SuperHead 4V+R KIT Instruction manual

(SuperHead 4V+R)

Product number	01-03-0002

Adaptation model	GROM	(JC92-1000001 ～ 1099999)
	Monkey125	(JB03-1000001 ～)
	CT125	(JA65-1000001 ～)

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.

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

☆ Please read carefully before use ☆

◎ Please note: Illustrations and photos may vary from the actual hardware.
◎ Export models (other than Japanese model) cannot be installed, because FI controller is not available.
◎ This product is exclusively for bore-up engine(compatible with the above-mentioned models).
Caution: cannot be installed on other models or on bore-ups that are not exclusive to this kit.
◎ This product installation and use, when a problem occurs to after market goods, guarantee other than this product, also can not assume any in any such matters.
◎ If it was the case or mounting that has been processed like a product, it will not be covered under warranty.
◎ It is not possible to inquire of the combination of other manufacturers.
◎ Product may have edges or protrusions. Be sure to wear working gloves.
(Please wear work gloves when working, even if a photo in this article show without work gloves.)
◎ A serial number is engraved on the cylinder head. You may be requested to inform us of the number when ordering parts.
◎ Some of bolts, nuts, dowel pins, and packings will be reused. However, be sure to replace worn-down or severely-damaged ones with new ones.
◎ Liquid sealing should be used to the specified areas ONLY. (DO NOT apply the unspecified areas.) It might block oil passages, and engines will be broken in the worst case.
◎ Be sure to always use premium unleaded petrol. And make sure to check what kind of gasoline is remaining in the fuel tank. Whenever regular gasoline is left in the fuel tank, always replace it with high-octane gasoline.
◎ Special spark plug is required (The spark plug is different from the stock). Select right heat range of the spark plug.
Note: use a resistor type spark plug.
◎ Engine oil, please use the recommended engine oil.
Recommended:Select a viscosity at ambient temperature and use applications based on the Honda genuine Ultra G2 or S9 (for 4-cycle motorcycles) SAE10W-30.
If you use equivalent, should meet these conditions.
・API classification SF, SG or, SG class or higher or equivalent
・JASO standard：MA,MB
・SAE standard ：Please use viscosity oil in accordance with outside air temperature.
◎ Please change the gear sprocket to one that matches the output and specifications.
(Speed meter displays not correct when modified final gear ratio. A speedometer controller (or SM-CON) may be required depending on conditions.)
◎ The product is only compatible with our specified engine parts. Please replace with our recommended engine parts.
◎ This part is a product that was developed for the closed competition, please do not use public roads.
◎ The stock exhaust system can not perform as expected. Our exhaust system is required. Please be forewarned.
◎ Note: We recommend replace with our heavy-duty clutch spring(due to the high output of the engine, stock clutch possible to slip).
◎ Avoid idling for long periods of time (maximum idling time: about short waiting at traffic light). Idling without any cooling method (such as cooling fan) may cause the engine temperature to rise and reduce the engine oil circulation.
◎ As engine output increases, engine heat also increase. We recommend installing an oil cooler kit to maintain an appropriate oil temperature (and prevent from oil film breakage by over heat). Also, use the “super oil pump kit”, that brings maximum performance of the oil cooler.
◎ Special tools are required to install(and remove) the O_2 sensor. Please prepare before perform.
sensor socket 17mm :08-02-0036
◎ Please re-tighten the head nut (of the stud bolt) to the specified torque.
◎ Due to the high engine speed (caused by installing this product), we recommend installing it with our “crankshaft support adapter”.

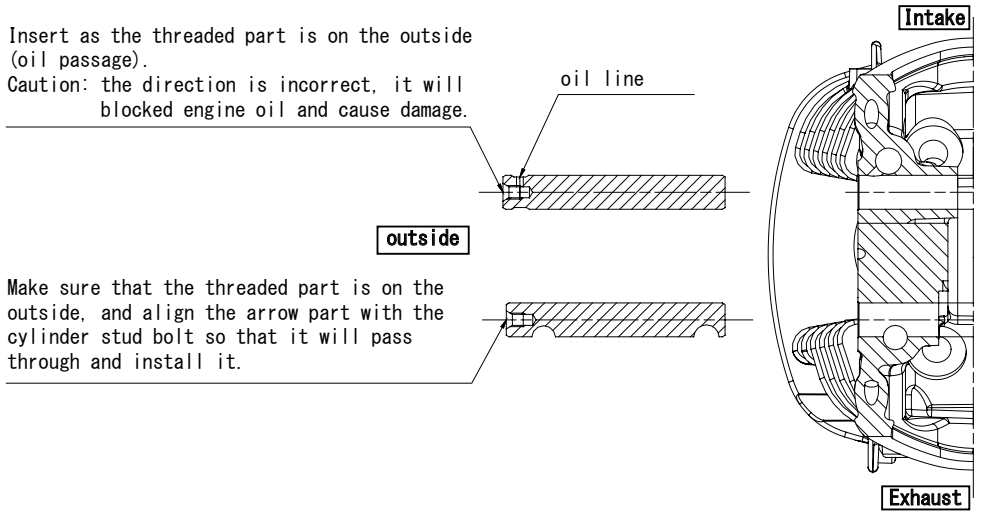
Jump-Starting and Sudden Acceleration

Idling, sudden acceleration, and sudden engine braking will put a heavy load on the engine, which please note may result in crank shaft damage and engine breakage in the worst case.

SPECIAL PARTS TAKEGAWA
CONTACT Address : 3-5-16 Nishikiorihigashi Tondabayashi Osaka JAPAN
TEL: +81-721-25-1357 FAX:+81-721-24-5059 e-mail:english@takegawa.co.jp URL http://www.takegawa.co.jp
Please contact with your name and country name provided. (Only English please)

Inportant

An oil passage is made on the rocker arm shaft (intake) side of the cylinder head. If you install it in the wrong direction, the oil path may be blocked and the engine may be damaged. Please be careful when assembling.



