# Hyper S-Stage KIT Instruction manual

### Product number 01-05-0243 (High Flow Filter)

CRF50F (AE03-1400001 ~ Adaptation model XR50R (AE03-1000001 ~

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.

### O If the description, such as photos or Illustration different with this part.

Caution about Fuell This S-Stage Kit 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 will take place, and you cannot get the high performance of the Kit. Moreover, it is highly likely that the piston will be damaged, leading to a serious failure of a 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 CR8HSA (NGK) or U24FSR-U(DENSO). In the case of a non-resistive plug, please replace with C8HSA (NGK) or U24FS-U (DENSO). Subsequently, choose and use a right spark plug with the right level, depending on the degree of burning of the spark plug electrode section.

Caution about sprocket

The installation of this product will increase the power of your vehicle. So use of a stock sprocket will result in severe wears of parts because of too low gear, not only adversely affecting the engine life, but also possibily breaking the engine in the worst case. Please replace the sprocket with the high-geared one.

### ☆ 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 the 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 of the kit, 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 fitting models and frame numbers only and that it cannot be mounted on any other models.

◎ Do the installation work correctly referring to the relative genuine service manual for the above-mentioned fitting 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. ◎ You cannot run the motorcycle in the rain with a kit's filter installed. Otherwise, it could cause the engine trouble.

#### 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.

### When the handling of ignoring this display people died, shows the contents of the serious injury possibility is Warning

■ 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 hig	hly flammab	ole, never	place	it close	to fire.	Make	sure	that	nothing	flammable	is near	the	gasoline.	Since	vaporized
accumulation	of gas	soline is a	at high r	isk of	explosion	, work	inaw	/ell−v	entil	ated pla	ce. (Othe	rwise 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.





Number	Product content	Quantit	Item Number	Number	Number Product content		Item Number	
1	Piston	1	00-01-0014 (with ③pin)	16	Intake manifold	1	00-00-1484	
2	Piston ring set	1	01–15–014	17	Air filter (with band)	1	03-01-1105	
3	Piston pin, 13x36	1	00-01-0091 (with ④ clip)	18	Carburetor gasket	1	00-03-0417	
4	Piston pin circlip	2	00-01-0003 (6 pcs)	19	Inlet pipe gasket	1	00-01-0159 (2 pcs)	
5	Cylinder	1	01-01-0241H	20	Socket cap screw, 6x20	2	00-00-0721 (5 pcs)	
6	Cylinder gasket	1	00-01-0067 (2 pcs)	21	Socket cap screw, 6x25	2	00-00-0722 (5 pcs)	
7	Cylinder head gasket	1	00-00-1147	22	Throttle cable, 710mm	1	09-02-0071	
8	Cylinder head cover gasket	1	00-01-0156 (2 pcs)	23	Spark plug, CR8HSA	1	00-00-2377	
9	Right side cover gasket	1	00-01-0157 (2 pcs)	24	Main jet, #85	1	00-03-0041	
10	Left side cover gasket	1	00-01-0158 (2 pcs)	25	Drive sprocket, 15T	1	02-05-022	
11	Tappet cap O-ring	2	00-01-0034 (4 pcs)	26	Tank spacer	2	00–00–0795	
12	Exhaust pipe gasket	1	00-01-0064 (2 pcs)	27	Flange bolt, 8x25	1	00-00-0318 (5 pcs)	
13	Rubber packing	1	00-01-0066 (2 pcs)	28	Flange bolt, 8x30	1	00-00-0181 (4 pcs)	
14	Camshaft	1	01-08-0009	29	Spacer, 8.2x10x9.5	1	00-00-0199 (4 pcs)	
15	DENI18 Carburetor ASSY.	1	03-03-0061	30	Washer	1	00-00-0201 (6 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.

