

6-Speed Cross Mission KIT (Sports Cross) Instruction Manual

Product number 02-04-0105

| | | |
|------------------|--------------|-------------------|
| Adaptation model | NSF100 | (HR01-1000001 ~) |
| | Ape50 | (AC16-1020605 ~) |
| | Ape100 | (HC07-1000001 ~) |
| | XR50 Motard | (AD14-1000001 ~) |
| | XR100 Motard | (HD13-1000001 ~) |

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 ☆

- ◎ 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 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.
- ◎ This product is the above-mentioned vehicle exclusive goods. Is not possible attached to the other vehicle. Please note.
- ◎ Installation of this product requires crankcase disassembly as well as engine removal and mounting, and moreover, use of special tools is needed for some installation work. Further, since this instruction manual, as well as service manuals, is written for those who have acquired basic skills and knowledge in tuning, those who are technically unskilled or inexperienced may fail to install properly.
- ◎ This instruction manual covers the installation work only after the procedures of the engine removal from the body, and removal and disassembly of a cylinder head, cylinder, piston, left side crankcase cover, flywheel, right side crankcase cover, clutch unit and oil pump.
For instructions regarding those procedures, please refer to the service manual for your vehicle to work properly.
- ◎ Gaskets, O-rings, and packings must be replaced with new ones at the time of disassembly. Since this kit does not include gaskets, O-rings, packings, etc. which are necessary for engine disassembly, please purchase HONDA's genuine ones separately.
- ◎ Free play on the clutch will change after installation of this kit. Therefore, please re-adjust the free play after connecting the clutch cable.

~ feature ~

- With the installation of this kit, you can enjoy a 6-speed mission with a gear-ratio designed for sport riding.
A wide range of settings will be available in combination with a final gear.

| | Standard | Original from TAKEGAWA |
|-----|---------------|------------------------|
| 1st | 3.083 (12/37) | 2.642 (14/37) |
| 2nd | 1.882 (17/32) | 2.000 (17/34) |
| 3rd | 1.400 (20/28) | 1.631 (19/31) |
| 4th | 1.130 (23/26) | 1.380 (21/29) |
| 5th | 0.960 (25/24) | 1.173 (23/27) |
| 6th | _____ | 1.040 (25/26) |

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

- Please try to ride a motorcycle at legal speed on the public road, abiding by the law.
- 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.)
- Do the work must always specified torque using a torque wrench. (Damage of bolts and nuts, and cause of dropout.)
- The product and the frame, might have edges or protrusions. Please go to protect your hands when you work. (It may cause injury.)
- The installation of this kit will change the gear-change pattern to the return system of 1-down-5-up.
(NSF100 shift pattern is reversal shift(1 up 5) down.)
Change gear only when you have completely disengaged the clutch. The gear and other parts will be damaged if you change gear forcibly or without disengaging the clutch.
- 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.)