～ feature ～

- ○ The rocker arm is made of forged aluminum to reduce weight. As a result, we succeeded in increasing the output at the high engine speed range.
- ○ The intake valve and exhaust valve have both been changed to 4 valves (two valves each) which dramatically increasing intake and exhaust efficiency.
- ○ Newly designed port and diameter of both the intake and exhaust enable smooth intake and exhaust effects without resistance.
- ○ With the change to 4 valves, the spark plug is placed in the center to improve fuel efficiency.
- ○ Optimizes the valve angle to make the combustion chamber more compact. In addition, the combustion chamber is completely machined with 3D designed to minimize individual differences.

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

- ■ Since this kit is designed and developed for driving in closed races, do not use the kit for running on public roads.
- ■ When performing the work, etc., be sure during the cold (when the engine and the muffler is cold). (It may cause burns.)
- ■ When performing the work, it should be made to prepare the tools for the job. (Breakage of parts, it may cause injury.)
- ■ The product and the frame, might have edges or protrusions. Please go to protect your hands when you work. (It may cause injury.)
- ■ Always use new gasket and packing. (The worn or damaged parts may cause the engine troubles.)

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

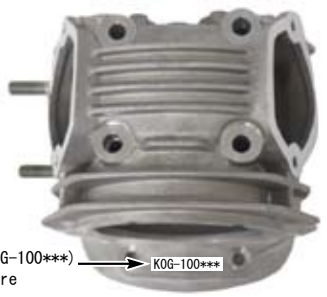
- ■ Those who are technically unskilled or inexperienced are required not to do the work.
  (Improper installation because of insufficient skill and knowledge could lead to parts breakage and subsequently to accidents.)
- ■ Before working, place the motorcycle on the level ground to stabilize its position for safety to avoid the motorcycle overturning.
- ■ Always start the engine in a well-ventilated place, and do not turn the engine on in an airtight place.
  (Otherwise, you will suffer from carbon monoxide poisoning.)
- ■ As gasoline is highly flammable, never place it close to fire. Make sure that nothing flammable is near the gasoline. (It may cause a fire.)
- ■ 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.)
- ■ Never use the parts unspecified by us. (This may lead to parts breakage and consequent accidents.)
- ■ 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 accidents.)
- ■ When you notice something abnormal with your motorcycle, stop riding immediately and park your motorcycle in a safe place to avoid an accident.
- ■ Before riding, always check such parts as screws for loose.
  (If you find loose ones, screw them securely up to the specified torque to avoid parts coming off.)
- ■ Check or perform maintenance of parts correctly according to the procedures in the instruction manual or a service manual.
  (Improper checking or maintenance could lead to an accident.)
- ■ Always use high-octane gasoline. (Otherwise, troubles such as engine knocking may cause accidents.)

- ◎ 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.

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

● A serial number is punched on the cylinder head just for the sake of administration.
You may be requested to inform us of the number when ordering repair parts.
In case you are not able to order parts because you do not have the repair parts numbers or for other reasons, please place an order in the following way.

☆ Copy the stamped serial No. on the side of cylinder head.
Head No. - K0G-100***
Example of how to order → Super head kit, repair
head No.-K0G-100*** → Intake valve
Qty: 1 piece



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

This kit cannot function on its own. The following kits are required (sold separately). (This does not apply if you have purchased a full kit.)

Cylinder Kit	01-04-0137 Only SuperHead 4V+R	This is a cylinder and piston set exclusively for this product. 145cc displacement Bore diameter: 54mm Stroke: 63.1mm (same as stock), compression ratio 12.0:1,(higher than stock).	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65)
Auto decompression camshaft	01-08-0071 (10/10D)	This is a camshaft with auto de-compression mechanism exclusively for this product.	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65)
FI CON TYPE-X	05-04-0124	This is a high spec injection controller that can be plug in to the genuine ECU unit. (Fuel and ignition MAP can be changed and adjusted with a PC/smartphone.)	Monkey125 (JB03)
	05-04-0125		CT125 (JA65)
FI CON TYPE-e	05-04-0122	This is a injection controller that can be plug in to the genuine ECU unit. (Fuel MAP can be changed and adjusted with a PC/smartphone.)	GROM (JC92-1000001～JC92-1099999)
Fuel injector	00-00-0487	A large capacity injector that must be installed at the same time as Super Head 4V+R. ※The injector that is also uses to the “S stage”. (Not for CT125)	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65) ※
Big throttle body Kit	03-05-0163	Output can be increased by increasing suction efficiency.	GROM (JC92-1000001～JC92-1099999)
	03-05-0164		Monkey125 (JB03)
	03-05-0166		CT125 (JA65) ※
Spark plug	00-00-2378	Spark plug (NGK-ER8EH) ※The size of spark plug is different from the stock.	Only SuperHead 4V

※For CT125, please use the stock injector when stock/big throttle with stock air cleaner BOX.

