Alloy Fuel Distributor Rebuild

K-Jet Specialists

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Turn the fuel distributor up-side down and remove the nut in the centre, the barrel retaining nut, also the barrel retaining nut washer.

Slide the piston out and don't loose the spring under the piston. Note, most alloy fuel distributors do have a spring under the piston, but not always, so if you don't have one, don't panic.

Undo the Torx screws that hold the halves together.

Heat the bottom of the fuel distributor with a hair dryer or hot air gun, especially around the centre area, this makes it a lot easier to separate the halves. When it is a bit warm, with your copper or brass hammer, tap the barrel and hold the bottom half of the fuel distributor. As soon as the halves start to separate, hold the halves flat and gently remove the base half.

The diaphragm may stay with either half, doesn't matter, remove the diaphragm and then carefully remove the ceramic discs, the springs and the spring seats.

Next, pull out the barrel. Remove the 2 barrel seals and the slit seals. If you are able to, place the barrel, the piston and the ceramic discs into a ultrasonic bath.

While they are in the ultrasonic bath, remove the seal from the base of the fuel distributor, Keep this old seal as you will use it again shortly. Remove the system pressure valve assembly and then, if possible, put it into a Alloy cleaning fluid bath.

In the top half of the fuel distributor, remove the adjuster screw caps. I have a special tool to reset the adjusters to the correct depth when you refit them, so without the tool, screw the adjusters in. Count how many turns until they reach the bottom of their thread. Write down how many turns each adjuster takes to reach the end of it's thread travel. Remove them and the place the fuel distributor top into the Alloy cleaning fluid bath.

Take the adjuster screws and remove the old seals and fit the new seals.

By now the Ultrasonic bath should be finished it's cycle. Remove the parts and I spray them with brake cleaner and then compressed air to give them a first clean.

I then very gently give each barrel slit a gentle clean with a piece of 0.2mm shim. This is just to make sure that there is nothing lodged in the slits. Then I blow through each slit with compressed air.

Fit the 2 new seals to the barrel. When fitting seals NEVER let them roll into place, always let them slide so that they retain their initial shape. If you let them roll they can be slightly twisted when they sit in position and this will impair their performance.

Take the old base seal that you didn't yet throw away and place it around the barrel over the middle of the slits.

Fit the barrel slit seals over the slits and use the old base seal to hold them in place.

Take the fuel distributor halves out of the bath and clean them with brake cleaner to thoroughly remove the alloy cleaning fluid. Next, with a sheet of 1,000 grit wet & dry paper on a sheet of glass, rub the faces of the fuel distributor to ensure they are perfectly clean and flat

Wash the halves again with brake cleaner and blow them dry with compressed air.

Fit the seal into the lower half of the fuel distributor.

Take the top half of the fuel distributor and refit the adjuster screws, screw them all the way in and then out the same number of turns that you wrote down earlier.

Next, with some Vaseline on the seals, hold the barrel just into the top half of the fuel distributor. Make sure that you line up the barrel slits with the injector outlets. Carefully start pushing the barrel into the top. Make sure that the barrel seals all are sitting nicely. When the barrel is about halfway in, and the barrel slit seals are secure, remove the old seal that was holding the slit seals in place, and push the barrel all the way in.

Next step, sit the spring seats into place, the springs and then the ceramic discs. Get down low and look across the discs to make sure that look to be about the correct height. If 1 or more seem to be sitting high it may be that the spring seat isn't sitting correctly.

I have a couple of 5mm long studs that I screw into 2, 3 or 4 holes, depending on whether it is a 4, 6 or 8cylinder fuel distributor.

Then carefully fit the diaphragm over the studs and down onto the ceramic discs.

Take the bottom half of the fuel distributor and slide it into place over the studs. Check everything is sitting correctly and then push the halves together firmly.

Refit some of the Torx screws, remove the studs and then finish installing the rest or the Torx screws and tighten them evenly to the correct torque.

Install the piston spring into the barrel, spray the piston with a slight spray of silicone spray and then slide it into the barrel. Make sure that the piston slides up and down freely.

On the end of the barrel is a slight cut out. Make the fuel distributor body with a scribe make, some paint or a felt pen, where the cut out is. This is VERY important because when you tighten up the barrel it must not move from this position.

Fit the washer and the barrel retaining nut. Tighten up the nut watching that the barrel does not turn. Also check that when you tighten the nut that it does not cause the piston to jam. Overtightening the barrel retaining nut can cause the piston to not move freely. I find that I tighten and loosen the nut in stages to make sure that the barrel seats properly into the lower half and that the piston continues to move freely

Last step. The system pressure valve. Replace the piston seal. Replace the seal on the valve assembly and replace the copper washer on the valve assembly and refit the valve assembly.

