

Fixing the Fuel Gauge

I have a 2004 plate UK GT, over the last few months I have noticed that fuel gauge was starting to go a bit crackers and would say I had no fuel left when in reality there was a lot left.

Typical example would be that a full tank normally gets me 300 miles after I'd done 180 the fuel gauge would hit zero and the fuel computer would claim only a few miles of petrol left. The first time it happened I went to fill up and the car only took 40 litres so I figured something is up here.

It appears this is a problem on my car with the fuel level senders (yes two) following is a guide to tell you how to get rid of this problem without it costing you a fortune in new parts which aren't needed – some people may need new parts but you will be able to check once you have the senders out of the tank.

IMPORTANT

You will be dealing with petrol in this guide and as such all necessary precautions must be taken to avoid personal injury or loss. The author, www.350z-uk.com or any affiliates or associates accept no responsibility for any damage howsoever caused from you using this guide.

If at any stage you do not feel comfortable doing what you are doing then stop and seek professional help.

By using this guide you are agreeing to and accepting full responsibility for any damage, loss, injury or death caused.

Some Basic Precautions

1. Do not have any devices which may cause a spark on your person or within close proximity of the vehicle
2. Do not bring any naked ignition source within close proximity of the vehicle during this repair procedure.
3. Leave your mobile phone indoors well away from the vehicle.
4. Wear latex gloves – petrol is carcinogenic
5. Wear breathing apparatus
6. Complete only in a well ventilated area.
7. Only do this procedure when the tank is nearly empty to minimise fuel spillage.

O Ring Precautions

Do not spill petrol on the fuel tank O Rings if you do new ones will be required due to O Ring expansion. It is best to get new ones before you start to avoid the problems of not being able to reseal the tank and fit new O Rings upon reassembly.

This is your last chance to stop if you do not feel confident in completing this repair.

Items needed:

2 x new tank O Rings (1 for driver side 1 for passenger side)

Flat bladed screwdrivers

Socket set

Pliers

Towels or rags and kitchen roll.

- 1) Put car in neutral, handbrake on with the car parked on level ground.
- 2) Release fuel system pressure by following guidelines in 350z Service Manual

Passenger Side (Start on this one as it is the easiest)

P1) Move passenger seat and drivers seat as far forward as possible and tilt the seat as far forward as possible then disconnect negative terminal on battery.

P2) Open the glove box door, remove the fake floor and put to one side.



P3) Using a blade screwdriver insert the blade end into one of the two slots on the recessed plastic tray and lever to release clips.



P4) Disconnect the two wiring looms on the underside of the recessed tray and place the tray top one side.



P5) Remove sound deadening material to gain access to the fuel tank cover.



P6) The cover is secured in place by 4 plastic tabs with a screwdriver head in each. Using a blade screwdriver that fits tightly (they round off easily) turn the 4 tabs 90 degrees clockwise to align them with the holes. You will then be able to lift the metal cover.

P7) Disconnect the wiring loom from the sender (1) and pull the grommet (2) and loom clip through the metal cover. Place cover top one side (I didn't do this but it makes it easier if you do).



