Rebuilding a Cast Iron K-Jetronic Fuel Distributor

It makes very little difference whether it is a 4, 6 or 8 cylinder fuel distributor. The important difference is whether it is an adjustable or non-adjustable type, and it just adds a few steps.

Find somewhere clean, with a bit of room, to disassemble, clean and rebuild your fuel distributor.

The photo's I am using are a 5cylinder Audi, but it makes no difference, it's just an example of what to do.

What do you need? Tools to pull the FD apart,
Wire Brush
Spanner for the bottom nut,
T27 torx bit for the screws or a flat blade screw driver for very early FDs,
Spanner for the system pressure valve, 10mm or 14mm for very early ones, 16mm for later ones,
Seal pick,
1,000 grit wet & Dry paper,
Loctite 515 or similar,
Petroleum Jelly / Vaseline,
Copper grease
Brake Cleaner
And a rebuild Kit (hopefully you bought one from me)

Start by giving the outside a bit of a clean off of loose dirt, paint... better to do it away form your 'clean rebuild area'.

Remove the main nut off the barrel, the washer, remove the piston and there may also be a spring behind the piston, if you don't have a spring don't worry, it was only there on some fuel distributors

Remove the body screws, some 5 & 6 cylinder fuel distributors have an extra 2 screws from the top, again, this is just in some fuel distributors.

Once the screws are out, with a copper, brass or nylon hammer, tap the sides of the fuel distributor to help it loosen up, then tap on the end of the barrel, you should have the fuel distributor top in your hand and you lift the base (lower) half up and away. The shim may come way with the base or may stay with the top half, doesn't matter.


Top half of the fuel distributor, shim on and then shim off.

Remove the spring caps and the springs.

A - If you have a non-adjustable type, under the springs you have shims. Remove them and keep them with the cylinder they came out of, I have little containers for the small parts and they are beside each fuel outlet port. (red bits in photo above)

B - If you have an adjustable type, remove the spring seats.

Remove the barrel from the fuel distributor top. How I do it is I screw the nut back onto the barrel, hold the nut in a vice and then wiggle the body off the barrel. I usually do this carefully as I want to see if there are any of the barrel seals that are damaged, distorted or split, and also see the condition of the barrel top seal.


Remove all the seals off the barrel and clean it. I place the barrel into an ultrasonic bath to loosen off any dirt and rubbish. Then I spray it with brake cleaner and I use a piece of old WUR shim (0.05mm stainless steel shim) to gently make sure that there is no dirt in the slits. If you don't have an old WUR shim you can use a thin feeler gauge, which you will need to cut into a wedge (with a good pair of scissors)

Blow it all clean with compressed air, then shine a torch up the centre of the barrel and look at the slits, as you turn the barrel you should see that each slit is now beautifully clean.

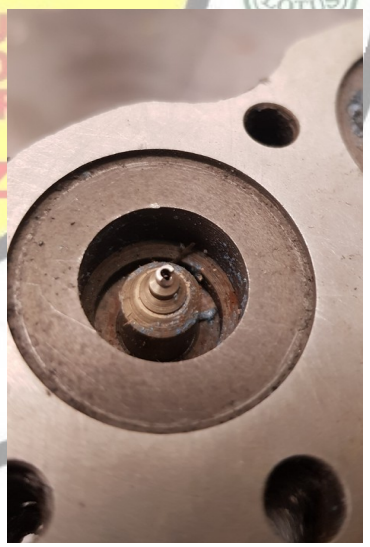
If you have an Adjustable type fuel distributor, remove the caps for the adjusters, next unscrew the adjusters, remove the seals and gently clean the ends of the screws that go against the spring seats.

Remove the old outlet filters. I use a simple self tapping screw. Carefully screw it into the filter a few turns and then pull it out.

Turn the fuel distributor top over and look at the condition of the fuel nozzles, and the amount of rubbish accumulated here. All this needs to be cleaned and then the faces of the fuel distributor need to be refaced with 1,000 grit wet and dry. You can also check that no rubbish is caught in the outlet nozzle (using a No71 drill bit) or use a piece of wire. Also, check the condition of the nozzles. If your nozzle is damaged you either can't repair the fuel distributor or you need to change the nozzle itself.

