Instruction Manual for 6-Speed Transmission Kit

Item No. ：０２－０４－２５５４
Application ：KSR110
Frame Nos ：KL110A-000001～(A1,A2)
Up to '04 models

Read all instructions first before starting the installation.

○ Thank you for purchasing one of our TAKEGAWA-made products. Please read the following instructions before installation.
○ Before installing the kit, please be sure to check the kit contents. Should you have any questions about the kit, please contact your local motorcycle dealer.
○ This kit is for exclusive use in KSR110. Please note that the kit cannot be installed on any other types 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 service manual, is prepared for those who have acquired basic skill and knowledge. Therefore, those who are not sklled 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 scondary clutch assemblies, and the splitting of the crankcase. Please do the removal work referring to a KAWASAKI's service manual for KSR110 for the removal procedures before this stage.
○ Be sure to replace gasket, O-ring, packing and others with news ones at the time of disassembly. In this kit are not included gasket, O-ring and others necessary for engine disasembly. So please purchase them separately.
○This kit is designed to be applicable to KSR110 of up to '04 models. For installation on KSR110 from '05 models and onward, please purchase a KAWASAKI-made genuine change lever for '04 motorcycle models.
○ 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.

Machining of a left-side crankcase is needed for the installation of this kit. Please contact a machining workshop for this processing with 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-5-up. Change gears infallibly and only after you have completely disengaged the clutch. Changing gears forcibly or without disengaging the clutch on the manual-gearshift 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.

Important Notice from TAKEGAWA

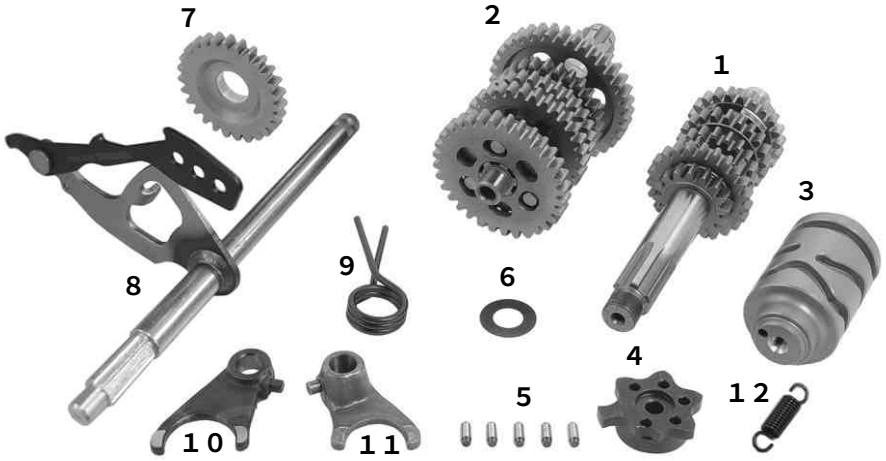
Though we have developed and designed each tuning-up part to have a certain level of strength and durability, the wrong use or handling of them will most likely increase the fear of parts breakage. Therefore, you are kindly requested to use these parts with great care as special parts, not as stock parts.

◆Features◆

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

	Stock 4-speed transmission on KSR110	TAKEGAWA's close 6-speed transmission
1st gear	3.000 (36/12)	2,692 (35/13)
2nd gear	1.937 (31/16)	2.000 (32/16)
3rd gear	1.350 (27/20)	1.578 (30/19)
4th gear	1.086 (25/32))	1.333 (28/12)
5th gear		1.181 (26/22)
6th gear		1.086 (25/23)

Kit includes:

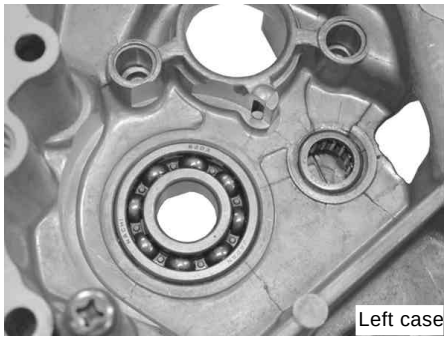


No.	Part Name	Qty	Repair Part Item No.	in packs of
1	Main shaft assembly	1	Please see the Transmission Gear Assembly Drawing on the last page of this Manual.	
2	Countershaft assembly	1		
3	gear shift drum	1	24301-KL1-T00	1
4	shift drum cam	1	24411-KL1-T01	1
5	Shift drum cam pins	5	241-42	5
6	Thrust washer, 12 mm	1	BW-01-0023	2
7	Kick starter gear, 27T	1	28211-KL1-T00	1
8	Change shaft lever COMP.	1	24610-KL1-T01	1
9	Change shaft return spring	1	24651-KL1-T00	1
10	Left shift fork	1	24221-KL1-T00	1
11	Central shift fork	1	———	1
12	Position lever spring	1	———	1

∴ Please order repair parts by indicating the Repair Part Item No. as listed above. As you see from the list, depending on the repair parts, in some cases we may not be in a position to accept your order for a single item in the quantity of one.

