80cc Hyper S-Stage Bore Up Kit
Instruction Manual

Item No.	: 0 1 - 0 5 - 0 0 9 4
Applicable Model	: Ape (FI)
Frame No.	: AC18-1000001～

Thank you for purchasing one of our 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 combusiton 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 a supplied CR8HSA (NGK) or U24FSR-U (DENSO). Use a spark plug with the right number, 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, 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.
◎ We would recommend our TAKEGAWA's muffler to make your engine 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 crankcase 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.

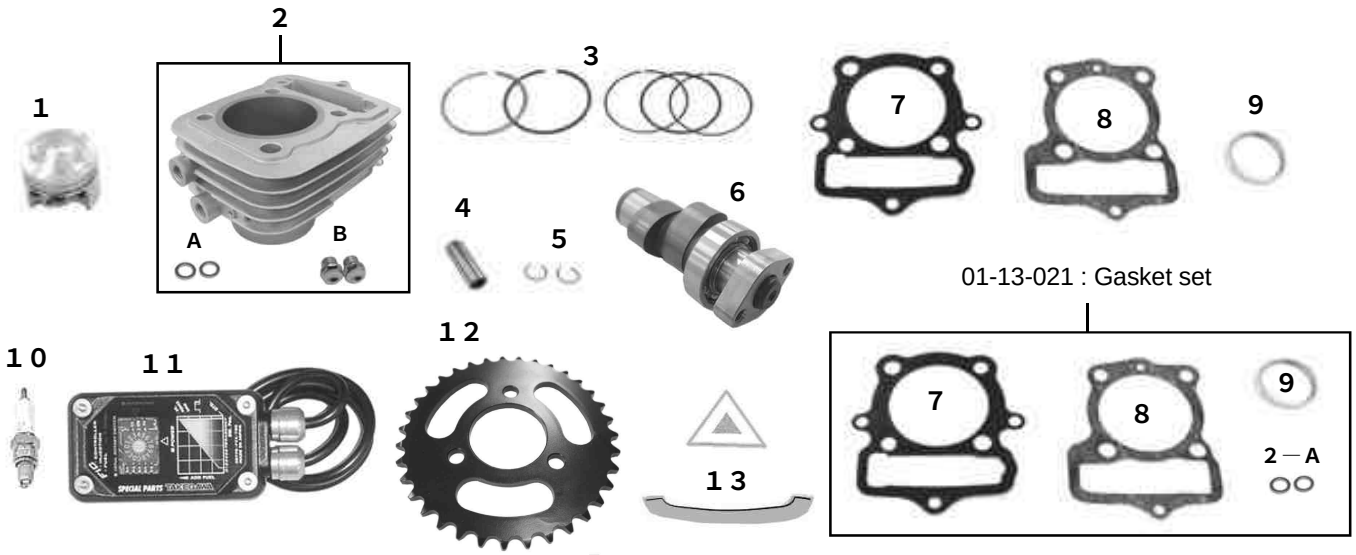
- Please always try to ride a motorcycle at legal speed on the public road, abiding by the law.
- Always drive the engine in a well-ventilated place, and do not switch the engine on in an airtight place.
  (Otherwise, you will suffer from carbon monoxide poisoning.)
- When you notice something abnormal with your motorcycle while riding down a road, stop riding immediately and park your motorcyle in a safe place.
  (Otherwise, the abnormaility could lead to an accident.)
- Before doing work, place the motorcycle on level ground to stablize 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 maintence 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 valve 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～

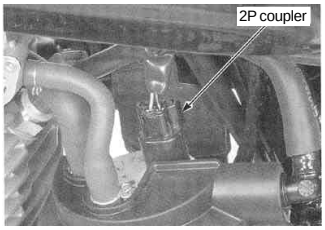


No.	Parts Name	Qty	Repair Part Item No.	in packs of
1	Piston, 53.5 mm	1	13104-149-T00	1
2	Cylinder COMP.	1	01-01-041	1
2-A	Aluminum sealing washer, 10 mm	2	00-07-0010	10
2-B	Oil plug bolt	2	90145-GEY-T00	1
3	Piston ring set, 53.5 mm	1	13011-GBG-T00	1
4	Piston pin, 13 x 38.5	1	13112-165-T01	1
5	Piston pin circlip	2	00-01-0003	6
6	Cam shaft	1	01-08-0123	1
7	Cylinder head gasket	1	12251-GEY-T00	1
8	Cylinder gasket	1	00-01-0075	2
9	Exhaust pipe gasket	1	00-01-0027	2
10	Spark plug	1	NGK-CR8HSA	1
11	FI Controller (for S-Stage)	1	03-05-0014	1
12	Driven sprocket, 35T	1	02-07-3401	1
13	Mark set	1	————	

※Please order repair parts with the Repair Part Item No. Without the repair part item No., we may not be able to provide the correct parts.
Some parts are only available as a set. Please order them with the set number.

～ Installation Procedures ～

◇After turning off the main switch, disconnect a black 2P coupler from the fuel pump unit.

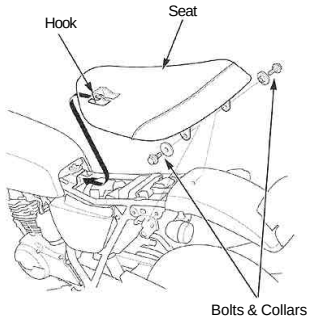


◇After turning on the main switch, crank the engine more than five times with a kick starter in order to depressurize the inside of the fuel hose.
◇Turn off the main switch.

