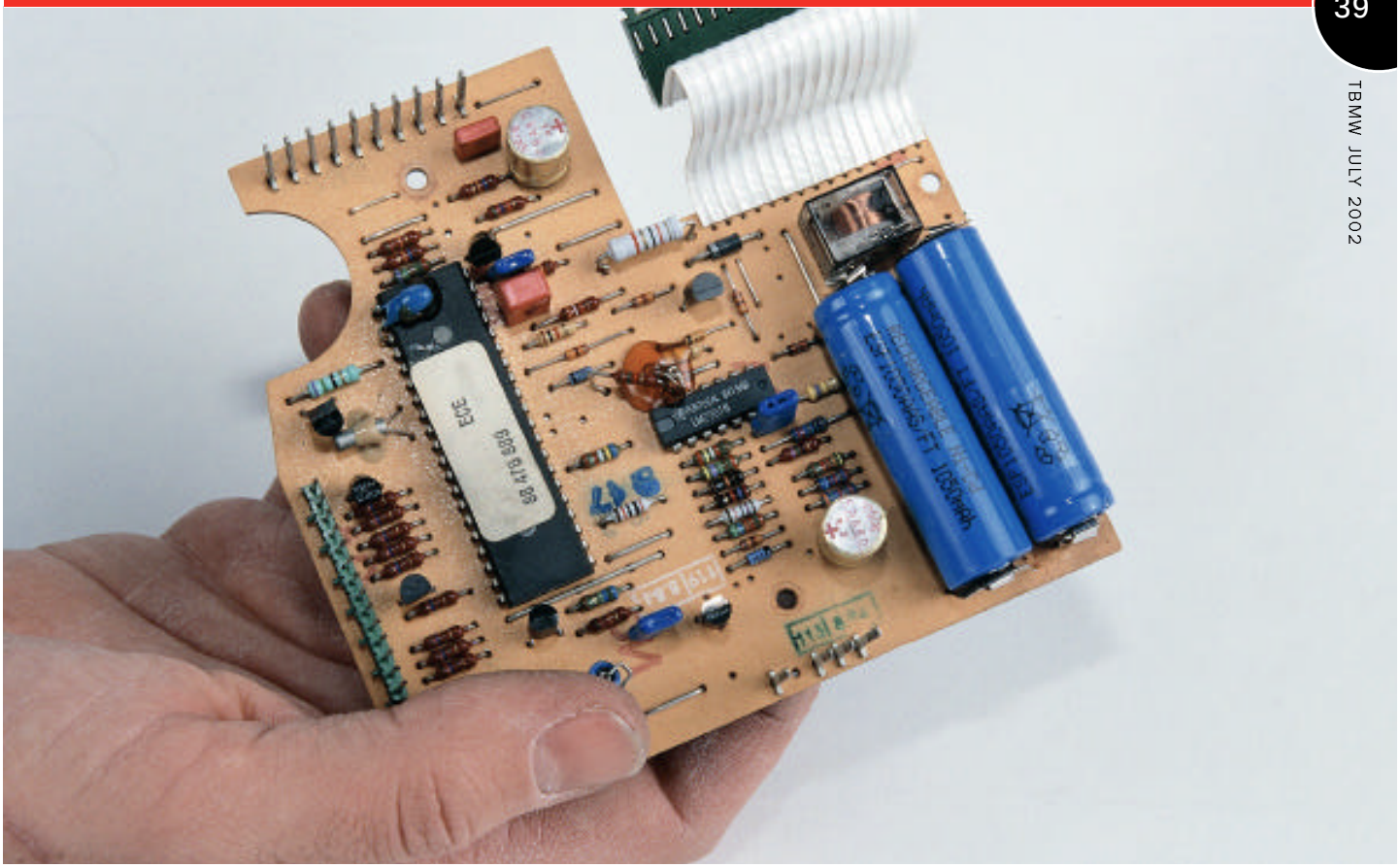


Normal Service Has Resumed

We show you what to do when your dashboard begins to look like Close Encounters.

