

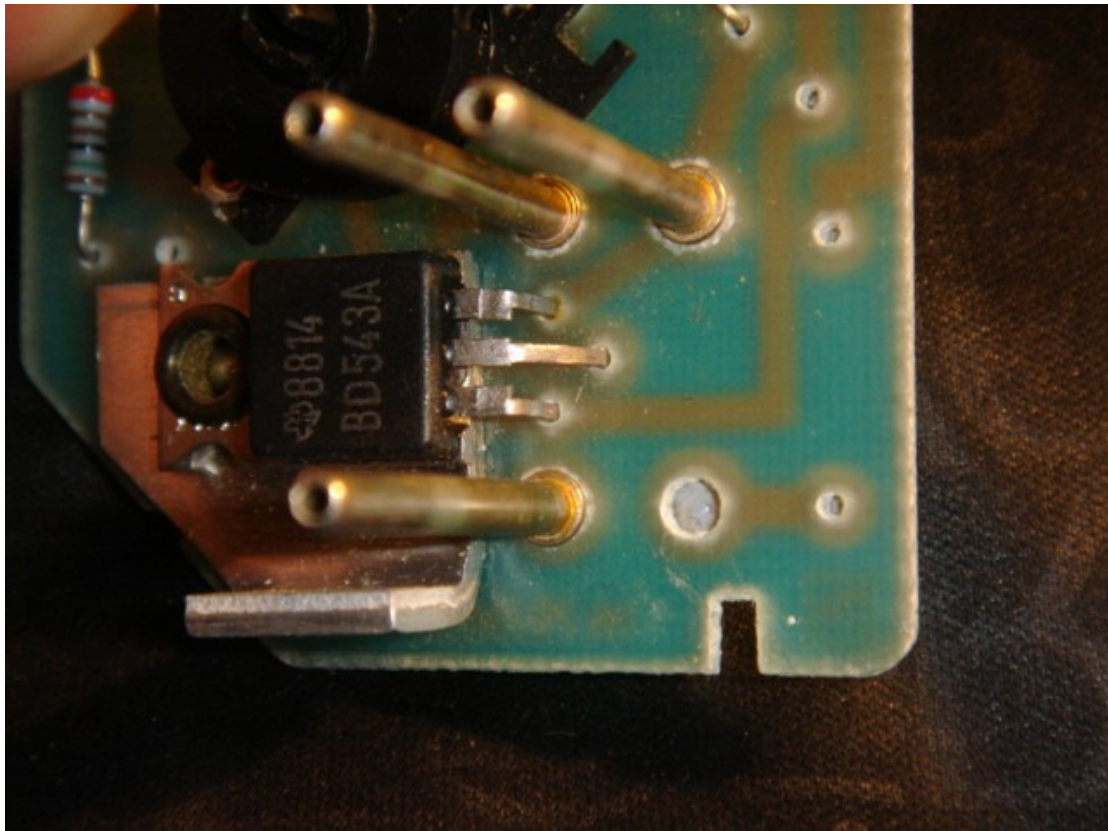
Blower Control Repair

Thought I would share my experiences with everyone regarding solving the famous “all or nothing” problem experienced by many owners of later cars with the infinitely variable fan control.

“The Journey”

I had the classic symptom of either no blower or maximum blower with no variable speed control. Having studied the Big Coupe Technical Library, and noted that both heater and aircon fans were affected, I reasoned that the transistor was probably blown in the fan control itself.

I replaced the transistor with a TIP 3055 from Maplins. It's based on the larger TO-218 size rather than the original BD 543A which is TO-220 size. This creates a few problems in ensuring the leads do not touch the nearest of the four connector pins which emerge from the circuit board and join up to the loom connector for the blower circuit. You need to bend the base and emitter very sharply as they leave the transistor casing. Had to redesign a heat sink too from a piece of scrap steel and pop riveted the transistor and heat sink to the circuit board with a bit of thermal paste between. *Pic 1* shows the original transistor and heat sink. *Pic 2* shows the new transistor and modified heat sink and shows how sharply the wires have to be bent close to the transistor casing.



Pic 1



Pic 2

Reinstalled the fan control and found there was still no variable speed! So I thought maybe the transistors are blown in both fans too?

Started with the heater transistor as it is the easiest to access. Replaced with a 2N3055 from Maplins. Not much of a challenge to solder this one, but you need tiny fingers to bolt it back in place and disaster strikes if you drop one of the small nuts into the heater chamber.

