Costs and Contacts

MOTORMEC 01502 500590
www.motormec.co.uk

Final stage resistor **£35.65** plus VAT.
Replaces the following BMW part numbers:

64116929540	64116923204	64116931680
64118380580	64118376174	64118362931
64118385549	64116929486	64116920365

Final stage resistor

Heater fan got a mind of its own? Here's an easy DIY fix.

If you run a BMW with the electronic climate control (or 'automatic air conditioning' in BMW speak) then you might have noticed the blower fan sometimes taking on a mind of its own, in which case this DIY is for you. It can start off unobtrusively but there's no ignoring it: once it's started happening the problem will get steadily worse and the only cure is to replace the final stage resistor – or 'hedgehog' as it's commonly called, on account of its distinctive shape.

A similar part is used in E36 and E46 3-Series, E39 5-Series and X5, the job of the resistor being to regulate the speed of the main blower fan. When it starts to fail, it can't provide a constant resistance and the fan speed is all over the place. We've experienced the problem ourselves on a brand new E39 5-Series and also on the car in our photos, an E46 320d where the fan would start off behaving normally but just 10 minutes into a journey would run at about three-quarters of maximum speed no matter what the setting on the control panel. In extreme cases, the fan can even run without the ignition on until the battery is flat.

WORDS & PICTURES Paul Wager

It's a well known problem and can affect pretty much any age of car, with BMW having fitted three different designs of resistor throughout the life of the E46 alone.

We obtained our brand new resistor from well known BMW parts specialist Motormec, which can supply an OE-quality part from stock at just £35.65 plus VAT. Compare that with the BMW price of £??? and it's a hefty saving.

Fitting it is easy DIY, as long as you know where to find it and you don't mind grovelling about in the footwells for an hour or so. If you read up on the job on the online forums, you'll find that most of the information relates to left-hand drive cars and for UK readers it's simpler in some ways as you don't need to remove the glovebox, but it does mean the steering column is in the way of your tools and the clutch pedal will be jabbing you in the eye. Here's what's involved in doing the job on an E46 3-Series...

Here's what you're replacing and you can see why the part is known as a 'hedgehog'. Those long spikes are effectively a heat sink for the hefty resistor contained in the base of the unit.

To get to the resistor, you'll need to remove the trim panel above the driver's feet. Start with the two screws on the right-hand side...

... and then remove the screw on the left-hand side under the storage box.

Open the storage box and you'll find two more screws at the upper edge. With these out, the storage box can be removed entirely.

Next you'll need to unclip the plastic trim panel under the steering column. It's held to the main part of the dash with these sharp metal clips, but don't just yank it off – you run the risk of snapping off part of the dash assembly. Instead, use a small screwdriver to release the spikes of the clip and slide it off carefully.

You'll find a similar clip on the other side of the steering column.

The panel is held into the side of the central console with this plastic button clip. Simply use a screwdriver or small pliers to pull the centre prong out and then the clip can be prised out with fingernails.

The last fixing to remove is this rubber buffer behind the clutch pedal, which simply unscrews.

The trim panel will now be loose but before ripping it out, disconnect the wiring to the various electrical components housed on it. Slide the plastic retainer around the OBD port towards the front of the car and the plug will be released...

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... while the wiring for the warning buzzer simply unplugs. Remember to disconnect the courtesy light for the footwell and you're done.

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With the trim panel out of the way, you can see the resistor – or at least the general area where it lives. It's partially hidden behind the plastic moulding which houses one of the stepper motors for the air conditioning, and you'll need to remove this before you can slide out the resistor.

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The housing is held by two Torx screws – the lower one you can see, but the upper one is almost impossible to see with your head under the dash, so this shot of the part out of the car shows what you're looking at. You'll need a slim Torx bit to fit inside the moulded gallery for the screw but it will also need to be short enough to clear the steering column. If you're lucky, you can catch it with a small flat-bladed screwdriver but be careful not to round the head off.

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The stepper motor itself is simply unclipped from the housing by squeezing the retaining clips which are moulded into its body.

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The control linkage can also be unclipped to allow the housing to be removed completely.

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With that lot out of the way, the resistor is revealed.

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Simply unplug the wiring connector and then ease the retaining clip to one side and slide the resistor out. We found the clip was hard work and the resistor needed a fair bit of wiggling after being in there for nine years.

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Here you can see the old and new resistors compared, with the new unit from Motormec on the left. Don't worry if they don't look identical as BMW itself went through three designs on the E46 alone. Refitting it is as they say in the best books, the reverse of removal but make sure you seat the new resistor firmly enough for the retaining clip to engage securely.

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Job done. Your automatic climate control should go on keeping you comfortable for another nine years.