

# Vacuum Hub Assembly

## **A guide for dismantling and re-assembly. 05/03/05**

After having problems with the vacuum hubs and finding that it was difficult to get an idea of the various parts from the website I decided to take mine apart and photograph the process as Walter has done with changing the discs and pads.

I have not started with taking the hubs off the vehicle since Walter has covered that in his article.

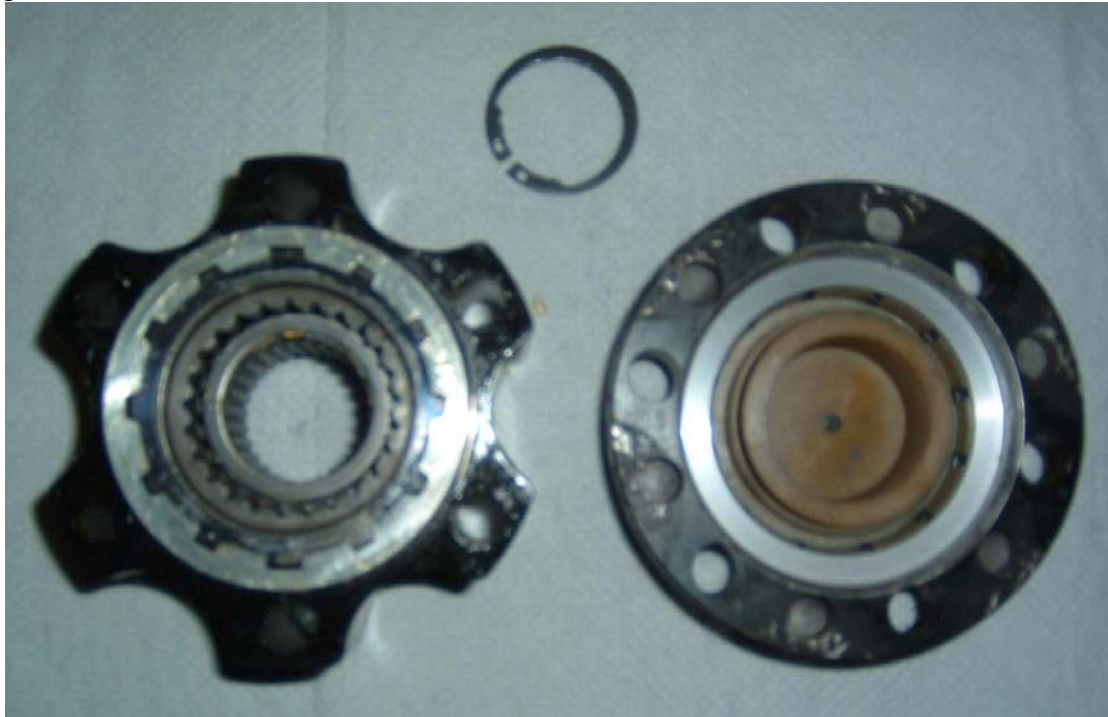
As Walter has stated in his document this is only a guide, not a step by step instruction on the correct way to dismantle these components and neither myself nor the Ssangyong club accept any liability for any damage or injury which may occur.

A competent person with the correct tools should have no problems following the procedures but some care needs to be taken with this assembly, since damage can occur easily and replacement is very expensive....YOU HAVE BEEN WARNED!!

Andi



If you have followed Walter's document you should be looking at two sub-assemblies, a shim and a circlip. I have left the shim in place on the inner gear in the photo.



Before proceeding any further make sure the area where you are going to work is very clean, I generally have two work areas when doing something like this. One area is for the initial dismantling and cleaning, the other is a clean area for cleaned parts and re-assembly.

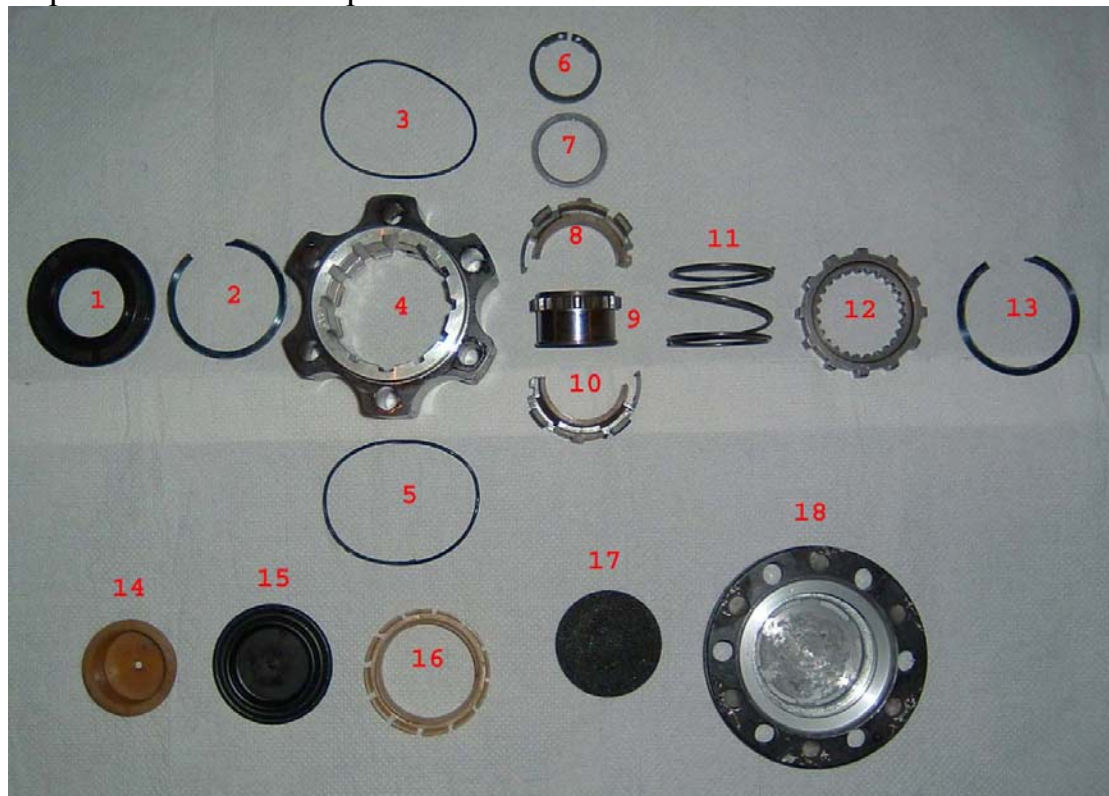
Things you will need:

