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## Magnum Box Instructions

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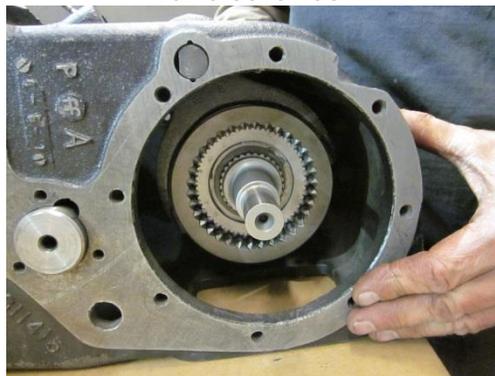
Installing the Magnum input gear is very similar to installing a factory input gear and the same installation procedures can be followed. Here is an overview: the first step is to remove the rear output assembly and remove the factory input gear. The case will need to be a “big” bearing version, 90mm. If it’s the smaller 80mm version, a machine shop will need to bore the case for the larger input bearing at this point.

All Ford NP205s and the 85 and newer GM round pattern NP205 use an input bearing retainer, that will not be used with the Magnum Box kit. The bearing is retained by the Magnum box adapter.

With the input bearing removed, install the Magnum input gear into the case.



Install the clutch ring onto the shift fork, the shift rail may need to be manipulated for clearance.



Install the input bearing, the outer snap ring and the snap ring that holds the bearing to the shaft. Re-assemble the rear output assembly of the NP205 just as it was removed.



Now to the Magnum housing. Remove the two bolts that retain the shifter housing and remove the shifter housing. There are six socket head cap screws in the front face of the Magnum box that hold the two case halves together, remove them and separate the two case halves.

All of the Magnum boxes use a seal in the back case half. **The Magnum box uses its own oil supply and it is sealed on both ends.**

Install the back half of the Magnum box adapter housing onto the face of the NP205 using the supplied socket head cap screws. **No gasket is to be used here, silicone only.** Wire wheel the bolts so that the bare steel is exposed, clean the bolts and transfer case threads with brake parts cleaner (or equivalent) and install the bolts with red Loctite and torque to 40 ft. lbs.

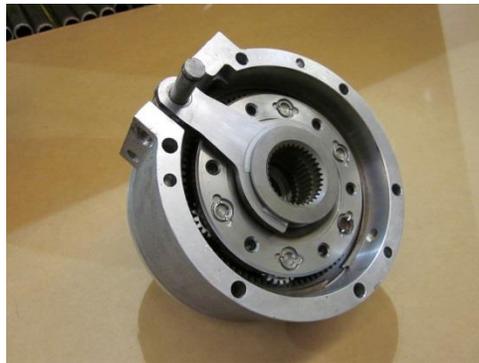


The front half of the Magnum system is pre-assembled at Offroad Design. If you need to disassemble these parts, the procedure is essentially the same as any of the 23X/24X/26X/27X series of New Process transfer cases.

**Transmission shaft, trans adapter length and input gear fit must be**

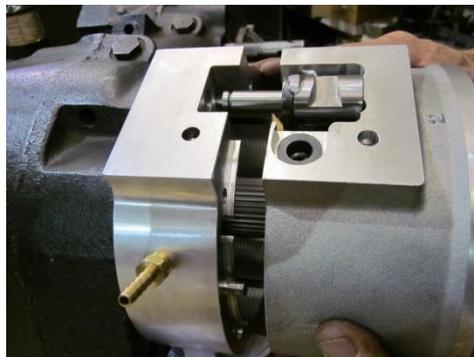
**checked before the Magnum housing is assembled.**

Bolt your adapter plate or housing to the back of your transmission. Shaft stickout past the adapter face typically needs to be 1/8" or less. Slide the front housing of the Magnum box onto the trans shaft and verify that the trans shaft does not bottom in the Magnum input gear when the housing is mated to the trans adapter. Any contact between the trans shaft and input gear bore will cause damaging pre-load on the Magnum system's bearings. If necessary shorten the transmission shaft to prevent contact.



Install the front half of the Magnum to the rear housing, making sure that the shift hub, shift fork and shift rail all stay with the front case half. Apply a light coating of silicone sealant (we use "The Right Stuff") to the face of the case half to seal the case interface.

Note the shift rail in the front case half and how it fits into the rear case half. No O-ring is used on the shift rail in this application as it rides in a blind hole.



Apply blue Loctite to the long socket head cap screws and install them to fasten the two case halves together, torque to 40 ft. lbs.



Install the shifter housing using the two supplied bolts, seal the shifter housing with silicone sealant.



You can fill the Magnum box from either the shifter housing opening or the fill plug location, capacity is 1-1/2 pints (or  $\frac{3}{4}$  of a quart) of automatic transmission fluid or gear oil (80W-90 etc). To visually inspect fluid level, install a clear vinyl sight tube between a barb fitting in the drain hole and a "T" fitting in the vent location or a barb fitting in the fill hole.

Install a couple studs in to the bolt pattern on front of the Magnum to check the rotation that will work in your vehicle. Once this is verified install all 6 studs and bolt the Magnum/205 combination in place. Fabrication is required to mount the Magnum to the transfer case crossmember. The steel mount plate supplied with the system will form the foundation of the mounting system when it bolts to the bottom of the billet rear Magnum case half. We recommend a urethane cushion between the mounting foot and the crossmember.

The Magnum has 2 shifter positions, Lo and Hi. There is technically a neutral position between the two gears but it is not detented and should not be relied upon. The shift arm on the Magnum can be flipped either direction to help you match your preferred shifter location. The Magnum should be shifted with the trans in park. It can be shifted with a quick shift with the trans in neutral but if you miss-shift it the trans output shaft will still spin and cause you to grind the gears.

At this point you will have to shut the engine off, shift gears and re-start. The safe way is to stop and put the trans in Park. Manual trans would be in any gear but with the clutch disengaged.