S-Stage KIT Instruction manual

Product number 01-05-501H (B-TYPE)

Adaptation model Monkey / Gorilla (Z50J-1600008 ~ 1805927)

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.

${\tilde{O}}$ 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 Plugs-

Be sure to replace a spark plug with a C8HSA (NGK) or U24FS-U(DENSO). Choose and use a right spark plug with the right level, depending on the degree of burning of the spark plug electrode section.

\Leftrightarrow Please read carefully before use \Leftrightarrow

- © 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.
- \odot If you make modifications to any product supplied here, we shall be held free from any guarantee of the product.

 \odot 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.
Be sure to always use unleaded high-octane gasoline.

\sim feature \sim

O Now kit is available from us which can bore up to 88cc with a normal 55cc cylinder head installed. Thus, with this kit you can enjoy the feeling of a heavy engine. We have developed this kit as a street youth kit which you can assemble as easily as a plastic model and with which you can study the engine structure.

\Lambda 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.)
- X 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.

Marning 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.
- \odot Keep this manual stored until this product is discarded.



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

Product content												
	01-02-517											
Piston Kit				5				$\overline{\mathcal{O}}$				
1	(2	1.8.8.1									
		$\times $					P					
)		2-10	100			1				
(3)												
(4) C		X	/									
	(8)	(9)			(11)	(12) (13)	(14)	(15)				
~												
0												
Number	Product content	Quantity	Itom Nu	mher	Number	Product content	Quantity	Item Number				
1	Piston	1	00-01-0014 (w	ith ③nin)	9	Right side cover gasket	1	00-00-1182				
2	Piston ring	1	01-15-014		10	Left side cover gasket	1	00-01-0158 (2 pcs)				
3	Piston pin, 13x36	1	00-01-0091 (w	ith ④clip)	11	Tappet cap O-ring	2	00-01-0034 (4 pcs)				
4	Piston pin circlip	2	00-01-0003 (6	pcs)	12	Exhaust pipe gasket	1	00-01-0064 (2 pcs)				
5	Cylinder	1	01-01-0241H		13	Rubber packing	1	00-01-0066 (2 pcs)				
6	Cylinder head gasket	1	00-00-1147		14	Inlet pipe gasket	1	00-01-0159 (2 pcs)				
7	Cylinder gasket	1	00-01-0067 (2	pcs)	15	Camshaft	1	01-08-034				
8	Head cover gasket	1	00-01-0156 (2	pcs)								

% 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:



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.



• Before riding:

① About fuel to use:

 \diamond Be sure to always use high-octane gasoline.

 \diamondsuit Whenever regular gasoline remains in the fuel tank, always replace it with high-octane gasoline.

Change of sprocket:

♦ The installation of this Kit will increase the power of your vehicle. So with the stock sprocket, you will find it uncomfortable to drive your bike because of too low gear. And the low gear ratio will cause severe wears of hardware, not only adversely affecting the engine life, but also possibly breaking the engine in the worst case. Therefore, please replace the drive and driven sprockets to make the gear ratio high.

 \otimes Please note that a sprocket is not included in the Kit.

% The gear ratio of the sprocket varies depending on the clutch types and wheel sizes. The list below is just for your reference because the configuration in the list below needs to be changed according to the driver's weight, purpose of use, desire, taste and the like. % When changing the driven sprocket, remove the hardware on or around the rear wheel. Before doing the installation, secure your

motorcycle on a racing stand and raise the rear wheel off the ground.

Specifications of S-Stage Type B, and recommended sprockets when the driver weighs 65 kg.

Model		Specifications		Recommended sprocket			
	Rear wheel size	Clutch	Transmission	Drive sprocket (front)	Driven sprocket (rear)		
6V Monkey and Gorilla	8″	Manual	4-speed	15	25		

♦ When the stock sprocket is changed to the recommended sprocket, the drive chain becomes too slack or too short. You need to either shorten the chain by cutting it with a chain cutter or the like, or to prepare a new drive chain. Chain length varies depending on the swing arm length.