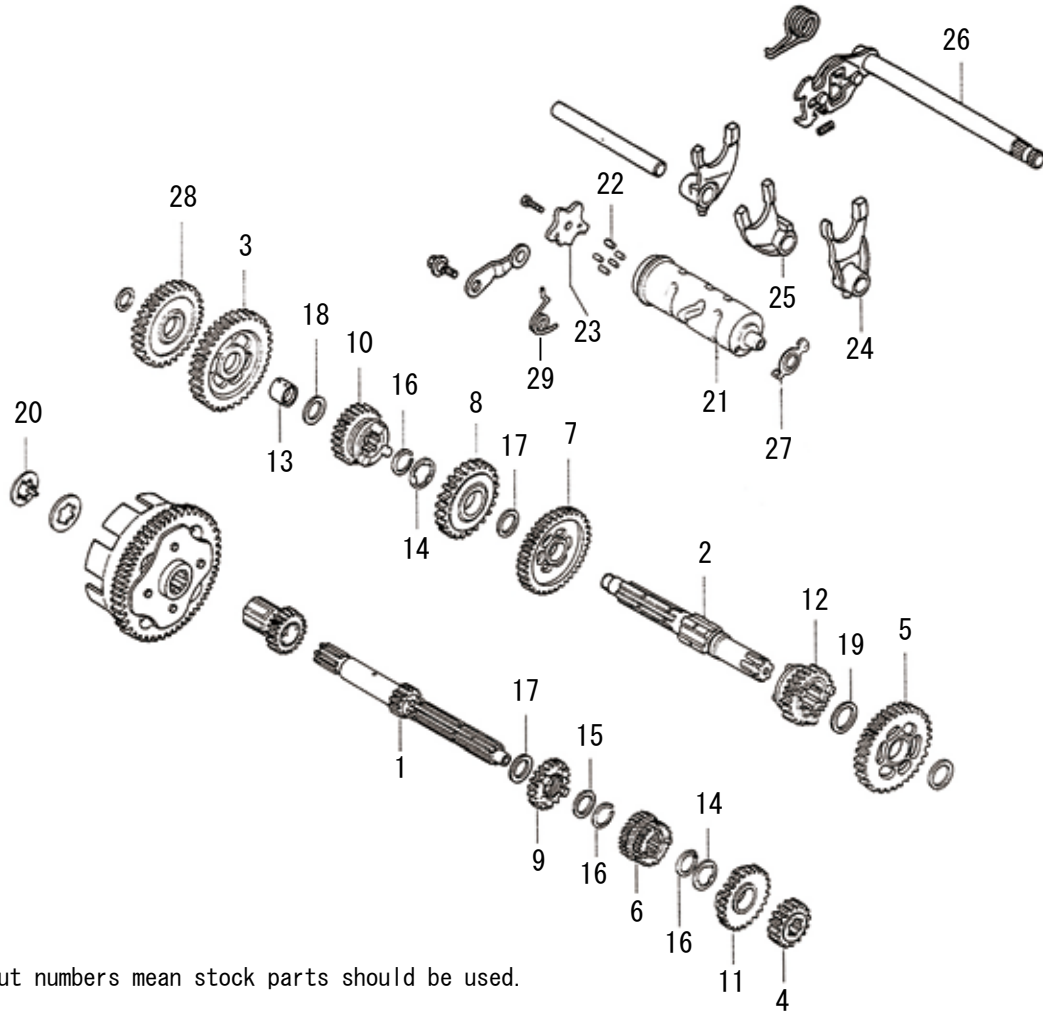
⚠ Warning When the handling of ignoring this display people died, shows the contents of the serious injury possibility is assumed.

- During operation, when an abnormality occurs, immediately stop the vehicle in a safe place, please stop running. (It may lead to an accident.)
- 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.)
- 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.)
- 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.)
- Plastic bags of product packaging, you can either be stored in a place that is out of reach of children, it should be discarded.
(When the children or wearing, there is a risk of suffocation.)
- 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.)

- ◎ 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.

SPECIAL PARTS
TAKEGAWA

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Please contact with your name and country name provided. (Only English please)



※ Parts without numbers mean stock parts should be used.

