



5-Speed Transmission Instruction Manual

Item No. : 0 2 - 0 4 - 0 0 7 7

Applicable models and frame No.

KSR110 (A3): KL110A-A04501 ~

KLX110 (A4): LX110A-A23003 ~

From '05 models onward

• Thank you for purchasing one of our products. Please strictly follow the instructions to install and use the products.

• Before installing the products, please be sure to check the contents of the kit. If you have any questions about the products, please kindly contact your local TAKEGAWA dealer.

Please note: Illustrations and photos may vary from actual hardware.

Read all instructions first before starting the installation.

This kit is for exclusive use in KSR110 & KLX110. Please note that the kit cannot be installed on any other models of motorcycles.

Installation of this kit requires engine removal / mounting and crankcase splitting. At some stages of the installation, some special tools are required.

Besides, this instruction manual, as well as a HONDA's service manual, is prepared for those who have acquired basic skill and knowledge.

Therefore, those who are not skilled or do not have sufficient knowledge may not be able to install the kit correctly.

This instruction manual covers the installation work only after the procedures of the engine removal from the body, disassembly of a cylinder head, cylinder, piston, clutch cover, flywheel, generator cover, and primary and secondary clutch assemblies, and the splitting of the crankcase.

Please do the removal work referring to KAWASAKI's service manual for KSR110 / KLX110 for the removal procedures before this stage.

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 these gaskets, O-rings, packings, etc separately.

This kit is applicable to '05 models onwards. In case this kit will be installed on '04 or earlier models, you are requested to purchase a KAWASAKI's genuine change lever for '05 onward models.

You are discouraged from using this kit on a motorcycle of 138cc or 178cc engine displacement. We recommend that the kit be used on a motorcycle of less than 125cc engine displacement.

When you use this kit on a motorcycle of 138cc or 178cc displacement, it is understood that you do so on your own responsibility, which please note.

Please be informed that, mainly because of improvement in performance, design changes, and cost increase, the product specifications and prices are subject to change without prior notice.

This manual should be retained for future reference.

Special instruction for Thailand made: KSR110 (KL110CBF / Vin #JKAKL110CCDA00058 and up) To make smooth gearshift, please replace following parts at the same time Kawasaki genuine parts.

14014-1118 plate position

13236-1256 lever comp

Machining of a left-side crankcase is needed for the installation of this kit. Please contact a machining workshop for this processing. Please prepare the processing drawing.



CAUTION

The following show the envisioned possibility of injuries to human bodies and property damage as a result of disregarding the following cautions.

- Before starting the installation, make sure the engine and muffler are cool at below 35 degrees Celsius. (Otherwise, you will burn you.)
- Do the installation with right tools. 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.)
- Do not use or process other parts than those included in the kit or specified parts. Otherwise, the breakage of parts is highly likely to follow.
- The installation of this kit will change the gear change pattern to the return system of 1-down-4-up. Change gears infallibly only after you have completely disengaged the clutch. Changing gears forcibly or without disengaging the clutch on the manual-gear shift motorcycle will cause the gears and other parts to get damaged.
- Before riding, check every hardware like screws and nuts for slack and for abnormal sound. When you notice something abnormal with your motorcycle while riding down a road, immediately stop riding and check what went wrong with the motorcycle.

Please be informed that, mainly because of improvement in performance, design changes, and cost increase, the product specifications and prices are subject to change without prior notice.

No return accepted after installation.

This manual should be retained for future reference.

Important Notice from TAKEGAWA

Though we have developed and designed each tuning-up part to have a certain level of strength and durability, the wrong use or handling of them will most likely increase the fear of parts breakage. Therefore, you are kindly requested to use these parts with great care as special parts, not as stock parts.