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

Other recommended parts

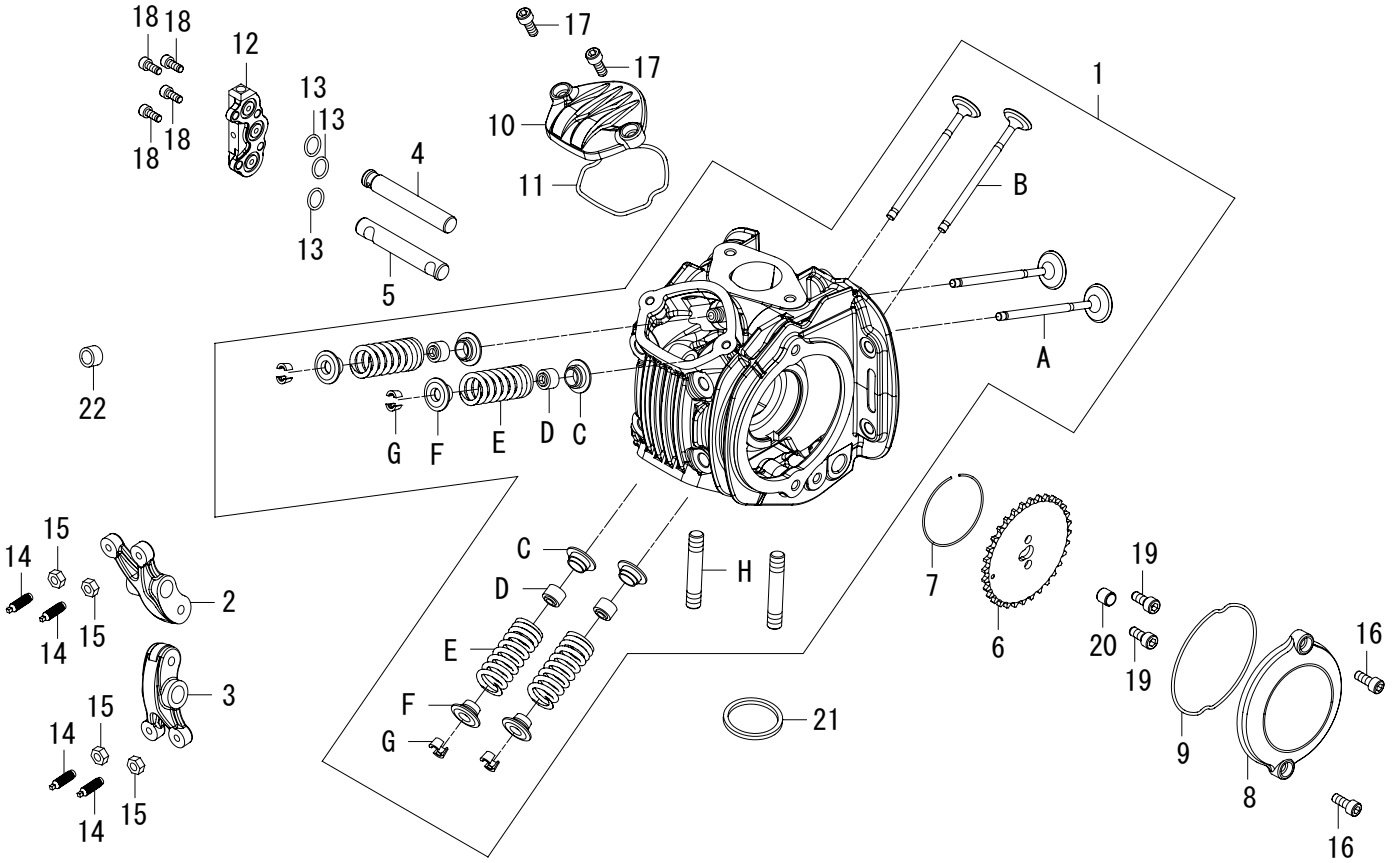
Oil cooler Kit	Compact-Cool (3 fin/4 fin)	More engine heat with increased displacement and higher output. We recommend to use an oil cooler to maintain the appropriate oil temperature.	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65)
Oil catch tank	Oil catch tank	As engine displacement and engine speeds increase, the internal pressure of the crankcase also increases and blow-by gas (in the crank case) must be released efficiently. We recommend installing our oil catch tank, which can efficiently discharge blow-by gas.	Monkey125 (JB03)
Clutch Kit	02-01-0144	Clutch slippage occurs with high output. When using a stock clutch, be sure to install our heavy-duty clutch spring.	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65)
Exhaust systems	Exhaust systems	The stock exhaust system can not perform as expected. Our exhaust system is required. for Super Head 4V+R. (Cannot be used on street, public roads.)	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65)
Crankshaft support adapter	01-10-0149	As the engine speed increases, the weight of the heavy flywheel puts a strain on the crankshaft. We recommend installing our crankshaft support adapter at the same time.	GROM (JC92-1000001～JC92-1099999)
	01-10-0150		Monkey125 (JB03) CT125 (JA65)
Oil pump	01-16-0067	We recommend installing oil pump to ensure proper oil volume and pressure to each part of the engine.	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65)
Cam chain	01-14-0005	Due to increased displacement and higher output, we recommend installing our Die Hard α cam chain, which uses a highly rigid solid bush.	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65)

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

Option Parts

Super cam chain tensioner	01-14-0013	This is a high-strength cam chain tensioner machined from super duralumin and finished with hard anodized. The tensioner arm made more contact surface with the push rod head (than stock), greatly extending the life of the push rod. Also, to reduce the deformation of the push rod head, it prevents the force received from the push rod from being lost.	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65) ※
lightweight titanium valve spring retainer	01-12-0110	The titanium retainer(from stock steel), reduces weight approximately 30% and improves valve follow.	GROM (JC92-1000001～JC92-1099999) Monkey125 (JB03) CT125 (JA65) ※
Air filter	03-01-0033 When using air cleaner box	By replacing it, the suction efficiency will be greatly improved.	CT125 (JA65)

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



Number	Product content	Quantity	Item Number
1	Cylinder head COMP.	1	————
2	Intake valve rocker arm COMP.	1	00-01-0371
3	Exhaust valve rocker arm COMP.	1	00-01-0372
4	Rocker arm shaft (Intake)	1	00-00-2923
5	Rocker arm shaft (Exhaust)	1	00-00-2924
6	Cam sprocket (32T)	1	00-01-0500
7	Cam shaft circlip	1	00-01-0081 (3 pcs)
8	Left side-cylinder head side-cover	1	00-01-1031 (with O-ring)
9	Left side-cylinder head side-cover O-ring	1	00-00-1188
10	Inspection cap	2	00-01-0141 (with ⑪ O-ring)
11	Inspection cap O-ring	2	00-01-0165 (5 pcs)

