

2CT/3CT fuel pump probs

Tuning (2CT):

Remember, when making any adjustments experimentally, that the engine is notably sluggish before it has warmed up. Unless you are deliberately trying to overcome that problem **only assess what you have done with the engine fully hot.**

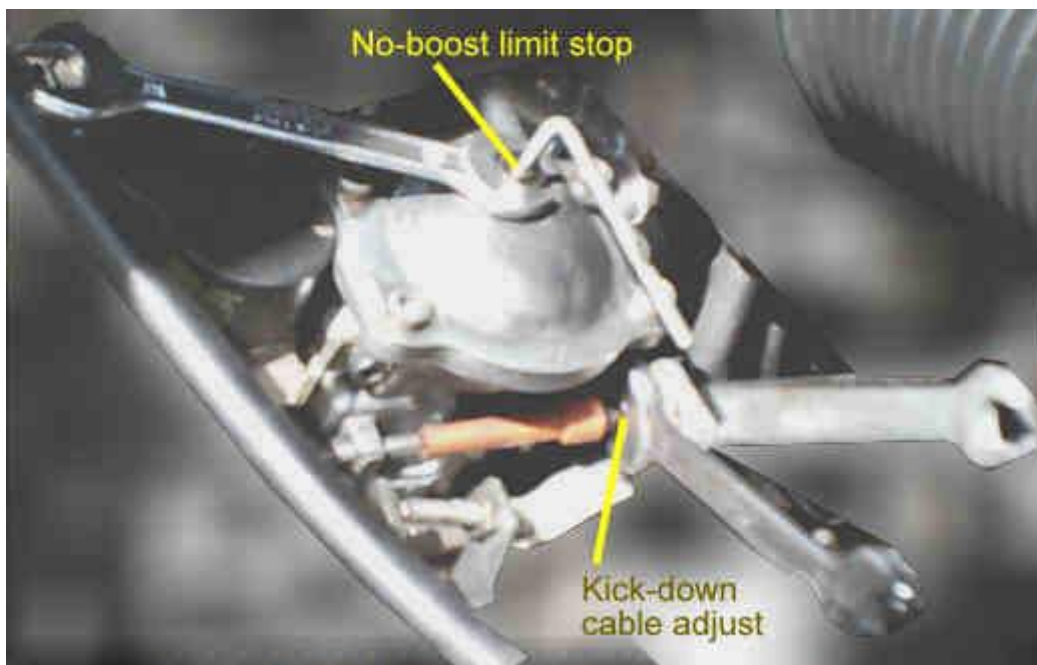
With aircon and "idle-up" off, **idling should be at 800 rpm.** Adjustment of the idling stop is straightforward. Note that it is bypassed by a compensator when the coolant is cold. **Idling must be reset after some tuning adjustments.**

The Bowden cable from the fuel pump operating lever to the gearbox, usually referred to as the **kick-down cable**, controls when gear changes occur. The nuts locking the outer sheath to the side of the pump can easily be adjusted with two 14mm spanners (below). Adjust about "2 flats" then try it out. This adjustment too **must be reset after some tuning adjustments.**

There is a round diaphragm on top of the fuel pump which is pushed down by the turbo pressure. The plunger below it has an eccentrically-ground profile which is followed by a pin in the front (i.e. towards the front of the car) of the pump. **The effect of turbo pressure is adjusted by rotating the diaphragm:**

- Remove the 4 Allen-head bolts and the cover but be sure not to turn the diaphragm accidentally.
- Put a mark on the diaphragm (blob of paint?) and on the rim in which it fits so that you can track your adjustments. Now you can pull out the diaphragm to see how it works and which way to turn it for more fuel - to make the ground section move nearer the rear of the car.
- Adjust about 20 deg of rotation and see the effect when the turbo is boosting.

When there is no turbo pressure, which includes revving under no load in the MOT test, the diaphragm is in its highest position which is set by a **limit stop right on the top** which is easily adjusted with a 12mm spanner and an allen key (below). Adjust about 20 deg and test. Either just use trial and error or remove the cover (as above) to see how it works and which way to turn it for more fuel - to push the diaphragm down.



Maximum fuel screw. This is at the back of the fuel pump (i.e. towards the rear of the car). It's tricky to adjust but can be vital, e.g. to get emissions down in the MOT. The picture below is taken from over the engine, looking back towards the fuel pump and with the turbo pressure hose removed, for clarity, from the diaphragm assembly on top.



To adjust the **maximum fuel screw**, loosen the 12mm locknut and turn the screw inside it. Screw it "in" to the pump for more fuel. It has a slot in the end but you need a very short screwdriver. It also has a hole through it and in the picture below you can see a piece of steel knitting needle stuck in that hole which allows precise adjustment to be made. Again adjust about 20 deg at a time; it is a very coarse adjustment.



Fuel pump

Bosch is one of the few creators of diesel fuel pumps. I understand the Japanese either use them or copy them for use in Jap diesel motors. They also produce machines for testing the pumps and settings. This is quite a specialised job and to be done correctly, needs to have the pump removed from the car and setup on this machine. Hence the term "Bosch Fuel centres".

A "Bosch fuel system centre" said that they were now getting a lot of jap imports that were running a bit rich, the japs do this to get more torque out of the engine to compensate for the speed limiter, so that was probable the reason for poor economy. They re-tuned it for me and said that the emissions test should be between 1.3[lean] and 3.0[rich], mine was 12.6 - the richest that he had ever seen, I am now getting about 30mpg, much better. Set up cost me £56.00 but is saving me £10 /£15 a week.

"I would like to have it a slight amount back up, giving it a little bit more power again. Where can I adjust this myself without running back to them all the time? I think it is just a matter of trial and error until I get it just right?" - "If it's slow off the mark, and doesn't trail black smoke in the period between flooring the throttle and the turbo light coming on, you should make a fine adjustment to the off- boost fuelling stop. It's the allen screw and locknut arrangement on top of the diaphragm thing on top of the pump. You'll see how it works best if you remove the four screws and lift it off. Don't turn the diaphragm, though, that alters all the settings... You want to turn the stop so that the diaphragm assy. is preloaded a bit more (to make it richer, for more power) - try less than an eighth of a turn, it doesn't take much."

Find a local diesel tuning specialist, not necessarily be a Bosch Centre, and get a quote for what they intend to do and make it clear that it is a Jap import but that it is a 2CT engine (as used in the Toyota Camry), before letting them loose