

Cylinder Kit 178cc(SCUT Cylinder) Instruction manual

(For exclusive use in SuperHead+R)

Product number 01-04-0114 (Cylinder Kit)

Adaptation model	KSR110	:KL110A-000001 ~ :KL110A-A02833 ~
	KLX110L	:LX110D-A72046 ~
	KLX110	:LX110A-000001 ~ :LX110A-A08133 ~
	KSR110 (KL110CBF)	:JKAKL110CCDA00058 ~
	KSR110 (KL110DDF)	:KL110D-A57002 ~
	KSR PRO (KL110EEF)	:JKAKL110EEDA88121 ~
	Z125 PRO	:BR125H-A02621 ~
Requirement	Must equipped with our SuperHead+R	

Thank you very much for purchasing our products. Thank you so you will comply with the following matters at the time of use.

This is a piston and cylinder kit for exclusive use in SuperHead+R of our make.

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 ☆

◎ The use ignoring the instructions that are written in the manual, if the accident or damage has occurred, we can not assume any responsibility for compensation.

◎ This kit is exclusively for SuperHead + R with the above applicable models and chassis numbers. This kit can not be attached to other vehicles or stock cylinder heads.

◎ Work such as engine removal / install is required to install this product. Please prepare genuine service manual for the above-mentioned applicable models, and work with enough care following instructions in the service manual. In addition, this manual and genuine service manual are intended for those who have a basic skills and knowledge. If no experience of mounting, etc., who preparation of such a tool is insufficient, we recommend that it is your request to the shop with a technical credit.

◎ 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.

◎ Installation of this kit requires, in some cases, engine removal and crankcase disassembly. Please do the work correctly referring to genuine service manual. And the assembly and installation need gaskets, etc. additionally, which please purchase separately.

◎ Some genuine parts will be reused, but those that are severely worn or damaged, should not be reused and use new ones.

◎ Do not use silicone sealant etc. unless instructed. It can block the oil passages, the worst case can damage the engine.

◎ 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.

◎ Install an oil cooler when necessary.

◎ Engine oil must be API SF or higher class, such as SAE 10W-30 / 20W-50, which are our recommendations.

◎ In case you have purchased this kit for use just as a cylinder kit. Please refer to the attached "Bore Up Kit Reference Table" in the SuperHead + R instruction manual and collect the dedicated parts.

◎ This kit is only compatible with those engine parts recommended by us. If not listed, use recommended engine parts described in the SuperHead + R instruction manual.

~ feature ~

○ The cylinder adopts our SCUT design (patented) and made possible a big bore diameter (φ 67mm) which is impossible with the conventional sleeve structure.

○ Ceramic plated alloy integral casting maintains proper piston clearance and reduces friction loss.

○ The piston is designed to be lightweight with maintaining its strength, and the skirt is coated with molybdenum to improve familiarity.

Points to notice about sounds

After installing this product, in some cases a cooling fin in the cylinder may resonate, making a sound. In this case, as a measure, fix a damper included in the kit to the cooling fin of the cylinder.

About quick starting and sudden acceleration

Please note that idling, sudden acceleration, and sudden engine braking will put a heavy load on the engine, and that it may result in crank shaft and engine damages in the worst case.

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

■ This product is designed for exclusive use on the closed course.

■ 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 gaskets, packings and the like. Worn or damaged ones may cause accidents because of breakage of these parts.

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)

