

Introduction

We hope that the installation of your new Novak kit goes smoothly and that you achieve the improved results with your Jeep® that you intend.

Despite whatever your experience with this type of work may be, we strongly advise you to read these instructions well and save them for future reference and part numbers.



JEEP® POWERTRAIN SUPERIORITY

Dana 20 & 300 Shim Cover

Before you begin dismantling & installing anything on your Dana 20 or 300 transfer case, it would be a good idea to double check the contents of your kit & make sure you have all the necessary tools to perform the installation. See tools needed & kit bill of materials below;

Tools needed:

- Calipers (we recommend digital that measures to the thousandths)
- Ballpeen hammer
- 7/32" Allen/hex socket
- Threadlocker (such as Loctite™ Blue)
- Magnetic base dial indicator
- Torque wrench (with 30 ft/lbs ability)

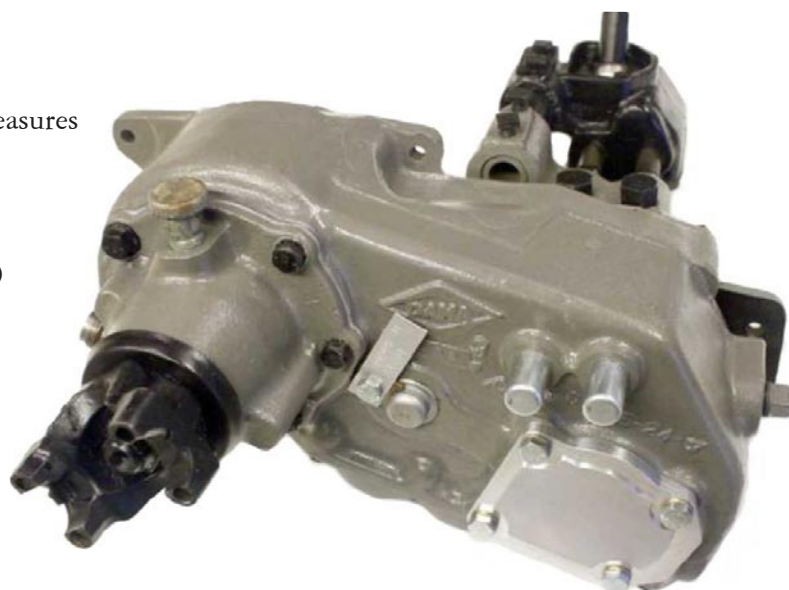
Bill Of Materials

8131657-K (Dana 300 kit)

- Rear bearing cap ---- x1
- 3/8-16x1 stainless hex socket button head bolts ---- x4
- Small O-ring ---- x8
- Large O-ring ---- x1
- Shim, .003" thick ---- x2
- Shim, .005" thick ---- x2
- Shim, .010" thick ---- x1
- Shim, .015" thick ---- x1

933725-K (Dana 20 kit)

- Rear bearing cap ---- x1
- 3/8-16x1 stainless hex socket button head bolts ---- x4
- Small O-ring ---- x8
- Large O-ring ---- x1
- Shim, .5mm thick ---- x1
- Shim, .004" thick ---- x2
- Shim, .008" thick ---- x1
- Shim, .010" thick ---- x1
- Shim, .040" thick ---- x1

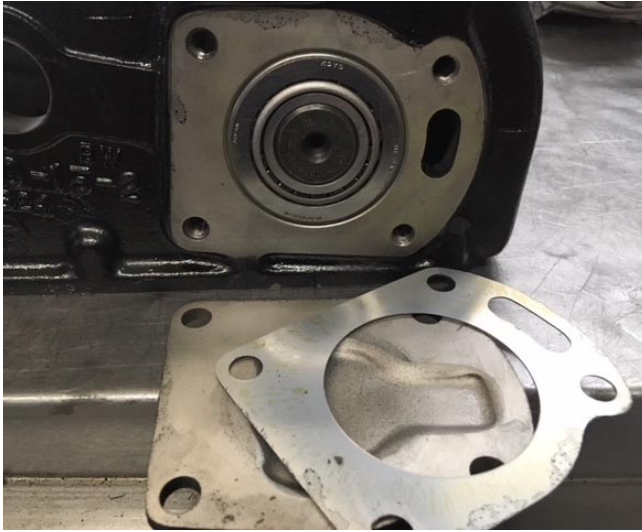


Example photo; Dana 300 cap on left, Dana 20 cap on right.

