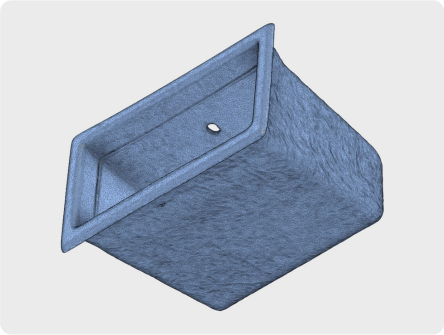
CASE STUDY

Adding USB charging to a Lotus Esprit oddments box

> A drop-in oddments box with a modern USB charging socket, made so the car's original box stays untouched and the console can go back to standard at any time.

The Lotus Esprit SE has a small oddments box in the centre console, just below the heater controls. On the SE it's a plain storage tray; later S4 models have a cigarette lighter there. This owner wanted to charge a phone in the centre of the car, but the S4 box is no longer available, and they had found no second-hand one. Just as important, they wanted to keep the original box exactly as it was, with no drilled holes and nothing bonded to it, so the console could be returned to standard at any time. Starting from a scan of that box, we designed a new one that fits the same slot and carries the socket instead.



The original oddments box, captured with a 3D scanner. Its single wide opening has nowhere to mount a socket.

The challenge

The new box had to slot into the console in place of the original, with no changes to the car, while holding a socket the original was never designed for:

- the flange that sits against the console face;
- the two tabs and the screw hole that locate and fix it in place;
- a flat panel to mount the socket, without giving up too much storage space.

Our approach

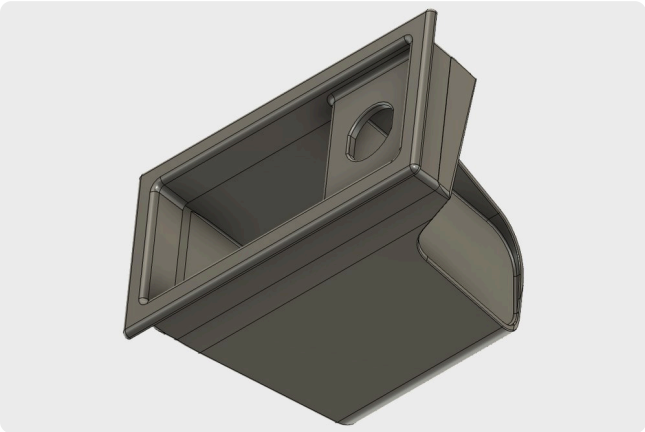
01 **Scan and measure.** We 3D-scanned the original box and used the scan as a measuring reference for its shape, flange and fixing points. The charging socket was measured with a vernier calliper.

02 **Redesign around the socket.** We modelled a new box in professional CAD, keeping the original's flange, tabs and screw hole. One end of the opening became a recessed panel with a 29 mm hole for the socket, and the storage bay was narrowed to make room for it. We also designed a textured mat for the base, printed in flexible TPU.

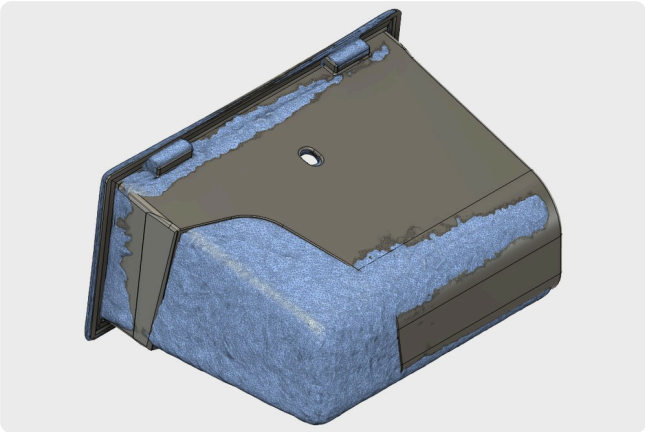
03 **Check the fit.** We laid the new model over the original scan to compare them where the box meets the car, then printed it and test-fitted it in the car.

Checking the fit

Laid over the original scan, the new model follows it closely around the flange and fixing points, where the box meets the car. Elsewhere the two differ on purpose, because the new design changes the shape of the box to make room for the socket.



The new digital model, with the recessed socket panel at one end of the opening.



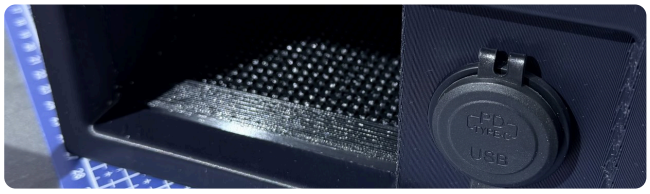
The new model (grey) laid over the original scan (blue). Where the two mix, they closely match.



The finished box in tough, UV-resistant carbon-fibre-filled ASA (ASA-CF), fitted below the heater controls with a USB cable plugged into the new socket.

The result

A drop-in oddments box that fits the console's existing slot like the original and holds a USB charging socket, so the owner can charge a phone in the centre of the car. The original box is left untouched, so the car can be returned to standard whenever the owner chooses. Because the new box exists as a precise digital model, another can be printed on demand.



A textured mat for the base of the box, printed in flexible TPU.

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