

oily Bits

The Rover 'Icelert'

Bill Marshall installs a rare optional extra in his 3500...

Soon after buying my P6, I began reading up on the history of the car. One of the things that struck me was how many 'extras' were fitted as standard to the American or 'Federal' models. One device in particular interested me: the Icelert. This electronic unit warns the driver that the outside temperature is approaching zero and hence that black ice may be forming. Very few UK owners seem to have specified this option and I found it difficult to get hold of one; perhaps the 1972 price of £8.40 plus fitting seemed too steep. I finally picked up a supposedly tested second-hand unit at the recent NEC show, with no instructions included of course.

In a grotty plastic bag were two units: the stainless steel sensor box with front grille mounting bracket and a plastic 'control panel' which replaces the short section of wood-effect Formica trim next to the main instrument console inside the car. Both looked as if they had been languishing in the open for years but they cleaned up well. Each unit has a short section of wiring loom with four colour-coded wires each terminated in a standard bullet connector. The first job was determining how to connect everything together to see if it worked. I guessed at the connectors as shown in Fig. 1, but decided to dismantle the sensor box first to look at the circuit inside and make sure! If you have a non-functioning unit and need to take the box apart I suggest you proceed in the following manner:-

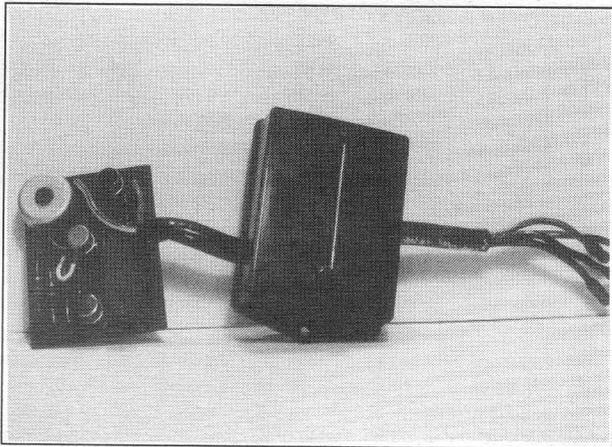
1. Remove the two Nylok nuts on the back of the unit. This releases the mounting bracket and allows the plastic backplate to be withdrawn from the steel case. It leaves two threaded pillars inside the case secured by the cross-head screws visible on the front. It is up to you whether or not you attempt to undo these screws: if they look rusted in then leave well alone. If you can remove them by gripping the square-section pillars with pliers and using

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the correct size screwdriver, then it makes access to the temperature trimmer control easier once everything is back on the car.

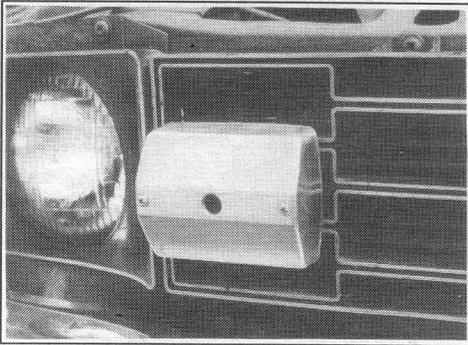
2. A plastic box secured by two BA bolts to the inside of the backplate, contains a Printed Circuit Board (PCB). Remove these bolts and separate the backplate from the box.
3. The next bit is tricky and only recommended if the fault is known to be in the box. Check the lamp first! The PCB is a push-fit in the box and needs to be eased out carefully. Warm the box on a radiator to soften it first. While you ease the PCB out, gently push the sensor transistor inwards. The latter projects through a hole in the box front protected by a piece of wire clipped on to the moulded posts. The sensor is connected to the PCB by three very thin sleeved wires and you may find that these have corroded through. Extracting the sensor may well break these wires.

The circuit is amazingly simple considering what it does; the lamp starts to flash when the temperature falls to 34°F (1°C). As it gets colder the lamp stays on for longer until freezing point 32°F (0°C) is reached at which it ceases to flash and stays lit. All done with three transistors (one of which acts as the sensor) and few resistor and capacitors! I decided to look up the original patent as a patent number is moulded into the baseplate: 27134/61. This is the original application number filed in 1961. The full British patent number is 1,036,104 for the complete specification published in 1966 by the manufacturer Findlay, Irvine Ltd. A copy of this specification confirmed the basic circuit I had traced by hand and details how it should function. If, as in my case, the sensor wires have corroded through then you have a



The bits you can't see!

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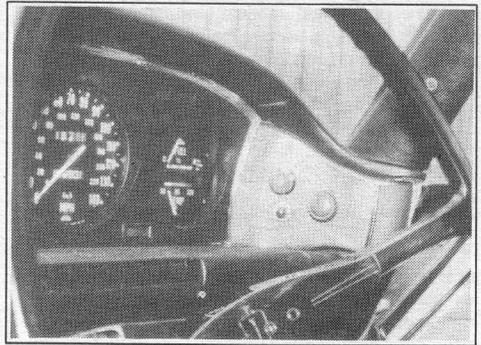
The grille mounted 'Icelert' sensor

major problem. The sensor is a "Germanium PNP" transistor (for those still interested!) and these are rather hard to come by nowadays. I happened to have a small stock of them, being an electronics engineer. With a new transistor soldered in, I connected up a 12 volt supply and cooled the sensor with a quick blast from a can of 'Freezer' spray. It worked!

I now had a functioning unit, but a 'mechanical' problem remained: the control panel was shaped for a left-hand drive car. A new right-hand drive panel was fashioned from a piece of thin aluminium sheet and painted with black stone-chip paint. The finish is almost identical to the original textured vinyl. The wiring was connected up as shown in Fig 1. with the black wire screwed to a suitable earth point and the

Green lead attached to an ignition-switched supply. Once bolted to the car, the only thing that remained was to calibrate the unit. I waited for a frosty morning when the outside temperature was at freezing point. Remove the two crosshead screws from the front of the unit and take off the steel case. There should be a strip of black plastic tape covering a small hole in the front of the plastic box. Remove this and using a small screwdriver, adjust the screw visible through the hole until the lamp just stays on at 32°F. Replace the tape and the case. That's it!

In use, note that the test button not only confirms that the bulb works, but that virtually all of the circuit is working. The need for the lamp dimmer knob becomes apparent on frosty nights when the flashing light gets a bit distracting. I noticed recently that an ice warning light has re-appeared in the new Rover 200 accessory catalogue!



Bill's neat home-made dash mounting.