A sure sign of a neglected old BMW is the row of LEDs glowing on the dashboard to remind you just how overdue that service is. When BMW first came out with its innovative system, there was much head-shaking and beard worrying, as envious Cavalier drivers pointed out how the system was designed simply to force you to the main dealer every 12 months because they were the only ones who had the computer to extinguish the lights.

They probably had visions of a giant Harris mainframe, tended by men in white coats. But the reality, of course, was that the rest of the motor industry rapidly caught up with the car designers and it wasn't long before every garage could afford a reset tool. And those that couldn't, quickly discovered that earthing one of the pins in the diagnostic socket would do the job just as well.

Everyone was happy for a few years until owners started discovering that the lights either couldn't be extinguished at all or would simply come back on again soon after. If this happens to you and the self-styled experts tell you it's because you used a piece of wire to reset the lights instead of the proper reset tool, tell them they're wrong, because the official explanation is more complex.

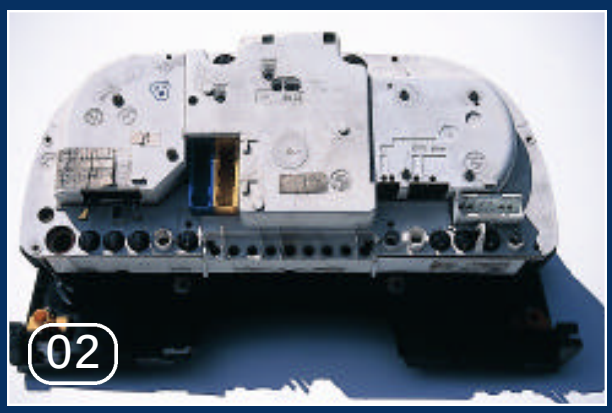
In E28 5-Series, E30 3-Series and E34 520i and 524td cars, the service light system uses two rechargeable nickel-cadmium batteries to buffer the memory when the car's battery is disconnected. These two batteries are soldered to the circuit board but only have a finite life, and when they fail, the display memory cannot be retained and the lights illuminate as soon as they're reset.

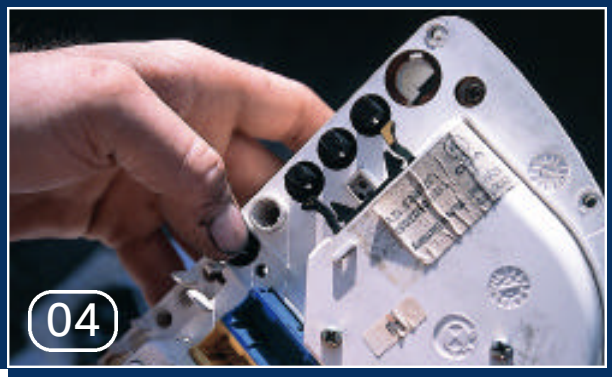
The official BMW cure for the problem is, of course, to swap the complete printed circuit board for a replacement board which uses longer-lived lithium batteries in place of the NiCd items. We covered the circuit board swap in our October 2001 issue, but if you're pretty handy with a soldering iron then it's a simple job to remove the NiCd batteries from your service light board and solder new ones into place.

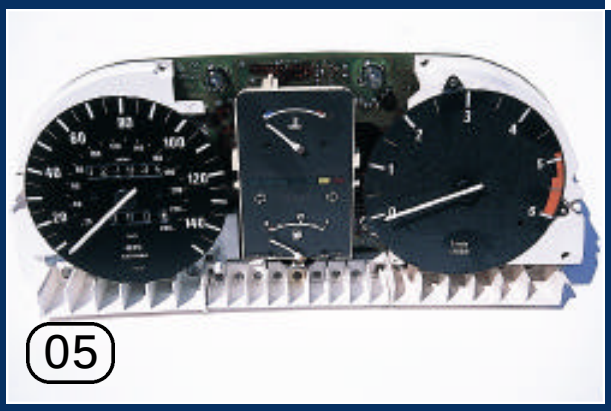
We completed the task on an E28 5-Series but the procedure is broadly similar on most models affected by the problem. See what's involved and put those lights out for good.

