

Case Study

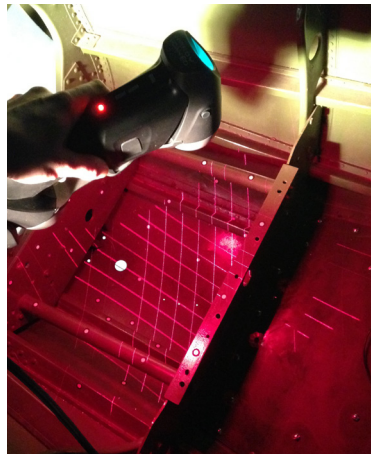
TBM Avenger aircraft counterbalance fabrication

3D Scanning | Reverse Engineering | CAD Modeling | Fabrication

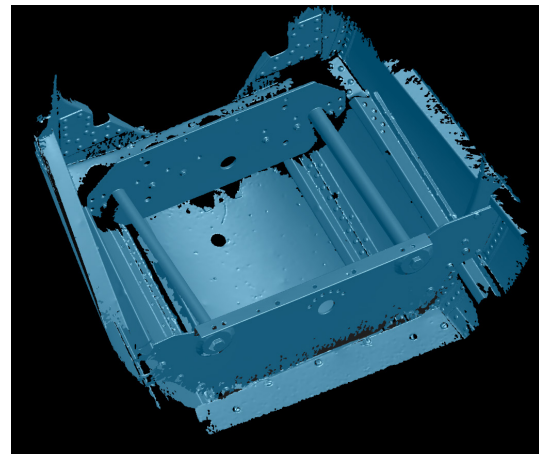
- Problem:** Removing original equipment, like machine guns and ammo, from the aft belly machine gun on a TBM Avenger made a noticeable difference in flying characteristics.
- Proposed solution:** **Add a counterbalance to an open area in the same vicinity, as identified by a maintenance director.**
- Question:** How to measure a complex space in order to fabricate an exact-fitting steel container in a short time frame?
- Answer:** **Use 3D scanning**



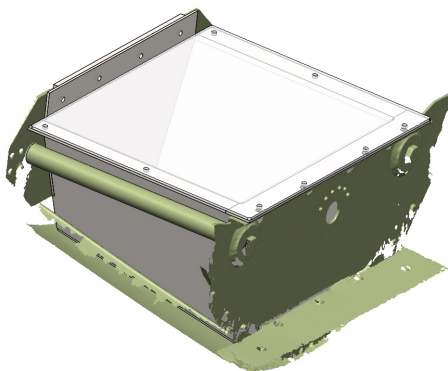
Utilizing portable hand-held 3D scanning allows for scanning on-site and easily reaching inside of hatches.



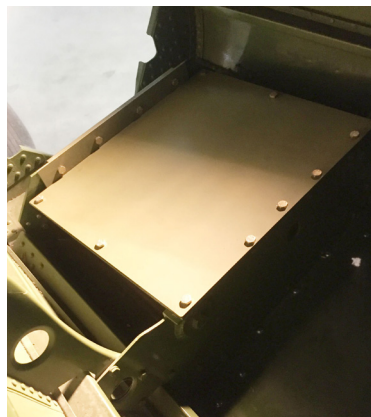
The seven lasers emitted from the scanner generate 480,000 measurements per second over the targeted area.



Three dimensional scan results include all of the critical details like the clearance for structure and contour of the fuselage. Also included are hole centerpoints to utilize existing mounting options.



The scan reference provides excellent, accurate and detailed reference for generating a CAD model for fabrication of a steel container for lead weight.



The finished fabricated weight container installed on the first attempt. No re-work due to incorrect dimensions.

PROJECT BENEFITS USING 3D SCANNING

- Quantity of design and fitment errors are greatly reduced compared to traditional means of measuring.
- Volume of available space was maximized from accuracy of scan.
- Time to fabrication greatly reduced by producing CAD model faster.
- No re-work of fabricated part - perfect fitment on first attempt.
- Estimated time savings compared to traditional means of measuring and designing: 8-12 hours.