

TRANSMISSION INSTALLATION INSTRUCTIONS

The entire transmission has been carefully inspected and reassembled. It's ready for a "drop-in" installation. All washers, snap-rings, splined-washers, are correctly installed and facing their correct way. The shift-drum's bolts are torque as required with the correct lock-tight. The transmission was assembled using the factory Service Manual as the guide.

These instructions also include testing the linkage and transmission prior to resealing the case halves.

If any assembly is disassembled, or a gear, washer or bearings slides off, and these instructions do not cover its reassembly, it's imperative it be reassembled per the factory Service Manual. If there are questions, feel free to call (813-46-8600), or consult the factory Service Manual as the ultimate guide.

Note: sometimes parts have different names. This is especially true when viewing a factory parts' diagram and a factory Service Manual. Whenever possible, these instructions use the same technical names as used in the factory Service Manual.

UNPACK AND TAKE INVENTORY



On a level surface, carefully pull the main shaft (as shown) and the counter shaft assemblies from their plastic bags. Pay close attention, as the assemblies are removed, gears, bearings, and washers may come off.

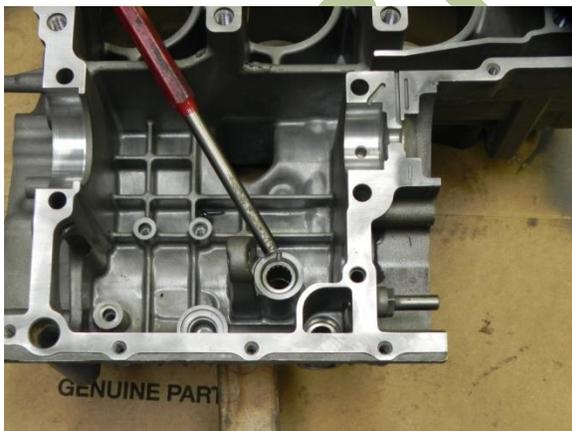


Take an inventory of the parts and remove any nylon ties. Your transmission set should include the following parts:

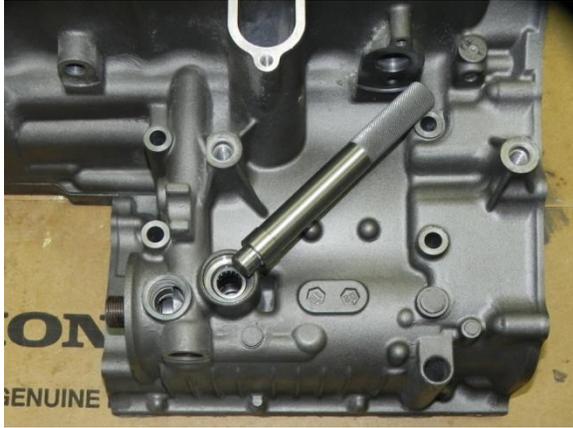
- Main shaft assembly
- Counter shaft assembly
- Shift drum assembly
- 3 forks
- Shift spindles 'a' and 'b'
- Shift fork shaft
- 3 setting plates
- A Seal, a spring, and 2 needle bearings

ASSEMBLY

START BY DRIVING OUT AND INSTALLING THE NEEDLE BEARINGS FOR SHIFT LINK 'A' AND INSTALL BOTH SHIFT LINKS INTO THE LEFT CASE HALF. WHEN REINSTALLING THE BEARINGS, CAREFULLY FOLLOW THESE INSTRUCTIONS. THE FACTORY SERVICE MANUAL DOES NOT COVER SOME OF IT.

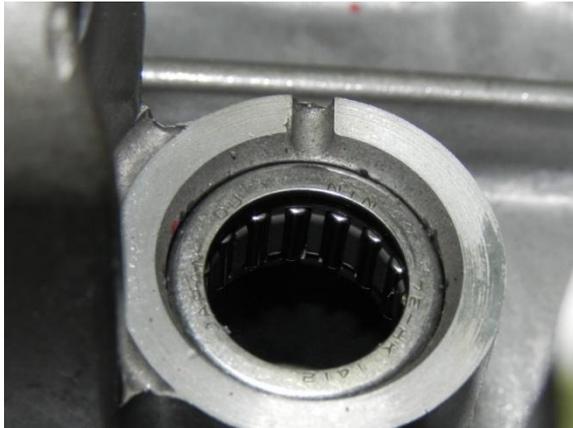


Using a similar tool, drive out both inner and outer bearings for spindle 'a' in the left case. If needed, support the case with a 2x4 wooden block as shown.