●Engine Removal

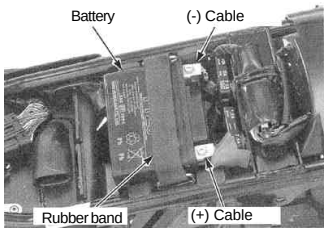
Seat and Tank Removal

◇Unfasten two bolts and collars to demount the seat.

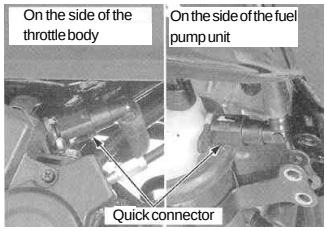


※ How to remove the quick connector:

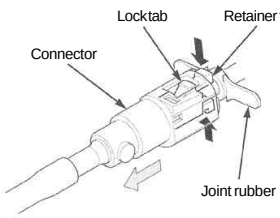
1 . Disconnect the cable from the battery.



2 . Clean the portion around the quick connector with an air-blower, and cover the portion with a waste cloth.

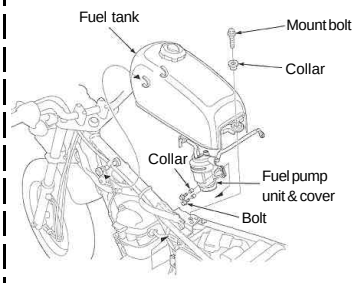


3 . Press in the retainer tab to detach the lock tab from the connector. And pull out the connector.



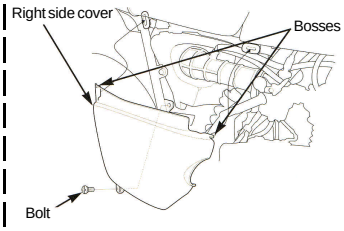
4 . Cover the just-removed connector with a vinyl in order to prevent the dust and dirt from getting into the connector.

◇Following the above example, detach the quick connector on the side of the throttle body.
◇Unfastening a mount bolt and a collar, and two pieces each of bolts and collars, demount the tank.

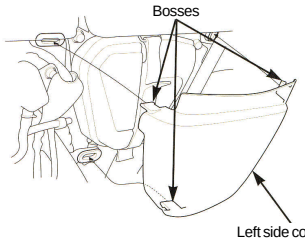


Side Cover Removal

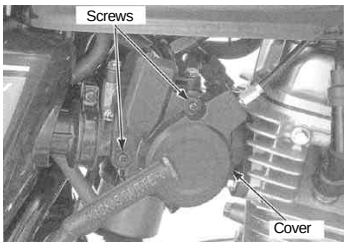
◇Unscrew a bolt on the right side cover.
The cover can be removed by detaching two bosses from the frame.



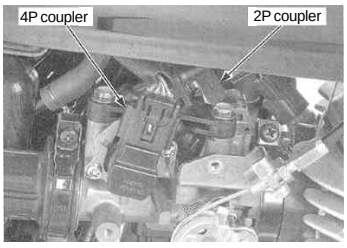
◇Dismount three bosses on the left side cover from the frame, then the side cover becomes detached.



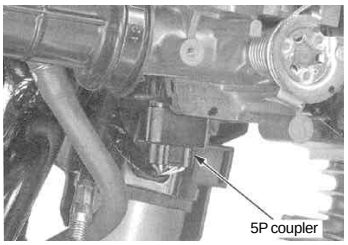
◇Unfasten the screw to remove the throttle drum cover.



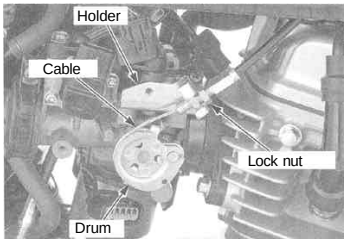
◇Disconnect a black 4P coupler from IAC valve and a black 2P coupler from the injector.



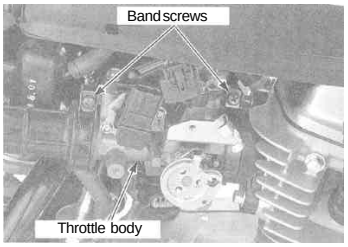
◇Disconnect a black 5P coupler from the sensor unit.



◇Loosen the lock nut to remove the throttle cable from the cable holder and throttle drum.



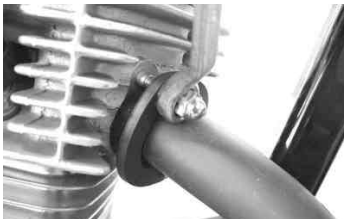
◇Loosen the connecting tube band screw and insulator band screw to remove the throttle body.



※After removing the throttle cable from the throttle body, never snap the throttle valve from the full-bore to the fully-closed position.
※Never hit the throttle body hard like dropping it. Otherwise, the severe shock may cause the throttle body to malfunction.

Exhaust Muffler Removal

◇Take off two nuts on the cylinder head side.



◇Unscrew and remove mounting bolts and washers, and detach an exhaust muffler.

Spark Plug Removal

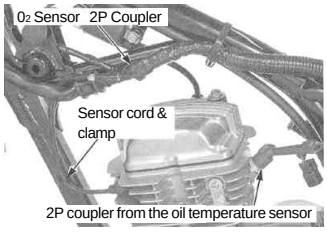
◇Pull a plug cap to demount it. Be sure to pull the cap, not a wire.