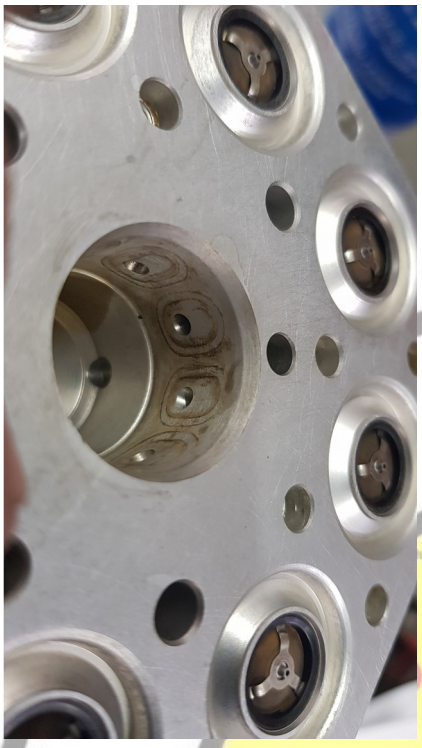
cleaning around the nozzle

No. 71 drill to ensure the nozzle is clear

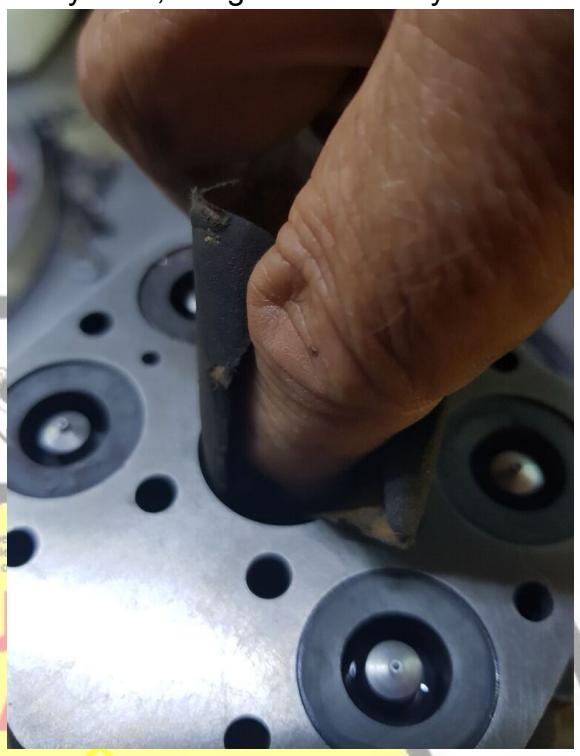


This nozzle is damaged and can't be used

Look where the barrel fits into the top, especially where the barrel seals sit. Is there dirt, marks, distortion? Gently clean this surface with your 1,000 grit wet and dry.



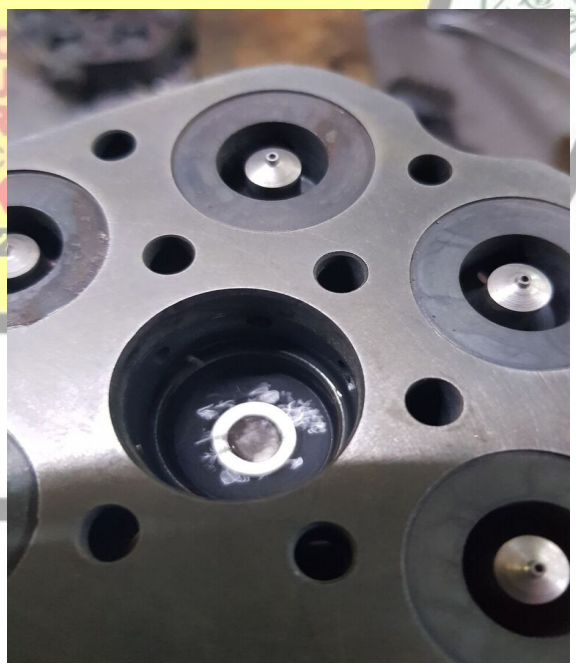
Marks like this stop the seals from sealing fully.



Cleaning the barrel slit seals face

Then at the bottom of that there is a cap with a small hole in it. This must be clear. Spray some brake cleaner into the area and then from the other side, the place where the fuel line to the WUR screws in, blow compressed air and you should see bubbles out of the small hose through your brake cleaner, this proves there is no blockages there.

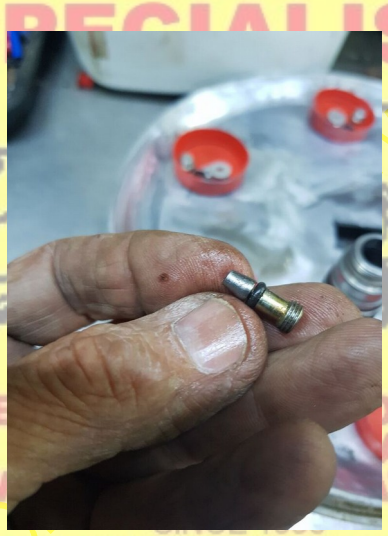
WUR hole in FD, must be clear



Air bubbles in the brake cleaner = clear

This is an adjustable type fuel distributor, so we are replacing the adjuster seals. Sometimes they can be very hard to remove, so if you are careful, cut them off.