Disassembly & Installation

The very first step will be to drain the oil from the transfer case.

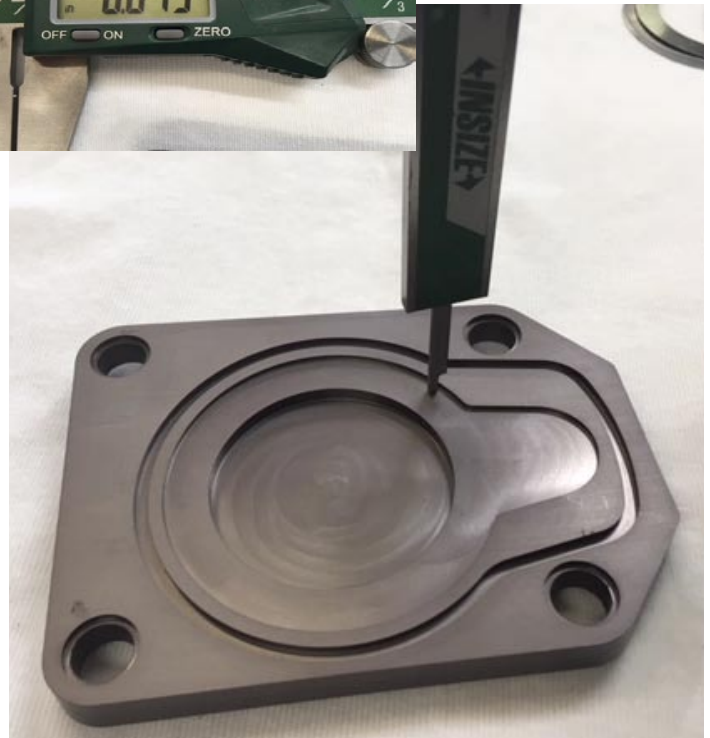
Once you've drained all the transfer case gear oil, you can now remove the factory bearing cap/shim cover. Carefully remove the factory cap & shim pack. Using your calipers, measure the thickness of the factory shim pack & take note of this measurement. This is a good starting point for finding your new shim thickness.



Next, measure the shim race pocket of the new cover (image, below right). Subtract the factory shim pack measurement from the race pocket measurement. In our example, the shim race pocket measures .045", the factory shim measured .030", leaving us with .015".

$$.045" - .030" = .015"$$

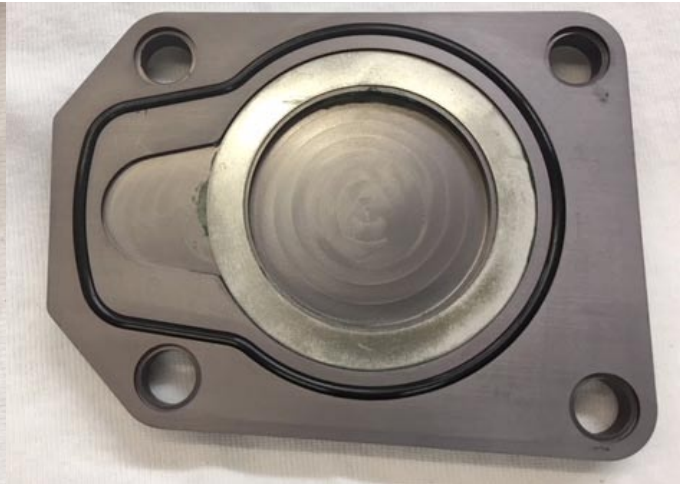
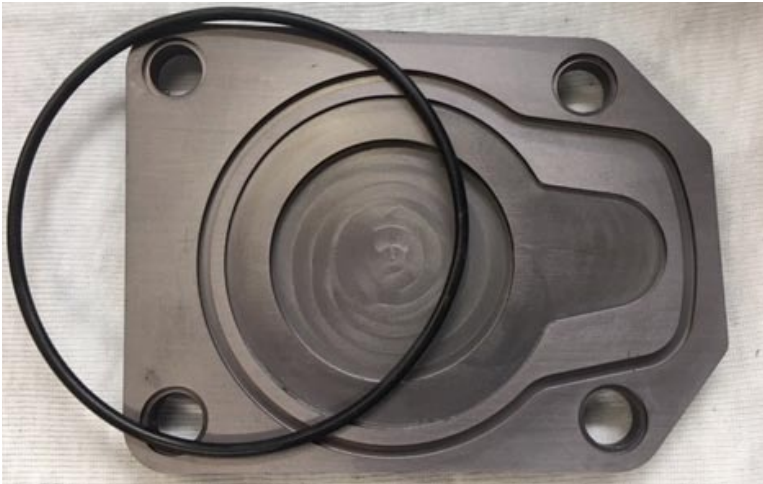
In this scenario, .015" will be the shim you select for your starting point in finding the correct shim pack for setting endplay.