◇Remove a spark plug.

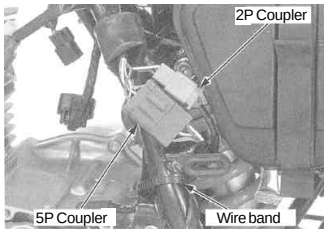
Wiring Disconnection

Sensor Coupler Removal

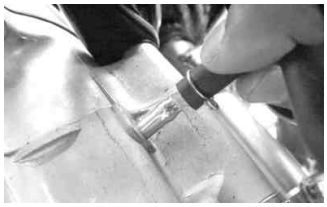
◇Disconnect a brown 2P coupler from the oil temperature sensor and a black 2P coupler from the 0_2 sensor in order to remove 0_2 sensor cord from the clamp.



◇Unfasten a wire band, and disconnect a green 2P coupler from the side stand switch and a brown 5P coupler from the AC generator.



◇Disconnect the wiring of the breather hose.



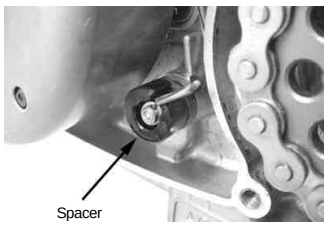
◇Loosen the nut on a clutch cable guide, and disconnect a clutch cable from a lifter lever.

◇Disconnect the clutch cable from the cable guide.

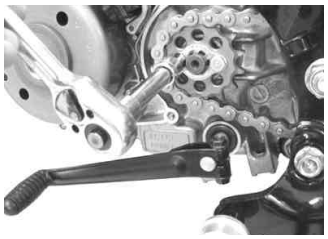
Drive Sprocket Removal

◇Unscrew five bolts on the left side crankcase cover, and remove the left side crankcase cover.

◇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.



Left Step Removal

◇Remove the side stand switch cord from the frame.

◇Unscrew two bolts, and remove the left step.

Engine Removal

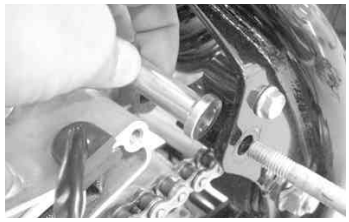
◇Place a jack or substitute stand under the engine to hold up the engine.

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

◇Remove a nut on the upper rear engine mount.

◇Remove a bottom side nut also.

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



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

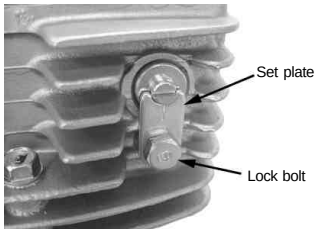
●Removal of Cylinder Head, Cylinder, and Piston

Cylinder Head Removal

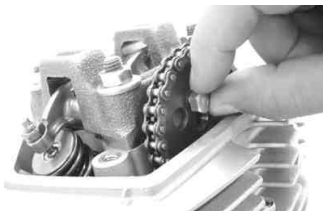
◇Unscrew two bolts on the cylinder head cover, and remove the cylinder head cover and its gasket.

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

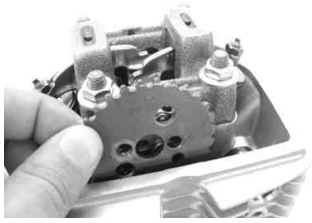
◇Unfasten a lock bolt and a set plate, and remove an adjuster.



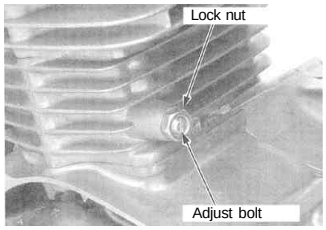
◇Remove two hex' bolts from the cam sprocket.



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



◇Loosen an adjust bolt and lock nut at the back of the cylinder.



◇Demount a cylinder head mounting bolt.

◇After loosening 4 camshaft holder nuts diagonally in a few steps, detach 4 washers, a camshaft holder, a camshaft, a bush and a dowel pin.

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

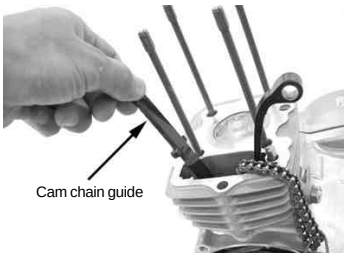
◇Remove the cylinder head.

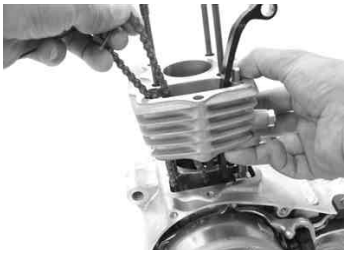
◇Detach two dowel pins in advance and keep them for re-use.

◇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.)

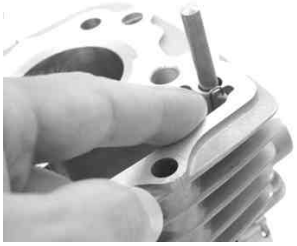




◇Take off two dowel pins in advance and keep them for re-use.