Number	Product content	Quantity	Item Number
12	Oil tower COMP.	1	00-01-0501
13	O-ring, 10mm	3	00-01-1010 (3 pcs)
14	Tappet adjusting screw	4	00-01-0132
15	Tappet adjusting nut	4	
16	Socket cap screw, 6x15 (SUS)	2	00-00-0205 (4 pcs)
17	Socket cap screw, 5x12 (SUS)	4	00-00-0160 (4 pcs)
18	Socket cap screw, 4x10	4	00-00-0934 (5 pcs)
19	Socket cap screw, 5x12 (Black)	2	00-00-0066 (4 pcs)
20	Dowel pin, 8x10	1	00-00-0996 (2 pcs)
21	Exhaust pipe gasket	1	00-01-0107 (2 pcs)
22	Silicon tubing, 8x13	1	00-01-1044 (3 pcs)
	Anti-seize agent (5g)	1	08-02-0042

Number	Product content	Quantity	Item Number
A	Intake valve	2	00-01-0417
B	Exhaust valve	2	00-01-1078
C	Valve spring seat	4	00-00-1376
D	Valve stem seal	4	00-01-1038 (4 pcs)

Number	Product content	Quantity	Item Number
E	Valve spring	4	00-00-2925
F	Valve spring retainer	4	00-00-1368
G	Valve cotter	8	00-01-1039 (4 pcs)
H	Stud bolt, 8x32	2	00-01-0502 (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.
※Repair parts may differ slightly from the kit contents in terms of shape, etc. There is no problem to use it. Please be forewarned.

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

○ **Please perform work with the motorcycle safe and stable.**
Prepare the pan in advance and remove the drain bolt to drain the oil.
※Please work carefully to prevent parts from falling inside the engine, and take measures such as covering the parts with rags to prevent them from falling.

□ Parts that require disassembly when installing to Super Head 4V+R

○ Remove the following parts referring to the service manual of each model.
Remove body panel, exterior parts.
- Exhaust system
- Manifold
- Stock cylinder head
- Stock cylinder
- Piston
- L.Crankcase cover

● Preparing the cylinder head.

○ Apply engine oil to the bearing and camshaft then install it to the cylinder head.

○ Fix a cam shaft circlip and fix the cam shaft.
At this stage, set the location of ring end gap of the cam shaft circlip not to meet the notch on the cylinder head cam hole.

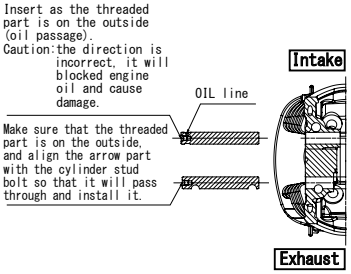
○ Check that the cam shaft circlip is right in the circlip groove.

⚠ Note : Do the checking without fail.

○ Apply engine oil to the intake valve rocker arm and exhaust valve rocker arm.
Install the valve adjusting screw. Set the valve adjusting nut.
(Valve adjusting screw does NOT comes out beyond the rocker arm.)

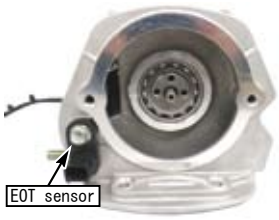
○ Attach each valve rocker arm to the cylinder head.
Apply molybdenum solution to each shaft of rocker arm shafts, and set them as the notches of the shafts match, referring to the diagram.
※threaded part of each shaft face on the outside.

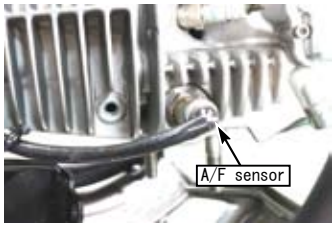
⚠ Note:If the ④rocker arm shaft (intake) is installed in the wrong direction, the OIL line will be blocked and the engine will be damaged.



○ Replace the A/F sensor and EOT sensor from the stock cylinder head. Apply anti-seize agent to the A/F sensor and tighten to the specified torque using a special tool (sensor socket 17mm: 08-02-0036).
Install EOT sensor(with O-ring) on the specified torque.

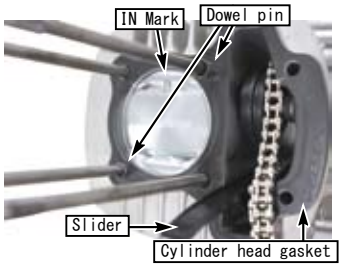
⚠ Note: Be sure that you protect specified torque.
A/F sensor
Torque : 24.5N・m (2.5kgf・m)
EOT sensor
Torque : 10N・m (1.0kgf・m)





● Attach the cylinder head to the cylinder.

○ Install the cylinder following to the instruction manual of the cylinder kit.
Well degrease the top of the cylinder and attach the dowel pin, new cylinder head gasket, and slider to the cylinder.



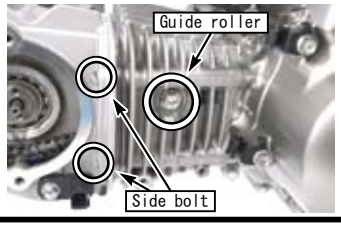
○ Place cam chain through the cylinder head and install the cylinder head.

○ Set the four 8mm sealing washers (from the stock) onto the stud bolts, and tighten flange cap nuts diagonally in several turns to the specified torque.
※Check the condition of the sealing washer.

⚠ Note: Be sure that you protect specified torque.
Flange cap nut
Torque : 18N・m (1.8kgf・m)

○ Tighten the two side bolts of the cylinder head alternately in several steps to the specified torque. Attach guide roller bolt (with sealing washer)and tighten it to the specified torque.