- small flat blade screwdriver (3mm approx)
- medium flat blade screwdriver (6mm approx)
- clean lint free rags
- absorbent paper
- degreaser or engine cleaner (Gunk or similar)
- grease
- small paintbrush
- large supply of beverage of your choice

Word of warning....make sure cleaner is suitable for washing rubber parts or just wipe them with clean rag if unsure....some cleaners will attack the rubber and cause the parts to disintegrate in a few weeks.

Take your time and don't use excessive force, it is not required to take this assembly apart and you will damage it if you do.

## Exploded view of components



## Component list

1. rear seal
2. rear lockring
3. rear o-ring
4. main hub
5. front o-ring
6. circlip
7. shim
8. ½ inner gear bush
9. inner gear
10. ½ inner gear bush
11. spring
12. lock up ring
13. front lockring
14. plunger
15. diaphragm
16. diaphragm retaining ring
17. air filter
18. hub outer cap

### Dismantling hub outer cap

Carefully pull off the plunger, its held on with a small button which is part of the diaphragm.



Using a small flat screwdriver, lever out the locking tabs on the retaining ring and remove it



You can now lift out the diaphragm and the air filter

### Dismantling main hub

Remove both the o-rings from the outside of the main hub, they are identical so don't worry about which side they came off. I used the back edge of a knife to do this, but whatever you use make sure you don't damage them if they are being reused.



Remove the front lockring with a screwdriver, starting at one end and working round, this is under tension so it will try to fly out.



Lift out the lock up ring and the spring underneath.



Whilst applying some pressure from underneath, use a screwdriver to prise the locking tabs on the plastic inner gear bush out of their location groove. There are two each side of the squared guides. It's a tight fit and requires a bit of pressure to get it out.



The inner gear bush is held together by two clips which can be prised apart and the inner gear released.



The rear seal can now be removed, I found the best way was to use a screwdriver through the front of the main hub and by using the rear lockring as a fulcrum the seal can be gently prised free. ( sorry, no picture of this)

The rear lockring can now be removed with a screwdriver.

All the parts should be cleaned, dried and inspected. Pay particular attention to the diaphragm, hold it up to a strong light to see if there are any holes or tears. Once you are satisfied that all parts are clean and undamaged they can be re-assembled.

Make sure that the assembly area is clean and dry.

#### Assembling hub outer cap

Place air filter in outer cap. NOTE: smoother side down.



Place the diaphragm on top of the air filter.



Push the retaining ring into place and using a screwdriver ensure the tabs are secured.



Replace the plunger.



Assembling main hub

Smear some grease around the bearing surface of the inner gear and snap the two halves of the bush together round the inner gear.



With the main hub placed rear side up, locate the location lugs into the squared guides. The locking tabs will have to be squeezed into the main hub and then push the inner gear assembly until it locates in its groove.



The rear lockring can now be replaced into its groove. You will notice one end of this has a cutaway, this should be located in the squared guide to allow easy removal.



The rear seal can now be pushed into place. The flat side goes on the inside. Smear some grease onto the inside of the seal opening.



Replace the rear o-ring, greasing both the location groove and the o-ring when its in place.



Turn the whole assembly the other way up, smear the inside with grease and install the spring.



Replace the lockup ring. Some of you will have one which is flat on both sides, but mine have a shoulder which means it will only go in one way round. The shoulder goes to the outside.



Now comes a fiddly bit. Holding the lockup ring down with one hand, use a screwdriver to ensure the spring is central, once it is, push down harder and engage the lockup ring with the inner gear. Still holding the lockup ring in its engaged position the front lockring must be located in its groove. Again the cutout in the end should be located at the squared guide.



Replace the front o-ring into its groove, greased up as before.



Before replacing the assemblies onto the vehicle, smear some grease on the splined interior of the inner gear and the shim.

Replace the main hub as described in Walter's document and enjoy!!!