| Number | Product content | Quantity | Item Number |
|--------|-------------------------------------|----------|--------------------|
| 1 | Main shaft (14T) | 1 | 23211-GCR-T00 |
| 2 | Counter shaft COMP. | 1 | 23220-GEY-T01 |
| 3 | Counter shaft 1st gear (37T) | 1 | 23420-GCR-T00 |
| 4 | Main shaft 2nd gear (17T) | 1 | 23441-GCR-T00 |
| 5 | Counter shaft 2nd gear (34T) | 1 | 23450-GCR-T10 |
| 6 | Main shaft 3rd / 4th gear (19T/21T) | 1 | 23461-GCR-T00 |
| 7 | Counter shaft 3rd gear (31T) | 1 | 23471-GCR-T01 |
| 8 | Counter shaft 4th gear (29T) | 1 | 23481-GCR-T10 |
| 9 | Main shaft 5th gear (23T) | 1 | 23491-GCR-T01 |
| 10 | Counter shaft 5th gear (27T) | 1 | 23501-GCR-T01 |
| 11 | Main shaft 6th gear (25T) | 1 | 23511-GCR-T00 |
| 12 | Counter shaft 6th gear (26T) | 1 | 23521-GCR-T00 |
| 13 | Collar, 17mm | 1 | 00-02-0125 |
| 14 | Spline washer, 17mm | 2 | 00-02-0023 (5 pcs) |
| 15 | Thrust washer S, 17mm | 1 | 00-02-0024 (2 pcs) |
| 16 | External circlip, 17mm | 3 | 00-02-0005 (5 pcs) |
| 17 | Thrust washer B, 17mm | 2 | 00-02-0056 |
| 18 | Thrust washer 13.5mm | 1 | 00-02-0154 |
| 19 | Thrust washer 19.5mm | 1 | 00-02-0127 |
| 20 | Set ring, 17mm | 1 | 00-02-0128 |
| 21 | Gear shift drum | 1 | 24301-149-T10 |
| 22 | Gear shift drum pin | 1 | 00-02-0377 |
| 23 | Gear shift drum stopper plate | 1 | 24435-GCR-T01 |
| 24 | Left side gear shift fork | 1 | 00-02-0129 |
| 25 | Center gear shift fork | 1 | 00-02-0134 |
| 26 | Gear shift spindle COMP. | 1 | 00-02-0094 |
| 27 | Neutral switch rotor | 1 | 00-02-0131 |
| 28 | Starter idle gear (29T) | 1 | 23531-149-T11 |
| 29 | Shift drum stopper spring | 1 | 24436-149-T00 |

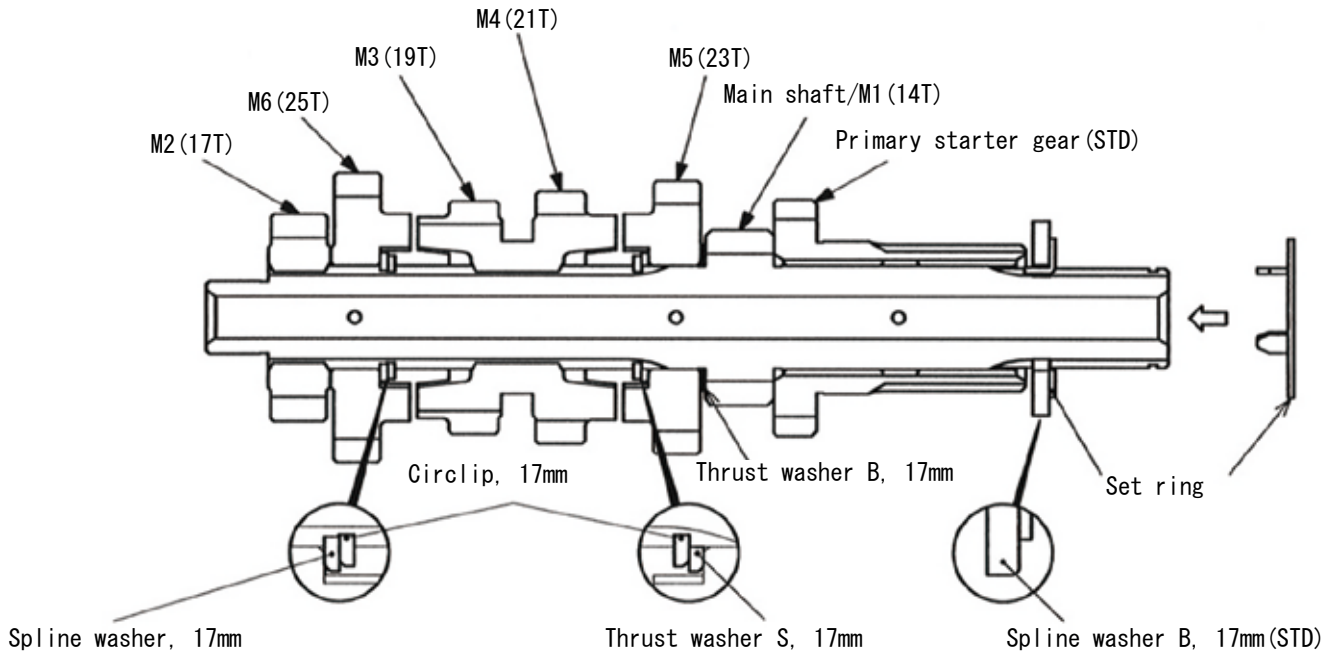
※ Please order in the repair parts are always repair part number.