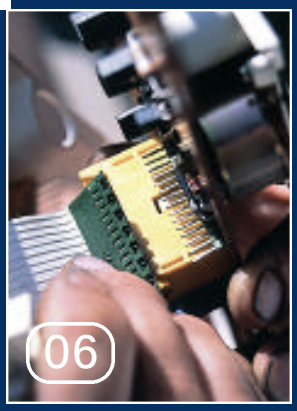
Words: Paul Wager
PHOTOGRAPHY: MICHAEL WHITESTONE

HANDS ON









1 First step is to remove the instrument cluster from the car. Your workshop manual will tell you exactly how to do this, but on the E28 it's simple. Just use a fine crosshead screwdriver to remove the two screws under the top edge of the instrument cowling and then a large screwdriver to prise the top edge downwards until the unit pops out. Wiggle it forwards and the electrical connectors will be exposed.

2 Remove the electrical plugs after using a small screwdriver or fingernail to flick up the retaining catches in the centre of the plug body. Here we're showing the cluster removed from the car so that you can see where the three plugs are attached. Once the wires have been unplugged, you should be able to wiggle the entire cluster out of the car. Contrary to what some of the manuals suggest, you don't need to remove the steering wheel. If you've got the adjustable column then pull it out as far as it will go and then turn the wheel slightly to allow the instrument cluster to slide free of the dashboard.

3 With the cluster out of the car, you'll need to unscrew the casing, which is held together with these crosshead screws around the outside edge. Once you've removed these, the casing can be separated to reveal the circuit board which holds the instruments.

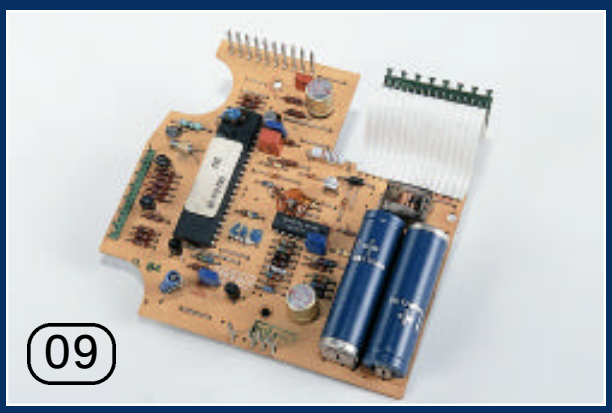
4 Gently pull the two halves of the white plastic casing apart. It's generally pretty stiff but if it won't detach with sensible hand pressure, then you've probably missed some of the screws.

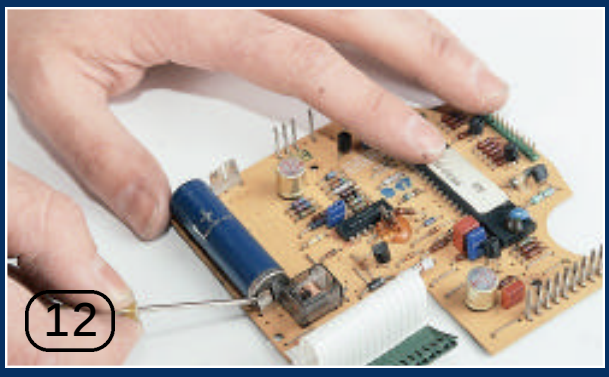
5 With the casing separated, this is what you'll have. Take care not to catch the needles of any of the dials in your sleeve, as they're pretty flimsy and if you bend them, they're ruined.