Features

This is a kit for 5-speed transmission with a gear-ratio for sport driving as compared with a standard 4-speed transmission. Docks of each gear are tapered to prevent the gear from coming out. A wide range of settings will be available when this kit is used in combination with a final gear. Also available "5sp to 6sp conversion" kit (02-04-0078).

| | Stock 4-speed transmission on KSR110 | TAKEGAWA's close 5-speed transmission | TAKEGAWA's close 6-speed transmission |
|----------|--------------------------------------|---------------------------------------|---------------------------------------|
| 1st gear | 3.000 (36/12) | 2.692 (35/13) | 2.692 (35/13) |
| 2nd gear | 1.937 (31/16) | 2.000 (32/16) | 2.000 (32/16) |
| 3rd gear | 1.350 (27/20) | 1.578 (30/19) | 1.578 (30/19) |
| 4th gear | 1.086 (25/23) | 1.333 (28/21) | 1.333 (28/21) |
| 5th gear | | 1.238 (26/21) | 1.181 (26/22) |
| 6th gear | | | 1.086 (25/23) |

Kit includes:

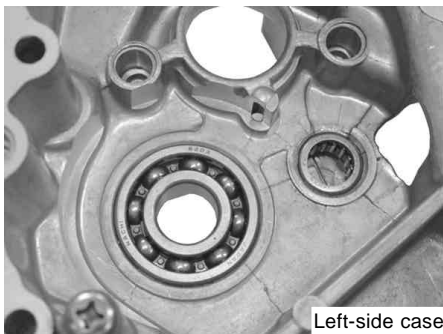


| No. | Part Name | Qty | Repair Part Item No. | in packs of |
|-----|-----------------------------------|-----|--|-------------|
| 1 | Main shaft assembly | 1 | Please see the Transmission Gear Assembly Drawing on the last page of this Manual. | |
| 2 | Counter shaft assembly | 1 | | |
| 3 | Gear shift drum | 1 | 24301-KL1-T10 | 1 |
| 4 | Shift drum cam | 1 | 24411-KL1-T10 | 1 |
| 5 | Dowel pin, 4 x 10 | 4 | 00-02-0049 | 5 |
| 6 | Thrust washer, 12 mm | 1 | 00-02-0073 | 2 |
| 7 | Kick starter gear, 27T | 1 | 28211-KL1-T00 | 1 |
| 8 | Change shaft lever COMP. | 1 | 24610-KL2-T00 | 1 |
| 9 | Change shaft return spring | 1 | 24651-KL1-T00 | 1 |
| 10 | Left gear shift fork | 1 | 24213-KL1-T00 | 1 |
| 11 | Center gear shift fork | 1 | 00-02-0135 | 1 |
| 12 | Position lever spring | 1 | 00-02-0214 | 1 |
| 13 | Return spring bolt | 1 | 92001-KL1-T00 | 1 |
| 14 | Shift fork shaft | 2 | 02-04-0029 | 2 |
| 15 | Drive-shaft bearings retainer set | 1 | 00-00-0068 | 1 |

Please order repair parts with the Repair Part Item No. Without the repair part item NO., we may not be able to accept your orders. Some parts are only available as a set. In this case, please order them with the set number.

~ Installation Instructions ~

- 1 . Process a left-side crankcase as per the instructions. (Please see the machining drawing of the crankcase.)



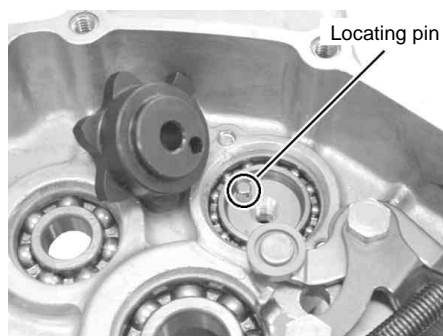
- 2 . Detaching the drive-shaft bearings retainer from the right side crankcase, install the one included in the Kit.

Install the washer with the flat surface toward the bearings.