### 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.



Part Names

SPECIAL PARTS



SPECIAL PARTS

Mounting procedure 💥 Please refer to the Genuine Service Manual for detailed mounting methods and specified torques that are not specifically described.  $\diamondsuit$  Prize the cam sprocket from O Remove cylinder head:  $\diamond$  Cut off the gasket squeezing O Remove the piston: the camshaft with a smallout at the section pointed by  $\diamond$  Remove the cylinder head from  $\Diamond$  Plug in a waste cloth so as sized flat tip screwdriver. a finger as shown in the picture. never to get the dust or the cylinder by pulling the component in the cylinder hole head away from the cylinder. (If in the crankcase or cam chain. it does not come off easily, strike the cylinder head lightly with a plastic hammer, and it will come off. )  $\diamond$  Detach the cam chain from the ♦ Remove one of two piston circlips cam sprocket, and take out It will come off rather easily © Cautions for installing the cam sprocket. if you prize it open with a screwdriver with its tip on the  $\diamond$  Detach a dowel pin fixed in aluminum cylinder the center of the camshaft. notch Remove the cylinder head.  $\diamond$  In fixing the cylinder onto the crankcase, in some cases O Unfasten cylinder-head there is interference in the side bolt: sleeve hole in the crankcase mating surface, circled ♦ Unfasten a cylinder-head side portions, the shaded area of bolt securing the cylinder the cylinder sleeve, and inside head and cylidner. Piston circlip of the crankcase, because the ◇ Remove the piston pin in the right and left crank cases direction where the piston are not meshing correctly. circlip is not attached. You can  $\diamondsuit$  Be sure to save two dowel pins Since the continued use of easily remove the piston pin by for use later such crankcase will lead to pressing it with a flat tip sleeve deformation and engine screwdriver from the direction O Remove the cylinder: troubles, do not fail to check where a piston pin circlip is ♦ Remove the loosened guide roller the crankcase for the attached. interference, and correct the bolt and cylinder side bolt. interference, if any. ♦ Loosen a side guide roller ◎ Tips on how to fix the bolt on the cylinder and a side bolt between cylinder interference and crankcase. 1. Cover the crankcase securely with a waste cloth so the Guide roller bolt shavings will not get into it ♦ Remove the piston. 2. Rasp the higher mating surface of the crankcases till it becomes level with the lower ◇ Remove the cylinder by pulling one it out. (If it is hard to pull 3. After scraping, remove the it out, hit the cylinder lightly cloth with enough care so any with a plastic hammer.) chip will not get into the case 4. After removing the waste cloth, O Unfasten cvlinder-head stuff up the crankcase opening OClean the mounting surfaces: cover: with a clean waste cloth. 5. After the installation of the ◇ Remove four nuts. which hold ◇ Remove the cylinder gasket and Kit, idle away the engine for rubber packing.



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.



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While removing the cylinder, the cam chain guide roller will





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♦ In case you cannot remove all

 $\diamondsuit$  Cut off the crankcase center

into the cylinder base or cylinder hole, if any.
※ Never let any dirt or component drop into the crankcase.

Rubber packing

gasket which is squeezing out

Cvlinder

gasket

cutter knife.

the gaskets completely, rasp or wipe them off with a scraper or

SPECIAL PARTS

a few minutes, and replace the

engine oil with new one without

Gasket

Ŷ

After being fixed

Interfering portion

delay. And there is nothing

more to do.

crank case

C

Cvlinder

Right side Left side

crank

Ó

Sleeve



6/11

TAKEGAWA

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

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



### O 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 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. Never pull it by force.



Apply clean engine oil to a cam and bearing of the provided camshaft.



Install the supplied camshaft in the reverse order of removal. Even if you cannot easily fix the camshaft, fix it manually without striking it with a hammer.



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- - O Installation of cylinder head

 $\diamond$  Attach a dowel pin of a stock

cam to the supplied cam.

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





♦ Fit the cylinder head into the stud bolt.

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 shows this side should face downward, or exhaust side.



Beware of this positioning mark ◆ Install the washer of the head cover, being careful of the location. The copper washer should be located on the lower left side of the engine when the engine is viewed from the front.



Install the head nuts, being careful of the location. The hex nut should be located on the lower right side of the engine when the engine is 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



# O Installation of cam sprocket:

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



Set the shaft so the cam top faces the piston 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.

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



SPECIAL PARTS



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# 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.
- $\boldsymbol{\cdot}$  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> <li>The explosion sound with a dull thud continues</li> </ul>	<ul> <li>The engine overheats somewhat.</li> </ul>
intermittently.	<ul> <li>The engine starts working well If you use the choke,.</li> </ul>
• The engine malfunctions further if you use the choke.	<ul> <li>The engine does not accelerate well.</li> </ul>
<ul> <li>The engine malfunctions when you warm it up.</li> </ul>	(No smooth acceleration)
<ul> <li>The engine works well if the cleaner is detached.</li> </ul>	<ul> <li>Revolutions change, generating weak power.</li> </ul>
• The motorcycle belches dense (or, black) exhaust gas.	•The plug burns white.
• The plug smolders, getting blackened.	

※ 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.

### O 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.



### O 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.

### O 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.
- $\cdot$  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.

### **O** Air screw

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

 $\cdot \, \text{Give}$  the air screw a right turn  $\rightarrow \, \text{The air-fuel mixture gets}$  dense.

• Give the air screw a left turn  $\rightarrow$  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.



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