When refitting the fuel distributor it will almost never just bolt on and start and run correctly. This is because the relationship between the fuel distributor centre piston and the air flap is never the same once it has been apart.

Before bolting on a fuel distributor always:

- Check that the roller, on which the fuel distributor centre piston runs, turns freely.
- Make sure that the 3mm Allen key recess for mixture adjustment is clean for the Allen key to engage fully, and that it turns without too much effort

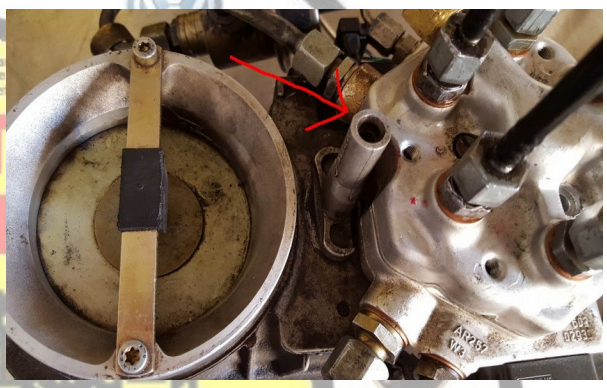
- Check the air flap height and that the air flap is not touching any part of it's venturi.

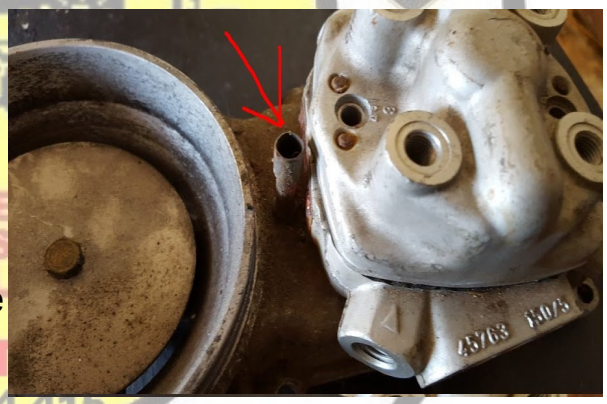
Replace the O-ring on the bottom of the fuel distributor as supplied.

Bolt the fuel distributor onto the air flap and refit all the pipes **except** for the lines to the injectors. Always use the new copper washers supplied.

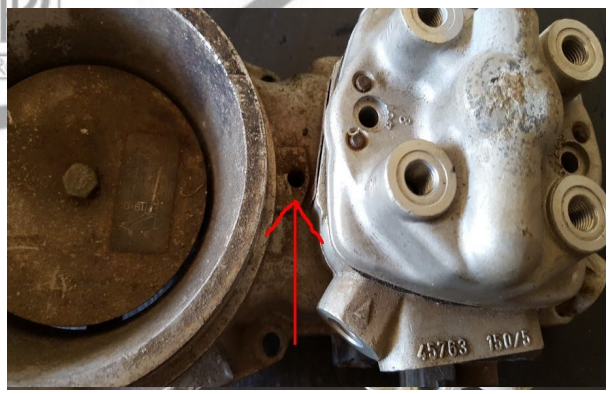
Bridge the fuel pump relay (pins 30 & 87) and watch for fuel coming out of the injector line outlet ports of the fuel distributor.

The mixture screw (3mm Allen Key) is between the fuel distributor and the air flap





- If fuel is rising out of the injector line outlet ports, rotate the mixture screw, with a 3mm Allen key, anti-clockwise until the fuel just stops rising. Wipe the injector line outlet ports and watch to see that it has stopped flowing. Turn the mixture screw anti-clockwise a further 15^0. This should give you a basic starting point for setting the correct mixture.
- If no fuel is rising out of the injector line outlet ports, rotate the mixture screw, with a 3mm Allen key, clockwise until the fuel just starts rising. When the fuel starts rising back the Allen key off , wipe the injector line outlet ports and watch to see that it has stopped flowing. Turn the mixture screw anti-clockwise a further 15^0. This should give you a basic starting point for setting the correct mixture.



Fit the fuel injector lines, start the engine and when it is warm, adjust the mixture to the manufactures specifications.

Get the engine warm. Once it is warm and idling put the Allan key in the mixture screw. Make a note of where the key is pointing. Turn the key clockwise, richer, until the idle starts to get rough. Make a note of where the key is pointing. Turn the key anticlockwise, leaner, until

the idle starts to get rough. Make a note of where the key is pointing. Now come to halfway between where the roughness was, then go leaner just slightly. That should be about right.