If it is not the part number order, you may not be able to order. Please be forewarned.

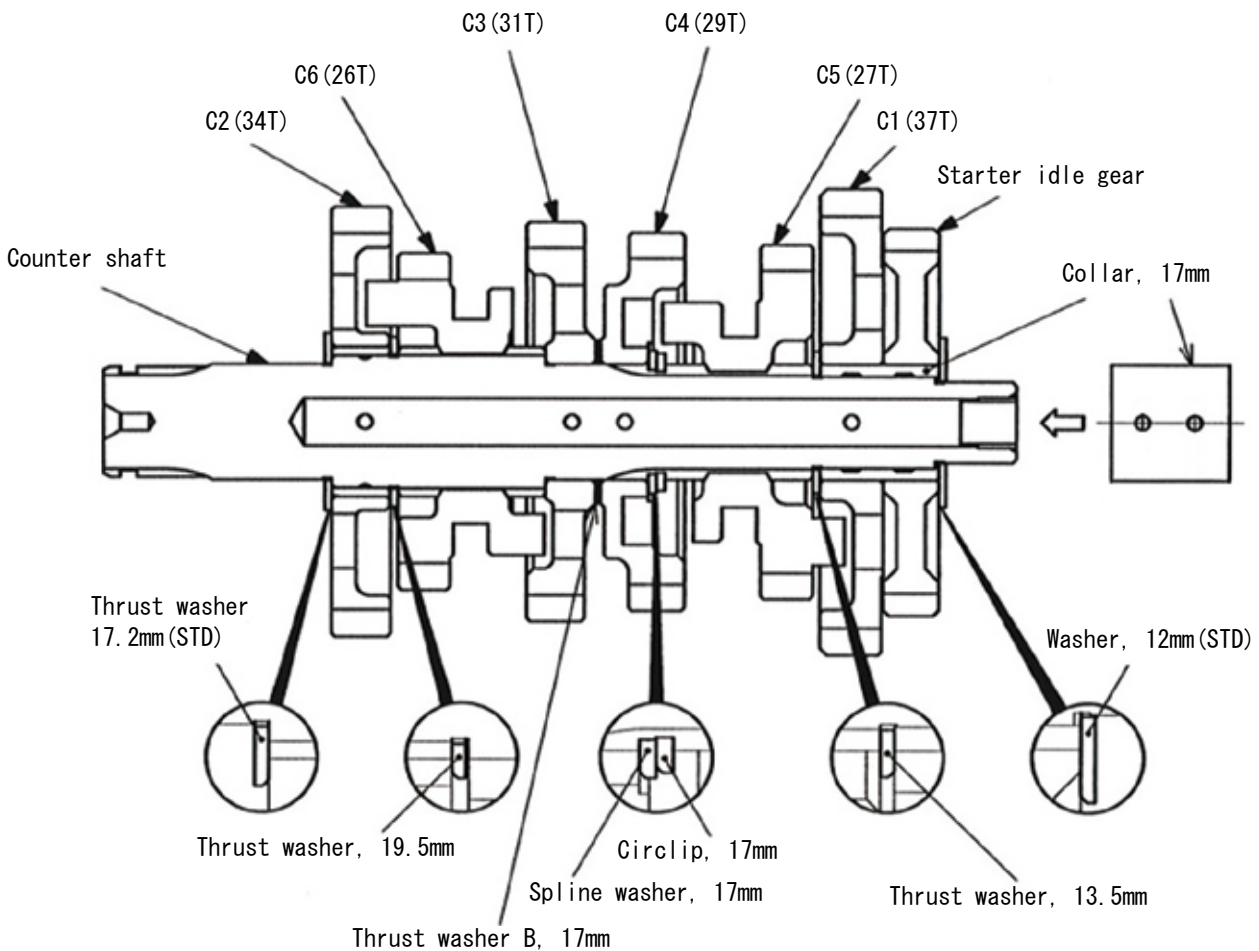
It should be noted, In the case of parts that can not be separately shipment, please order a set part number.

