The Autocheck Computer

Hidden Features

This section outlines the functional checks that can be performed on the Autocheck computer by a simple procedure. This can be used to verify the correct computer and country specific code plug is fitted to your car. In addition it can determine some faults in the connection between the ECU and the Autocheck module with respect to the fuel consumption signal.

The procedure to access these hidden codes from the Autocheck computer is as follows:

Step	Description	Image
1	With the ignition key in the OFF position, press and hold down the Autocheck RESET button.	N/A
2	Keeping the RESET button pressed, turn the ignition key to the ON position. Verify that the correct Autocheck computer code is displayed (a532 - also shared with the 20V non turbo quattro).	
3	Release the RESET button and verify that the next number displayed is approximately the amount of fuel in the tank. This is displayed in litres x 10 (e.g 30 litres in the tank is display as 300).	
4	Press and *hold* the Autocheck UP button and verify that the correct country code is displayed (eg GB, EU, SA or AU). This is determined by the coding plug and establishes if fuel & range calculations are performed in gallons, litres, miles or kilometres.	
5	Release the UP button , then press and *hold* the Autocheck DOWN button and verify that the appropriate range calibration adjustment is displayed. This was set to zero in the factory, but can be adjusted by a special procedure to +/- 15% if it is necessary to recalibrate the range parameters. Note that you **may** encounter an 'aF' code at this step if the fuel usage signal from the ECU is not detected by the Autocheck / Trip computer. More details to follow as and when I get it...	

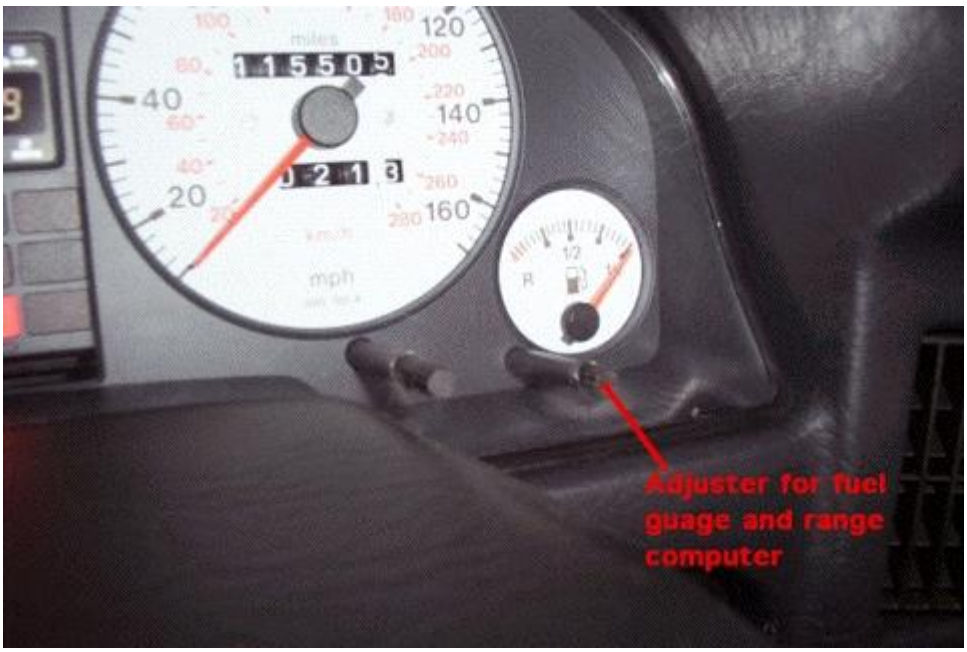
Fuel & Range Calibration

In order to calibrate the fuel/range parameter on the Autocheck system, it is necessary

to have a full tank of fuel and that the car is parked on level ground. The procedure is a simple adjustment of a potentiometer on the rear of the instrument cluster in order to finely adjust how many litres of fuel the computer thinks are in the full tank. In doing this, it is possible to calibrate the system to the actual amount of fuel in the tank or to include an amount of margin for error - if you are the sort to ignore low fuel warnings for as long as possible and need a certain amount of 'reserve' fuel.

The 80/90 Coupe has a fuel capacity of 70 litres whereas the Avant has 64 litres. Unsure of Sedan fuel capacity but I suspect it is same as Avant - can anyone confirm or deny that ?

