

Audi S2 Heater Matrix



Main text body - Paul Goodwin
Pictures – Ian Simmonds

They say that the heater matrix is the first part they put in the car – the build the rest around it. That's very true! Unfortunately the only way to fix a problem with the matrix as a result is to take the dash out – not for the faint hearted but relatively straightforward. On an S2, the most demanding part is trying to get access to some key bolts, right at the back of the engine bay, hidden in a tangle of pipes and sharp brackets!

So take a deep breath and, sitting in the drivers seat everything you're looking at has to be removed!! That's the worst part, thinking about it – once you get going its not so bad especially with a few pointers!

Firstly, if the car has Air-Con. Get this de-gassed first.

Tools you'll need: Phillips screwdriver, 8m, 10mm, 13mm socket and wrench, allen key

This will probably take a couple of days unrushed – so you obviously need somewhere to work and to be able to have the doors fully open for long periods of time. This is not a job to do on the street if you can avoid it!!



Steering wheel and Clocks

There's a lot of guides explaining this part so I'll not go into too much detail here. Useful info on Mikes site here: http://www.s2-audi.co.uk/tech_articles/outside_temp_display.htm. Simplest place to start is to take off the steering wheel – usually a 24mm socket on a long bar should do it.



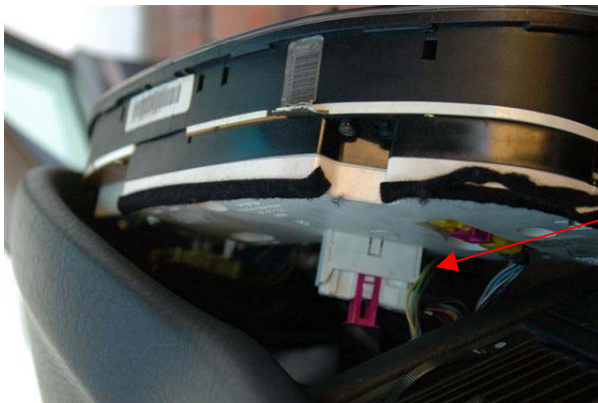
Make sure the wheels are aligned nice & straight. I must admit tho, I've never tried this on a car with an airbag!! Next comes the

indicator stalks and shroud. There are two vertically fitted cross head screws – you'll see the access holes on either side underneath. Once removed gently remove the top of the shroud – its got



locating lugs on the sides and there's 2 rubber edged plugs that locate in a little slot like affair on the lower front on the clocks so be carefully to pull forwards slightly or you might brake them.

The lower part of the shroud is attached to the stalks. I unplugged the multi-connectors at this point as they are in tight and need careful force to part them. Two larger ones on either side and a smaller cream one for the board computer. The stalks themselves are attached to the steering column by a small brass collar. There's a slot under the shroud and depending on what you have it could be a cross head or allen key bolt to loosen the collar sufficiently for the stalk assembly to be pulled free and off the steering column. Hard to describe this but if you imagine you're looking head on through the steering column the bolt sits at about 8 o'clock. As a result you need to angle the screwdriver or allen key through the slot underneath and can be a bit tricky to locate! I actually wasted more time on this part trying to work out if I had an allen key of a screw in there than I think any other part of the job!! Once loosened the stalks simply pull forward off the end of the steering column.



The clock binnacle is secured by two brass screws either side of the locator that seats the upper cover for the indicator stalks and above the steering column. You can't miss them! Gently tip the top of the clocks back and ease the base forwards, right hand side first. The multi-plugs on the back are a bit tricky and have a coloured clip in the middle. Use a flat blade screwdriver to lever this clip upwards. The clips once proud of the plugs then acts like a handle to

pull on and release the connector. The one on the right as you look at the clocks is blue There's 3 more connectors on the left hand side of the clocks as you look at them. It's the same for the two larger coloured plugs (yellow and white)



and a small black plug for the board computer which just gently pulls free. The clocks should then be able to be manoeuvred out.

The tray beneath the steering wheel also needs to be removed – all 8mm hex

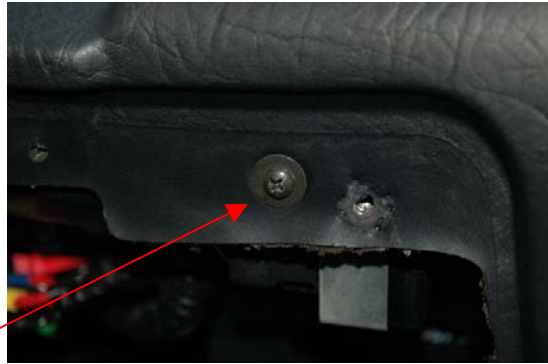
headed bolts. There's 3 along the front edge and one right down where the bonnet release is. There's 2 more inside the "roof" of the shelf. The shelf will probably just drop



down and can be pull towards you and withdrawn.