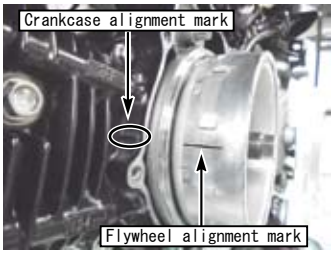
⚠ Note: Be sure that you protect specified torque.
Side bolt・Guide roller bolt
Torque : 10N・m (1.0kgf・m)

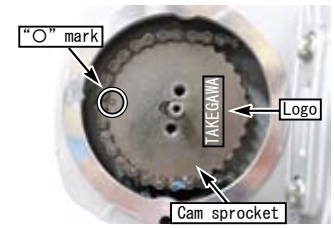


● Assemble and adjust around the cam sprocket

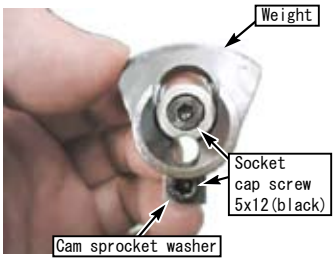
○ Aligning mark on the flywheel matches the alignment mark on the crankcase, and attach the cam chain to the dowel pin 8x10 on the camshaft.
"O" mark on the cam sprocket align with the notch in the cylinder head.
※ It is easier to install the cam sprocket by using the cutted part of the decompression shaft.

⚠ Note:Install cam sprocket "○" mark is facing you with the TAKEGAWA logo as shown in the photo.





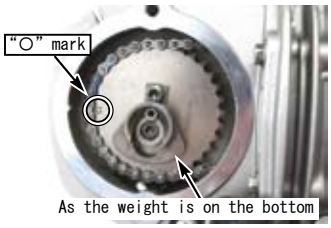
○ Place the cam sprocket washer through the weight attached to the auto decompression camshaft, and set the two socket cap screws (5x12,black) into the upper and lower holes.



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

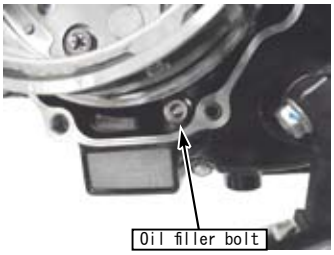
○ With the weight facing down, attach it to the camshaft using two socket cap screws (5x12, black).
(Apply a small amount of engine oil to the socket cap screw thread.)
Fix the flywheel and tighten to the specified torque.

⚠ Note: Be sure that you protect specified torque.
Socket cap screw
Torque : 10N・m (1.0kgf・m)



○ Inject a small amount of engine oil into the tensioner rod bolt hole and install the oil filler bolt.

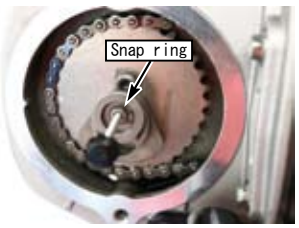
⚠ Note: Be sure that you protect specified torque.
Oil filler bolt
Torque : 10N・m (1.0kgf・m)



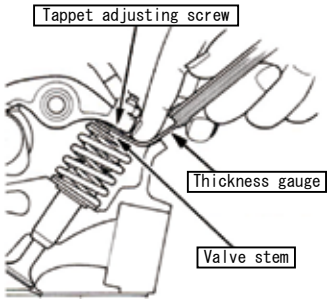
○ Check that the "T" mark on the flywheel is still aligned with the "0" mark on the cam sprocket.
○ Pass a 6mm snap ring and a plate into a thumb screw supplied in the Camshaft Kit, attach it to the shaft tip of the camshaft comp. and pull the shaft toward you.

○ Attach a snap ring in the shaft groove.

⚠ Note :Do not expant the snap ring more than necessary.
⚠ Warning:Always use a new snap ring at any time, and do not reuse it.



○ Adjust the valve clearance with an tappet adjusting screw.
IN:0.08 ± 0.02mm (when cold)
EX:0.10 ± 0.02mm (when cold)

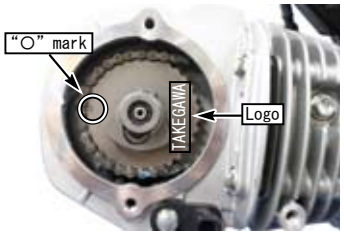


☆ Adjust the valve clearance on the EX side with the shaft of the camshaft COMP. being pulled toward you so that the decompression function can be deactivated.

○ Tighten the tappet adjusting nut to the specified torque.

⚠ Note: Be sure that you protect specified torque.
Tappet adjusting nut
Torque : 10N・m (1.0kgf・m)

○ Remove the thumbscrew on the center of the shaft.



※ When replacing the camshaft, loosen the valve adjusting screw until the tip not comes out of the valve rocker arm, then remove the camshaft circlip.
※ It may difficult to replace the cylinder head nut and side bolts are tightened.

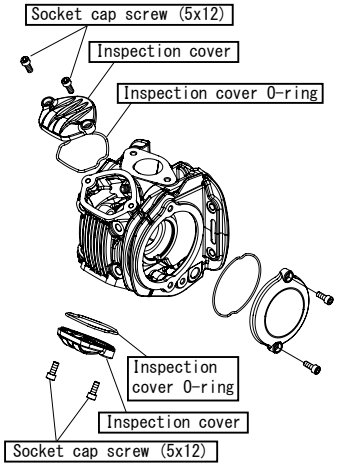
● Installing head covers

○ Apply engine oil a little to a L.cylinder head side cover O-ring, and fix it to the L.cylinder head side cover. Then fix them to the cylinder head with two socket cap screws (6x15) and tighten them to the specified torque.

⚠ Note: Be sure that you protect specified torque.
Socket cap screw
Torque : 8N・m (0.8kgf・m)

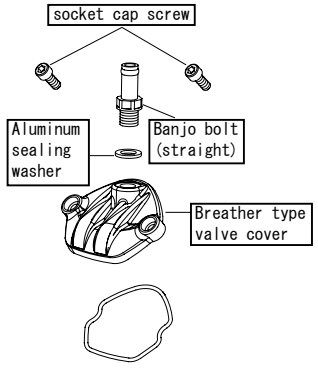
○ Apply engine oil a little to a inspection cover O-ring, and fix it to the inspection cover, and fix the inspection cover with socket cap screw (5x12) and tighten them to the specified torque.