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

◇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

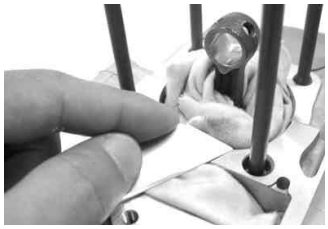
◇Remove one of the two piston pin circlips.
※You can remove it by prising it open with a screwdriver with its tip on the notch.

◇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

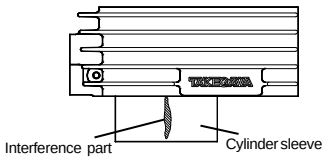
◇Completely get rid of the gasket scraps on the mating surface with a cutter or a scraper.
Be careful not to give scratches to the surface.



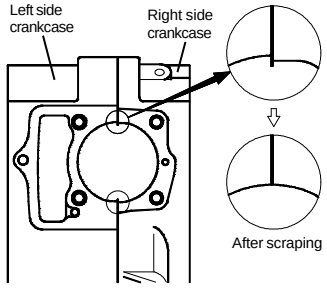
◇Wipe the surface with a waste cloth.

● Crankcase Modification

※In fixing the cylinder onto the crankcase, in some cases 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 these parts as they are will lead to sleeve deformation and engine troubles, do not fail to check these parts for the interference.



◇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.



◇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.

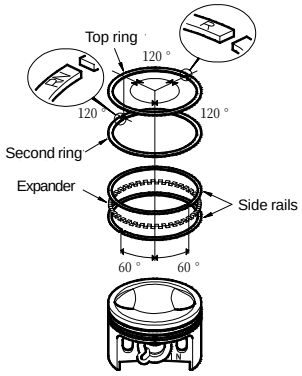
●S-Stage Kit Installation

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.

◇Fix piston rings according to the figure below.



◇Fix the oil ring expander.

◇Fix the lower oil ring side rail.

◇Fix the upper oil ring side rail.

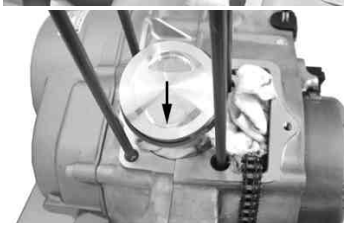
◇Fix the second ring, turning up the side with an engraved letter "N".

◇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.

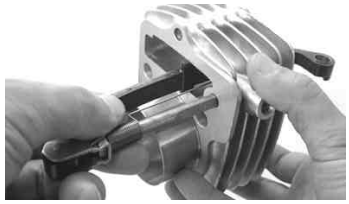
◇Apply engine oil to the piston pin and place the piston in a position so the "EX" mark on the upper side of the piston faces the front or exhaust side.



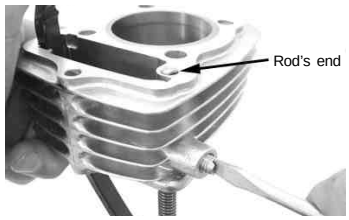
◇Fix the other piston pin circlip, included in the kit, to the pin hole.
※Place the circlip in a position so the end-gaps of a piston pin circlip do not meet with the notch on the hole.
※It is relatively easier to press it by a driver with care not to give scratches to the piston.
※Do the job carefully as, in some cases, thepiston pin circlip may come off flying while you press it inside.

Cylinder Installation

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



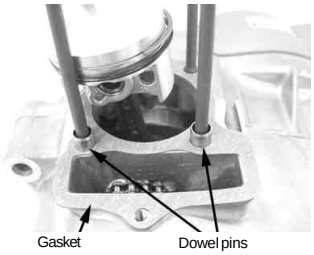
◇Place the cam chain tensioner in a position so the end of the rod will be nearly on the same level as the clamp face.
Fix it with an adjust bolt and tighten the lock nut.



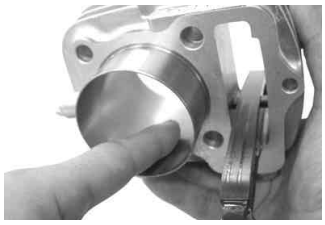
◇Remove the waste cloth.

◇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.

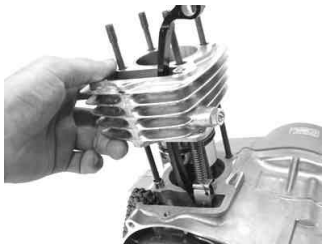


◇Apply engine oil to the inside of the cylinder and spread it with fingers to be equally applied all over.



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

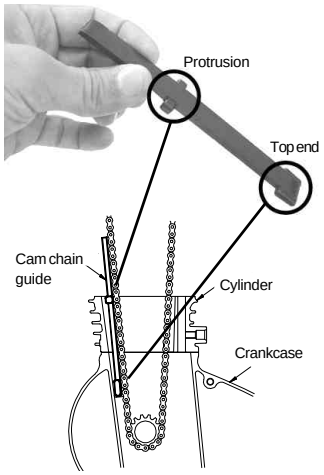
◇Let the cylinder in.



◇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.

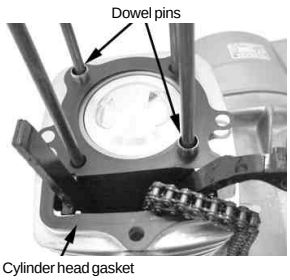
◇Insert the cylinder, fitting the end of a cam chain guide into grooves in the crankcase and the protrusion into grooves in the cylinder.



