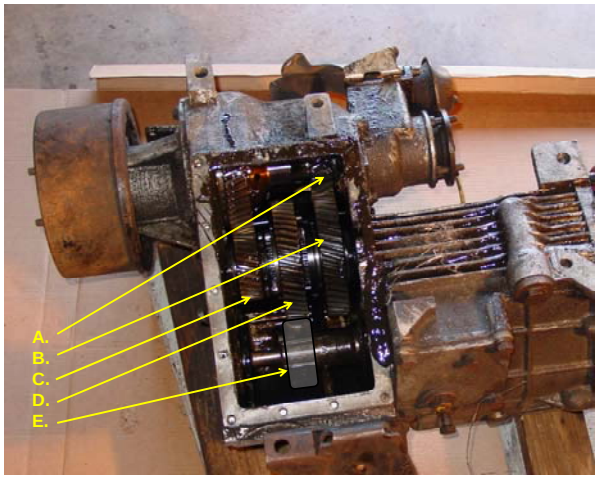
LT95 Transfer Gear Swap

Disclaimer: This instructional guide should only be used to give you a general idea of what is involved when performing this gear swap. I make no guarantees as to its accuracy or even if this type of gear swap is advisable or not. Remember that this was written by an American with zero automobile repair credentials who drives a desk more than his Land Rover.

The whole repair should probably take between 4 and 8 hours. A lot depends on how lucky you get lining up the gears and shafts on re-assembly and if any else breaks or gets stuck along the way. Also, you may spend a good bit of time cleaning parts. A good mechanic can probably do the whole repair in 3 or 4 hours.

STEP 5



A. Hi range gear located on output side of transfer case. This gear will be replaced.
B. Hi range gear located on idler shaft. This gear will be replaced.
C. Low range gear on the idler shaft. It is not required to remove this gear.
D. Main drive gear on idler shaft. This gear moves forward and rearward with the shifting forks. This gear should be removed to allow for the easier clearance of gear A when extracting the output shaft.
E. Main drive gear on the output shaft of the transmission. (drawn in for this photo) It is not required to remove this gear.

1. Engage the differential lock prior to disassembly – this will help lock the front output shaft parts to help keep them from spinning when you are trying to line things up during reassembly.
2. Chock the wheels – front and rear. You will lose your parking brake during disassembly.
3. Shift the transfer case to neutral and shift the main gear box to neutral to allow for the gears to spin freely for easier disassembly.
4. Drain the oil from the transfer case. You do not need to drain the oil from the main gear box.
5. Remove the bottom plate from the transfer case. You now have a clear view of the parts you will be replacing. With your oil drain pan still in place, I would let the transfer case drip for a good while to save yourself the constant drips in the face while working under the open transfer case.
6. Disconnect the rear drive shaft from the rear of the transmission brake / rear output housing.
7. Remove the center seat cushion and top seat panel over the transmission. You will need to access the next few steps from the top of the transmission.

8. Remove the transmission brake cable from the activation arm on the transmission brake – this should be a pin with a cotter pin
9. Remove the speedometer cable from the side of the rear output shaft housing
10. Remove the rear output shaft housing (you can remove this as a unit without disassembling the transmission brake)
11. Insert a 3/16 hex wrench into the rear of the idler shaft and rotate it back and forth while gently pulling on it. This should gently slide the shaft rearward. Land Rover manuals reference a specific Land Rover tool for this task. Other Land Rover enthusiasts thread a small bolt into the pilot hole on the end of the idler shaft to use for grip and extraction.
12. Place your hands under the idler shaft gears and catch them as they fall free from the shaft. You only need to pull the idler shaft out enough to remove the front gear (hi-range) and the middle gear set (drive gear)
13. Remove the center differential and output shaft gear set through the rear of transfer case where the rear output shaft used to sit.
14. Remove the main bearing from the front part of the output gear cluster. Replace the small gear on the end of the output gear cluster with the new gear
15. Reassemble the main output gear and replace into the transfer case. This gets a little touchy as the output shaft cluster gets realigned with the front output shaft gear cluster
16. Replace the main drive gear on the idler shaft. Slide the idler shaft in slightly.
17. Place the forward most gear spacer ring in the transfer case. I smeared a little grease over the ring to make it stick to the wall of the transfer case
18. Install the new hi-range gear
19. Slide the first and second spacer ring assembly into place between the gears. Again, I used a little grease to make the rings stick together. Once the rings where between the gear the forward most spacer ring, I used a flat bladed screwdriver to guide the ring into place while pushing the idler shaft in. The process is trial and error and does not work until the moment it does….

STEP 11

This photo shows the rear output housing removed. The end of the idler shaft is now free to rotate. A hex key wrench has been inserted in the end of the shaft to help wiggle it out .
(Note: The main output cover (right) is removed in this photo because this parts gearbox did not have one due to previous overdrive installation. This cover does not need to be removed to perform this gear swap.)

20. Re-install the rear output housing.
21. Re-connect the speedometer cable
22. Re-connect the transmission brake cable
23. Re-install the bottom transfer case cover
24. Fill the transfer case with 50wt motor oil (approximately 3.5 quarts)

STEP 17 and 19

A set of rings are found at either side of the idler shaft. The top left most ring fits inside the middle ring. The two rings combined ride next to the larger oblong shaped ring. I smeared these rings with a little axle grease to make them sticky and less likely to fall out when I was reassembling.