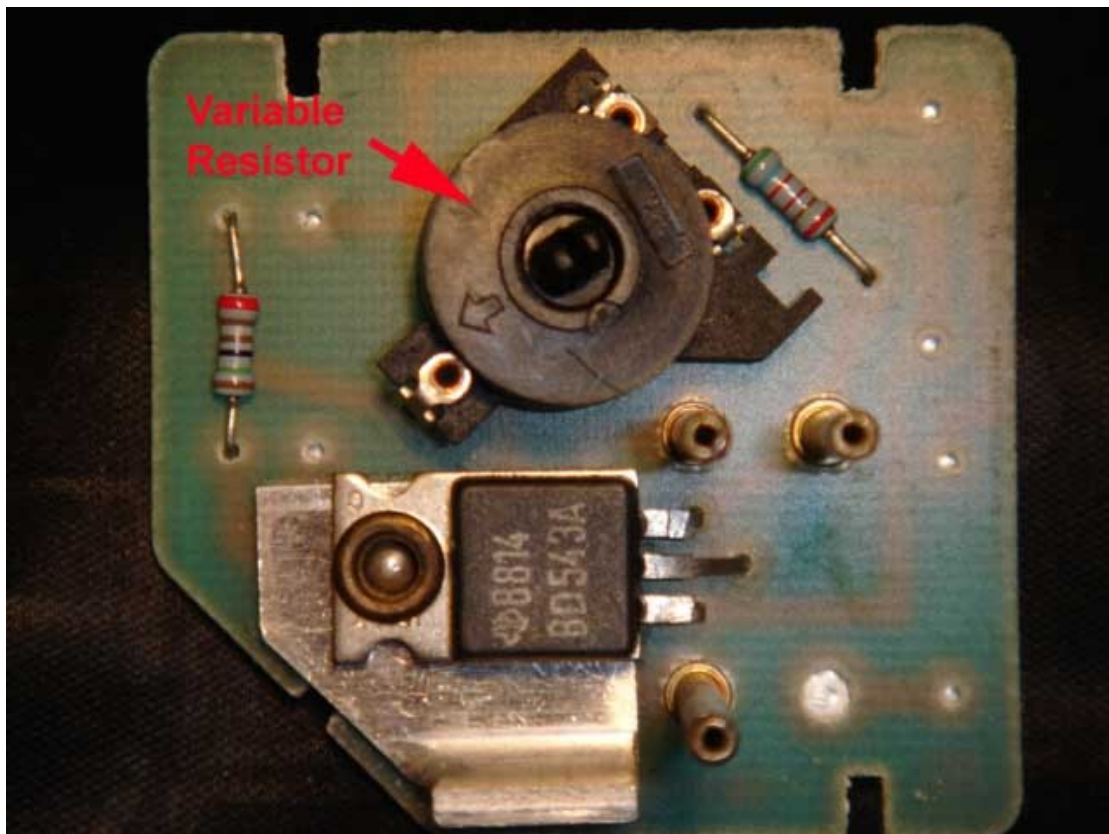
Got everything back together and guess what? Still no variable fan speed on heater or aircon blowers !

At this point I spent £40 on a secondhand heater control panel in order to try a different blower control. The secondhand control circuit board had only three connector pins whereas my original had four but I replaced the transistor as a precaution and tried it anyway. The problem remained exactly the same. Shortly after this I obtained yet another fan control from E Bay. This was brand new and in pristine condition but again only had three connector pins. This also failed to work when installed.