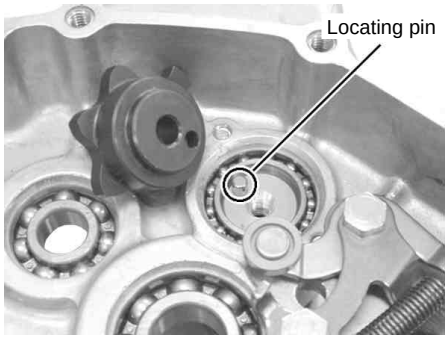
～Installation Instructions～

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



2. ● Prepare a suitable stand to place a crankcase on.

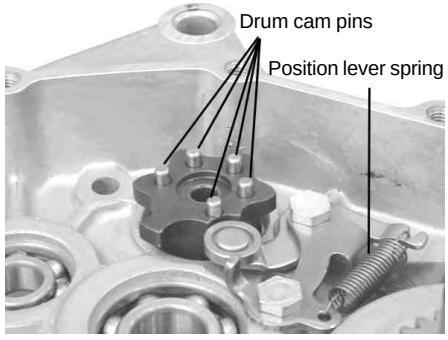
● Put a stock locating pin into a gear shift drum, and fit the drum into the right-side crankcase. In case it's hard to put in the pin, insert it by hitting it with a plastic hammer.

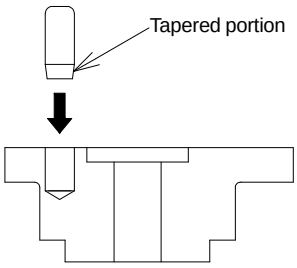


● Change the spring with a provided spring.

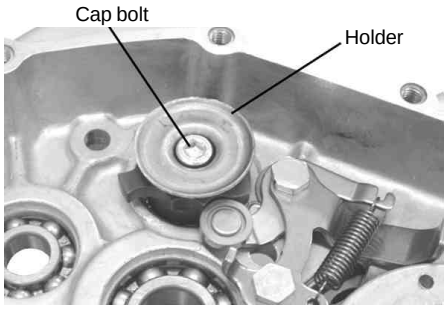
● Aligning a hole on the shift drum cam with the locating pin on the drum, fix a cam.

● Put five shift drum cam pins into the drum cam with its tapered portion pointing down.

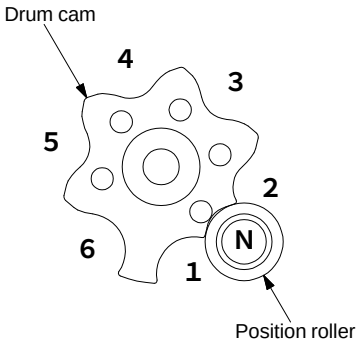




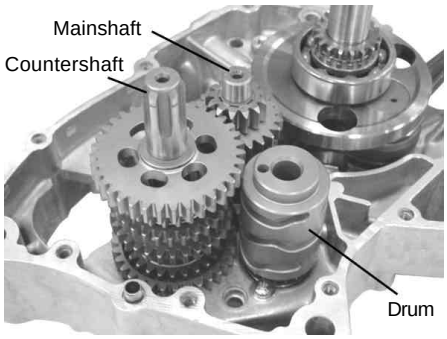
● Place a holder and tighten up a cap bolt.
※ Apply screw locking agent to the cap bolt.
Torque: 6 N • m (0.6 kgf • m)



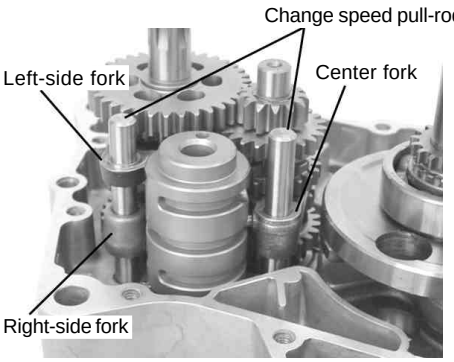
●Set the shift drum at a NEUTRAL position.