The mechanism to adjust the fuel range potentiometer is via the plastic adjustment knob near the fuel guage on the front of the cluster.



This knob is also designed to adjust the position of the fuel guage needle, but I discovered that this linked mechanism is less than ideal.

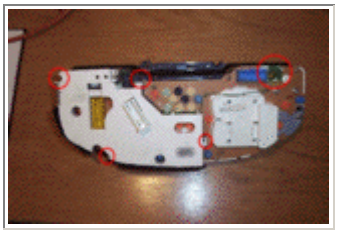
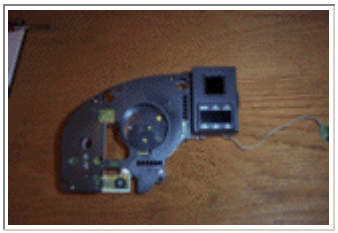
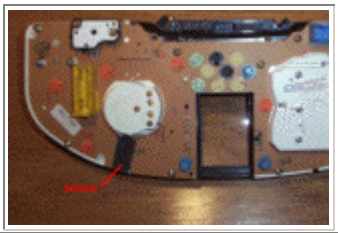
Unfortunately the cap on the adjustment screw is incredibly hard to remove as there is insufficient clearance to lever it away or tug it with pliers. Sometimes it seems like nothing is straightforward on the Audi S2 !

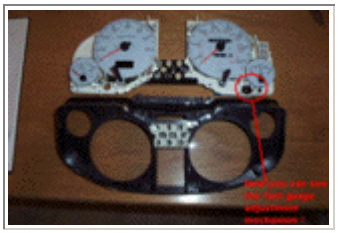
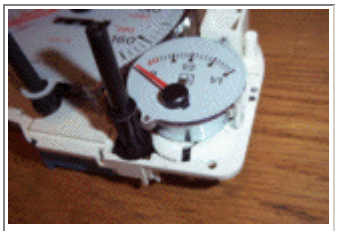
So before describing what should be a trivially simple task, lets first consider how to gain access to the adjustment screw. If your luck is like mine, you will discover that after uncovering the adjustment knob it only adjusts the fuel guage and does not quite engage

with the trim potentiometer for the Autocheck system. If you have no such problems then proceed directly to Part 3 - lucky you !

Part 1 - Remove the stubborn cap from the fuel adjust knob

Tried as I did with various tools, I could not prise off this frustrating end cap. Not wishing to damage the cluster, I had to resort to removing it as described here . Once it was on the bench it was easy enough to disassemble the cluster, but I wouldn't recommend it to those of a ham-fisted nature as there a dozen or so small screws and a number of connectors which need to be carefully manipulated along the way.

Step	Description	Image
01	With the cluster removed from the car, resting upside-down on the bench, the first thing to do is remove the four screws that secure the Autocheck module to the cluster. Screw locations are shown in the photo along with the location for the fuel/range adjustment pot.	
02	Next, gently prise out the fuel range adjustment pot which is attached to the Autocheck module on a three-wire harness. Refer to the photo for tips on removing this part.	
03	Gently separate the Autocheck module from the cluster's main circuit board. Leave this to one side in a safe place !	
04	Remove the illumination dimmer pot from the PCB. This is secured by two 5.5mm nuts with washers. Refer to the photo for details.	
05	Now it is almost time to remove the screws which secure the PCB to the cluster shell. Before that, you may need to carefully slice a bar-code sticker which is slapped to both items.	

06	Using a Torx #10 driver, remove the eleven screws which hold the PCB onto the cluster. Watch out for the washer used on the screw thru the heatsink of the voltage regulator. Screw locations are notated in the photo.	
07	Tease apart the PCB from the cluster being careful not to bend the circuit board. As you do this, the fuel guage adjuster knob may or not come out with the PCB. The illumination dimmer will stay with the cluster housing, but the other two adjusters (clock and odometer) will come out attached to the circuit board.	
08	It is now possible to get a decent grip on the fuel adjust knob so that the ill-designed covering cap can be removed. Simple huh ?	
09	In order to avoid doing this in the future, you may wish to throw the cap away, but I found that just partially inserting it back into the adjuster (as shown) was enough to keep it in place but also provides enough clearance so that it can be easily pulled out from the front of the cluster.	
10	Refitting is a reversal of removal, but be careful to properly engage the fuel adjust mechanism with the geared cog on the fuel guage. This is the fiddliest part. Check if the adjuster operates only on the guage or if it has sufficent grip on the Autocheck pot to turn that also. If it only moves the guage needle, then you may wish to leave the Autoccheck pot unclipped from the rear of the cluster until the calibration sequence is complete.	 