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.



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

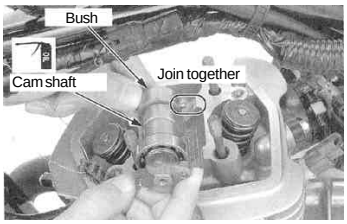
◇Install an adjuster, passing it through the cam chain tensioner and the cylinder head.

◇Temporarily attach a set plate with a lock bolt.

◇Temporarily tighten the cylinder head mountiong bolts.

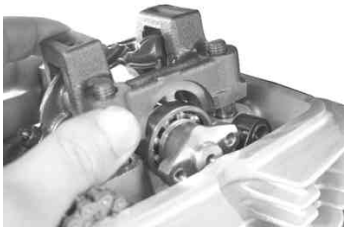
Installation of Cam Shaft and Cam Sprocket

◇Apply engine oil to the journal and cam surfaces of the cam shaft, and install the camshaft to the cylinder head with the camshaft's cam top facing downwards.



◇Attach two dowel pins, and as shown in the photo, route the camshaft under the chains.

◇Install the cam shaft holder.



◇Attach four washers, and tighten four nuts evenly and diagonally in a few steps.

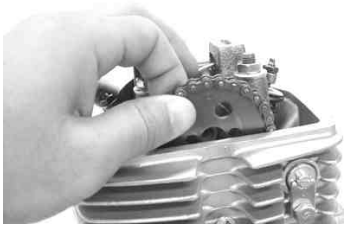
⚠Caution: Apply the specified torque.
Torque: 20 N • m (2.0 kgf • m)

◇Fully tighten the cylinder head mounting bolts. Be careful not to get the cam chain jammed between the cylinder head mount and camshaft.

⚠Caution: Apply the specified torque.
Torque: 12 N • m (1.2 kgf • m)

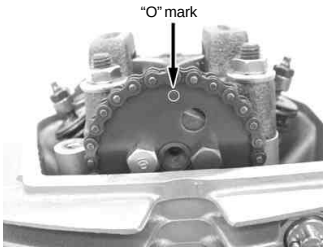
◇Check that "T" mark on the flywheel is aligned with the "▽" mark on the crankcase.

◇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.



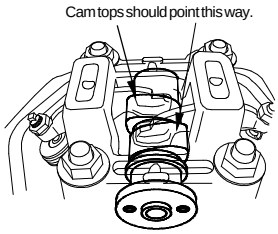
◇Fix the flywheel and fully tighten the hex' bolts on the cam sprocket.

⚠Caution: Apply the specified torque.
Torque: 12 N • m (1.2 kgf • m)

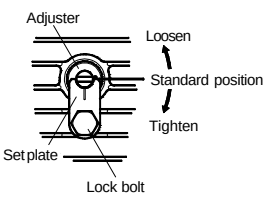
Cam Chain Adjustment

※A cam chain, whether tightly or loosely streteched, will impair the engine conditions. Perform this procedure correctly.

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



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



◇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.

⚠Caution: Apply the specified torque.
Torque: 10N • m (1.0 kgf • m)

◇In case you can not get the proper tension of the cam chain 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.

⚠Caution: Apply the specified torque.
Torque: 12 N • m (1.2 kgf • m)

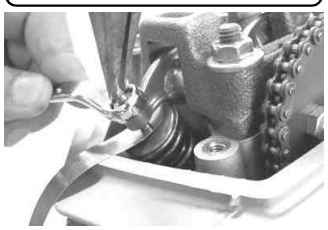
◇Again, move the adjuster and hold it where the camchain has no slackness and you do not feel it hard to rotate the flywheel. Then tighten the lock bolt to fix the adjuster.

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 0.1mm thickness gauge between the adjust screw and the end face of the valve (or, valve clearance).

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

⚠Caution: Apply the specified torque.
Torque: 10N • m (1.0 kgf • m)



◇After tightening the nut, double check the valve clearance with the 0.1mm 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.

⚠Caution: Apply the specified torque.
Torque: 12 N • m (1.2 kgf • m)

●Engine Mounting

Engine Mounting

◇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.

◇Join a collar and a clutch cable guide together, and insert a bolt into the upper part of the rear engine mount from the left side.

◇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.
Torque:

⚠Caution: Apply the specified torque.
rear engine mount nut
: 44 N • m (4.5 kgf • m)
front engine hangar plate nut
: 26 N • m (2.7 kgf • m)

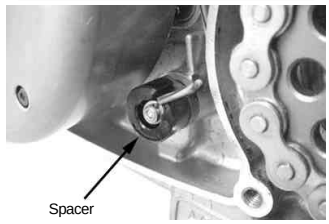
◇Fit the fixing plate into the counter shaft to align with the threaded holes on the drive sprocket, and fix two bolts.

⚠Caution: Apply the specified torque.
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.