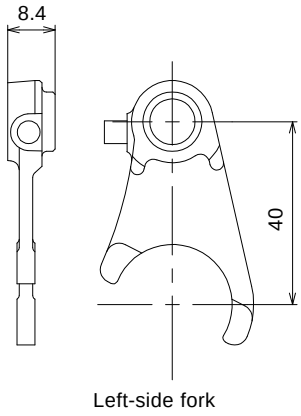
3 . ● Invert the crankcase.
●After applying grease to a provided 12mm thrust washer, attach it to the countershaft. And After putting together a mainshaft assembly and countershaft assembly, fit them into the right-side crankcase at a time.
※ Take care to prevent a thrust washer from coming off.
※ Apply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

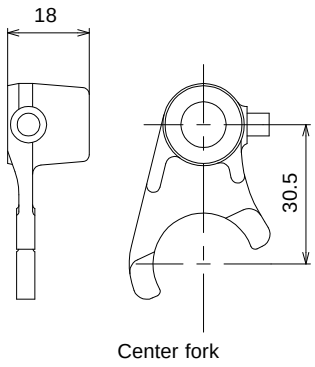


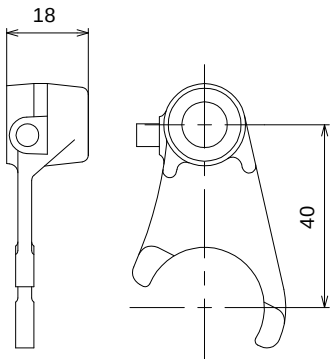
4 . ● Apply engine oil to pawls on each shift fork, and fit the forks into grooves on each gear.



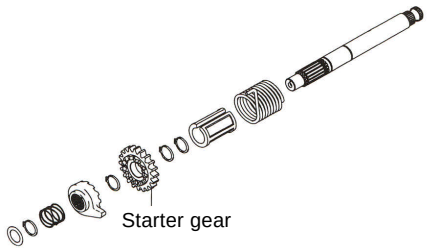
※ Pay attention to the location of each fork.
● Apply engine oil to a change speed pull-rod, and moving each shift fork, put in the rod to attach it to a case.

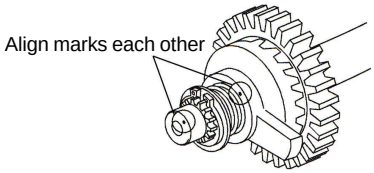




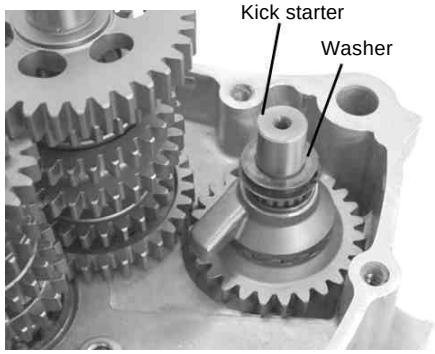


5 . ● Detach a stock kick gear from the kick starter. And apply engine oil to a kick gear of the kit, and fix it.



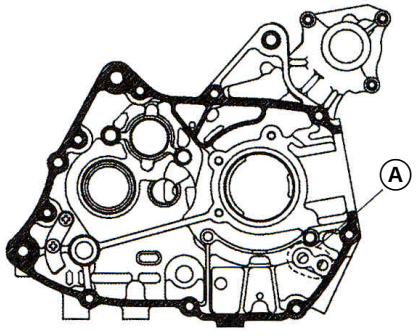


● Apply grease to a stock washer, and fix it to the tip of a kick shaft.



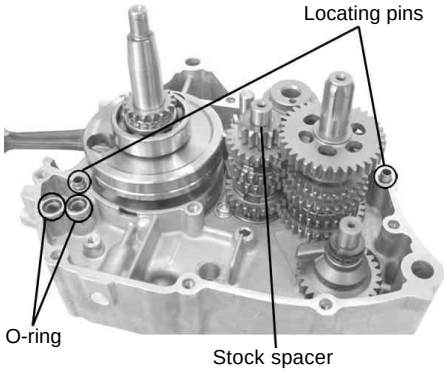
● Put the kick starter into a hole on the right-side crankcase.
※Please note that the kick starter cannot be fixed after joining together the crankcases.