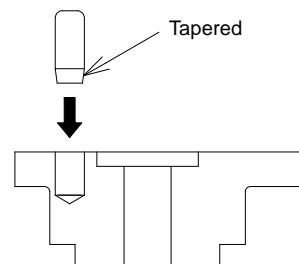
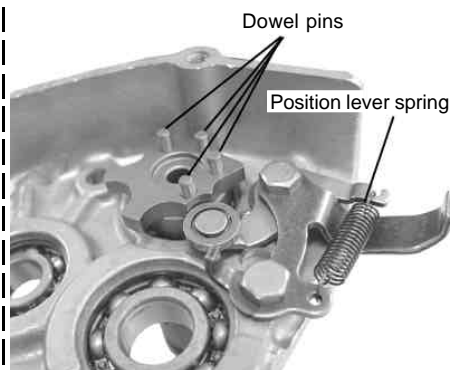
Torque: 10 N · m (1.0 kgf · m)



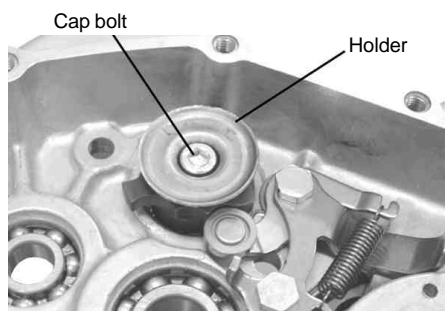
- 3 . Prepare a suitable stand to place a crankcase on.
Put a stock locating pin into a gear shift drum, and fit the drum into the right-side crankcase. In case it's hard to put in the pin, insert it with a plastic hammer.



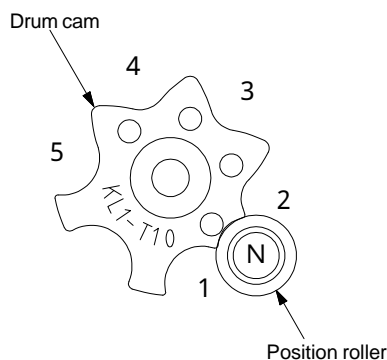
Change the spring with a provided spring. Aligning a hole on the shift drum cam with the locating pin on the drum, fix a cam. Install dowel pin with face down taper side.



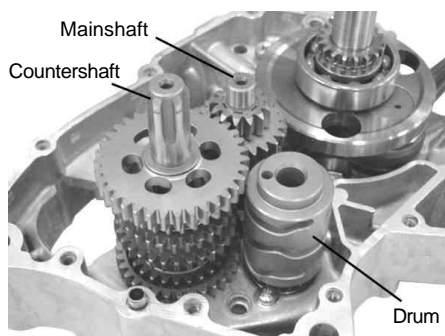
Place a holder and tighten up a cap bolt.
Apply screw locking agent to the cap bolt.
Torque: 6 N·m (0.6 kgf·m)



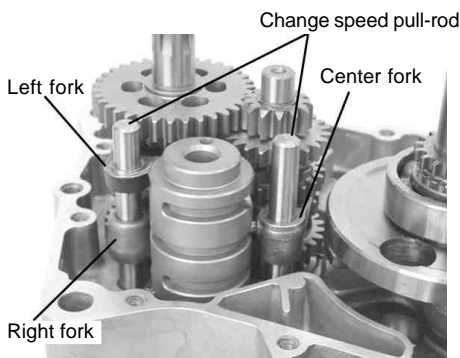
Set the shift drum at a NEUTRAL position.



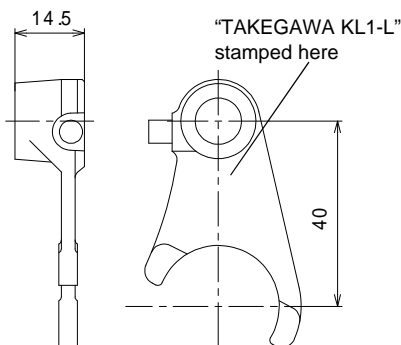
- 4 . Invert the crankcase.
After applying grease to a provided 12mm thrust washer, attach it to the countershaft. After putting together a mainshaft assembly and countershaft assembly, fit them into the right-side crankcase at a time. Take care to prevent a thrust washer from coming off.
Apply engine oil to every gear and bearing.



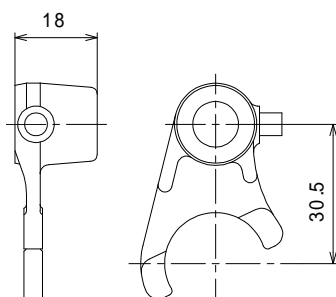
- 5 . Apply engine oil to pawls on each shift fork, and fit the forks into grooves on each gear.