Apply a small amount of sticky assembly lube to the race pocket and in between shims, if using more than one. Then install the selected shim(s). The assembly lube will help keep the shim(s) in place.



Next, install the large O-ring into the groove, making sure it is fully seated.



Install four of the eight small O-rings onto the 4 bolts.

Now put the cover onto the case with the shim(s), O-ring and 4 bolts.

Slowly tighten the 4 bolts in an alternating pattern, making sure that the front yoke still turns freely as you get close to the end of the bolts.



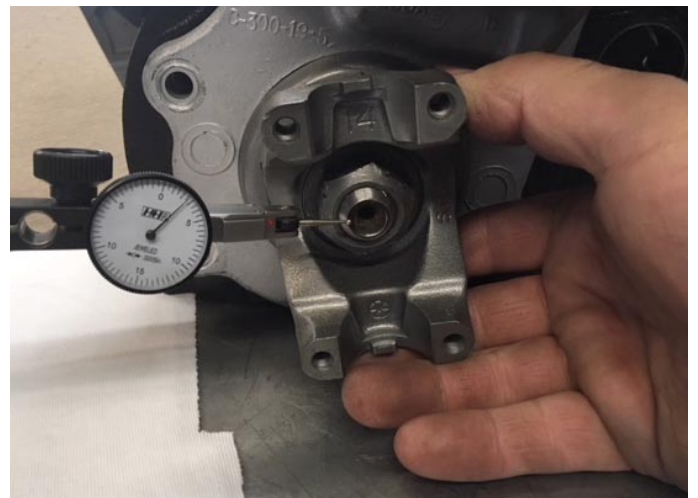
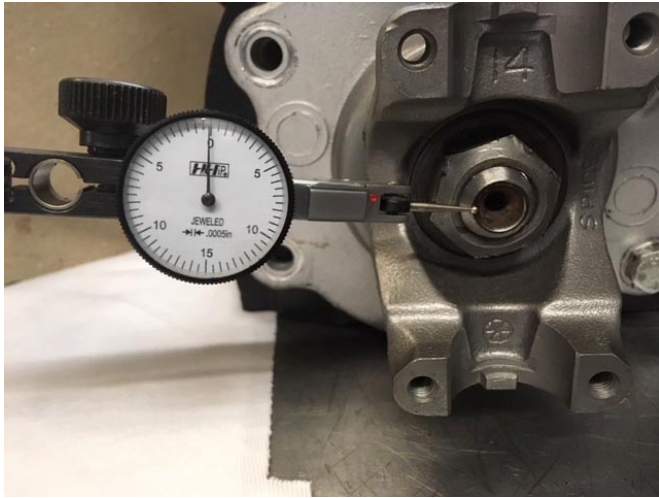
Once the bolts are fully tightened, you need to make sure the races are fully seated.

This can be achieved by giving a couple good blows with a ballpeen hammer to the front and the back of the yoke. This will also be used in the final inspection.



Now you will test the front output shaft end play. Attach your dial indicator so that the probe lightly contacts the front output shaft (as seen in the images below). Firmly push and pull on the yoke with your hand to test the end play, watching the dial indicator for your measurement. An end play of .001"-.003" is required. If your end play is not within .001"-.003", adjust the size or number of shims as necessary.

Add shims to reduce end play, subtract shims to increase end play.



Once the desired end play is achieved, remove the cover and install the remaining four small O-rings on the bolts, on the inside of the cap. Make sure all nine O-rings are fully seated in their groove.

Apply a small amount of thread locker to the threads.



Once again, put the cover back on the case and slowly tighten down the bolts, in a crossing pattern, until they bottom out.

Your final assembly step is to torque the bolts to 30 ft/lbs, following the same crossing pattern.

Double check the end play and adjust if needed.





It is highly recommended to recheck the end play after 100 miles of using the front axle. We enterpret this as mandating a 4-wheeling trip, or two. Do with that as you may.

The installation is now complete, & if you have installed your kit correctly, your driveway will thank you!

Should you have any questions concerning this kit, or these components, we welcome you to contact us.

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