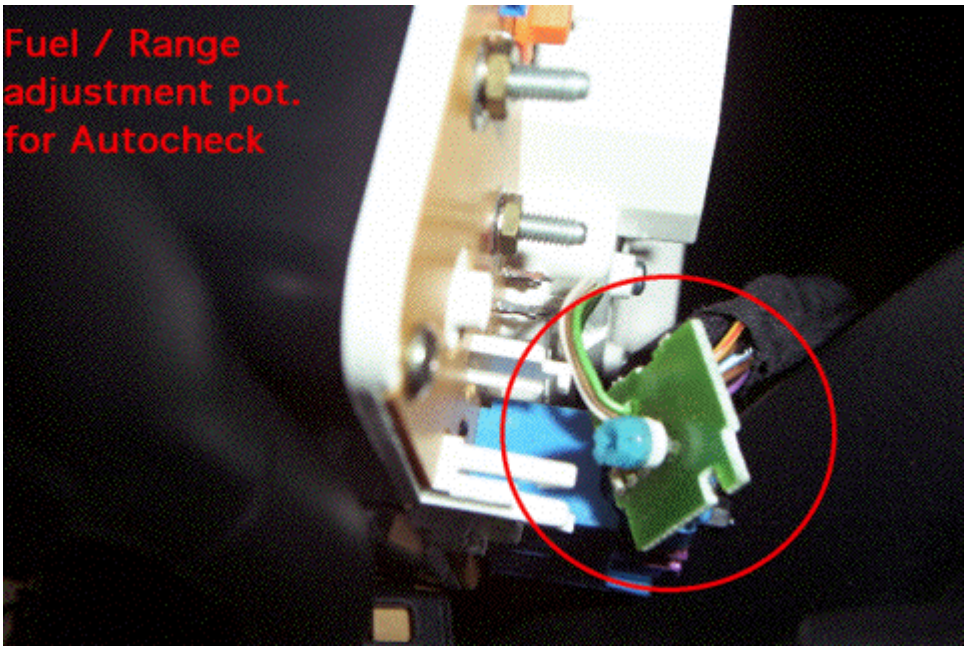
Now that you have successfully separated the adjuster end-cap and rebuilt the instrument cluster, a 3mm allen key can be used to adjust the fuel guage ***AND*** the fuel/range pot for the Autocheck system at the same time.

Try this on the bench to check that this does indeed move the fuel guage and that it also correctly engages with the Autocheck pot. If it does then proceed to Part 3 . If not, then goto Part 2 for a simple workaround. You may also find that, with both these adjustments being made in unison, it is not possible to get the Autocheck calibration correct and still have an acceptable bias on the fuel guage - in which case have a look at Part 2 to allow the calibrations to be done independently.

Part 2 - What to do if the adjustment knob does not engage properly

This is the case on my car and I doubt that it is unique in this regard. The solution is simple but fiddly...

With the instrument cluster connected up to all the car's wiring, unclip the fuel/range adjustment pot from its location on the back of the cluster.



This is going to be tricky if you haven't removed the cluster before in order to see how the adjustment pot is clipped into the housing so it might be wise to do a little investigation before-hand...

With the fuel/range pot separated from the guage adjuster, the pot can be adjusted by hand without altering the position of the fuel guage. Refer back to Part 2 if necessary.

Part 3 - Finally... The actual calibration sequence !