Assembly Diagram

Main Shaft Assembly



Counter Shaft Assembly



● Disassembly

1. Prepare a suitable work stand, on which please set a crankcase with its left-side case facing downward. Unscrew pivot bolts on a stopper arm, and remove the stopper arm and a return spring.
2. Unfasten shift drum stopper plate bolts, and remove a stopper plate.
3. Remove a gear shift spindle.
4. Unfasten a return spring hook on a kick starter spindle, and remove a spring and a spring collar.
5. Unscrew two bolts on a crankcase, and disassemble the right side crankcase, hitting it lightly with a plastic hammer. (Do not hit or touch the mating surfaces of the case with a screwdriver or the like.)
6. Remove two dowel pins and a gasket.
7. Remove a kick starter spindle.
8. Pull a shift fork shaft out, and remove three shift forks from gears.
9. Remove a shift drum.
10. Remove a main shaft assembly and a counter shaft assembly from the crankcase at the same time.
11. Remove a primary starter gear from the main shaft, and also a thrust washer (17.2 mm), a washer (12 mm), and a starter idle gear from the counter shaft. (A washer on the counter shaft is often apt to be left untouched on the bearings at the crankcase side, which please take note.)

● Assembly

1. Apply engine oil to the inside of the standard primary starter gear, which please install to a kit's main shaft. Then apply engine oil to the inside of a kit's starter idle gear, which please install to the counter shaft. Install a standard washer (12 mm) and a thrust washer (17.2 mm) to the counter shaft. (Apply a little grease to the thrust washer (17.2 mm), being careful not to drop it. Also, be careful of the directions of each washer.)



2. Apply engine oil to each gear and frictional part on the main and the counter shafts, both of which please fix, as a unit, to the left-side crankcase.



3. Affix a provided shift fork on the main shaft with the identifying mark "C" facing upward. Align the convex portion on the shift fork with the center groove in the provided shift drum, and install the shift drum to the crankcase.



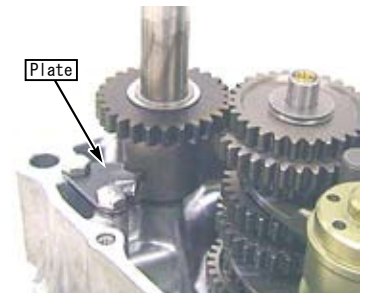
4. Fix kit's left shift fork to the under part of the counter shaft, and also fix the stock shift fork to the upper part of the counter shaft, as "L" mark on the left fork and "R" mark on the stock fork faces up. And attach them to grooves on the shift drum.



5. After applying engine oil to the shift fork shaft, install it to the crankcase. (Do not install it forcibly.)



6. Install the kick starter spindle to the case, and hang the claw of the starter ratchet on the hook of the guide plate.