⚠ Note: Be sure that you protect specified torque.
Socket cap screw
Torque : 6N・m (0.6kgf・m)



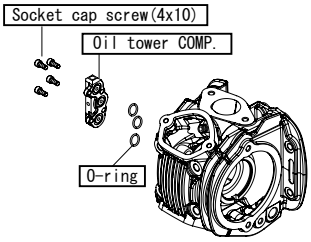
○ Install breather type valve cover (00-01-1037):
Replace the valve cover on the intake side, insert an aluminum sealing washer into the banjo bolt (straight), and tighten to the specified torque.
※ Route the hose according to the oil catch tank instruction manual.

⚠ Note: Be sure that you protect specified torque.
Socket cap screw
Torque : 6N・m (0.6kgf・m)
Banjo bolt (straight)
Torque : 10N・m (1.0kgf・m)



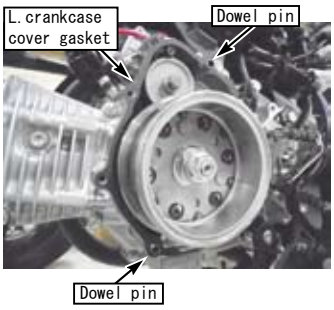
○ Apply a small amount of oil to the O-ring, set it in oil tower and tighten it to the specified torque using socket cap screw(4x10).

⚠ Note: Be sure that you protect specified torque.
Socket cap screw
Torque : 4N・m (0.4kgf・m)



● L. Crankcase cover and re-assemble

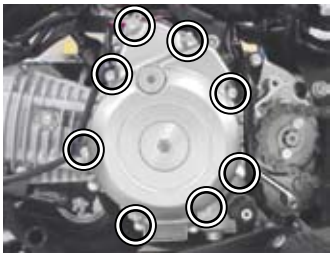
○ Attach the two dowel pins and the L. rankcase cover gasket included with the cylinder kit to the crankcase.
Install the L.crankcase cover.
※ The L.crankcase cover is pulled in by magnetic force (not to get any parts or fingers caught).



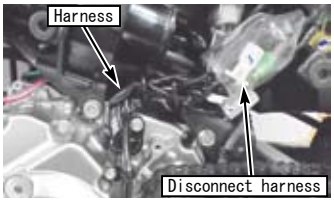
■ Mounting procedure ※Please refer to the Genuine Service Manual for detailed mounting methods and specified torques that are not specifically described.

○ Install the bolts with each clamp and tighten diagonally in several steps.

⚠ Note: Be sure that you protect specified torque.
Bolt
Torque : 10N・m (1.0kgf・m)

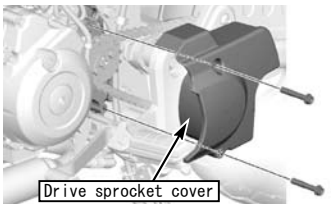


○ Connect the harness from the L.crankcase cover. Bundle the wire harness with clamps.
※Routing harness may vary by the model. Please refer.



○ Install the drive sprocket cover.

⚠ Note: Be sure that you protect specified torque.
Bolt
Torque : 10N・m (1.0kgf・m)

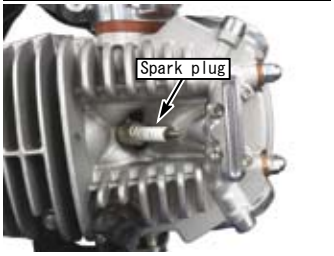


○ Install a spark plug.
Apply anti-seize agent a little to the threaded part of the plug, and fix it.

⚠ Note: Be sure that you protect specified torque.
Spark plug
Torque : 8 ～ 10N・m
(0.8 ～ 1.0kgf・m)

Designated plug
NGK :ER[8]EH
Thermal value
DENSO :Y[24]FER
Thermal value

⚠ Note:Select a spark plug of the correct heat range designed for the load and condition.
∴Be sure to use an appropriate spark plug for this Super Head.



○ Remove the plug cap rubber from the top of the plug cap, and insert the supplied silicon tube into the plug cap.
※Rubber cap (at the tip of the stock plug cap) is not reused.

○ Attach the plug cap to the spark plug.

○ Tighten the A/F sensor and EOT sensor bracket to the specified torque using the genuine flange bolts on cylinder head COMP.

○ Connect the sensor as original location.

⚠ Note: Be sure that you protect specified torque.
Stock flange bolt
Torque : 10N・m (1.0kgf・m)

● Installing each parts

■ Throttle body & Intake manifold

○ Please assemble Monkey125/GROM according to our big throttle body installation manuals.
○ For CT125 with stock throttle body, please follow to the genuine service manual. For big throttle body please follow TAKEGAWA manuals.

○ Tighten the intake manifold and cylinder head using the specified bolts with the specified torque.
※For CT125 uses stock flange bolts.

⚠ Note: Be sure that you protect specified torque.
Drain bolt
Torque : 12N・m (1.2kgf・m)

○ Install an injector that meets the specifications listed in the below.

Models	Throttle body & Air cleaner	Injector
Monkey125	Big throttle Φ 34 + Air filter	Fuel injector :G-1 (00-00-0487)
GROM	Big throttle Φ 34 + Air filter	
CT125	Big throttle Φ 28 + Air filter	
	Stock throttle + Air filter	
	Big throttle Φ 28 + Stock air cleaner box	CT125 Stock injector
	Stock throttle + Stock air cleaner box	

※TAKEGAWA air filter can remove stock air cleaner box.
※When using the stock air cleaner box, the genuine element and our power filter: 03-01-0033(included).

○ Install each sensors following to the service manual and installation manual for each model.

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

■ Exhaust system installation

○ Attach and install the exhaust pipe gasket(included).
Tighten the joint nut on the exhaust pipe to the specified torque.
※ Follow the exhaust system with installation manual.