CAUTION; do not drive and seat the bearings till they bottom. See the next picture.

Install both inner and outer bearings for spindle 'a' in the left case half.



Do not fully seat either bearing. For maximum spindle support, only install them past their chamfered edge as pictured.

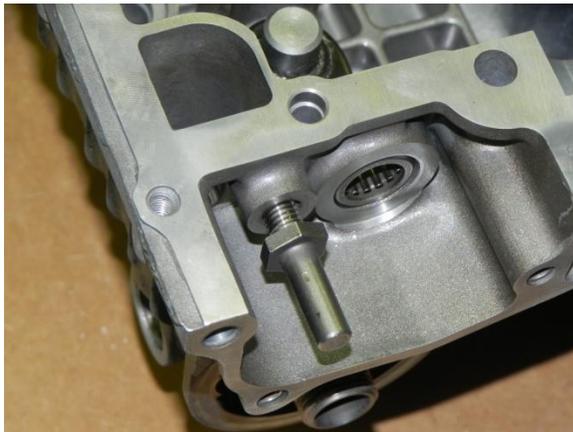


Oil the needle bearings.

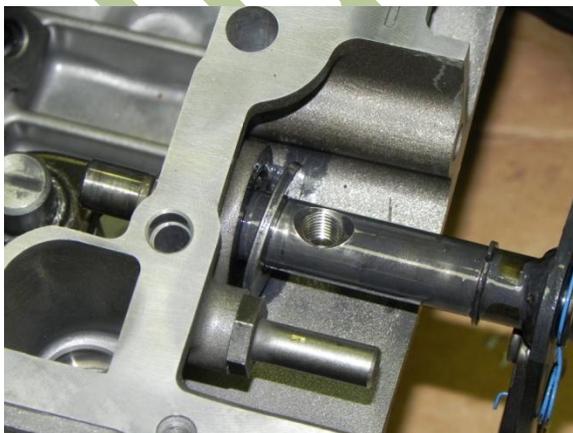
Lube the inner seal with lithium-based grease, and the outer seal's surface with oil. Using your thumb, push the seal into place.



Oil spindle 'a' and install it with its notch facing forward.



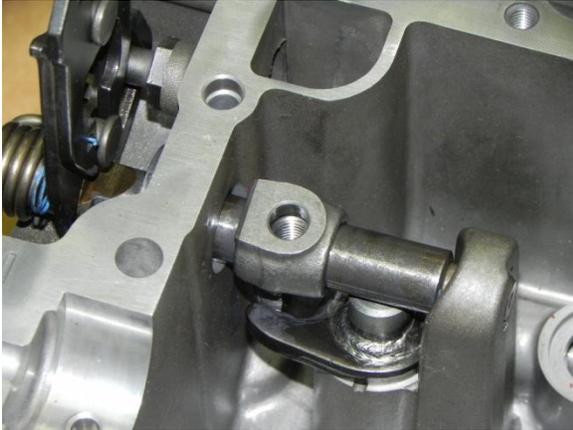
In the lower front of the left case, install the gear spindle arm return spring pin as shown. Torque pin to 18 ft/lbs dry.



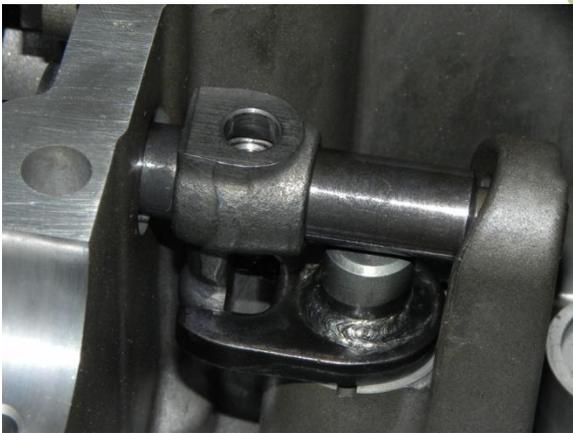
Oil the larger and smaller needle bearings for spindle 'b' and its shaft.