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

- The technology and those who no knowledge, please do not to work. (The cause of parts damage etc., could result in falls and accidents.)
- When performing the work, do the work safely stabilize the vehicle in a horizontal location. (There is a risk of injury vehicle collapsed while working.)
- Always use new pinston pin circlips, gaskets, packings and the like. Worn or damaged ones may cause accidents because of breakage of these parts.
- If you start the engine, be sure in a well-ventilated place. In the sealed such place, please do not start the engine. (There is a risk of 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.)
- Do the work must always specified torque using a torque wrench. (Damage of bolts and nuts, and cause of dropout.)
- Never use parts other than those specified by us. (Or, the unspecified parts may break, leading to accidents.)
- When carrying out the inspection and maintenance, etc., if found damaged parts, replace the damaged parts to avoid possible to reuse the parts. (There is a risk that lead to accidents Continued use.)
- During operation, when an abnormality occurs, immediately stop the vehicle in a safe place, please stop running. (It may lead to an accident.)
- Be sure to each part inspection before operation, check the loosening of the threaded portion, be sure to securely tighten the specified torque if there is loose. (It may cause detachment of the parts.)
- Inspection, maintenance, the instruction manual or, inspection methods such as service manuals, to protect the way, should be done correctly. (unsuitable inspection and maintenance, there is a risk that result to an accident.)
- Be sure to always use premium unleaded petrol. (Otherwise, troubles such as knocking of an engine 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.

※ This kit cannot function on its own.

Applicable camshaft and intake / exhaust parts are required for Super head + R kit.

(This does not apply to the case where you have purchased a full kit.)

For more details about the products or queries, please contact your dealer.

Oil cooler

- ◇ The installaiton of this product increases the heat release value of the engine, set off by the increase in power. For a long-time high-load running, 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.

Engine oil

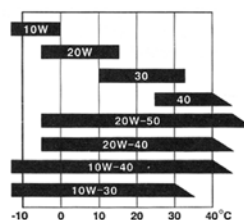
- ◇ Engine oil, please use the recommended engine oil.

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.



Product content



Number	Product content	Quantity	Item Number	
1	Cylinder, 67mm	1		
2	Piston, 67mm	1	13101-KSS-T20R (caution 1)	00-00-1211
			13101-KSS-T20Y (caution 1)	00-00-1212
			13101-KSS-T20B (caution 1)	00-00-1210
3	Piston ring set, 67mm	1	01-15-0104	
4	Piston pin, 13x38.5	1	00-00-1258	
5	Piston circlip, 13x1	2	00-01-0003 (6 pcs)	
6	Cylinder head gasket	1	00-01-0393	
7	Cylinder gasket	1	00-01-0392 (2 pcs)	
8	Damper B	29	00-01-0342 (10 pcs)	

(caution 1) Three kinds of pistons are available from these repair parts. As the piston clearance is so little that the cylinder to match the limited clearance is required. In ordering the piston, please quote the Item No. in reference to the Inspection manual.

※ 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.

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

⚠ Caution: Always be sure to tighten parts to the specified torque using a torque wrench.

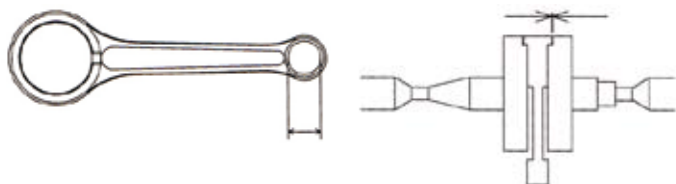
⚠ Warning: The unskilled or those without proper knowledge are requested not to do the installation work.

- Installation of this kit requires, in some cases, engine removal and crankcase disassembly. Please prepare and refer to a genuine service manual to do the proper installation work.
- According to the service manual, demount the engine from the frame and and disassemble it.
- After disassembling the crankcases, check every component referring to the service manual.

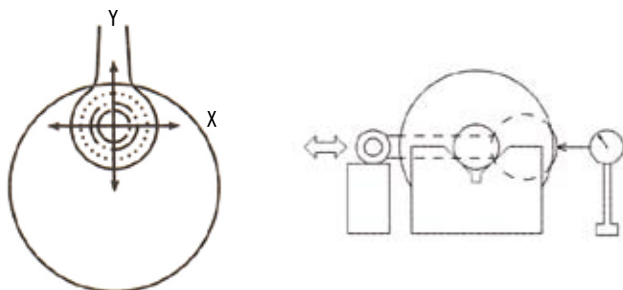
⚠ Caution: Do inspection of every component and replacement of consumables, with utmost care.