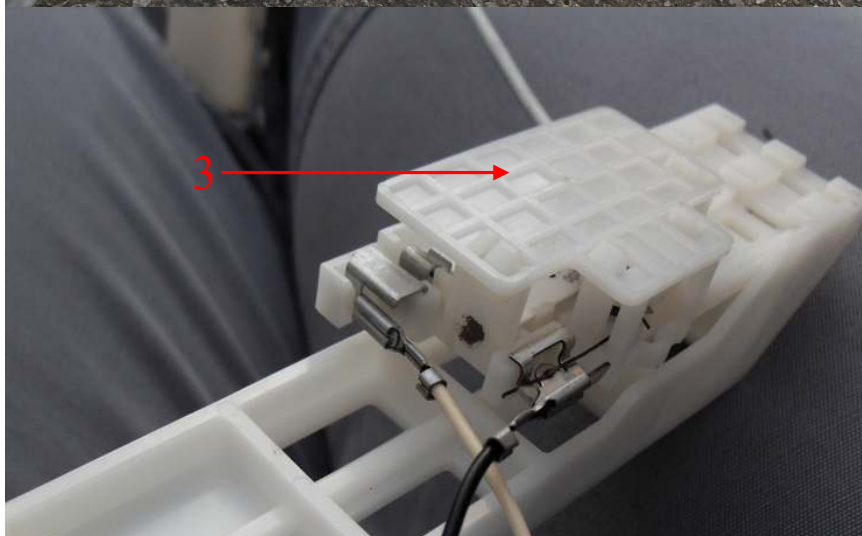
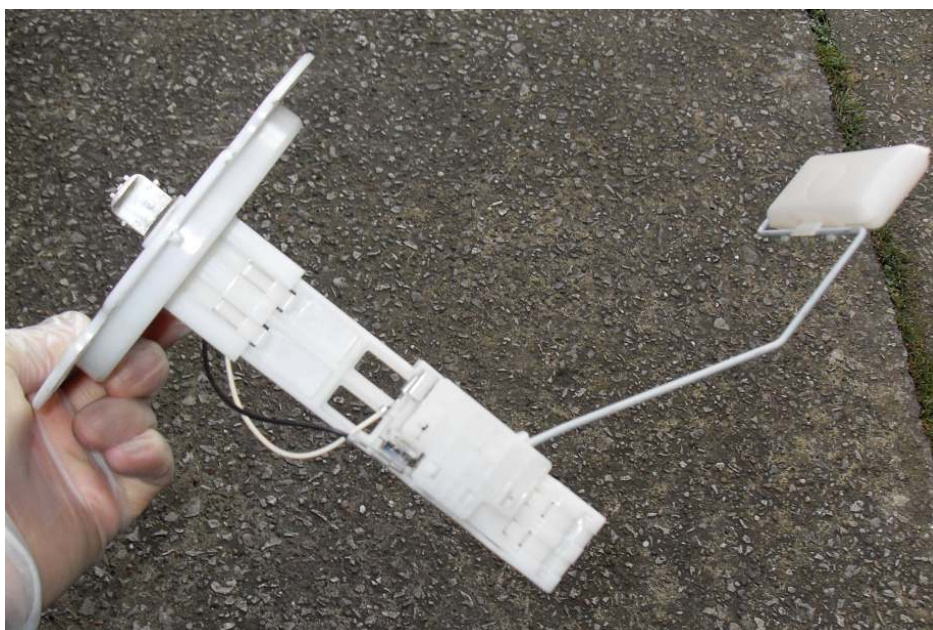
P8) This step opens the fuel tank so now be aware that petrol will be exposed to any sources of ignition as well as noxious, highly flammable vapours being present in the vehicle. Undo the 6 small bolts around the periphery of the tank cover and place the cover and 6 bolts to one side.

P9) The fuel sender is now free to be released. The sender is attached to the plastic plate where the wiring loom connector is located. Underneath this white plastic plate is a Viton O Ring which if petrol contacts will no longer fit in its recess because it will expand (this happened to me so I need to buy a new O Ring) as such I recommend you get new O Rings before you start this task.

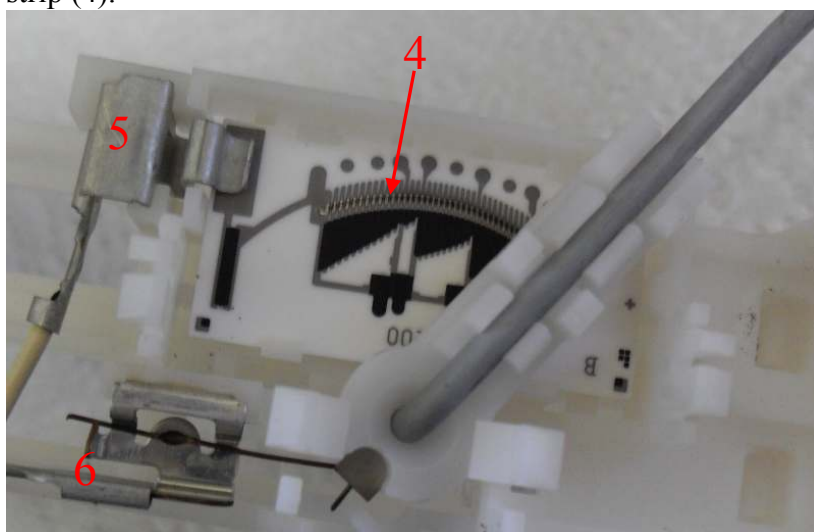
Carefully lift the fuel sender out of the tank be ready with cloth, kitchen roll or similar to wipe up any petrol spillage – petrol will spill.

Once the sender is out of the tank it looks like this.

(see next page)



P10) Remove the white plastic cover (3) to gain access to the variable resistor contact strip (4).



P11) To check the operation of the resistor attach a multimeter to the two contacts numbered 5 and 6 in the previous picture. Set the multimeter to resistance and check the resistance between the two terminals it should be a smooth, linear transition as you move the float up and down.

With the setting I used the resistance ran from 5ish Ohms with the float in the full position and 50 Ohms with the float in the empty position.

This sender on my car seemed to be working OK but I cleaned it anyway seen as it was out. Once cleaned the readouts where still 5 – 50 (full to empty).