⚠ Note: Be sure that you protect specified torque.
For TAKEGAWA exhaust systems
Joint nut
Torque : 16 ～ 17N・m (1.6 ～ 1.7kgf・m)

○ Referring to the genuine service manual, install the removed parts in reverse order and connect the wiring.
※ Follow to the instruction manual of the FI controller.
(not installed FI CON, reassemble the exterior parts)

When FI controller connection is complete

○ Pairing the FI controller, select TPS settings and preset MAP for each specification, and up load to the FI controller.

○ Attach the drain bolt with a new sealing washer to the crankcase and pour the specified amount of engine oil.
※ If the drain bolt has been changed, follow the instruction manual for that drain bolt.
Install the filler cap.

Engine oil amount

	GROM Monkey125	CT125
At draining	0.9ℓ	0.8ℓ
At replacing the oil filter	0.9ℓ	0.85ℓ
At disassembly	1.05ℓ	1.0ℓ

⚠ Note: Be sure that you protect specified torque.
Drain bolt
Torque : 24N・m (2.4kgf・m)

○ Inspect each part to make sure there are no loose screws or nuts.
○ Start the engine carefully and check that there are no oil leaks or abnormal noises from the engine.(do this in well-ventilated and safe place)
Refer to the genuine service manual and check if the oil level is within the standard range.
Once again check for loose screws, nuts, etc.

⚠ Warning : Start the engine and perform inspections in a well-ventilated area.
Do not start the engine in a closed place.
(There is a risk of carbon monoxide poisoning.)

● About increasing the amount of engine oil (Stock oil pump)

○ By installing this product and FI controller, the upper limit of engine rpm will be higher than stock.
In running speed is 9500 rpm or higher, we recommend increasing the oil amount about 100 cc.

★ We recommend to use our super oil pump kit (with relief valve mechanism)
※ When using a super oil pump, please follow the instruction manual.

○ If nothing abnormal is detected,carry out a shakedown for about 30 to 50 km,and check the valve clearance again.

⚠ Note: 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.)

⚠ Warning:Never re-use parts which cannot be re-used.

◎ You can see this instruction manual on our website as PDF data .
If this document hard to read, please download it from our website.

INSPECTION / SERVICE LIMITS

⚠ WARNING : Since this INSPECTION / SERVISE LIMITS is prepared for those who have acquired basic skills and knowledge in tuning, those who are technically unskilled or inexperienced are required not to do the work.

● After the disassembly of the hardware and a cylinder head, clean them before the inspection and measuring. And then, blow them with compressed air, and dry them well.
● Engine oil for lubricating the camshaft will be supplied through the oil passage in the cylinder head. Clean the oil passage before assembling the cylinder head.
● After the disassembly of hardware, put a mark on the hardware so they can be reinstalled correctly to their original position.

Reference Value List for Cylinder Head Maintenance

Items	Service Limit	Remarks
Cylinder head distortion	0.05mm	More replace
Inside diameter of valve rocker arm	10.05mm	More replace
Outside diameter of rocker arm shaft (intake / exhaust)	9.95mm	Below replace
Clearance between a rocker arm and a shaft	0.10mm	More replace
Inside diameter of valve guide (intake / exhaust)	4.04mm	More repair or replace the head
Outside diameter of valve stem (intake)	3.963mm	Below replace
(exhaust)	3.950mm	Below replace
Clearance between a valve stem and a guide (intake)	0.077mm	More replace
(exhaust)	0.09mm	More replace
Valve seat contact width (Intake)	1.5mm	More repair or replace the head
(exhaust)	1.7mm	More repair or replace the head
Free length of valve spring	34.5mm	Below replace

○ Special tool : Valve spring compressor set of Item No.08-02-0038
○ Torque unit
1 kgf・m = 9.80665 N・m (=newton meter)
○ This mark shows molybdenum solution. (MO-OIL)
This solution is a mixture of molybdenum grease and engine oil (in the ratio of 1:1).
∴ Apply molybdenum solution or assembly paste to the portions where it is indicated that molybdenum solution needs to be applied.
○ This mark shows those parts to be replaced with every overhaul. (NEW)
Do not fail to replace these parts every time they are overhauled.
○ Anti-seize agent (heat-resistant lubricating agent)
・Anti-seize agent = heat-resistant lubricating paste and grease which prevent galling from high temperatures and heavy loading, and adhesion.
(Purpose: good for those parts which get hot like a spark plug and exhaust manifold.)
☆ Never apply this to any parts other than the specified parts.

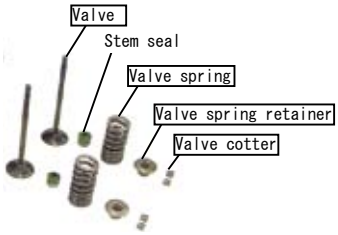
● Splitting of Valve

・Compress the valve spring, using a valve spring compressor.

⚠ Note : Never compress it more than necessary.

∴ Special tool: Valve spring compressor set of item No.08-02-0038

・Removal of Valve Cotter
Use a magnet to remove the cotter if it does not come off easily.
・Remove first the valve spring compressor, and then the following parts:
・Valve spring retainer
・Valve spring
・Valve



Check each valve for bending, baking, and damages.

・Measure the exterior diameter of the valve stem at the sliding surface of the guide with a micrometer.
Service Limit IN:3.963mm EX:3.950mm
Replace the bent, baked or damaged valves with new ones.

Inspection of the Valve Guide.

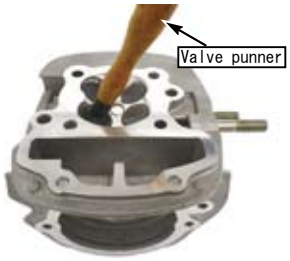
・Measure the inner diameter of the valve guide.
Service Limit IN/EX:4.04mm
・Replace the valve guide or cylinder head if the valve guide is scratched or damaged.

