the fuel cock.

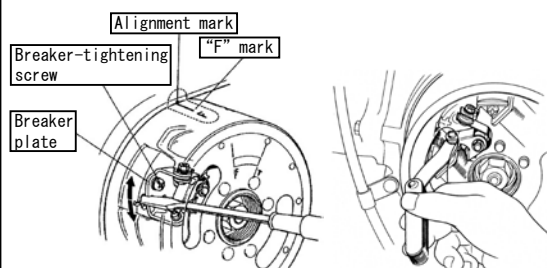


○ Inspect and adjust the ignition timing.

- ◇ If the ignition timing is off, the engine likely will malfunction seriously let alone fail to exhibit its original performance. Therefore, it is advisable to check and adjust the ignition timing without fail. If you cannot do the work yourself, we recommend that the work be done by your local motorcycle dealer.
- ◇ Using a timing light (Item No. 00-01-009), check at the time of idling that the "F" mark on the flywheel aligns with the alignment mark on the crankcase.



- ◇ Adjust the ignition timing by loosening the breaker-tightening screw and moving the breaker plate a little bit at a time.



- ◇ After the adjustment, rotate the crankshaft so that the point gap becomes the widest. And measure the gap with a thickness gauge. Point gap: 0.3 - 0.4 mm
In case the gap is outside the limits, replace the point.

How to Set the Carburetor

- When the carburetor does not match the engine and the engine fails, the engine failures are caused by either too dense or too lean air-fuel mixture.
- The engine failure symptoms for the engine are as follows:

When the air-fuel mixture is too dense:	When the air-fuel mixture is too lean:
<ul style="list-style-type: none"> • The explosion sound with a dull thud continues intermittently. • The engine malfunctions further if you use the choke. • The engine malfunctions when you warm it up. • The engine works well if the cleaner is detached. • The motorcycle belches dense (or, black) exhaust gas. • The plug smolders, getting blackened. 	<ul style="list-style-type: none"> • The engine overheats somewhat. • The engine starts working well If you use the choke, . • The engine does not accelerate well. (No smooth acceleration) • Revolutions change, generating weak power. • The plug burns white.

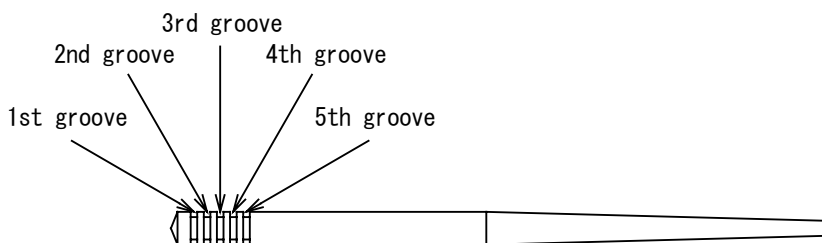
- ※ Set the carburetor only after warming up the engine, and then test-drive. And use a plug with the right heat value.
- ※ Do the setting in the following manner, studying at what throttle opening position the engine starts failing.

○ Jet needle (Throttle position at 1/4 - 3/4)

Whether or not the engine revolution is in proportion to the throttle operation

- When the acceleration is not smooth or even, make the air-fuel mixture dense.
- Make the air-fuel mixture lean when the engine revolution goes up heavily and belches black gas.

The mixture ratio at this throttle position can be adjusted by the location of E-ring in the grooves. The air-fuel mixture becomes dense as the location of the E-ring moves down from the 1st to the 5th groove.



○ Main jet (The throttle position at 3/4 - 4/4)

- The air-fuel mixture ratio at this throttle position can be adjusted by changing the number of the main jet. The larger the main jet numbers, the denser the mixture ratio becomes.
- In view of the engine and muffler specifications, select the most appropriate main jet to get the highest revolutions.

○ Slow jet / Pilot jet (First of all, please adjust the air screw.)

- In case you have given more than three turns to the air screw to tighten it, use a slow jet / pilot jet with a small number.
 - If you have tighten the air screw (clockwise) to the full, use a slow jet / pilot jet with a larger number.
- Check whether you have made a right choice of the pilot jet by seeing if the engine starts up revolving smoothly from the idling to running at slow speed.
- When the engine revolves up unevenly, the slow jet / pilot jet number is too small. (At idle)
 - When the motorcycle belches black exhaust gas and produces heavy exhaust sound, the slow jet / pilot jet number is too big. (At idle)
 - After replacing the slow jet / pilot jet, you need to readjust the airscrew.

○ Air screw

The air screw adjusts the air mass flow at the time of engine' s revolving at slow speed. (At idling)

- Give the air screw a right turn → The air-fuel mixture gets dense.
- Give the air screw a left turn → The air-fuel mixture gets lean.

Loosen the tightened air screw back to the 1.5-turn position. And then from this position, give to the airscrew a right or left turn of 1/4 to 1/2 till the engine revolves at the highest speed.

Loosen the idle stop screw till you get the steady idling revolutions. And once again adjust the position of the airscrew to get the highest revolutions.

● On how the barometric pressure, temperatures and humidity affect the setting:

- At highlands or at high altitudes, the barometric pressure and air density go down and the air gets into the carburetor in less amounts.
This makes the air-fuel mixture dense which was adjusted at low altitudes.
- Under the weather conditions with very low temperatures, the air density increases, which makes the air-fuel mixture lean.
- Under the rainy and humid weather conditions, the air density decreases, which makes the air-fuel mixture dense.