6 . ● 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.



7. ● 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.

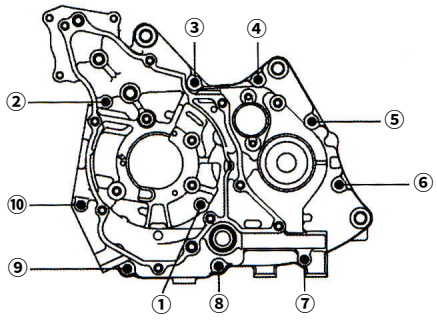
※Align the tip Ⓐ of the kick shaft with a kick shaft hole on the left crankcase, and fix the cases.



● 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.

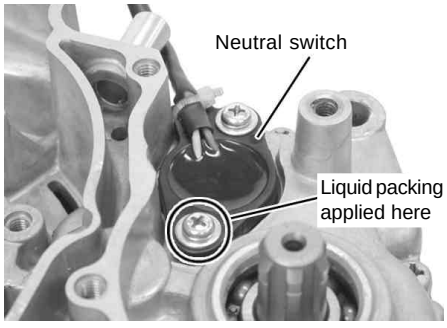


8. ● Attach a spring and pin to the shift drum.

● 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.



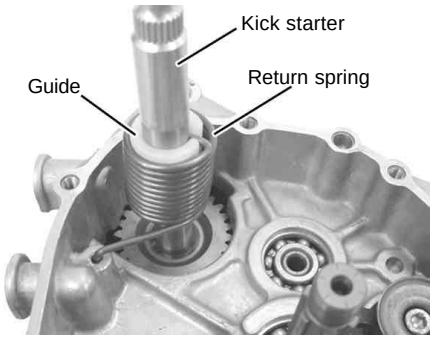
9. ● Invert the crankcase.

● 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.

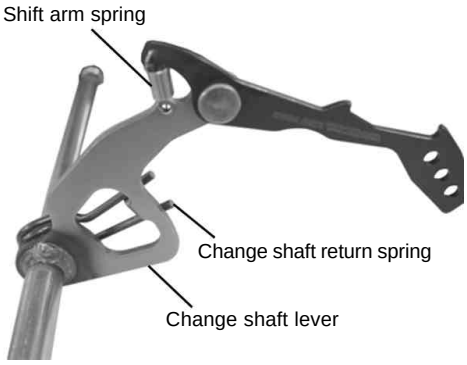
※ Check that the crankshaft,mainshaft and countershaft rotate smoothly.

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



10. ● Detach a shift arm spring from a stock change shaft lever, which please fix to a provided change shaft lever.

● Attach a provided change shaft return spring to the change shaft lever.



11. ● Attach the change shaft lever to the crankcase.

12. ● Referring to the service manual, reinstall back the removed hardware.