Outer diameter of the valve stem subtracted from the inner diameter of valve guide is a guide clearance.
Service Limit IN:0.077mm EX:0.09mm

Inspection of Valve Seat

・Remove carbon sediment in the cylinder head combustion chamber and valve.
・Dissolve red lead primer with oil or the like, and apply it to the valve face evenly.

・Strike the valve once and lightly with a valve punner, and rotate it.
・Wipe off the red lead primer on the valve faces, and strike the valves once and lightly with the valve punner without rotating them, and check the contact surfaces for damages or scratches.



Scratch on the seat | Uneven seat width | Contacting at a low position | Contacting at a high position

Service Limit: IN:1.5mm more repair or replace the cylinder head
EX:1.7mm more repair or replace the cylinder head

・If there is a scratch on the valve seat, modify the seat.
・If the contact width is wide, narrow, in a high or low position, modify the seat.
・Ask a specialist shop in internal combustion or TAKEGAWA for the modification work.

Inspection of Rocker Arm:

・Check the rocker arms for scratches, damages and jamming. And check if the bearing rotates smoothly.
・Measure the internal diameter of the rocker arms.
・Unfasten an adjust bolt, and check it for scratches. If it is scratched, change it with a new one.

Service limit
:If the inner diameter is bigger than 10.05 mm, replace the rocker arm.

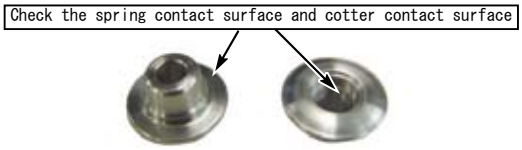
Inspection of Rocker Arm Shaft

・Check the rocker arm shaft for bending, scratches, and damages.
・Measure the external diameter of the rocker arm shaft.
∴Service limit : If the external diameter is smaller than 9.95 mm, replace it.

Outer diameter of the rocker arm shaft subtracted from the inner diameter of rocker arm is a clearance.
∴Service limit : If the clearance is bigger than 0.1 mm, replace the rocker arm shaft.

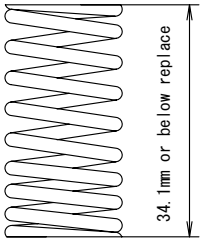
Inspection of Valve Spring Retainer

・Check the valve spring retainer, spring and cotter contact surface.
・Replace it When coating peels off or damaged.



Inspection of Valve Spring

・Check the valve springs for scratches and damages.
・Measure the free length of the valve springs.
∴34.1mm or below replace



Inspection of Camshaft

・Check the camshaft for scratches, cracks, and damages.
・Measure the height of each cam top.

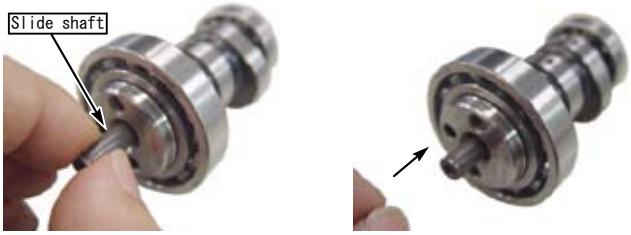
Kinds of Camshafts	IN	EX	
10/10D Camshafts	Below 27.8	Below 27.8	Replace

Inspection of the Camshaft Bearing

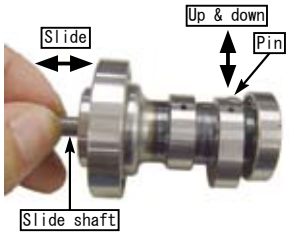
・Rotate the outer race of the bearings with fingers.
If the outer race does not rotate smoothly or if it is rickety, replace either the ball bearing or cam shaft.

・In the case of automatic decompression camshaft:

Pull the slide shaft of the camshaft center.
And compress the spring in the shaft, and release the shaft.
Then, check if the slide shaft slides smoothly and slides back to its original position.
If the slide shaft does not slide smoothly or the tension is not on the spring of the slide shaft, change the camshaft.



・Slide the slide shaft, and check if the decompression pin moves up and down on the EX side cam.
If the pin does not move up and down when you slide the shaft, or the shaft does not slide because it has become stuck, then change the cam shaft.



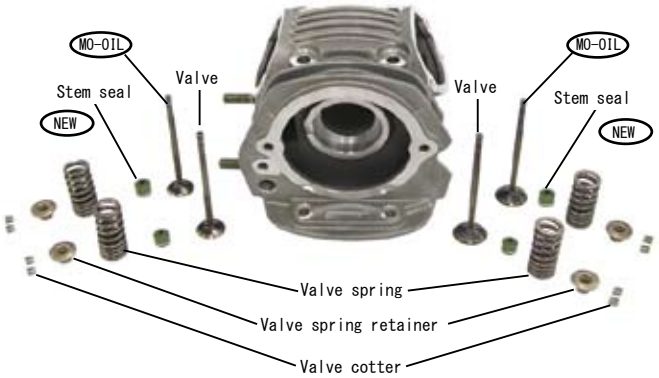
Inspection of Cylinder Head

・Check the spark plug hole and valve hole for the cracks in the vicinity.
Check the cylinder head for distortion with a straight edge and thickness gauge.

Service limit: If the distortion is over 0.05 mm, rectify or replace the cylinder head.

● Valve Assembly:

・Install valve spring seats and new valve stem seals.
・Apply molybdenum solution to the sliding surfaces of the valve stems, and fit the valves into the valve guides, rotating valves slowly with care not to damage the stem seals.



・To the head, attach the valve spring, with a narrowly-pitch side pointing to the combustion chamber.

⚠ Note : Be sure to place the narrower-pitched portion of the valve spring to face the combustion chamber side.

・Compress the valve spring with a valve spring compressor.
And apply a thin coat of grease to valve cotters, and install them.

⚠ Note : Do not compress the valve spring more than necessary.

・Strike lightly the end of valve stems a few times so the valves and cotters fit together well.

⚠ Note : Never compress it more than necessary.