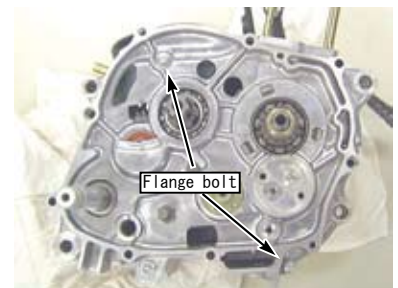


7. Degrease the mating surfaces of the crankcase, and install two dowel pins and a new crankcase gasket to the crankcase. Then install the right side crankcase and fix flange bolts into two locations in the crankcase, and tighten these bolts one after the other in a few steps to the specified torque.

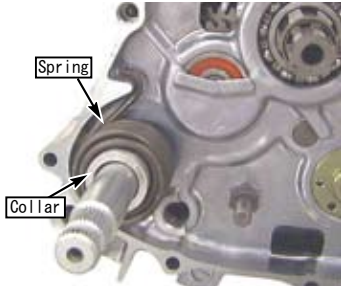
⚠ Note: Be sure that you protect specified torque.

Bolt

Torque : 12N · m (1.2kgf · m)



8. Attach a return spring to the kick starter spindle. Insert the end inside the spring into a hole in the spindle, and fix a spring collar. (Aligning the notch on the spring collar with the spring end, attach the spring collar.)



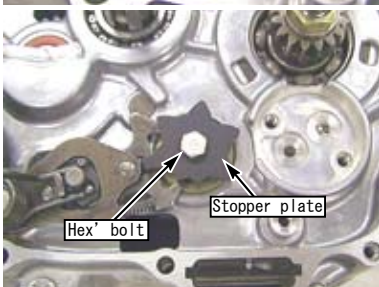
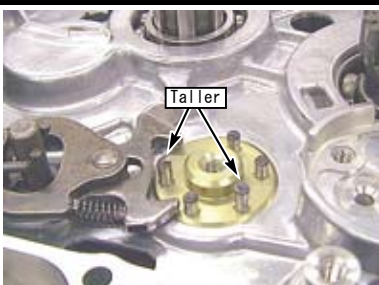
9. Remove a return spring and the shift arm spring from the standard gear shift spindle, and install them to a shift spindle in the kit. (Please be careful when removing a return spring because the tension is strong.) Apply engine oil to all the sliding parts of the shift spindle and install it to the crankcase. (Fix the shift spindle, aligning the return spring end with the stopper pin on the crankcase.)



10. Remove four shift drum pins from the stock shift drum. Then install all four of them and one from the kit to a shift drum. Attach a shift drum stopper plate to the shift drum, and apply screw locking agent to the stock hex' bolt and tighten it to the specified torque. (Two of the shift drum pins stand taller than others when fixed. Fix a stopper plate by fitting the holes into these two pins.)

⚠ Note: Be sure that you protect specified torque.

Stock hex' bolt
Torque : 13N · m (1.3kgf · m)



11. Attach the supplied shift-drum stopper spring and shift-drum stopper to the crankcase with a pivot bolt.

⚠ Note: Be sure that you protect specified torque.

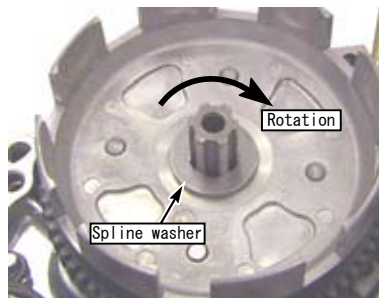
Pivot bolt
Torque : 13N · m (1.3kgf · m)



12. While rotating the main shaft by hand, rotate the hex' bolt which is fixing the shift stopper plate in order to check the operation in each shift (or, position).

13. Install the clutch outer to the main shaft.

Install a stock spline washer B to the main shaft, being careful about direction, and rotate the spline washer 30 degrees. Fix a kit' s set ring (17mm) to the main shaft, and fasten the spline washer.



Procedures after this are just in the opposite order of the disassembly precedures.