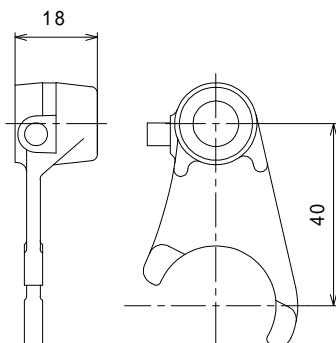
Pay attention to the location of each fork.
Apply engine oil to the supplied shift rod, and put the rod through shift forks, sliding each shift fork. And install this unit onto the case.



Left gear shift fork

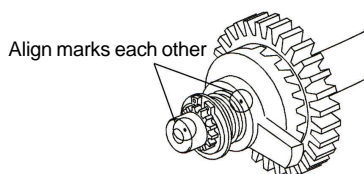
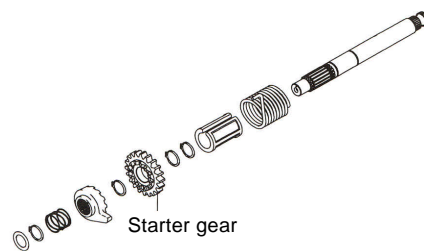


Center gear shift fork



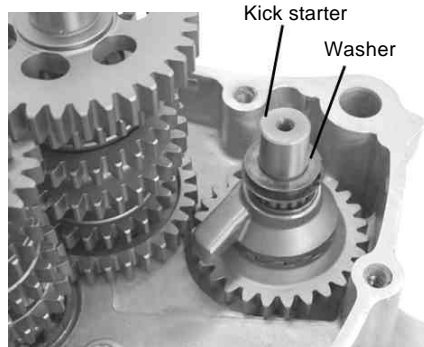
Right gear shift fork
(Genuine parts)

- 6 . Detach a stock kick gear from the kick starter. And apply engine oil to a kick gear of the kit, and fix it.



Align marks each other

Apply grease to a stock washer, and fix it to the tip of a kick shaft.



Put the kick starter into a hole on the right-side crankcase.
Please note that the kick starter cannot be fixed after joining together the crankcases.

- 7 . Remove dirt and dust remaining on the mating surfaces of the right- and left-side crankcases, and degrease the mating surfaces.

Apply liquid packing to the mating surface of the left-side crankcase.

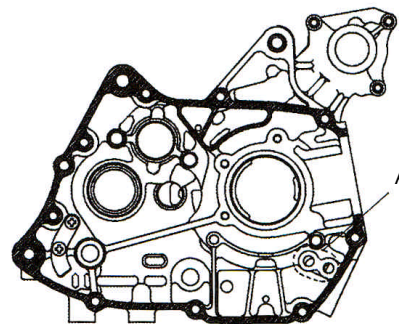
Recommended sealant:

KAWASAKI Bond

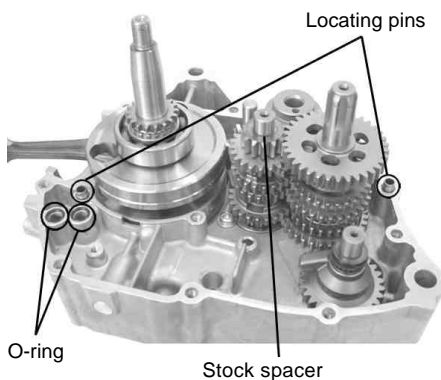
(silver-color liquid gasket)

92104-002

Do not apply liquid packing to the portion A., as shown in the figure below.



- 8 . Fix two locating pins and O-ring to the crankcase. Attach a stock spacer to the mainshaft. And attach the processed left crankcase, and join a right and left crankcases together by hitting them with a plastic hammer.
- Align the tip A of the kick shaft with a kick shaft hole on the left crankcase, and fix the cases.