Install the "fat" washer onto spindle 'b' and begin to install it as shown.

The washer shown is 1 of 1. Meaning there is only 1 washer like it use on a GL1800. Therefore, it would be difficult to confuse with other washers.



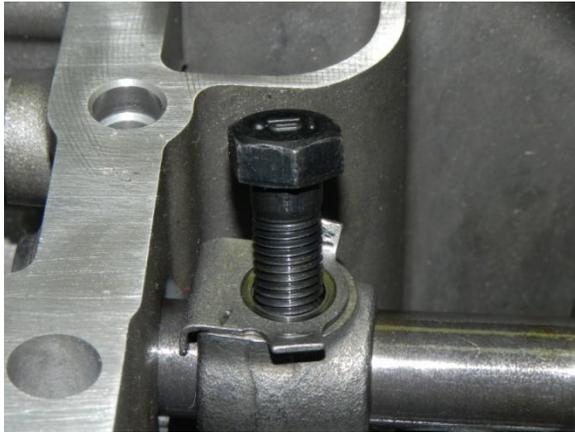
While sliding the spindle rearward, install the gear shift arm onto the spindle shaft. Notice the flat surface as shown is facing forward.



On the inside of the case, shift links 'a' and 'b', and the gear shift arm should look like this.



On the outside the spring pin and shift link 'b' should look like this.



Install the lock plate and torque the spindle arm bolt to 18 ft/lbs dry.

The bolt shown is 1 of 1.



Stake the lock tab as shown below.



From the front, it should look like this.

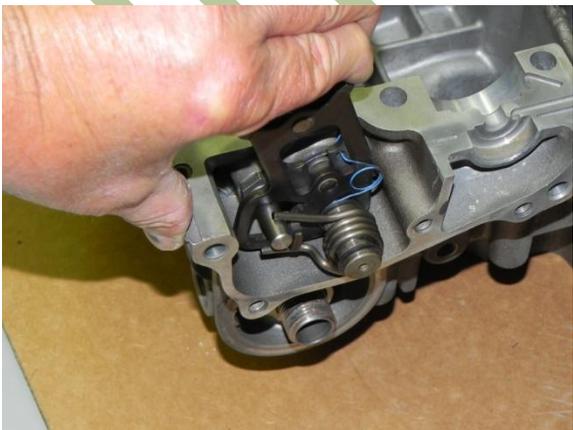
TEST THE LINKAGE



Observe the movement in the red while sliding the spindle forward and rearward.



The forward to rear movement should be a little more than 1/8".



Pull the lever as shown, spring pressure should be felt and the movement stops when the linkage hits the spring pin.



Push the lever as shown, equal spring pressure should be felt this way too. The movement stops once the linkage hits the return spring pin.

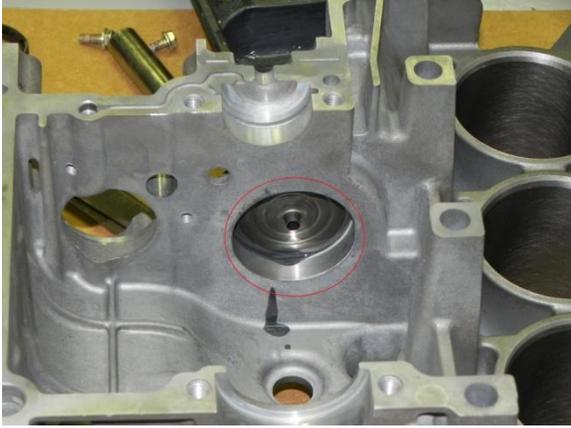


Push down and observe the movement. The blue spring should extend the link when released.