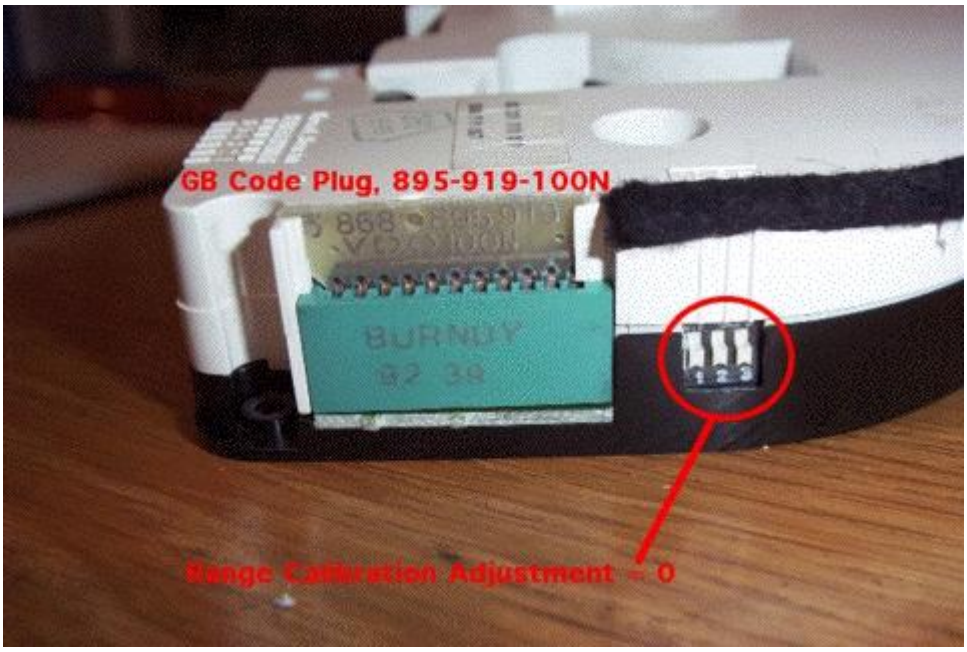
OK so you are now in a position to check or adjust the calibration for fuel/range calculations on the Autocheck system - either with the 3mm allen key into the guage adjuster knob OR by direct adjustment of the fuel/range pot. The following is performed with the instrument cluster fully connected to the car.

For best accuracy, the following must be performed with a completely full tank of fuel and with the car parked on a level surface.

Step	Description	Image
1	With the ignition key in the OFF position, press and hold down the Autocheck RESET button.	N/A
2	Keeping the RESET button pressed, turn the ignition key to the ON position. Verify that the correct Autocheck computer code is displayed (a532 for the S2).	
3	Release the RESET button and verify that the next number displayed is approximately the amount of fuel in the tank. This is displayed in litres x 10. With a full tank of fuel this should correspond to 70 or 64 litres for the S2 Coupe or Avant respectively. On my car it read 649 before I adjusted it and you can see that the guage is not *quite* showing 100% full.	
4	You may wish to adjust the fuel reading such that it is calibrated for the actual amount of fuel in the full tank, or by leaving say a gallon (five litres) in reserve. Adjust the fuel/range pot such that the number shown in the Autocheck display is 700 or 640 for the Coupe or Avant, or reduce that figure in steps of 10 for each litre of reserve fuel capacity you wish the computer not to know about. The factory manual actually recommends that the adjustment be set for 65 litres of fuel in the Coupe. I calibrated my system to the full 70 litre capacity.	
5	Verify that the fuel guage reads at an acceptable 'full' position or adjust it as necessary with the 3mm key. For this reason it is perhaps best to calibrate the fuel guage separately from the Autocheck system.	

Part 4 - Fuel consumption correction factor

In the factory, the Autocheck / Trip computer is set to 0% correction with the dipswitches shown here alongside the country code plug.



It is possible to alter the position of these switches to provide a 5, 10 or 15 percentage skew on the fuel & range calculations.

The only reason I can imagine this is necessary would be if the car is fitted with significantly larger or smaller sized wheels/tyres eg Winter Tyres.

For reference purposes, here is a quick summary of all the valid combinations for setting the fuel consumption correction factor.

1 (10)	2 (5)	3 (+/-)	Setting
OFF	OFF	OFF	0%
OFF	OFF	ON	0%
OFF	ON	OFF	+5%
OFF	ON	ON	-5%
ON	OFF	OFF	+10%
ON	OFF	ON	-10%
ON	ON	OFF	+15%
ON	ON	ON	-15%