Airflow Axle

Replacement

By John Spinks

Chrysler Rear Axle Shaft Removal & Replacement

- Raise the car and place on jack stands
- Remove the rear road wheels.
- Remove the axle shaft nut cotter, pin and nut. Note that the nut should be very tight so as to hold the drum up onto the axle taper.
- Remove the brake drum using a drum puller

- Before anything else is dismantled it would be advisable to measure the end play that exists in the axle bearings which should be somewhere between 0.0025" to 0.005".
  A direct reading dial indicator should be mounted onto the brake support plate and the indicators needle should be placed into contact with the end of the axle shaft.
  The axle should be pushed in as far as it will go and the dial indicator scale should be adjusted to zero.
  The axle should then be drawn out as far as it will go and the reading noted on the dial indicators scale.
  Hopefully the reading that you achieve will be somewhere between the previously stated limits, record results

- Direct reading dial indicator mounted to end of axle

- Dial indicator scale set to zero

- Direct reading Dial Indicator is reading 0.0025" which is the minimum clearance allowed.

- Remove the brake support assembly after removing the nuts that hold the oil seal to the end of the axle housing

- The brake support assembly has been removed and set aside for refitting later

- The axle can be removed by pulling it from the housing however if a suitable axle removing tool is not available then the large axle nut can be screwed back onto the end of the axle shaft and a bronze, brass of lead drift can be then used to tap the axle out of the axle housing.

- The axle shaft is nearly out of the axle housing and make sure that you support the axle shaft as it is withdrawn so as to minimize any damage to the inner seal

- Make sure that you have a very substantial cold chisel and furthermore make sure it is shape.
  You will also require a reasonably large hammer.

- The axle shaft assembly will look like this and as you can see the axle bearings are tapered and the back side of one bearing is fitted up tight against the other. Incidentally the bearings that you can see are on a sample axle only and are note being reused

- Grip the axle shaft between a pair of soft jaws in a bench vise. Place the sharp edge of the cold chisel firmly in the area where the bearings are backing against each other and smack the chisel with the heavy hammer. You may have to do this a few times at different points around the bearing

- The bearings will move apart as can be seen in the photograph below but don't get too excited at this stage as one of the bearings must first be removed from the axle shaft so that its opposing bearing can be removed.
- It is imperative to keep the bearing cones in order so that they can be put back on their respective bearing cups, that is of course if you are reusing the original bearings
- Also do remember that the end play that you measured prior to removing the axle shaft will not change if you install the same bearings back onto a new axle.

- One of the bearings can be removed by very carefully taping the edge of the bearing in the area where the point of the chisel is contacting the bearing surface that is pressed onto the shaft. **Be very careful not to hit the bearing roller cage as this will bend very easily and render the bearing destroyed.**
- I don't like taking this risk and prefer to employ a bearing spread plate after I have separated the bearings far enough as the photo shows below and then a hydraulic press to remove the bearings

- The bearing spread plate is adjustable via the long bolts and nuts and the inner edges of the plates have be wasted away so that they will fit in around the bearing close to the axle shaft

- The assembly is then set in the press as per the photograph below

- The hydraulic press then does all of the hard work for you

- The bearing is then removed as shown and is ready for refitting to another axle shaft or whatever.
  Remember to support the axle shaft from underneath during the pressing process so as to ensure that the axle shaft does not drop out and become damaged, or worse still land on your foot which will definitely hurt big time.

- The inner axle bearing is removed in the following way in the hydraulic press however I have machined up a special sized steel ring that fits over the end of the axle with an internal bore in the ring that is slightly larger than the stepped shoulder on the axle where the bearings back up to.

- The above methods can be employed in reverse for installing the bearings back onto an axle shaft or as an alternative they could be taped on using a soft metal drift that only contacts the centre most portion of the bearing. Never hit the outer roller carrier as this will surely destroy the bearing.
- Another method that can be employed is for the bearing to be heated up to approximately 200 degrees F in oil and whilst the bearing is hot it would have expanded enough so that it will become a slip fit onto the axle. This method however must be undertaken with extreme caution as the oil can catch fire or you can become burnt with hot oil. Also it is very easy to tilt the bearing at a slight angle and it will jamb on the axle.
- The next issue to deal with is if you have found that the axle end play is outside of the required settings.
- In this case the inner bearing cup should be removed from the end of the axle housing and shim plates must either be removed to reduce the measured end play down to the required end play or added in the case of the end play not being sufficient.
- It is extremely difficult if not impossible to remove the inner bearing cup without having the correct type of bearing cup removing tool, see the next photograph show the tool.

- The bearing cup removing tool has a series of collets on one end which can be collapsed by screwing the hexagonal nut out and then the tool is inserted into the bearing cup so that the lip of the extracting tool are behind the cup.
- The collets are then expanded by turning the hexagonal nut clockwise until the lip from each collet is firmly behind the bearing cup. At this point the slide hammer attachment is then operated so as to pull the bearing cup from the axle housing.
- This tool works very well however it is extremely expensive to purchase, say $500.00 AUD. We have one of these tools in our workshop which we would be willing to loan out at anytime should you need it.
- Once the inner bearing cup is removed then the total shim thickness can be measured using a 0 -1" micrometer. When you know the total shim thickness it is a simple calculation to determine what you require.
- Shim stock is available through most NAPA Store and a good quality fabric scissor will cut the mild steel shim stock to the shape that you require using one of the shims as a template.
- Look closely and you can see the shims between axle housing shoulder and the bearing cup

- The next photo is of the SG Desoto bearing fit up and is used as an example only but shows the inner bearing cup being installed with the aid of a soft metal drift. The bearing cup should be driven completely home into the housing. Being completely home is easily determined by a change in tone when the drift is hit with a mallet.
- The axle shaft should then be refitted back into the axle housing and the brake support plate seal, the axle brake support plate and axle shaft bearing oil seal should be bolted up.
- Once again the process of checking the axle shaft end play must be measured and hopefully if you have guessed correctly you wont have to go repeat the exercise until you get it right.

- If everything lands where it should then the axle shaft bearings should be packed with wheel bearing grease and fitted up to housing as per the photograph below. Once again the SG Desoto axle shaft set up is being used as an example.

- The outer bearing cup should be installed along with a new gasket, seal and brake support plate.
- Use a sealer on everything.
- Tighten all components evenly
- Hopefully you guessed correctly and everything is ok.

- Gaskets must be sealed with the aid of some sort of chemical management

- Brake support plate fitted up less the axle shaft bearing oil seal.

GOOD LUCK FROM John S (Aussie)