Replacing the seals on the adjuster screws, coat them with petroleum jelly as it makes them much easier to fit.

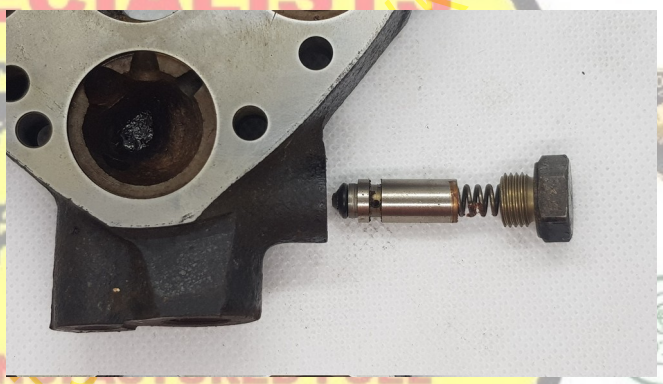


When you have the screws in place, have the tops of the screws level with the top of the face, then screw them in $6^1/_2$ turns. The important thing is that they are all even.

Remove the lower body seal, clean out the seal groove. Keep this old seal, we will use it later.

Remove the System Pressure Valve assembly. There is a seal on the end of the piston and one on the main valve assembly. Replace them both, and the copper washer as supplied in the kit.

Late System Pressure valve



Early System Pressure Valve (Type 1)

Late System Pressure valve (type 3)

Early System Pressure Valve (Type 1)

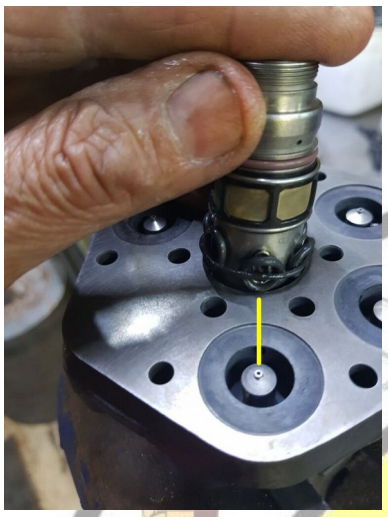
System Pressure Valve Pistons & their seals

Reface the two halves of the fuel distributor on 1,000 grit wet & dry. Move the pieces in a figure 8 motion and regularly turn the pieces in your hand so that you get a very even face on both halves, ready for assembly.

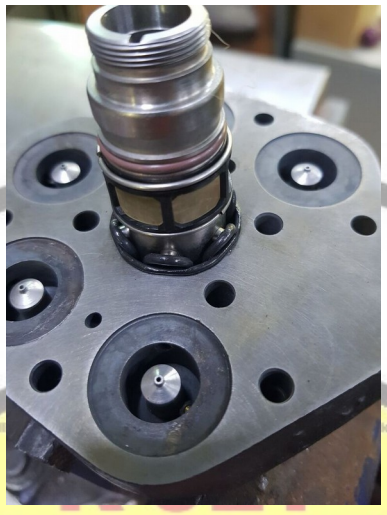
Fit the new barrel seals, also make sure that the barrel filter is clean, I use an ultrasonic bath, then brake cleaner and blow it out with compressed air. NB. Sometimes there is also a nylon washer that sits above the barrel filter. (not there in this photo)

Place the old lower body seal over the barrel slits, Then fit the slit seals, but don't push them all the way over the seal housing. The reasoning behind this is that you haven't stretched the seals so they are just sitting relaxed, as you push the barrel in, the seals will stretch over the housing and sit much more easily.

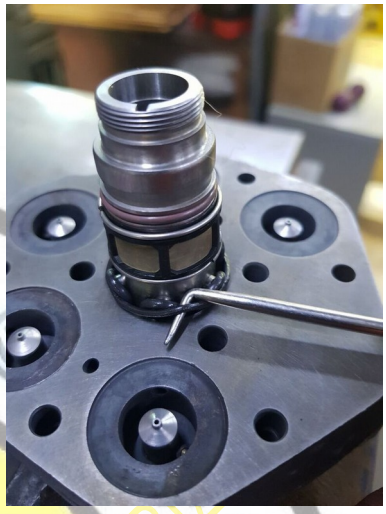
I always give the seals a light coat of petroleum jelly (Vaseline).