⚠Caution: Apply the specified torque.
Torque: 12 N • m (1.2 kgf • m)

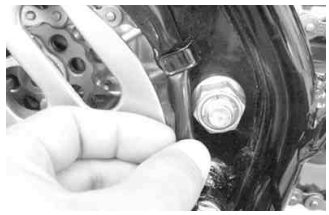


Installation of Left Side Step

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

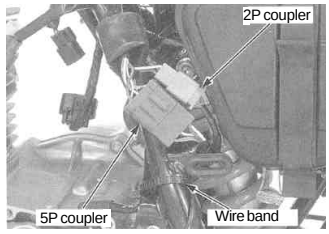
⚠Caution: Apply the specified torque.
Torque: 26 N • m (2.7 kgf • m)

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

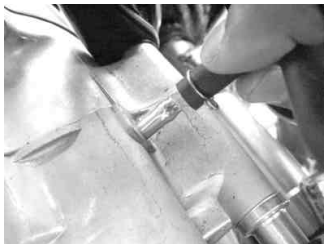


Wiring

◇Connect a green 2P coupler from side stand switch and a brown 5P coupler from AC generator, and fasten them onto the frame with a wire band.



◇Connect the breather hose.



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

Spark Plug Installation

◇Screw kit's spark plug by hand at first.
◇Then tighten it with a plug wrench.

⚠Caution: Apply the specified torque.
Torque: 14 N • m (1.4 kgf • m)

◇Fix a plug cap.

Exhaust Muffler Installation

◇Temporarily tighten two nuts on the cylinder head side.

※Insert the stock muffler from between the step and engine.

◇Temporarily tighten two mounting bolts and washers.

◇Here, tighten firmly three loosely-tightened parts.

⚠Caution: Apply the specified torque.
two nut : 12 N • m (1.2 kgf • m)
mounting bolt : 13 N • m (1.3 kgf • m)

◇Firmly tighten the loosely-tightened three parts.

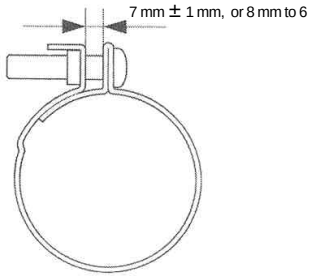
⚠Caution: Apply the specified torque.
two nut : 12 N • m (1.2 kgf • m)
Lock nut : 34 N • m (3.5 kgf • m)

◇Insert the kick pedal into the shaft, and tighten it with a bolt.

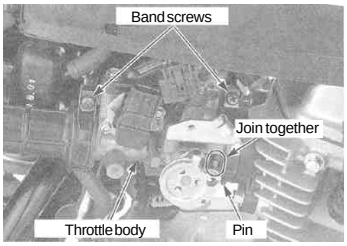
⚠Caution: Apply the specified torque.
Torque: 12 N • m (1.2 kgf • m)

Throttle body Installation

◇Aligning the protrusion with the grooves, install the throttle body onto the insulator. Tighten up the band screw until the distance between the edges of the insulator band comes down to 7 mm ± 1 mm, or 8 mm to 6 mm.

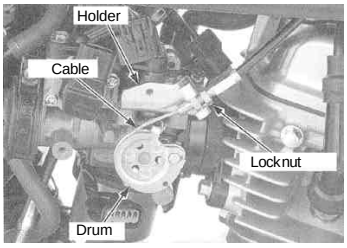


◇Install the connecting tube onto the throttle body, and tighten up the band screw firmly.

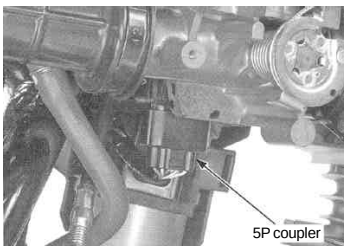


※Please check that the hole in the band is right on the insulator-locating pin.

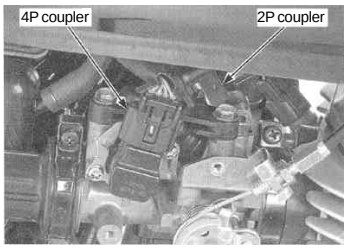
◇Connect the throttle cable to the throttle drum, and fix the cable to the cable holder.
◇Loosely tighten the lock nut for now, and adjust the free play at the throttle grip.



◇Connect a black 5P coupler from the sensor unit.

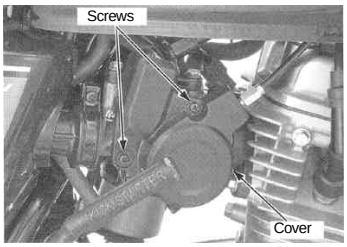


◇Connect a black 4P coupler from IAC valve and a black 2P coupler from the injector.



◇Install a throttle drum cover and tighten the screw to the specified torque.

⚠Caution: Apply the specified torque.
Torque: 12 N • m (1.2 kgf • m)



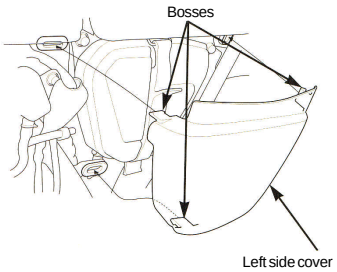
◇Fix the throttle valve to the carburetor by aligning a notch on the throttle valve with the throttle stop screw, and install the top cap to carburetor.

●Installation of an FI controller.

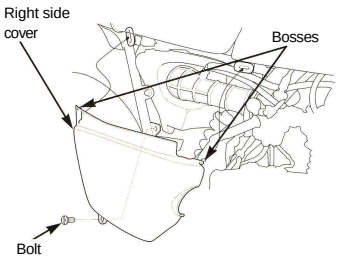
◇Please install the FI controller referring to its instruction manual.