You'll notice along the front lip where the shelf fits there are 3

more screws with black washers, roughly adjacent to the bolts you've just removed. There's another down by the bonnet release area, roughly where the other bolt was also. These secure the main wiring harness to the lower edge of the dash – its sits in a rigid plastic guide (shaped



a little like a large question mark) that supports and guides the rope like bundle of wires around the lower front of the dash to the centre area. It starts at the lower right hand edge of the dash, bonnet grab area, its tucked snugly against the lower edge, and goes right round the lip where the shelf joins then ducks back behind the centre dash area. Take note of how this sits as it need to match up with the screws when back together. It also holds the brass clips that the shelf bolts secure to and if these arnt in the right position you'll not get the shelf back on! Make a note of how it sits and remove the 4 locating screws.



Centre Dash Consol.

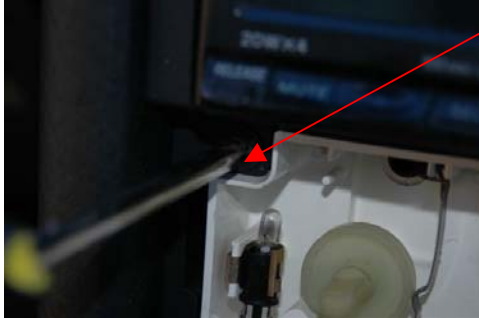
More straightforward stuff, just a bit fiddly. There is a centre plastic consol / rack that holds the switches, CD radio and heater controls. So firstly remove and unplug your cd / radio. The 3 centre heater vents also need to be removed, usually easy enough by prying carefully from underneath. Next remove the 3 heater control knobs – either with pliers and some protective cardboard or they can be carefully prised out where the central grab part of the dial has a flat end. Two goldish hex-headed screws will be evident in the recess of the outer two dials. With these screws out the dial plate can be levered out. You'll see two similar looking hex screw heads that secure the



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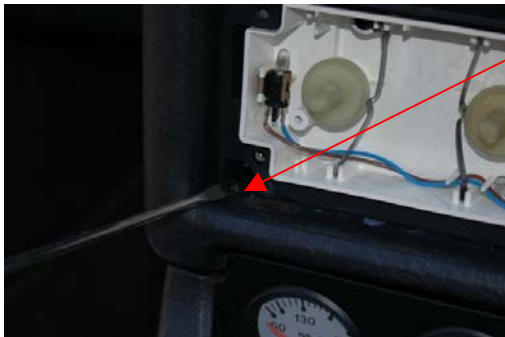
little bit of black plastic trim that sits on the top of the VDO's with 2 lugs that poke up from below through slots into the lower part of the dashboard. Remove the screws for now – the trim itself will be easier to remove when the centre consol is loose. It's the failure to do this that breaks locating lugs on the consol at either side of the VDO;s and causes it to sag on either side!



Next up remove the 4 black dome headed screws that attached the heater blower unit to the dash consol. Unusually this unit sits behind the consol itself and can be left for now as it doesn't really interfere with the consol removal. There are 4 x 8mm hex



headed screws that secure the centre consol to the dash, one in each corner. The top 2 are easy to get at, the lower are hidden at the end of access holes. I used



an 8mm socket with an adapter to fit an electric screwdriver – once of the best little tools I've ever bought! Very useful for this job! With these removed it should now be possible to pull the consol away slightly from the main dash. Its still attached

by the bank of dash switches but you should be able to get enough clearance to get in behind and pull the connectors



away from the back of the switches. These are all a colour coded plug to the switch. Might take a good tug but once they are all removed this should leave the consol free to be withdrawn and with all the switches still in place, which I reckon makes it easier when refitting.



Centre Handbrake Consol



There a little blanking plate in the forward part of the handbrake grab recess that when prised off reveals another black 8mm hex headed bolt to be removed. This secures the centre to the rear/middle consol. Remove the rear ashtray and undo the large



13mm nyloc bolt and washer underneath. Different models have slightly different arrangements here, some have two bolt either side. Might take a little persuasion but the centre and middle part of the consol should now be free to be slide upwards and apart from each other. They are held together by a couple of locating lugs which disengage with a little upwards movements of either one. The middle consol should be capable of being pushed back into the rear of the car a good few inches, without removing the handbrake cover, it usually slides through just enough to manoeuvre the centre consol free. Bit tricky and this will make more sense when you're looking at it!

