

Application Example: 3D Scanning, Reverse Engineering, 3D Printing

LHD to RHD Conversion of BMW Z8 using 3D Scanning and 3D Printing

Measuring/Manufacturing Systems: ATOS Core MV500, UP Box

Keywords: 3D Scanning, 3D Printing, Reverse Engineering

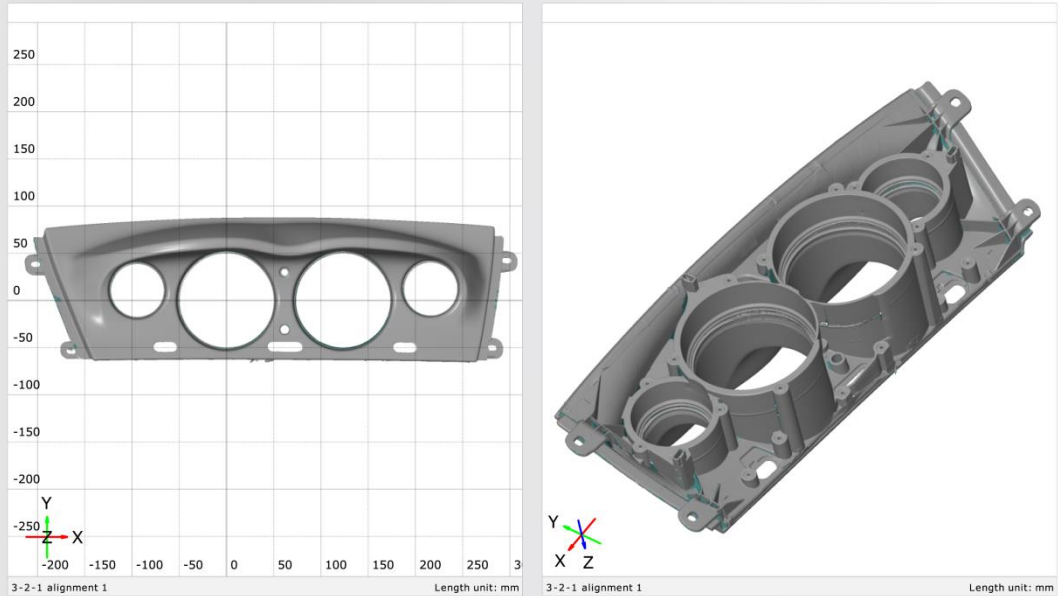
Importing exclusive luxury cars to drive on Melbourne roads has most new owners investing first in a RHD conversion. 3D scanning and printing is making this process far quicker and efficient than previous methods. Motorcars International specializes in exotic conversions and contracted Scan-Xpress to remanufacture one of the dash panels for the iconic BMW Z8.



To begin with the RHD instrument panel was removed from the car and 3D scanned using the ATOS Core MV500. The high resolution scan data provided a perfect platform to create the LHD conversion.

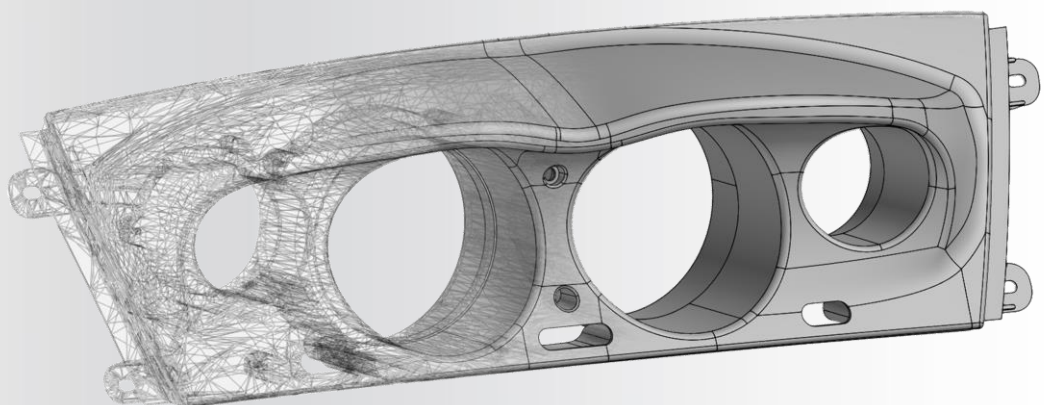
SCAN-XPRESS

EXCELLENCE IN 3D MEASUREMENT



Essentially the converted instrument panel was a mirror image about Y axis such that the gauges pointed towards the new driver position. This was simple enough however it was important to retain the same mounting fixtures in order to ensure the part would fit into the existing dash board assembly. Likewise the fastening holes for the gauges needed to remain in their correct orientation (mirroring these would result in the gauges being installed backwards). This called for some careful manipulation of the scan data to ensure the right modifications were made whilst maintaining compatibility with the original vehicle.

The modified scan data was then reverse engineered using Geomagic Design X to create a smooth parametric CAD model. This process ensured that any imperfections on the original part which were captured in the 3D scan were not retained in the final model.



SCAN-XPRESS

EXCELLENCE IN 3D MEASUREMENT

The CAD model was then discretized into three separate components, each of which could fit into the 255 x 205 x 205 mm (WxHxD) build volume of the UP Box 3D printer. The parts were then printed using ABS plastic with a 0.1 mm layer thickness in order to accurately reproduce the free flowing smooth curvature of the part.



Finally the parts were chemically welded together using acetone. The gauges were temporarily installed to ensure that the part was geometrically accurate.



SCAN-XPRESS

EXCELLENCE IN 3D MEASUREMENT

Shown below is the original LHD instrument panel (left) and the modified 3D printed RHD instrument panel (right).



After installation a leather trim will be applied to the instrument panel.

Scan-Xpress would like to thank Motorcars International for us to contribute on such an interesting project.