● Side Cover Installation

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



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



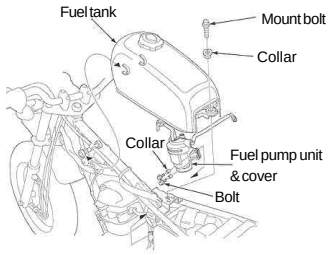
Installation of Seat and Tank

◇Fix the fuel tank onto the frame, and screw up the bolt.

⚠Caution: Apply the specified torque.
Torque: 26 N • m (2.7 kgf • m)

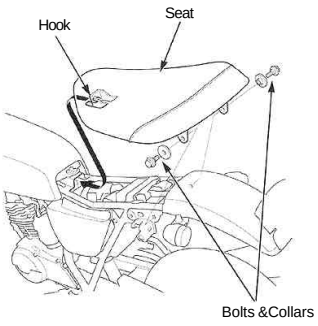
◇Install the fuel pump unit.

⚠Caution: Apply the specified torque.
Torque: 12 N • m (1.2 kgf • m)



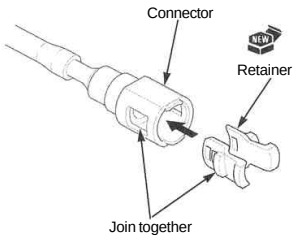
◇Fit the hook in the front on the back side of the seat into the frame, which please fix to the frame with two bolts and a collar.

⚠Caution: Apply the specified torque.
Torque: 26 N • m (2.7 kgf • m)



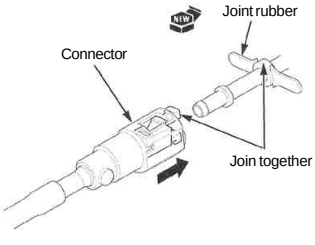
※How to connect the quick connector.
Once you have disconnected the quick connector, it is advisable to change the retainer and joint rubber with new ones.

1 . After joining two protrusions on the lock tab and holes in the connector together, install the retainer to the connector.

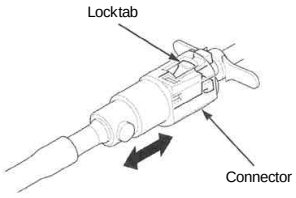


2 . Install the joint rubber onto the joint.

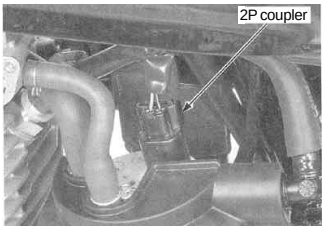
3 . Install the quick connector straight onto the joint, and, as shown in the picture below, align the grooves (or the recessed portions) of the retainer with the joint rubber. Press in the connector until it clicks. If you cannot easily install the connector, apply a thin coat of engine oil to the joint.



4 . Move the connector back and forth, and check that the connector is firmly held by a lock tab and connected securely.



5 . Connect a black 2P coupler from the fuel pump unit.



6 . Connect the battery cable.

7 . Keep the main switch turned on for a few sec onds to check for fuel leakage. (At this point, never start the engine.)

◇Referring to the above, connect the quick connector on the side of the throttle body.

◇Please separately purchase an FI Controller available as an optional extra, which please install following the instructions in its Instruction Manual.

☆ Engine Starting ☆

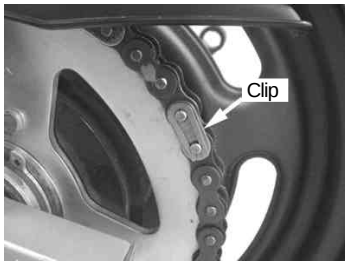
○Wipe off the dirt and dust on the engine.
○Turn ON the ignition key, and start the engine.
Work only in a well-ventilated place.
○Check for any abnormality such as an abnormal sound.
○If nothing abnormal is detected, carry out a shakedown for about 30 to 50 km, and check the valve clearance again.
Work only when the engine and the muffler are cool.
○Carry out a shakedown again for about 100 to 150 km.
○After the shakedown, double-check for any abnormality such as an abnormal sound and blow-by gas.
(If any abnormality is detected, disassemble the engine again and check each section.)
Never re-use parts which cannot be re-used.

●Driven Sprocket Installation and Chain Adjustment

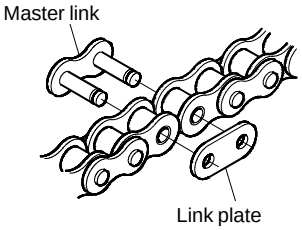
※Always stop the engine when working.

Drive Chain Removal

◇Remove a clip.

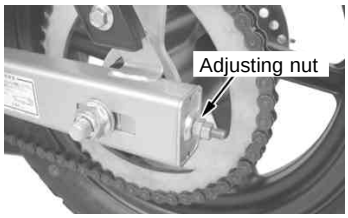


◇Remove a link plate and a master link, and then a drive chain.



Wheel Removal

◇Loosen an adjusting nut.



◇Holding an axle shaft, remove an axle nut and washer.

◇Take out the axle shaft, remove a rear caliper by sliding it backward, and then remove a wheel.

◇Detach collars on the left and right sides of the wheel.

Stock Driven-Sprocket Removal

◇Remove three nuts first, and then a stock driven sprocket.

Driven Sprocket Installation

◇Install a kit's driven sprocket and then three nuts onto the wheel.