• To get further and better performance:

① Carburetor:

You can make the engine more powerful through the installation of a special Big Bore Carburetor Kit of Item No. 03-05-0056 which effectively ensures maximum power of the S-Stage.

2 Muffler:

To render your motorcycle more powerful, please use our various kinds of mufflers.

③ 0il pump:

The increase in the output power accordingly raises the heat release value of the engine. We recommend you, therefore, to install the Super Oil Pump of Item No. 01-16-0059 which helps to circulate large amounts of oil, cool various hardware and alleviate strains on engine.

④ Oil cooler:

As a long-time high-load driving will increase the heat release value of the engine, we recommend you to install an Oil Cooler Kit which keeps oil at appropriate temperatures and prevents such troubles as oil film shortage at high temperatures.

O For details, please refer to our general catalog or WEB catalog. http://www.takegawa.co.jp





SPECIAL PARTS

2023.6.5

Turn counterclockwise a guide roller bolt on the cylinder and a side bolt between the cylinder and crankcase to loosen those bolts.



O Remove the 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.



O Remove the 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 hissing noise from the tire 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,



♦ Pressing the front tire, remove the cylinder head. Now you can see the reason why you have let the air out of the tire.

♦ Keep the removed two dowel pins for reuse.



O Remove the cylinder:

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



Pull out the cylinder. (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 down the tire with a hand.



O Remove the piston:

Plug the cylinder hole in the crankcase and cam chain with a waste cloth so as never to let the dirt, dust or hardware into the cylinder hole and cam chain.



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



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 circlip is attached.



 $\overline{\diamondsuit}$ Remove the piston.



O Remove a 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 cylinder hole, cut them off.

Never let any dirt or hardware drop into the crankcase.



Cut off the gasket, if any, squeezing out into the section pointed by a finger as shown in the 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 crankcases 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.

© Tips on how to fix the interference

- 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.





SPECIAL PARTS

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

O Change of camshaft:

- Loosen the tappet nuts and bolts on the rocker arm installed in the cylinder head.
- ♦ At the time the tappet nuts are loosened, detach the tappet bolts together with nuts.



◇ Install the cam-sprocket bolt into the camshaft. The camshaft will come out when you pull it out or strike its head lightly with a plastic hammer. 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 camshaft and camshaft bearing. 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.



O Installation of cylinder head: With thinner, degrease the cylinder head surface and upper surface of the cylinder. Fix two dowel pins into the cylinder.



- 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.



Stick the screwdriver through the cam chain into a middle hole on the camshaft so the cam chain will hang down on the screwdriver just in case the chain comes off.



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



◇ 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 is viewed from the front)



(In case a torque wrench is not available, tighten them diagonally, securely and inch by inch.)

▲ Note: Be sure that you protect specified torque. Head nut





Attach a head-side bolt. Then, tighten fully the guide roller bolt and the cylinder side bolt which were temporarily tightened beforehand.

▲ Note: Be sure that you protect specified torque. Guide roller bolt Torque : 10N • m (1.0kgf•m) lower and upper side bolt

Torque : $10N \cdot m$ (1. 0kgf $\cdot m$)



O Installation of camsprocket:

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



Set the flywheel so the stamped "T" mark is located on top when the cam sprocket bolt hole is turned toward the notch on the cylinder head. This arrangement places the cam shaft at TDC (Top Dead Center) on the compression stroke.



♦ After fixing the cam sprocket, attach the bolt.

While attaching the cam sprocket to the cam chain, install the cam chain so the "O" mark on the cam sprocket and the notch on the cylinder head mesh together.

Then, attach the cam sprocket to the camshaft.



 ◇ Install a camshaft washer.
◇ Holding the flywheel, tighten up three cam sprocket bolts.