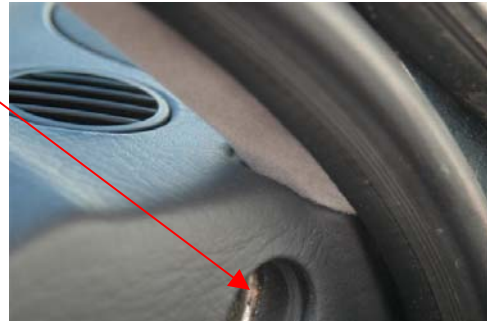
Most Centre consoles in my experience have been badly removed at sometime in their past, resulting in the tabs being broken that slide over two metal clips on either side of the bottom centre part of the dash, straddling the VDO's. Just be aware that these clips are there and that the tabs are plastic and very easy to break! Pull the centre consol towards you and upwards and you should be ok – as follows!

Unscrew the gearknob and start to gently guide the centre consol back and up to free it, the gaiter just slides over the gear stick. Remove that little bit of black trim that sits on top of the VDO's. Pull the consol back (into the car) a little way then feel behind the VDO's, following the wires back under the metal bracket that's on the bottom of the centre part of the dash. The connectors are hidden underneath but easily pulled out to access. There's a white plug for the VDO's, muffled in foam usually a smaller brown plug also. This is the feed to the cigar lighter and illumination and you'll see the wire running between the 2 sections of the consol. It's a bit fiddly but the plug to the lighter and bulb should come free easily enough and you can now continue to ease the centre consol back and up till its clear.



Removing the Dash

That's most of the prep work – next up it's the dash itself! The dash, amazingly is mainly held in place by 4 x 8mm hex bolts, 2 on either side by the door. They are hidden behind two plastic caps on either side than are prised off. Take note as best you can of how the dash sits against the windscreen pillar and door for realignment later. Remove these bolts. Centrally, the dash is secured by the metal bracket



the VDO plugs were stuffed under. Remove this bracket next. There's two bolts either side that secure it to the floorpan / transmission tunnel – they're behind the carpet but there's a little flap cut for access. There's 2 bolts (8mm hex I think) on either side that secure the bracket to lower centre part of the dash itself. With the bolts out it takes a bit of manoeuvring to get this out over the plastic vents that feed the rear along the transmission tunnel. You could

just undo the 2 lower bolts and leave the bracket attached to the dash but I think its easier with the bracket removed entirely.

Look straight at the hole where the centre unit lived and you'll see the curve of the centre vent ducting, like a misshapen black tuba! About halfway up on either side there are two 8mm



silver nuts to be removed. The bolts are fixed to the matrix housing. The right hand one as you look at it has a purple/ brown multipul connector clipped to it that's part of the blower wiring which can be left as is. Behind this plug more ducting joins where it comes down from the dash. This is



secured by a small screw and needs to be removed as this part of the ducting needs to come apart when the dash is removed. It's difficult to see but the centre vent ducting and the main windscreen demisting ducting are attached to the dash and as such come out with it!



Right! Now for the heavy bit! With a bit of careful tugging the dash should be free to be with drawn towards you and then out of the car!! Pull it it a few inches forward, it should still rest on the steering column and the side supports enough to allow a quick check behind to make sure everything is loose. Make sure the 3 multiconnectors for the stalks have been pushed through the oval hole for the steering column – it's a bit tight but they need to be out of the way. Bit more effort and out comes the dash!! Does help to have an assistant, but Ive done this a couple of times on my own now. Getting it out is easier than getting it back in though!



Ok – when you look back into the car don't panic!! You'll probably think -what on earth have I done!! You'll have a big plate of spaghetti sitting in the middle of the car, more so if you've got aircon, but its actually not so bad once you pop a couple of prozac and look at what the wiring does, where it runs etc. the main bulk is on that rigid black support. Very educational actually!

Blower Unit removal

At the top of the blower housing you'll see two connectors plugged into the resistor pack for the blower unit. The top one is the main power feed and needs to unplugged. Follow the wiring along the top pf the blower unit and unclip it. The lower plug can be left as it is the power feed to the blower motor.

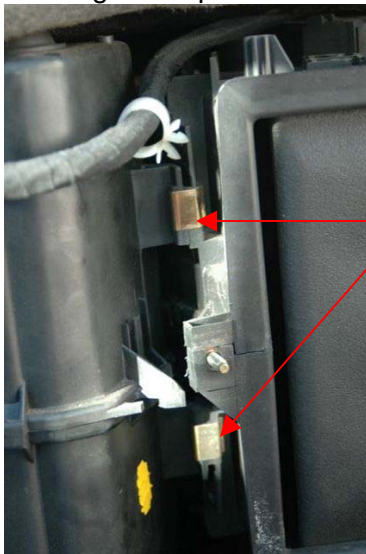


Next you need to go outside the car to get at the 2x 8mm bolts that secure the blower unit. For this you'll need to remove the passenger side wiper, 13mm bolt under the little black cap. Then turn with a coin the 4 large secure washers on the plastic trim / shroud only the edge of the windscreen and engine bay. Pull back the rubber strip from the lip at the back of the engine bay also. With this removed you'll probably find a lot of accumulated muck under there and the plastic cowl and grill that sits on the outside of the blower unit.