Make sure that the slit is aligned to the outlet jet

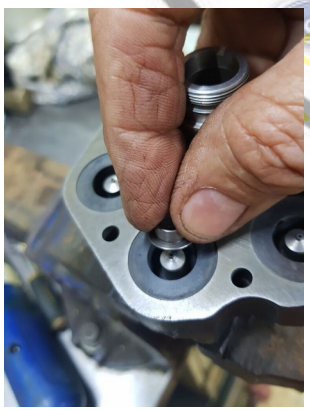


Gently push the barrel down, make sure the seals all sit correctly



Before you push it in fully remove the old body seal

Push barrel all the way down
When you, later on, tighten the barrel nut you will pull the barrel up slightly, into the base to seal onto the lower body seal



Adjustable type, fit the spring seats, non-adjustable types fit the pressure shim

Drop the springs into place

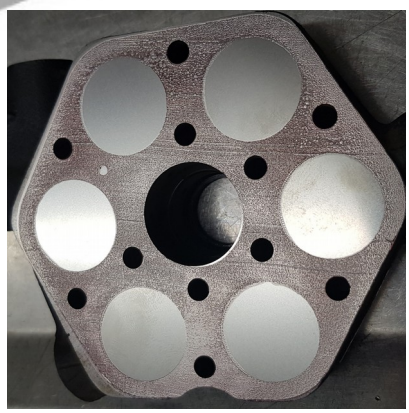
Place the spring caps carefully onto the springs

The caps should all be the same height
If they aren't, the spring seat isn't sitting correctly.

The next stage is a bit more tricky for you. I have a machine which places Loctite 515 on the surfaces of the fuel distributor and shim, perfectly evenly. You will need to do this as best you can. The most important thing is not to put too much sealant on the surfaces as, when your screw the halves together any excess will squish into the fuel chambers and may cause you problems.

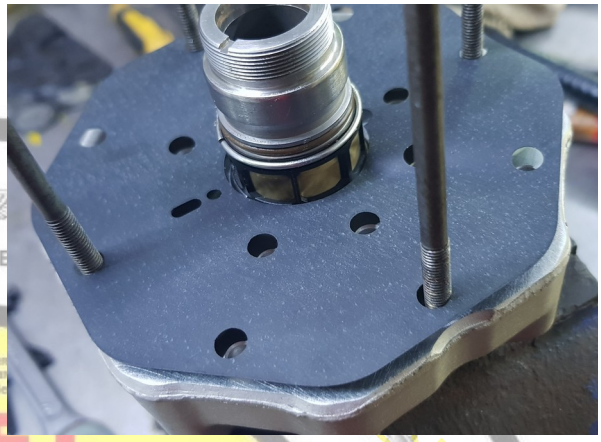
Smear the Loctite 515 on both the bottom and top halves of the fuel distributor. An alternative sealant id Permatex Anaerobic Flange Sealant #51531.

Look very carefully at the main shim. Hold it up to the light and you will see a tiny hole. This must be placed in the correct position on the fuel distributor base for the fuel distributor and Warm-Up Regulator (WUR) to function correctly.



Sealant on the shim, if this is too hard, place the sealant on the top half of the fuel distributor.

Sit the top half of the fuel distributor on the vice, make sure that the spring caps are all sitting nicely and haven't moved.



You may like to use a 5mm screw, with the head cut off, to help you line it up correctly. I do this with alloy fuel distributors.

Place the lower half of the fuel distributor carefully over the barrel, make sure that you have it facing the correct way for the control pressure holes to align.

Push the halves together firmly and insert the screws

Torque up the screws evenly

Cast Iron Fuel Distributor screws get torqued to 8Nm or 70inch Lbs

4 cylinder torque sequence

6 cylinder torque sequence

8 cylinder torque sequence

Insert the piston into the barrel, a little bit of petrol on the barrel will help it glide down the barrel. it should move up and down quite freely.

Scribe a mark onto the base where the 'cut out' is in the end of the barrel. This is very important so that you can make sure that the barrel doesn't turn when you tighten the retaining nut.

There is a new piston retaining washer for the base nut, If your piston looks like the piston in the left of the photo, use the new washer. If your piston is the type on the right of the photo, use the original washer or cut the tang of the new washer.

When you tighten the nut you will pull the barrel up into the base so the barrel seals onto the lower seal fully, BUT, if you tighten the nut too tight the piston will stick. My usual practice is to tighten the nut firmly then back it off slightly so the piston can still move freely.

Please let me know if there is anything that is unclear, or you don't understand, or that I have not explained.