To clean the contacts use electrical contact cleaner and some kitchen roll or ear cleaner things to wipe over the arced strip (4 in previous picture). Then cycle the unit up and down a few times and re-clean, do this until no more dirt comes off the strip when you wipe it. It is amazing how much dirt comes off this strip!

P12) Clean the rest of the sender to get rid of any petrol traces.

P13) Refit the plastic cover you removed in step P10.

P14) Fit a new O Ring into the seal of the petrol tank.

P15) Carefully insert the fuel sender into the tank with the loom connector at the six O'clock position and bolt down using the clamp plate and 6 bolts.

P16) Feed wiring loom connector and grommet back through tank cover plate and connect wiring loom connector onto sender unit and refit sound deadening.

P17) Secure tank cover plate using the 4 plastic tabs (this time turn anti- clockwise 90 degrees)

P18) Connect the two wiring looms to plastic recess tray and refit tray to clove box.

P19) Refit false floor, job done – brew time before the driver side.

Drivers Side

D1) Put seat as far forward and tilted as far forward as possible.

D2) Insert a screwdriver into the top of the sub cover and pull back to release the clips. Place sub cover to one side.



D3) Unbolt 4 bolts holding sub to metal plate.



D4) Disconnect the connector on the right hand side of the sub and place to one side. This connector is quite tight and awkward due to wiring loom length.



D5) Remove fuel tank cover plate using the 4 plastic tabs as done previously on Step P6 and sound deadening material.

D6) Disconnect wiring loom from fuel pump (1) and then feed wiring loom clip and grommet out of tank cover as done previously in Step P7. Then disconnect fuel hose (2) ensure you have something to catch the petrol in, spillage will occur. Be careful not to break fuel hose clip!



D7) This step opens the fuel tank so now be aware that petrol will be exposed to any sources of ignition as well as noxious, highly flammable vapours being present in the vehicle. Undo the 6 small bolts around the periphery of the tank cover plate and place the cover and 6 bolts to one side.

D8) Carefully lift the fuel pump there is still one hose attached which I was unable to get a picture of attached to the pump it is round the back and secured by a clip that is difficult to undo. You can see the hose I am referring to in the below picture.



D9) Once this hose is disconnected very carefully lift the fuel pump out of the tank it takes a bit of effort to get out due to the space you are working in. Again fuel will spill (quite a bit) so ensure you cover everything in towels to prevent fuel getting into absorbent materials in the car.

D10) The pump once removed.



D11) Remove the plastic cover plate (3) using a flat bladed screwdriver to release the clips to gain access to the variable resistor.



D12) Connect a multimeter to the two terminals on the fuel sender and check its resistance.

On mine the resistance prior to cleaning the contacts ran from 5 down to 32 Ohms from full to about two thirds empty and then jumped to 170 Ohms but then kept changing every half second or so from 32 – 200 Ohms without me moving the float. (this would seem to be the defective sender)

D13) Clean the resistor contacts as done previously when completing the passenger side procedure.

D14) Recheck resistance using multimeter.

On mine after cleaning the linear response of the resistor was restored and I believe (I can't quite remember) I think it ran from 5 Ohms to 70 Ohms full to empty.

D15) Wipe any petrol from the fuel pump.

D16) Carefully place fuel pump back in tank and connect hose mentioned in step D8 back onto pump ensuring you route the hose along the recess in the fuel pump.

D17) Now wipe the O Ring sealing area and the flange face of the fuel pump where the O Ring will sit its likely during the reconnection of the fuel hose you will have spilt petrol where the O Ring lives.

D18) Fit new O ring by feeding over the top of the fuel pump flange and locate O Ring in recess.

Where the O Ring locates can be seen in the picture attached to instruction D8.

D19) Refit clamp plate and 6 bolts to secure fuel pump back in tank and seal tank. You have to press down on the fuel pump as it has springs that compress when refitting the cover plate or the 6 short bolts won't fit back in.

D20) Reconnect fuel hose to top of pump.

D21) Feed wiring loom and grommet back through tank cover and connect wiring loom to pump.

D22) Refit tank cover using the 4 plastic tabs and again turning anti-clockwise 90 degrees.

D23) Reconnect sub wiring loom and bolt sub back into panel.

D24) Refit sub cover plate.

D25) Reconnect battery.

D26) Turn ignition on (on mine the fuel gauge instantly rose to a quarter tank when it previously had been on red and the light on before the cleaning procedure).

D27) Start it up, check for leaks as you see fit.

D28) Brew time :o)

Leave all car windows open for a while after doing this fix to get rid of the petrol smell in the car. It takes quite a while but don't do what I did and forget about it.....it then started raining and I had moist seats for a while.