PREP THE RIGHT CASE HALF AND INSTALLING ITS COUNTER SHAFT ASSEMBLY



In the back of the right case are 3 bolt holes and their thread should be cleaned. The bolt holes are for the counter shaft's set plate. Run a tap in and out of them and make sure the area and threads are left clean of any metal and oil.



Coat the back of the oil pass plate with molykote/oil solution and install it as shown.



With the counter shafts lying on a flat surface, remove its large nut and the large bearing behind it. Slide off the smaller bearing. Then remove the 38T gear, its needle bearing, and remove the washer.

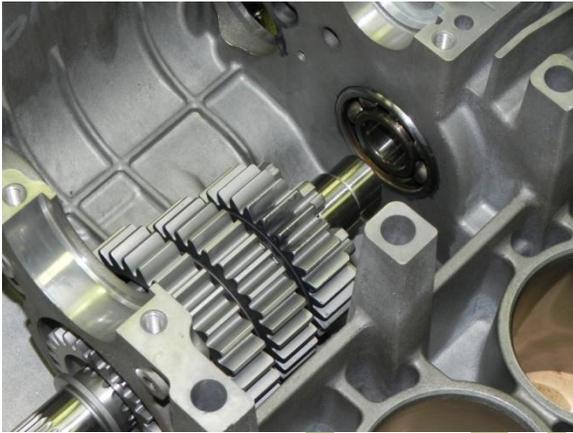
Caution; do not tilt the shaft allowing the 27T gear with dogs to slide off too.



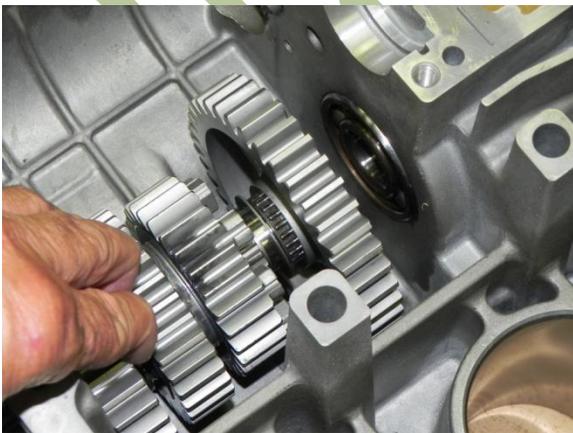
Oil the smaller bearing and install it as shown.



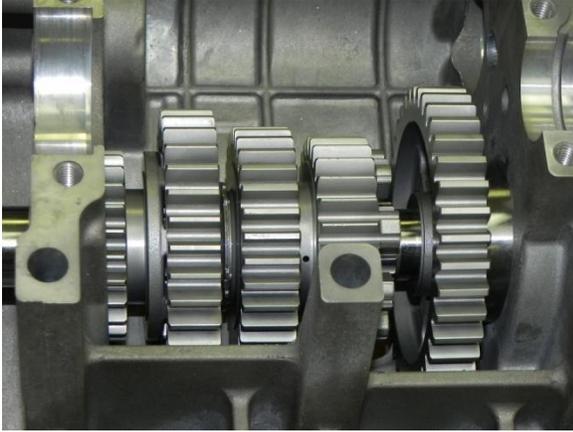
While tilting and holding the counter shaft assembly, install it as shown.



Slide the shaft assembly as far rearward as possible.



While holding the shaft assembly as shown, install the washer onto the counter shaft with the washer's sharp edge facing away from the smaller case bearing. Install the needle bearings and the 38T gear with its dogs facing towards the other gears. Now begin to slide the shaft assembly into the smaller case bearing as shown below.