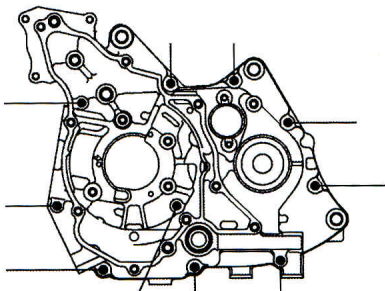


Fix screws on the crankcase, and screw them up in the numerical order.

Torque: 6 N · m (0.6 kgf · m)

Apply screw locking agent to the screw No.10.

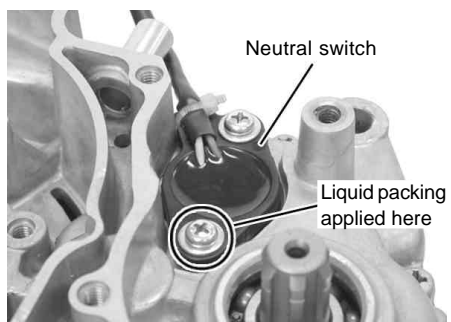
Wipe off the liquid packing that will squeeze out.



- 9 . Attach a spring and pin to the shift drum. Attach an O-ring to a neutral switch, and attach the switch to the case.
- Apply liquid packing to the lower screws, and tighten two screws.

Torque: 3 N · m (0.3 kgf · m)

As a hole will be made after processing of the crankcase, never fail to apply liquid packing to the screws at the lower part. If no liquid packing is applied, this will cause the engine oil leakages.



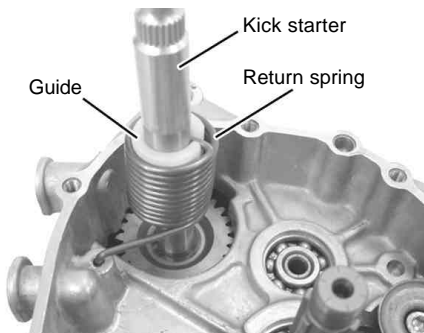
- 1 0 . Invert the crankcase.

Put a return spring tip into a hole on the kick shaft, and rotate the spring clockwise. Put the other spring tip into a hole on the crankcase.

Attach a plastic spring guide.

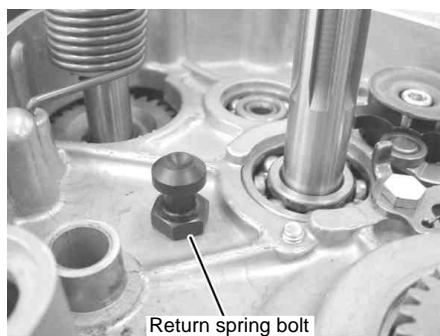
Check that the crankshaft, mainshaft and countershaft rotate smoothly.

While rotating the countershaft, rotate the shift drum and check if the gear shifts to each position.

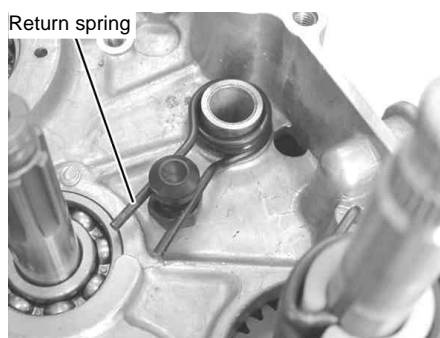


- 1 1 . Remove the return spring bolt in the R crankcase. Apply screw locking agents to kit's bolt and tighten it.

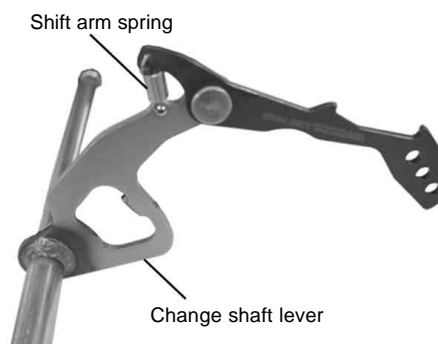
Torque : 22N · m(2.2kgf · m)



- 1 2 . Install kit's change shaft return spring to the case and the bolt.