Inspection of Crank Shaft

- Measure the internal diameter at the small end of the con' rod.
∴ If larger than 13.05 mm, replace it.
- Measure the clearance at the big end of the con' rod in the axial direction.
∴ If larger than 0.4mm, replace it.



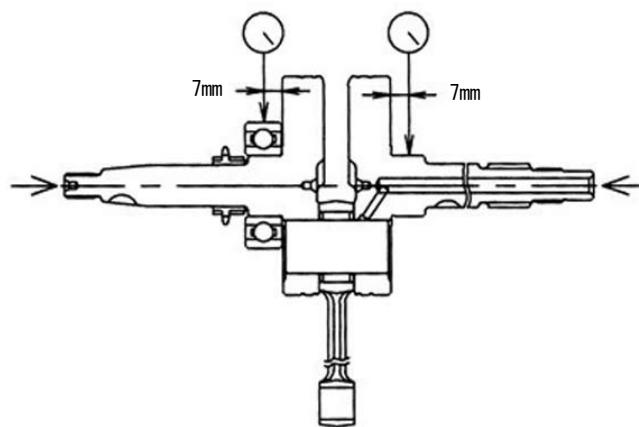
- Measure the misalignment at two points at the big end of the con' rod at right angles to the shaft as shown in the figure on the right.
∴ If larger than 0.07mm, replace it.



- Measure the misalignment on the journal bearing of the crank shaft.
∴ Shaft direction: If larger than 0.10 mm, replace it.
Bearing direction: If larger than 0.05 mm, replace it.



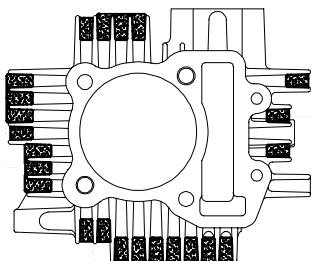
- Measure the deflection of the crank shaft.
∴ 0.08mm or more, need replacement or correction.



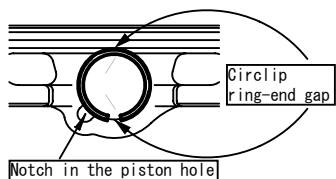
- Assemble the crankcase referring to the service manual.

Cylinder Installation Procedures

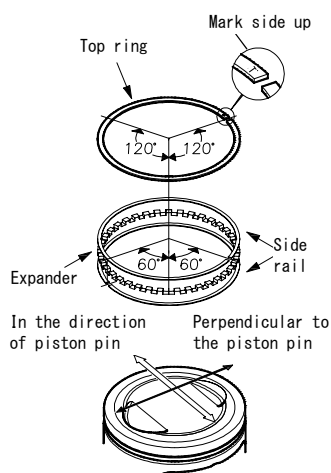
- Install the damper B in the kit between the cylinder cooling fins so that it fits neatly in the place shown in the figure.
(This installation is aimed at reducing a resonant sound from a cylinder cooling fin.)



- Attach the piston pin clip to one side of the piston. Attach the piston circlip so the ring end gap does not meet with the notch on the piston pin hole, and it should be either on the top or at the bottom of the piston as illustrated in the fig.



- Air blow the piston ring and piston pin area and check that there is no dust or foreign matter.
- Apply engine oil to grooves for piston rings, and, with reference to the figure below, fix piston rings and arrange the location of piston ring end gaps.



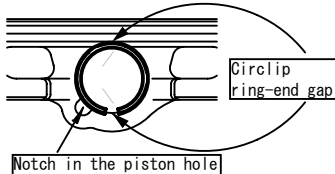
- Apply molybdenum solution to the piston pin and the holes on the connecting rod small end.



- If there is a stamped ←, EX or IN mark on the top of the piston, follow the facing direction. (IN to the intake, EX to the exhaust) then attach to the connecting rod.



- Plug the sleeve hole and the cam chain hole on the crankcase with a clean cloth, and fix a piston pin circlip. Attach the piston pin circlip so the ring end gap does not meet the notch on the piston pinhole, and ring end gap should be either on the top or at the bottom of the hole.