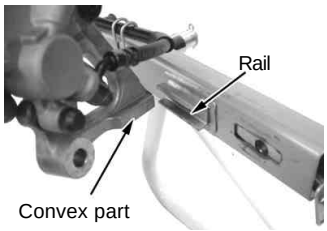
⚠Caution: Apply the specified torque.
Torque: 54 N • m (5.5 kgf • m)

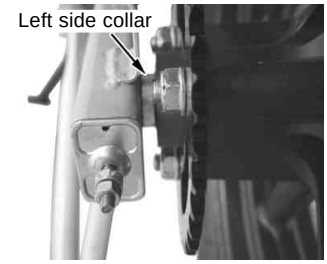
Wheel Installation

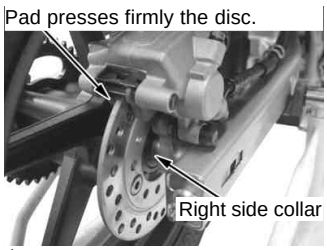
◇Attach collars to the right and left sides of the wheel.

◇After setting the wheel, install the rear caliper.

◇At this point, check the following three points: (1) the convex part of the rear caliper fits into the rail of an swing arm; (2) collars fit into the right and left sides of the wheel; and (3) a rear caliper brake pad presses firmly the rear disc.

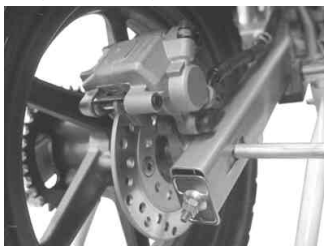






◇Check that the washer is through the axle shaft.

◇Adjusting the positions of the wheel, the rear caliper, and the swing arm, insert the axle shaft.

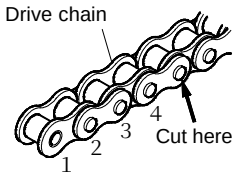


◇Loosely tighten the washer and the axle nut.

Cutting Drive Chain

※When the stock sprocket is changed to the kit's driven sprocket, it's impossible to cancel the slackness of the drive chain just by adjusting the free play. You need to shorten the chain by cutting it with a chain cutter or the like.

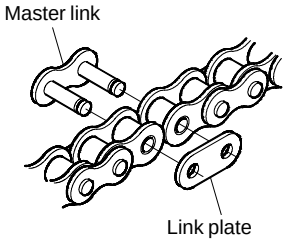
◇In case of a stock chain, cut four links off the chain.



Drive Chain Installation

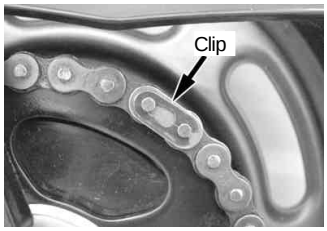
◇Fix the drive chain to the drive sprocket and the driven sprocket.

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



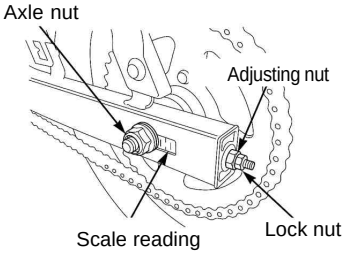
◇Attach a clip.

※Arrange the position of the ring-end gap to be in the opposition direction of the vehicle's movement.

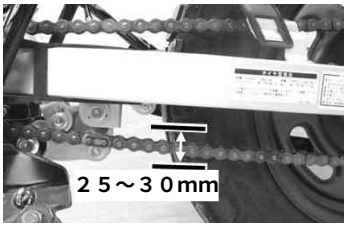


Adjustment of Drive Chain Free Play

◇Rotate the right and left adjusting nuts to adjust the free play on the drive chain, but see to it that the scales on the right and left are the same.



◇Check the free play at around the mid-point of the sprocket in the riding condition.
Free play: 25-30 mm



◇Holding the adjusting nut, tighten the lock nut.

◇Holding the axle shaft, tighten the axle nut.

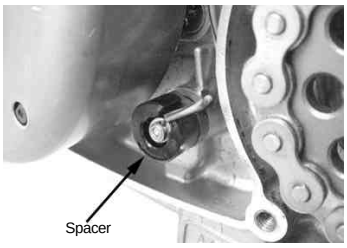
⚠Caution: Apply the specified torque.
Torque: 62 N・m (6.3 kgf・m)

● Left-Side Crankcase Installation

◇Degrease the mating surfaces of the left-side crankcase cover and the crankcase with thinner or the like.

◇Attach the spacer, and fix the left-side crankcase cover and a new gasket to the crankcase with five bolts.

⚠Caution: Apply the specified torque.
Torque: 12 N・m (1.2 kgf・m)



●Cautions Before Running

① About fuel

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

② Change of 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, please make the sprockets to be with a high gear ratio.

◇ Ape : The referential secondary reduction gear ratio of S-Stage is 2.5 (when the driver weighs 65 kgs).
The secondary reduction gear ratio is figured out by the following calculation: The number of teeth of the driven sprocket on the rear side ÷ the number of teeth of the drive sprocket on the engine side.
Example: 35T (driven sprocket) ÷ 14T (stock drive sprocket ＝ 2.5 (secondary reduction gear ratio)

● Other notes

① Oil Cooler

◇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 motorcycle with an oil cooler Kit (09-07-2154: 4 fins, 5 oil lines, 09-07-2153: 3 fins, 4 oil lines) for long-hour high-load driving.

② Thermometer

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

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