 ▲ Note: Be sure that you protect specified torque.
Cam sprocket bolt Torque : 9N • m (0.9kgf • m)



Mounting procedure 💥 Please refer to the Genuine Service Manual for detailed mounting methods and specified torques that are not specifically described. ♦ While tightening a rocker arm's ◇ Install two tappet caps. O Installation of spark O Adjustment of cam chain: adjust screw, tighten the adjust ▲ Note: Be sure that you protect plug: ◆ When adjusted the cam chain, nut to the extent that a 0.05mm specified torque. please perform "Inspection thickness gauge, placed between \Diamond Install the plug with a plug Tappet cap and adjustment of ignition the adjust screw and the valve wrench. Torque : $12N \cdot m$ (1. 2kgf $\cdot m$) stem end, can be pulled out with timing" as well. ▲ Note: Be sure that you protect only a little resistance. specified torque. \diamond Loosen an 8mm nut and adjust If you have no idea of the proper bolt A, and then the cam chain Plug resistance in pulling out the Torque : $11N \cdot m$ (1. 1kgf $\cdot m$) will be adjusted automatically 0.05mm thickness gauge, then prepare a 0.07mm and 0.03mm by the spring. But in case the cam chain is thickness gauges. When the 0.07mm gauge won't go in between the not stretched tight enough, space but the 0.03mm gauge goes keeping the loosened adjust in quite loosely, this means bolt A as it is, gradually that roughly 0.05mm clearance tighten the adjust bolt B so is secured. that the cam sprocket and cam Set the space at 0.05mm both chain fit together even when for intake and exhaust. the flywheel is turned. Valve clearance \diamond Tighten the adjust bolt A, (intake side) \diamond Attach a plug cap to the plug. and then the 8mm nut. O Installation of stock muffler: \Diamond In installing the muffler, route the tail pipe inside the rear shock absorber first, and then O Installation of cylinder set the flange to be roughly under the exhaust port of the head left side cover: cylinder head. ♦ Attach a cylinder-head left-side cover gasket and left-side cover. Adjust bolt B Valve clearance Adjust bolt A (Set the anti-rotation stopper (exhaust side) of the left side cover to Adjust screw prevent it from turning to the right when the bolt is being O Valve timing adjustment tightened.) and tappet adjustment: \Diamond Turn the cam shaft and flywheel Thickness gauge until the "O" mark on the cam ♦ Install two flange collars shaft and the "T" mark on the squeezing the exhaust pipe. Valve stem flywheel mesh with each notch. Though the flywheel will not stop right at the required position because the magnet force repels each other, it is all right if "O" and "T" marks mesh with each notch at the same time after the installation of the cam sprocket. ♦ Tighten two nuts on the exhaust pipe loosely for now. Note: Be sure that you protect Notch specified torque. Nut ◇After adjusting the tappet, turn the flywheel counterclockwise twice by hand, and then, align "T" Torque : $10N \cdot m$ (1. $0kgf \cdot m$) ◇Tighten up a hex nut, as indicated by an arrow in the "0 marks with each other photo above, on the right and side of the cylinder head. 'O" mark Stamped ⚠ Note: Be sure that you protect specified torque. Hex bolt Cylinder head side Torque : $12N \cdot m$ (1. 2kgf $\cdot m$) Notch \diamondsuit Check if there is any change \diamond Attach a nut on the reverse side in the tappet clearance. of the muffler loosely for now. If the clearance has not changed, ⚠️ Note: Be sure that you protect there is no need to readjust it. specified torque. However, in case there is a Nut change, readjust the clearance. Torque : 10N • m (1.0kgf • m) Flywheel side 2023. 6. 5 01-05-501H 9/10

SPECIAL PARTS





 \diamondsuit Check that an O-ring is present on the inlet pipe.



 \diamondsuit Attach two bolts to hold the cylinder head and intake manifold.

\Lambda Note: Be sure that you protect specified torque. Bolt

Torque: 10N • m (1.0kgf • m)



breaker plate O Installation of front fender: ♦ Tighten two hex bolts on the reverse side of the front fender to install them. Note: Be sure that you protect specified torque. Torque : 10N • m (1.0kgf • m) ♦ After the adjustment, rotate the crankshaft till 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

◇ Pump a tire. \diamondsuit Check for slackness in the bolts fixed all the way from the engine to the underbody.

Bolt

limits, replace the point.