- Remove the cloth used to plug holes.
- Thoroughly degrease the cylinder base of the crankcase, and fit a dowel pin into the dowel pin hole.



- Fix a cylinder gasket of the kit into the cylinder base of the crankcase.



- Apply engine oil to the inside of the cylinder.



- Install the cylinder into the stud bolt with compress the piston ring.

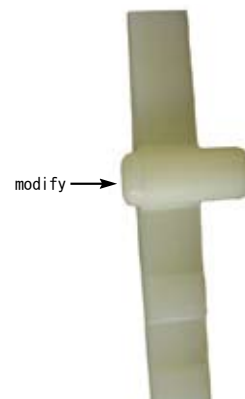
⚠ Caution: Do the work with care not to damage the piston rings.



- Attach the cam chain guide to the cylinder.



※ When attaching the cam chain guide to the cylinder, the chain guide may not fit all the way into the groove due to individual differences. Refer to the photo and modify the chain guide until to get some play in the lateral direction, and check that it is deep enough inside the groove.



- Install the cylinder head follow to the SuperHead + R instruction manual.

INSPECTION / SERVICE LIMITS

⚠ WARNING : Since this inspection manual 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.

Specification List

Bore diameter	Stroke length	Displacement	Compression ratio
67mm	50.6mm	178.3cm ³	12.0:1

Reference Value List for Cylinder and Piston Maintenance

Item		Service limit	Remarks
Cylinder	Distortion	0.05mm	More replace
	Internal diameter	67.05mm	More replace
Piston	External diameter (3.5 mm from the hem of a skirt)	66.95mm	Below replace
	Internal diameter of a pin hole	13.03mm	More replace
External diameter of a piston pin		12.98mm	Below replace
Piston ring end gap size	TOP	0.50mm	More replace
	OIL (Side rail)	0.90mm	More replace
Clearance between cylinder and piston		0.05mm	More replace
Clearance between piston and pin		0.05mm	More replace

○ Torque unit

1kgf·m = 9.80665 N·m (=newton meter)

(MO-OIL) ○ This mark shows molybdenum solution.

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.

(NEW) ○ This mark shows those parts to be replaced with every overhaul.

Do not fail to replace these parts every time they are overhauled.

○ Inspection of Cylinder

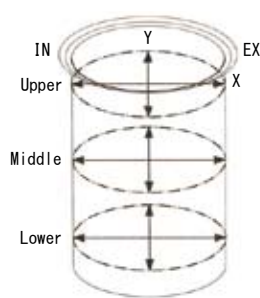
- Check the inside of cylinder for wear and damage.
- Measure the internal diameters of the cylinder bore at 6 positions: at the piston pin angle and at the right angle to it (X-Y) each at upper, middle and lower parts of the cylinder bore.

Treat the largest value as its internal diameter.

∴ If larger than 67.05mm, replace it.

Calculate the clearance between a cylinder and a piston.

Check that the clearance is within the standard value specified in the specification list.



☆ Cylinder wall

Piston part number

∴ 66.986 ~ 67.000 → 00-00-1211 (Red paint)

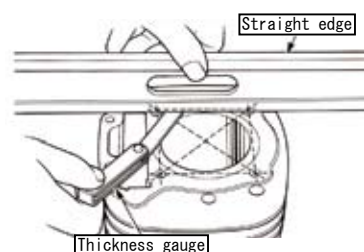
∴ 67.001 ~ 67.014 → 00-00-1212 (Yellow paint)

∴ 67.015 ~ 67.030 → 00-00-1210 (Blue paint)

☆ In case the cylinder wall is beyond the service limits, change the cylinder and piston at the same time as a set.

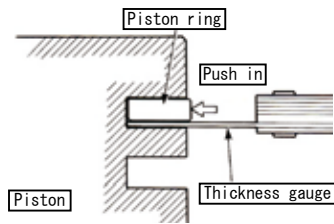
- Check the top surface of the cylinder for scratches and damages.
- Check the cylinder top surface for distortion with a straight edge and thickness gauge.