SPECIAL PARTS TAKEGAWA
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

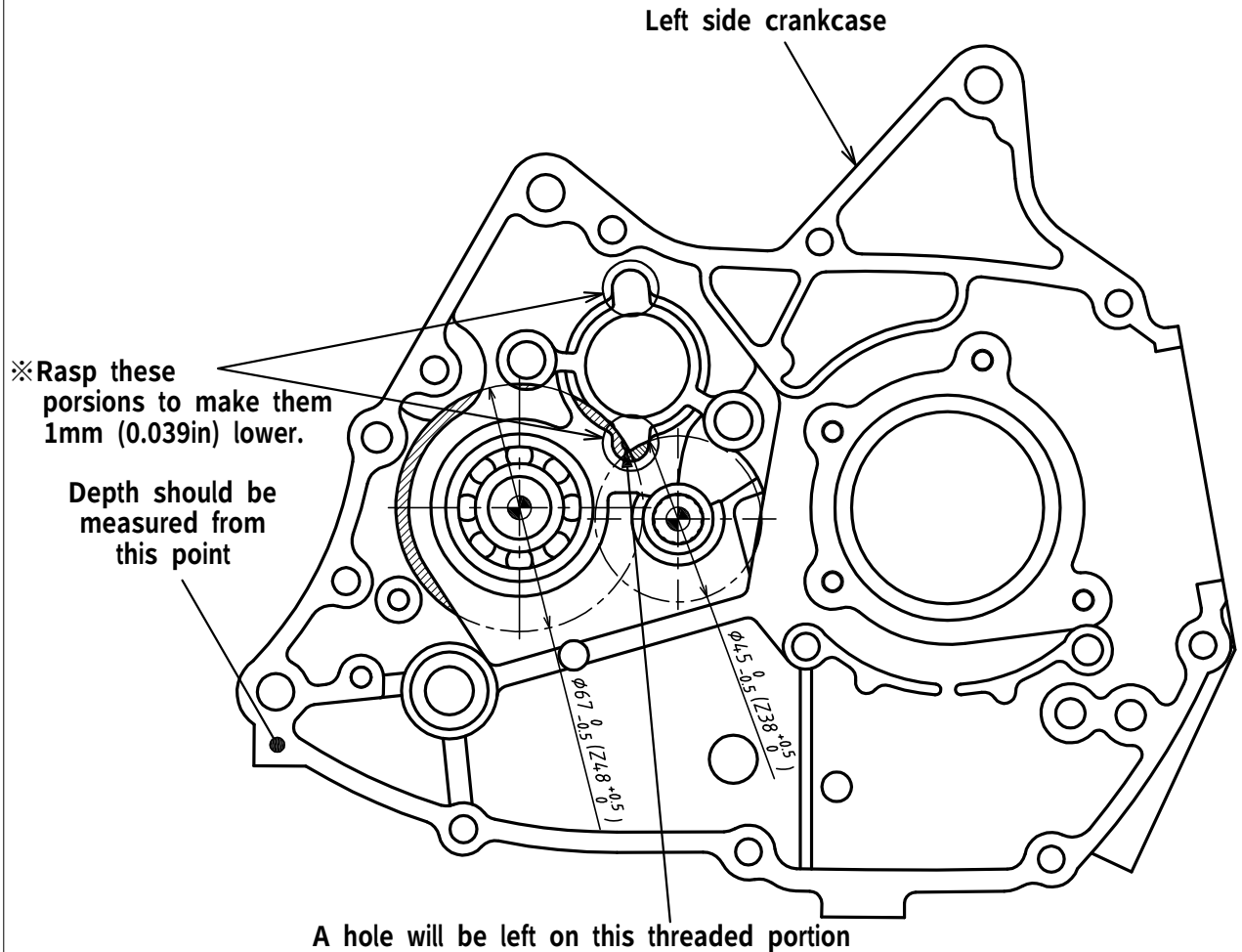
Where to process : Shaded portion

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

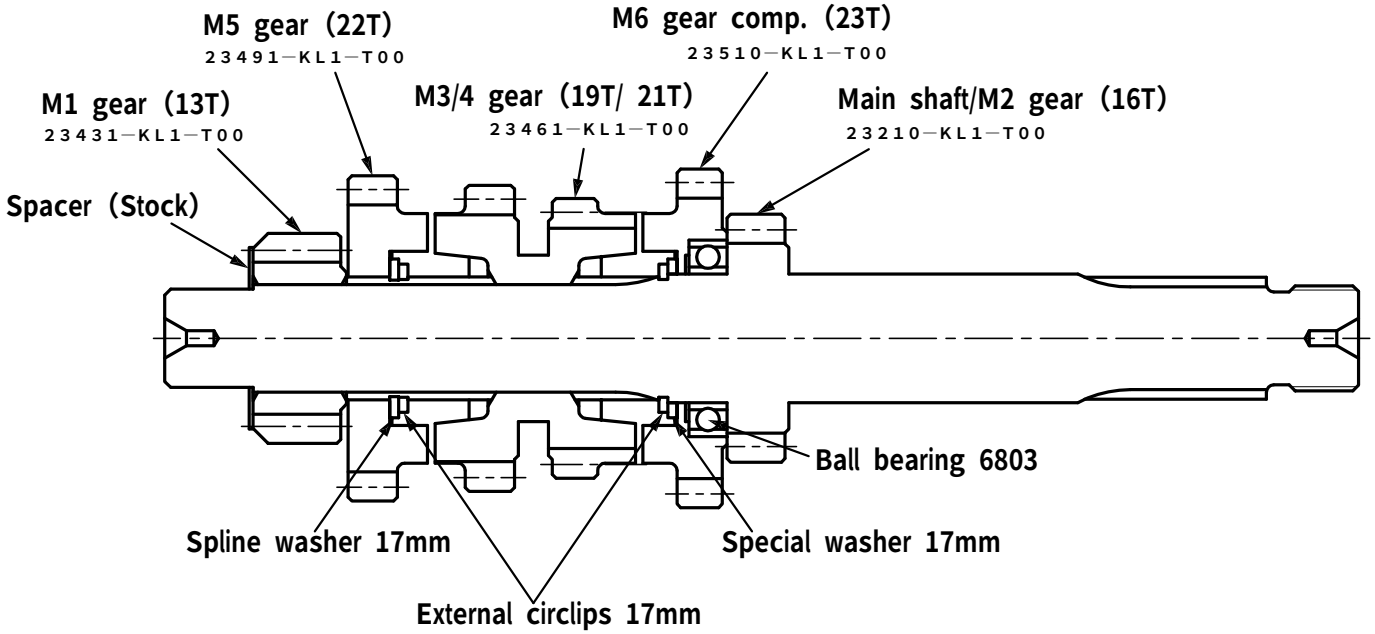
Machining Sizes

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 crenkcase's mating surface