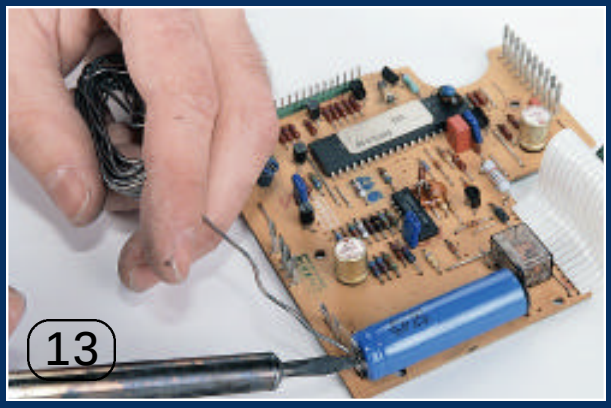
6 The service light board is hidden behind the main circuit board which holds the fuel/temperature gauge, but this can't be removed until the speedo and rev counter have been. They actually plug into the main circuit board, so simply pull them gently upwards to unplug them.

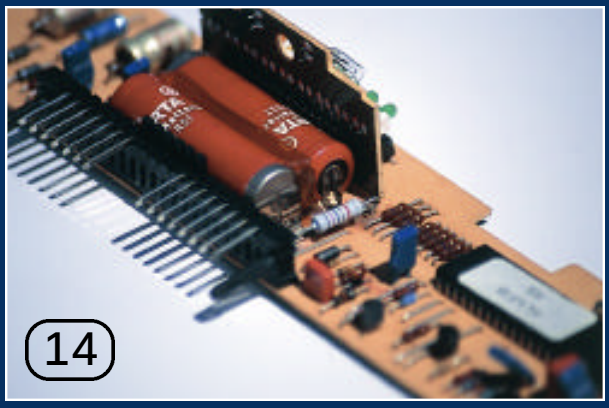
7 With the speedo and rev counter out of the way, the main circuit board can be lifted away to expose the service light board, but you'll need to unplug the ribbon cable connector for the fuel/temperature gauge. Be careful with this and if necessary, use a small screwdriver to prise the connector free rather than strain the ribbon cable.

8 Now you can get to the service light board itself. Remove the two securing screws and it can be lifted away.









9 And here's one we removed earlier, which explains the different coloured batteries. You'll see that not only are the batteries soldered to the circuit board but they're glued in place too. Luckily this glue is normally brittle with age and doesn't make it difficult to remove them.

10 Take a good look at the circuit board for damage. When the NiCd batteries fail, they have a habit of leaking their acid, which is absorbed by the circuit board itself. What you're looking for is this kind of corrosion and discolouration and if it's really bad then there's a chance that the circuit board may well be past repair.

11 Now for the new batteries. Don't just try and solder in a pair of rechargeable AA batteries from your TV remote, because they won't last five minutes and the chances are you won't be able to solder to them anyway. We bought these 1050mAh AA-sized NiCds from Maplin for £2.49 each and they're designed specially for a job like this, with welded tags on each end which can be soldered to a circuit board. The original Varta batteries were only 600mAh capacity so the new ones have nearly twice that. This means they should last longer.

12 The tags supplied with batteries like these are actually fixed to the batteries themselves with tiny spot welds and you can't generally solder straight to the end of a battery. So rather than mess about trying to de-solder the tags from the circuit board itself and then solder the new ones into place, use a small screwdriver to break the original tags away from the old batteries.

13 Leave two plain tabs sticking up from the circuit board, to which you can easily solder the tags on the new batteries. Fold them over carefully and you'll be able to make a neat job of it.

14 This is the service light board found in the E30 cars. It's a different shape but the procedure is pretty similar and the soldering job is the same.

What It Costs

1050mAh NiCd batteries	£4.98 per pair
Maplin Reference	VN39N

Contact

Maplin	0870 2646000
RS Components	01536 201201