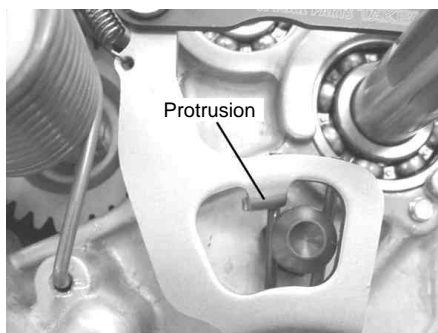


- 1 3 . Detach a shift arm spring from a stock change shaft lever, which please fix to a provided change shaft lever.

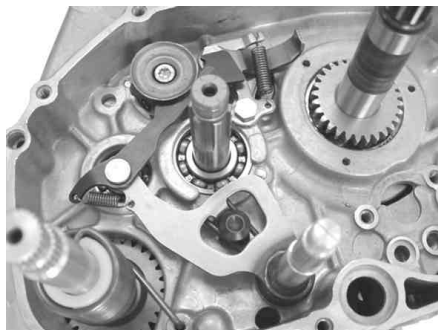


- 1 4 . Insert kit's change shaft into the position as illustrated in the picture below.

You cannot insert it into the center, because the bolt and the protrusion will interfere.



- 1 5 . Set the change shaft arm to the holder, and insert the protrusion of the change shaft into the return spring.



- 1 6 . Referring to the service manual, reinstall back the removed hardware.

SPECIAL PARTS TAKEGAWA Co.,Ltd.

3-5-16 Nishikiorihigashi Tondabayashi
Osaka Japan

TEL : 81-721-25-1357 FAX : 81-721-24-5059

URL : <http://www.takegawa.co.jp>

Crankcase Machining

Type of Cutter : Flat end mill, or blue nosed-end mill (under R 1)

