

PREFIX

excellence is expected.

Prefix Corporation

Use Case – Decal Locating Fixture

Customer Profile

Michigan-based Prefix Corporation is a leader in the development of prototype designs, mock-ups and concept validation for the automotive and aviation industries, as well as others. Prefix uses this expertise to help businesses assess the feasibility of emerging technologies, gauge customer interest and prepare for production.

Challenge

A Prefix customer needed a tooling fixture used to apply automotive decals redesigned due to several problems inherent with the existing configuration. The original tool was a multi-piece assembly made up of machined aluminum and nylon, making it sub-optimal for several reasons:

- Considerable weight (15 – 20 lbs. depending on vehicle) causing operator fatigue
- Dimensional inaccuracies from tolerance stack-ups inherent with a multi-part assembly
- Vehicle damage due to difficulty in handling
- Excessive time to make and assemble

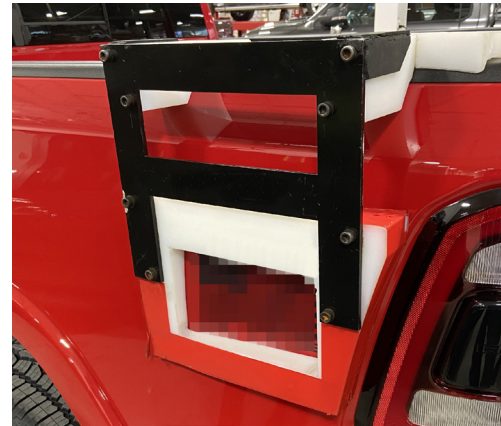
Solution

Prefix engineers redesigned the tool so it could be 3D printed, leveraging the technology's design freedom and lighter materials. The tool was printed using a Stratasys F770 large-format printer, taking advantage of its large 13 cubic-foot build volume. This provided the capability to make the bulk of the tool as a single part and use off-the-shelf handles, avoiding the need to make and assemble multiple pieces.

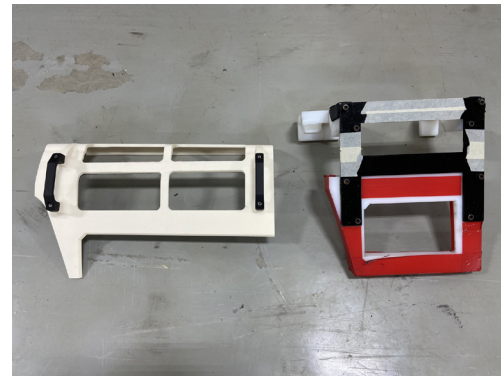
Impact

3D printing the redesigned tool using a Stratasys F770 provided several key benefits:

- Over 70% weight reduction affording much easier use
- Single-piece design with accommodation for stock handles, avoiding assembly
- Elimination of positioning inaccuracies from tolerance stack-ups
- Significantly reduced chances of vehicle damage
- Accurate decal placement from better tool positioning due to a more effective design
- 100% first time quality results achieved using the fixture on over 100 units



The previous tool configuration shown on a vehicle.



The old multi-part tool on the right, the 3D printed tool on the left.

Weight Reduction



73%

In-Use Quality Results



100% on
over 100 Units