There are 2 10mm nuts that need to be removed first and the top part of the cowl should prise off revealing a foam gasket underneath which should carefully prise off. This leaves two studs with 8mm attached nuts that locate through the bulkhead and into the top of the blower unit. If you've aircon

there's the little bosh motor for the recalculating flap that might hamper access.



With these bolts removed the blower unit is free to be removed once the 4 clips have been removed that hold the unit to the central matrix housing. Look down the join and you'll see them easily. These are tricky and tend to ping off, but prise them free carefully – there's two on the facing edge and two hidden behind. At this stage release the ECU from its cage attached to the rear of this unit. That just leaves the control cable to removed – carefully as described below! The securing clip (brown I think) is very tricky – but at least this one is more visible than the others underneath the matrix housing itself, so a good one to start with!! Once done it should now be possible to remove the whole blower unit assembly!

On air-con cars

In the engine bay, release the large air-con connector block located low down below the ABS unit. Additionally, the rigid pipework is secured against the bulkhead (firewall) and against the front fore-arm. Follow the pipework to the first securing clamps and release (10mm socket). This will give additional movement as you pull the unions apart. Once apart, cover both exposed ends to prevent dirt entering the system.



Heater Matrix Removal

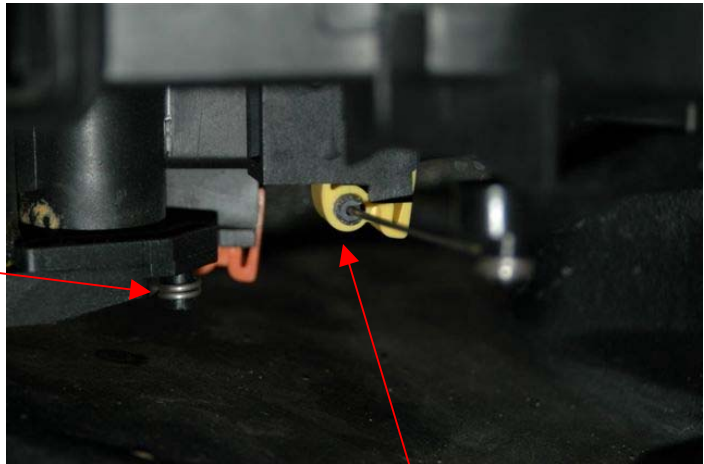
At this stage I removed the strut brace and released the electrical connector closest to the top bolt. The bottom bolt is so buried I couldn't get a photo of it, but it is (just) possible to get an 8th of a turn on a spanner. It'll take ages...

The heater Matrix unit is secured by two bolts with pointed ends on a bracket at the rear that go through the fire wall and are bolted from that side. Depending on the engine these bolts can be relatively easy (as in my 80) or a PITA (as in the S2) to get at and remove! You will also



need to remove the two feed hoses from the matrix feed pipes sticking through the bulkhead. Secured with hose clips they simply pull off but careful with the water still in there!

Back inside the car you will need to remove the control cables from the blower unit where they attach to various parts of the matrix consol. They are all colour coded and control the vent flaps to direct the hot or unheated air. The end of the wire has a small circular hoop that clips over the small stalk of the control mechanism for the various flaps. This will just prise off with a bit of persuasion – think I used some long nose pliers. This part of the Bowden cable moves freely whilst



the outer sheath is secured to the matrix housing by colour coded clips. **BE VERY CAREFUL** with these clips!! They are so easy to snap if you rush this part and as with any such cable, if the outside sheath cant be properly secured again on refitting it wont work properly! Each clip has two attaching parts – a curved locating clip that slits in a small slot and cant immediately be seen and the larger fastening clip, which is the more visible. Prise off this larger and pointed clip from where it locates on the housing but continue to move it backwards in that direction to be sure to allow the hidden, curved clip at the base to be fully freed from its slot. Its usually this part that snaps off if you don't provide enough movement for this smaller part of the fastening to become free and clear of the little slot! It's a right PITA - but don't rush this part!!

With these cables removed the matrix housing can be pulled from under the bulkhead and out – drawing the two feedpipes on the heater matrix itself and bolts as you go! The base has the footwell vents and also connects to the vents the run along the side of the transmission tunnel to the rear of the car. The vents just slot together and can be easily pulled apart.



With the whole unit free you can see the top of the heater matrix itself which is removed by drawing upwards out of the main housing.

Depending on how much water leakage you've had now's a good opportunity to clear the bits of carpet you never get to see!!



Now all you've got to do it put it all together again!!

Air-Con –

On the re-construction, it might be an idea to renew the seals disturbed on the Air-con pipe union.

And as a general note, test the instrument bulbs as you go, they'll not have enjoyed the excursion.

This is a list of personal experiences and not a maintenance procedure.