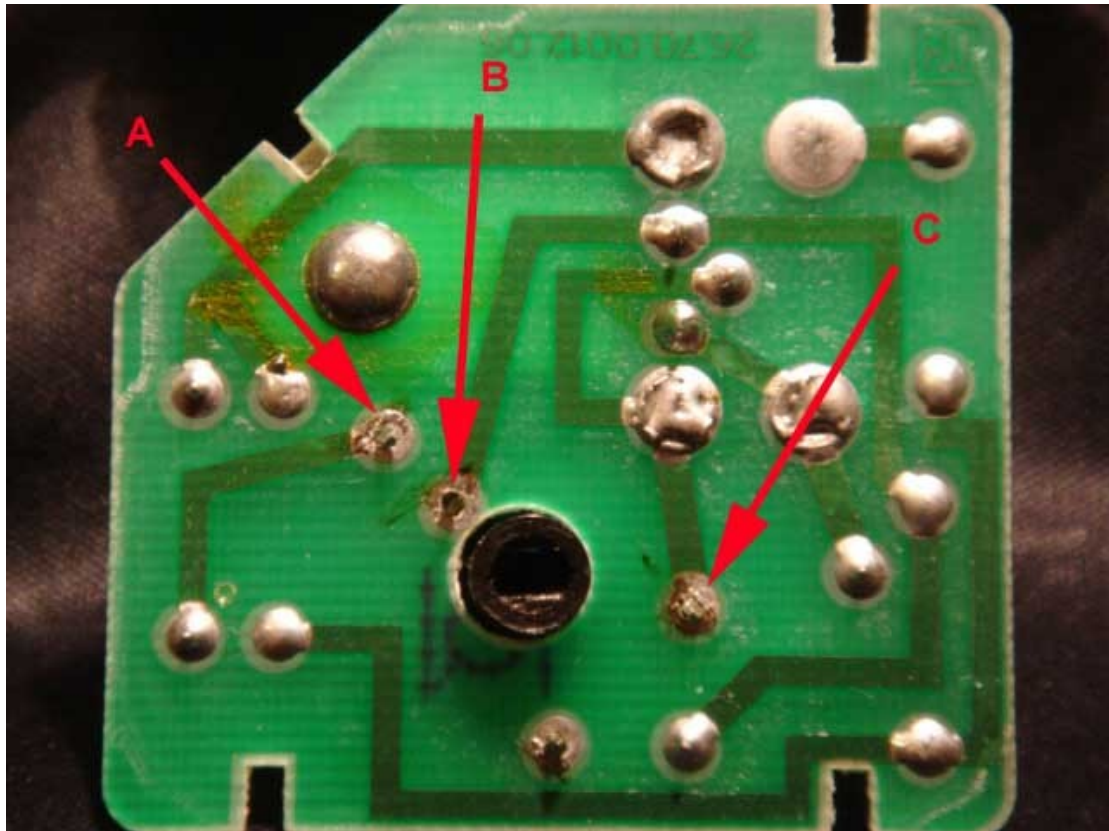
I returned to the drawing board to think further. After careful research on OEM parts I realised that there are two different fan switches. Part no. 61 31 1 381 318 was fitted to non aircon cars and 61 31 1 381 317 was fitted to cars with aircon. The circuit boards inside these two types of control are actually the same although the aircon board (317) has extra resistors soldered in as well as the additional fourth connector pin. These controls are not functionally interchangeable although they will allow max

fan to work in either case since this setting bypasses the variable control altogether in favour of a simple microswitch.

I needed a working “four pin” switch (317) but had actually bought two of the “three pin” type (318). I started looking more closely at the circuit boards and discovered that the variable resistor (*Pic 3*) was also faulty on both of the old boards. The carbon track appeared to have burned out on each of them and was basically open circuit. This is not always apparent on visual inspection – you need to use a digital multimeter to measure the resistance between points A and C (*Pic 4*) which should be 2.5K. You should also measure between points B and C while you operate the variable resistor. You are looking for a smooth increase or decrease from 0 to 2.5K. If the resistance fluctuates wildly or is constantly infinite, you have a bad component. The variable resistor is an unusual design 2.5K linear and was made by Ruwido. I have had correspondence with Ruwido confirming that they have no more stock of these potentiometers so the only source is to cannibalise existing fan switches old or new.



Pic 3



Pic 4

I unsoldered the good potentiometer from my new fan switch (318) and used it to replace the faulty one in my original switch.

At last all was working fine (including the air con blower too). Flushed with success I set out to drive to Portsmouth that same evening, enjoying the luxury of not having to be either steamed up or deafened for once. Unfortunately, I had only travelled about 60 miles when with a great screaming of tortured bearings – the blower fan seized solid! Cue a torchlight trip under the bonnet in a windswept lay-by to disconnect the fan motor before the current draw blew my newly repaired fan switch again.

Clearly the blower fan had only been used for short spells at full speed by the last owner and the bearings were not up to being constantly run – even at slow speeds.

At this point I invested in a brand new motor from the dealer rather than risk any more problems and touch wood – all has been ok since then.

“The Conclusion”

So in summary, if you are having problems check which blower switch you need before proceeding – 4 pin (317) or 3 pin (318). Then check that the variable resistor is working **before** spending any time replacing the transistor. If the resistor is blown you’re either going to have to cannibalise another switch to get a working resistor or you might as well bite the bullet and get a new switch from the dealer. Then make absolutely sure that the bearings in your blower motors are good too.

“Further Alternatives”

I did go some way along the line of adapting a fan control to take a different variable resistor. Not ideal as the rotational travel of a typical variable resistor is much greater than the 90 degree travel of the original fan control. Because of this factor you almost certainly have to lose the original operating spindle from the control and this in turn means you cannot use the original "full speed" microswitch since the spindle is no longer there to operate it. I had intended to fit a separate full speed blower switch (in the panel next to the power window circuit breaker) but thankfully all was resolved before having to adopt this less elegant solution.