Reverse engineering and additive manufacturing of engine housing

Markku Lindqvist, Juha Kotila

Delva Oy

Additive manufacturing, metal, 3D-scanning, reverse engineering

Abstract

Additive manufacturing can provide a practical industrial solution for reproducing components as spare parts. Limiting factor in this can be the lack of 3D-model, which is always needed. This study presents a workflow that integrates 3D-scanning, reverse engineering/modelling, material selection, manufacturing and post processing a functional spare part assembly for engine housing in multi material application. Results demonstrate the viability of additive manufacturing in discontinued spare part manufacturing for industrial use. Benefits in this application is also a shorter lead time and cost savings. Design can and was also be updated slightly to allow easier maintenance operations. In the future, also other improvements for easier manufacturing can be made. This study provides a real use case and a good look at how to utilise available technologies in the future applications, and this workflow has also been used in other spare components.