∴ Usage Limit : 0.05mm or more replace

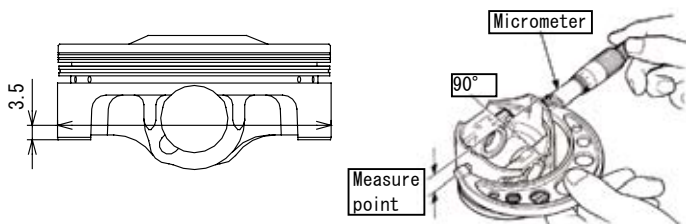


○ Inspection of Piston

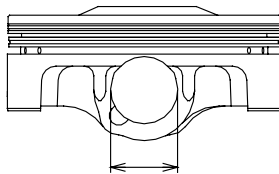
- Clear the piston of the remaining carbon residue.
- Fit a piston ring into the piston, and measure the clearance between the piston ring and ring groove with a thickness gauge.
- ∴ TOP: If larger than 0.09mm, replace it.



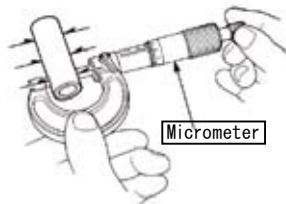
- Check the piston for damages.
- Measure the external diameter of the piston at the specified place at the bottom edge of the piston skirt at the right angle to the piston holes.
- ∴ If smaller than 66.95mm, replace it.
- Figure out the clearance between cylinder and piston.
- If not, change the piston with a new one.



- Measure the internal diameter of the piston pin hole.
- ∴ If larger than 13.03mm, replace it.



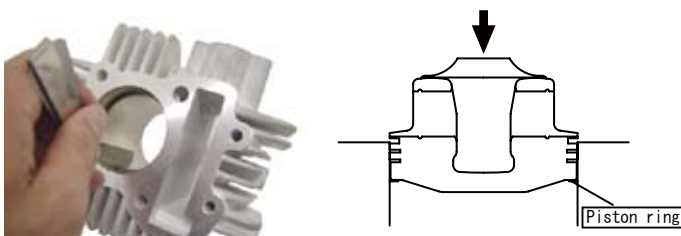
- Measure the external diameter of the piston pin.
- ∴ Piston pin service limit : If it is below 12.98 mm, replace the piston pin.



- Calculate the clearance between the piston and the piston pin.
- ∴ Clearance 0.05mm or more replace

○ Inspection of Piston Ring

- Press down a piston ring into the piston with the piston head, and measure the clearance of the ring-end gap at the horizontal position with a thickness gauge.
- ∴ TOP: If larger than 0.50mm, replace them.
- OIL Side rail: If larger than 0.90mm, replace it.



● Supplement

- A number and an alphabet are stamped on the top and side of the cylinder respectively.
- In case you cannot measure the cylinder wall, you can designate the type of the cylinder and order it by the stamped numbers.
- ∴ This is limited only to the case where there is no damage or scratch on the cylinder wall.

○ In case you judge by the piston

- After removing the carbon stuck on the piston top, take a note of the No. stamped on the piston top.



- Order the piston by the No. stamped on the piston top.

○ In case you judge by the cylinder

- Take a note of the No. stamped on the side of the cylinder.



Piston part number

- When an R is stamped → 00-00-1211 (Red paint)
- When an Y is stamped → 00-00-1212 (Yellow paint)
- When an B is stamped → 00-00-1210 (Blue paint)

○ In case No. is not stamped on the cylinder

- Measure the cylinder by the inspection method described on page C1, and replace the piston with the one with a specified piston part number.

Important: Please do the running-in enough.

If you do not do the enough running-in, it might cause to burning piston, or piston will shrink terribly and the knocking sound of piston will bigger.

[Ref.] Running-in

Up to 5000rpm / approx. 150km