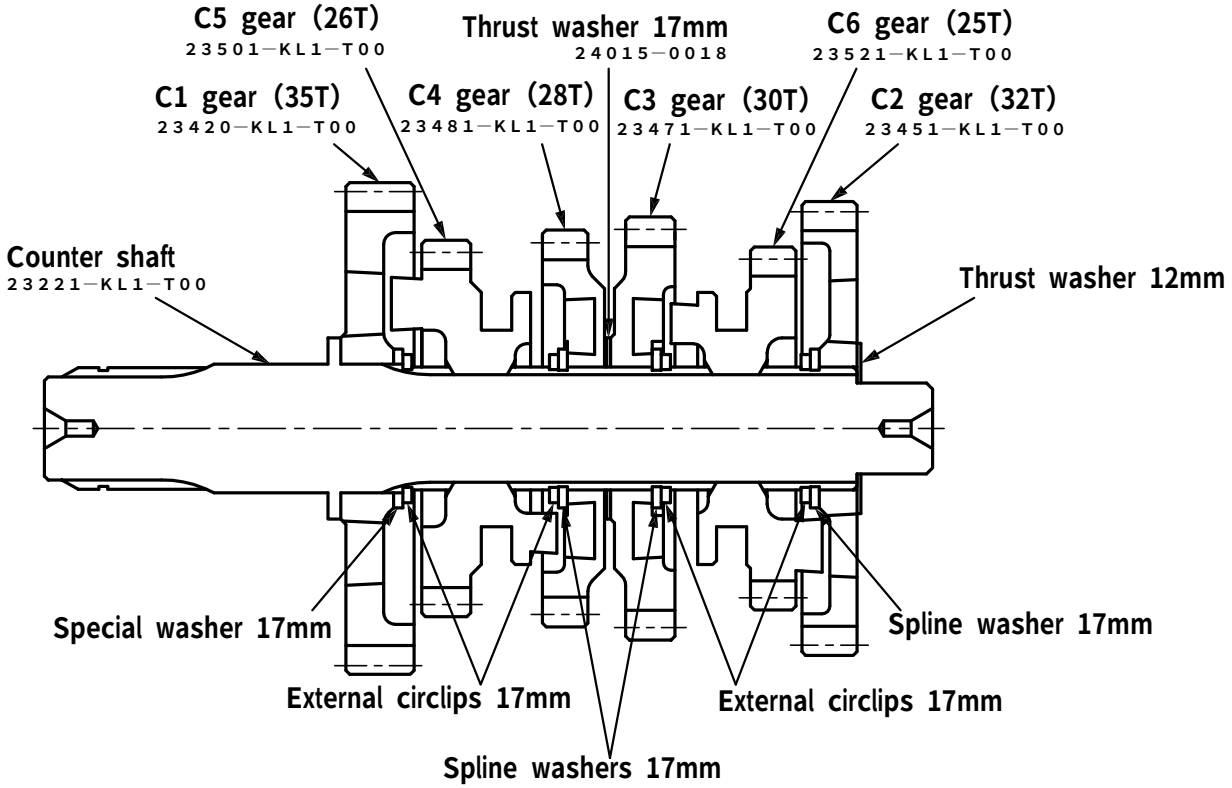


Transmission gear assembly drawing

Main shaft



Counter shaft



Part Name	Qty	Repair Part Item No.	In packs of
Spline washers 17mm	4	241-38	5
External circlips 17mm	6	241-39	5
Special washer 17mm	2	241-40	2
Thrust washer 12mm	1	BW-01-0023	2

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