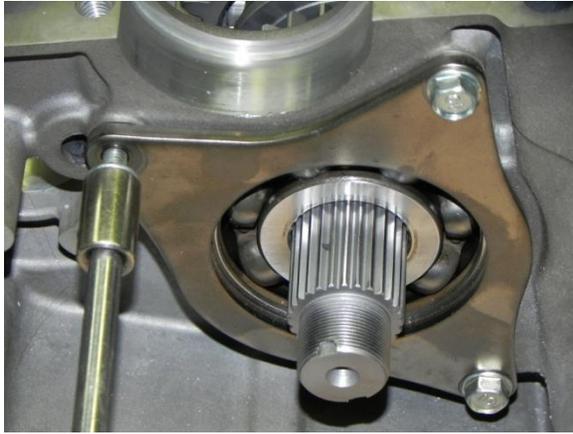
Push the entire shaft assembly into the smaller case bearing.



Oil and begin to install the larger case bearing. It should slide in easily.



Fully seat the bearing and spin the shaft. It should spin freely.



With the spot faces facing out, install the 3 hole setting plate using (3) silverish 6 x 20mm bolts. Use medium strength lock tight and tightened the bolts in several steps to 9 ft/lbs.

These 3 bolts shown should be 3 of 3.



Once the counter shaft is bolted into place, test the shaft again. It should spin freely. The gear stack from left to right is 1, 4, 3, 2, and 5. With gears 4 and 5 slid into a neutral position, gears 1, 3 and 2, should spin freely on the shaft.

Gears 4 and 5 should slide freely on the splined shaft.

INSTALL THE SHIFT DRUM AND SHIFT FORK



Gather the new spring and these parts.

CAUTION; if the timing chain guides were removed, you will have 2 bluish/black washers. The smaller of the 2 is used here. The larger bluish/black one is for a timing chain guide.

Both washer and shouldered bolt are 1 of 1.



In the front, lower corner, install the spring as shown.



Install the bolt, the shift drum stopper pivot arm, and the washer under it all as shown.



Before the bolt is completely tighten, hook the spring as shown. Make sure the stopper pivot rotates freely on the bolts shoulder. Tighten to 9 ft/lbs dry.



CAUTION; while moving the pivot arm, do not lose control of it, and allow it to hit the case. Notice that the pivot arm has a free rolling wheel. Without losing its grip, positing the arm until a screw driver can secure it as shown. Don't allow it to slip away and smack the case. These cases crack easily.

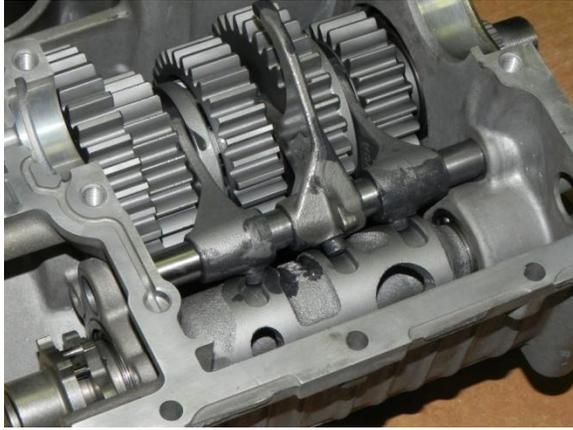
Once the shift arm is in position, slide the shift drum assembly into place, and carefully release the arm into the shift drum's cam.



Rotate the shift drum to the position as shown (neutral). The lineup below is how it should look. Notice that the larger radius part of the pivot wheel is what engages and rolls on the cam and not the smaller part of the wheel.



Lube the forks tips and sliding surfaces with molykote/oil. Notice that each fork is marked: F- front, C-center, R – rear.



Lubricate the fork shaft. Position the slider gears into a neutral position (no dogs engaged).

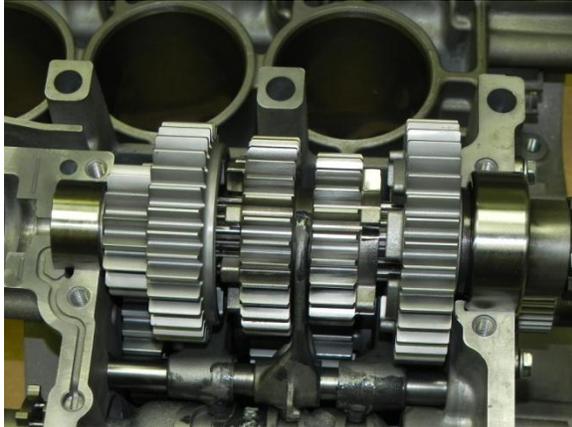
Begin to install and slide the shift shaft rearward, and line up the "F" fork, then the "C" fork, and finally the "R" fork as the shaft is slid rearward. The forks and shaft should look like the picture shown. The fork marking (F, C, and R) should face forward.