Process Standard : Diameter when measured with bearings in the middle

: Depth when measured with crank case's mating surface in the middle

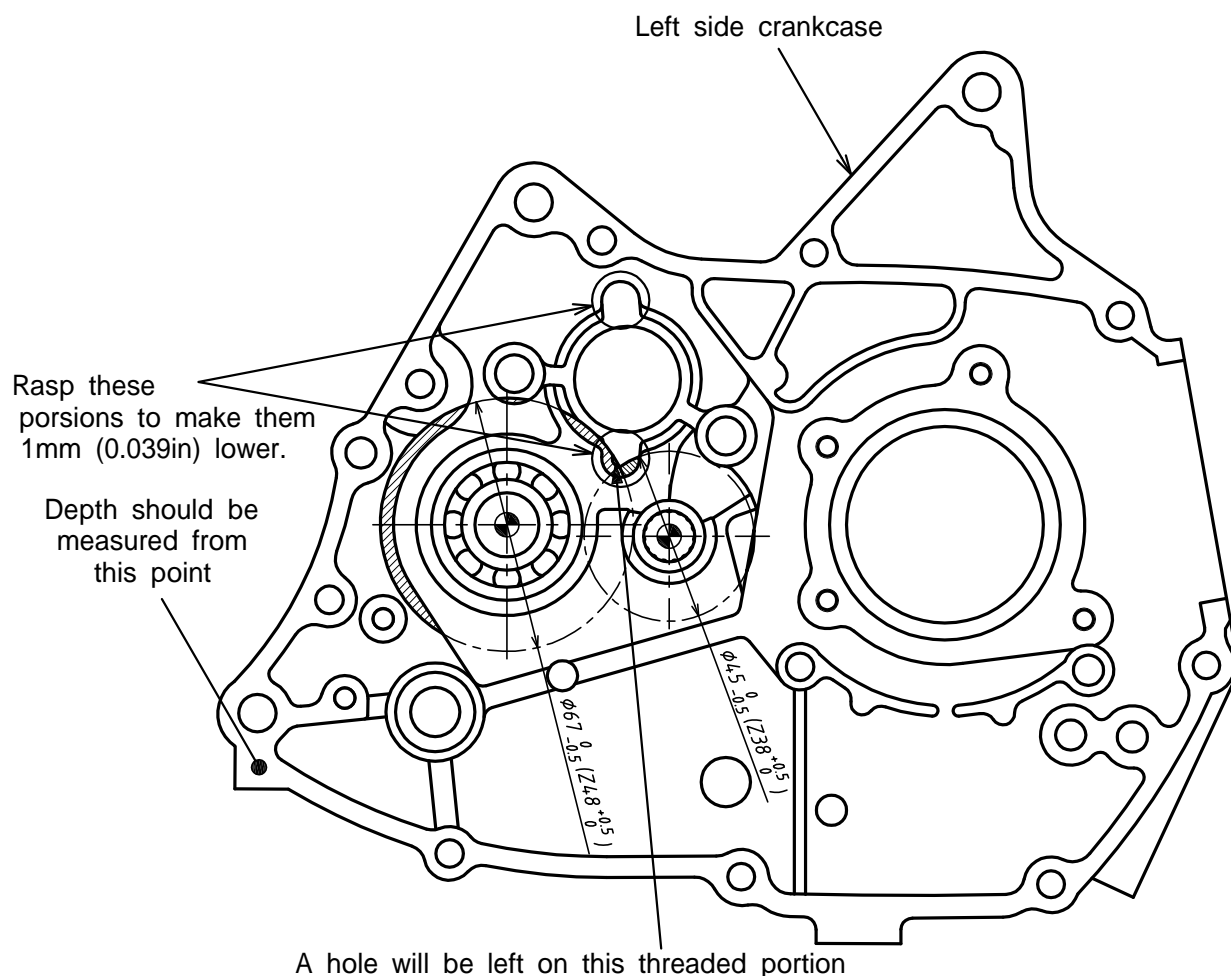
Where to process : Shaded portion

Caution : Cover the bearings with a masking to prevent chips and shavings from falling into them

Remark : Take note that this machining leaves a hole on the spot for mounting a lower neutral switch

Machining Sizes

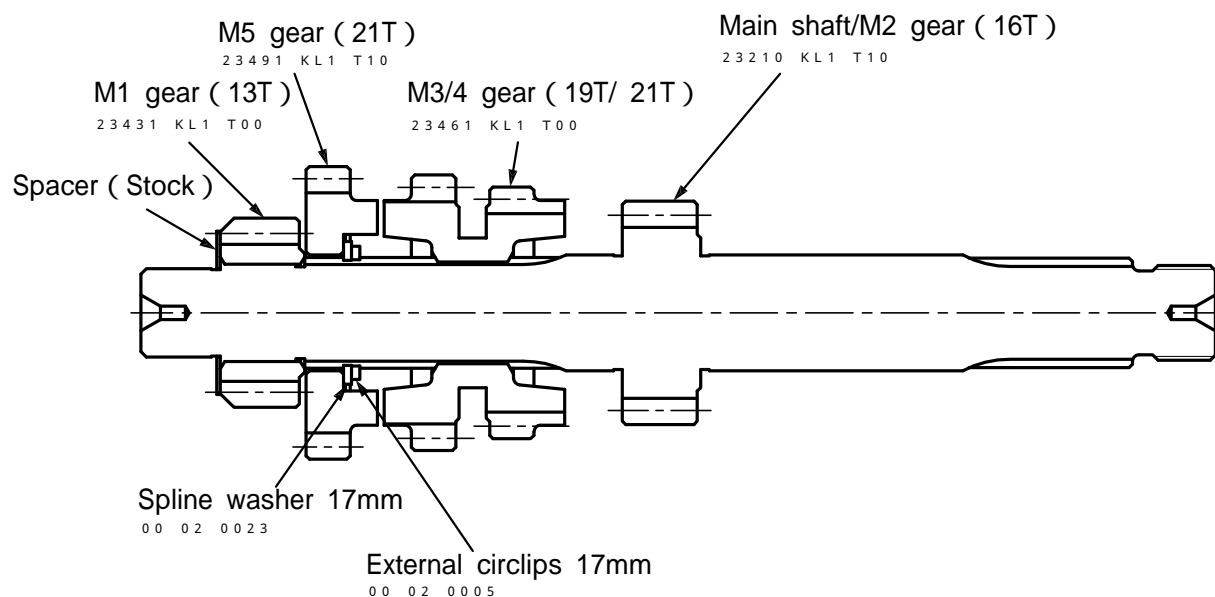
| Counter shaft side | | Main shaft side | |
|--------------------|---|-----------------|---|
| Diameter | 67mm (2.638in) with ball bearings in the middle | Diameter | 45mm (1.772in) with needle bearings in the middle |
| Depth | 48mm (1.890in) from crankcase's mating surface | Depth | 38mm (1.496in) from crankcase's mating surface |



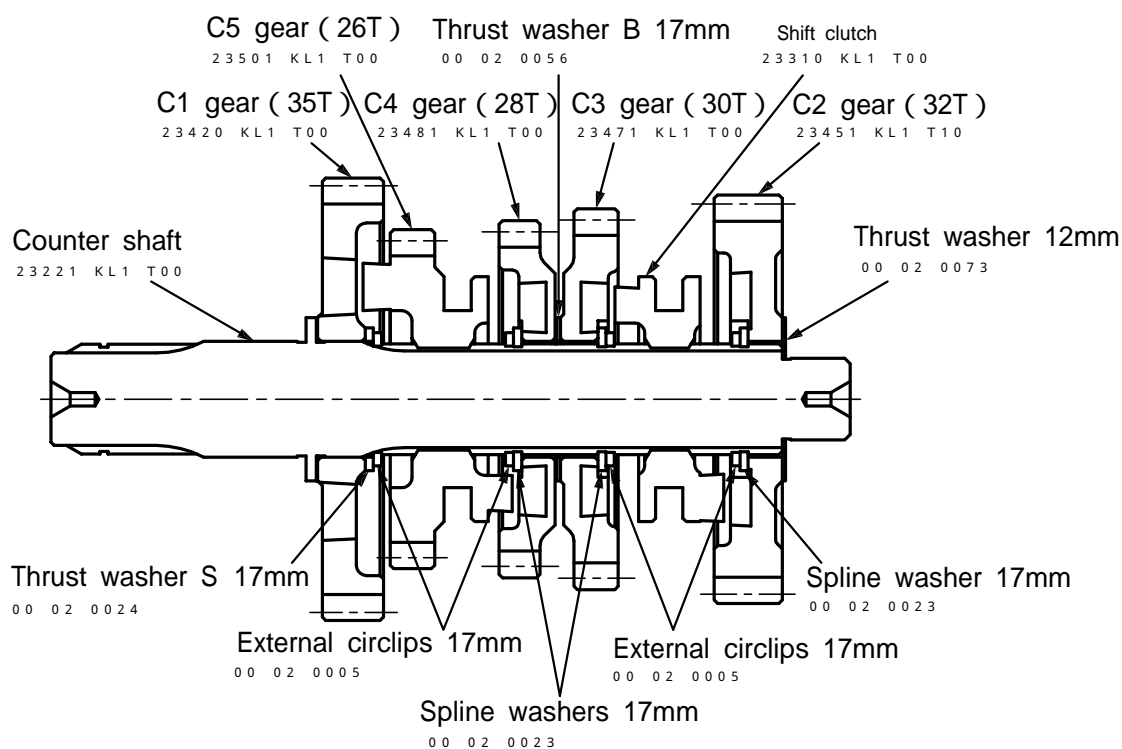
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Transmission gear assembly drawing

Main shaft



Counter shaft



| Part Name | Qty | Repair Part Item No. | In packs of |
|------------------------|-----|----------------------|-------------|
| Spline washers 17mm | 4 | 00-02-0023 | 5 |
| Thrust washer S 17mm | 1 | 00-02-0024 | 2 |
| External circlips 17mm | 5 | 00-02-0005 | 5 |
| Thrust washer B 17mm | 1 | 00-02-0056 | 1 |
| Thrust washer 12mm | 1 | 00-02-0073 | 2 |

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