Install the setting plate and (2) 6 x 16mm bolts. Use medium strength lock-tight and tighten them to 9 ft/lbs

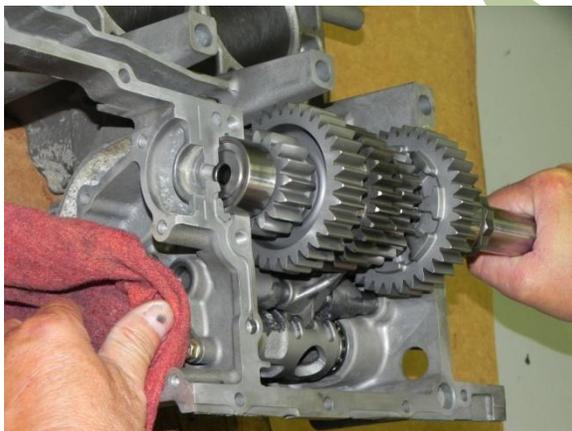
NOTE: the shift shaft will float freely between 2 set plates.

GETTING READY TO TEST THE TRANSMISSION AND ITS SHIFTING



While pivoting the center-fork upward, gently lay the main shaft assembly into place as shown. Note the position of the center fork on slider. Also notice that since the shift drum was left in a neutral position, the slider is in its neutral position too.

Push the shaft assembly forward as much as possible to fully seating the bearings into their half journals.



Test the shifting while twisting the main shaft back and forth. Twist the shift drum as shown. Be careful, the rag will get trapped.

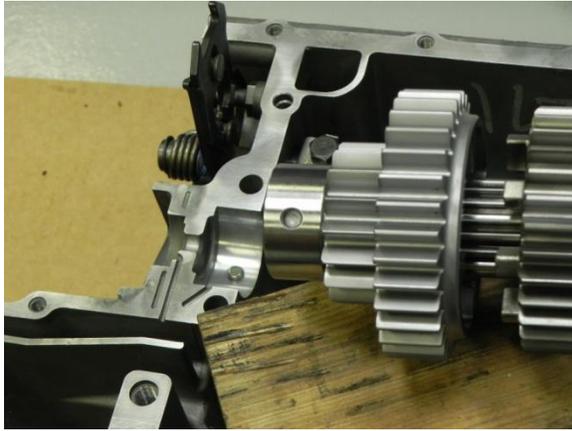
To find all gear positions, it may be necessary to twist both main and counter shafts at the same time, and sometimes, if dogs collide, a particular gear may need turned. In "N", both shafts should spin independent of each other.

At this point, the transmission should be able to be shifted up and down into all 5 gears and "N".



To prepare for final assembly, place the transmission back into neutral. The slot in the gear position sensor cam should face down as shown. Gently remove the main shaft assembly without tilting it and lay it on a flat surface.

REMOVE THE MAIN SHAFT FROM THE RIGHT CASE HALF AND PREPARE THE LEFT CASE



First, install the dowel pin into the left case bearing journal as shown.

The dowel pin is solid and is 1 of 1.



Align the main shaft's front bearing hole with the dowel pin that was just installed. Make sure both front and rear main shaft bearings are securely seated into their journals, and the large rear bearing fully pushed forward.



Install the rear setting plate with the lettering facing rearward as shown. Tighten the 8 x 18mm bolts to 20 ft/lbs using medium strength lock tight.

Those bolts are 2 of 2.

Once the plate is installed, the transmission installation is complete. However, left over is a large left handed nut. It's used when installing the final drive gear once the case halves are assembled.

Instructions for the final drive gear, washer, and nut are found in the "Primary Gear/Output Shaft" Installation section of the "Gearshift Linkage" section of the factory service manual.

JustWings