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AIRCORPS AVIATION

Dakota Territory Air Museum's P-47 Update

by Chuck Cravens



The wings have been fitted to the fuselage, a major milestone for the restoration.



www.dakotaterritoryairmuseum.com



Update

Five years ago, in April of 2016, I began writing updates on the P-47D-23-RA AAF serial number 42-27609, though much fabrication and other preparation work preceded the first update.

Once assembly began, the horizontal and vertical stabilizers were first. Actual parts in fixtures began for those in June of 2016. In early 2018 the main fuselage began to take shape in its fixture.

Most work in the restoration shop was on the fuselage from then until the guys began assembly of the wings. July/August 2019 was the first update to show parts (the spars) fitted to the wing fixtures. The wings came out of the fixtures and were fitted to the fuselage this month.

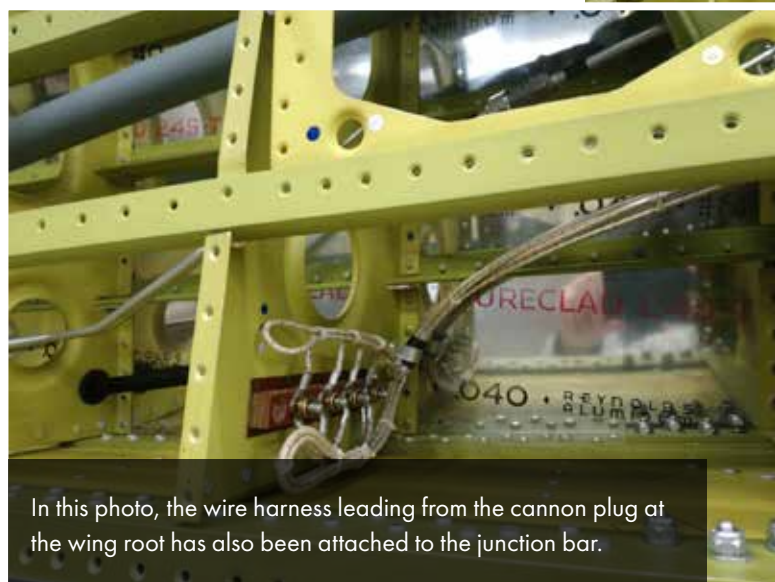
So, a little over a year and a half after starting wing assembly and five years from the first work in the restoration shop, joining those major assemblies to the fuselage was a big event for AirCorps Aviation.

Preparing the Wings for Removal From the Assembly Fixtures.

Over the last few months, the visual changes haven't been very apparent because they were mainly systems installations inside the wings. To prepare the wings for removal from the fixtures, the systems tasks had to be completed.



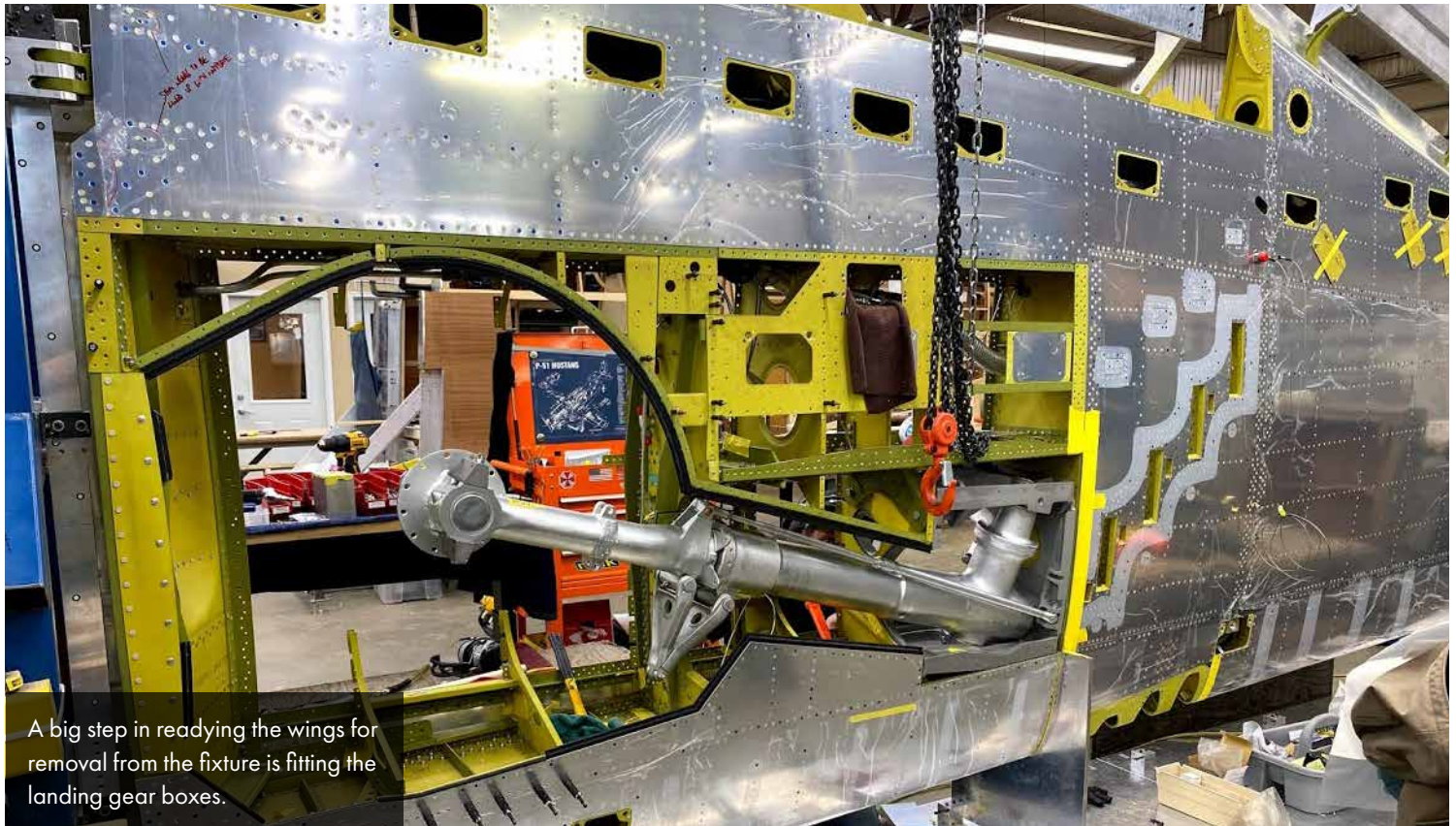
The brown junction bar has wires that lead to the pitot heat and wing tip lights attached.



In this photo, the wire harness leading from the cannon plug at the wing root has also been attached to the junction bar.



The dome shaped cover is the back of the landing light, the round object with wires connected to it near the right side of the image is the landing light relay.



A big step in readying the wings for removal from the fixture is fitting the landing gear boxes.



The right side landing gear swung into the down position.



This is the left side gear, which is much more difficult to find in restorable shape than the right side gear.

The Wings Come Out of the Fixtures



The left wing is being removed from the fixture and placed onto rolling dolly fixtures.





A view from the other end of the completed wings.

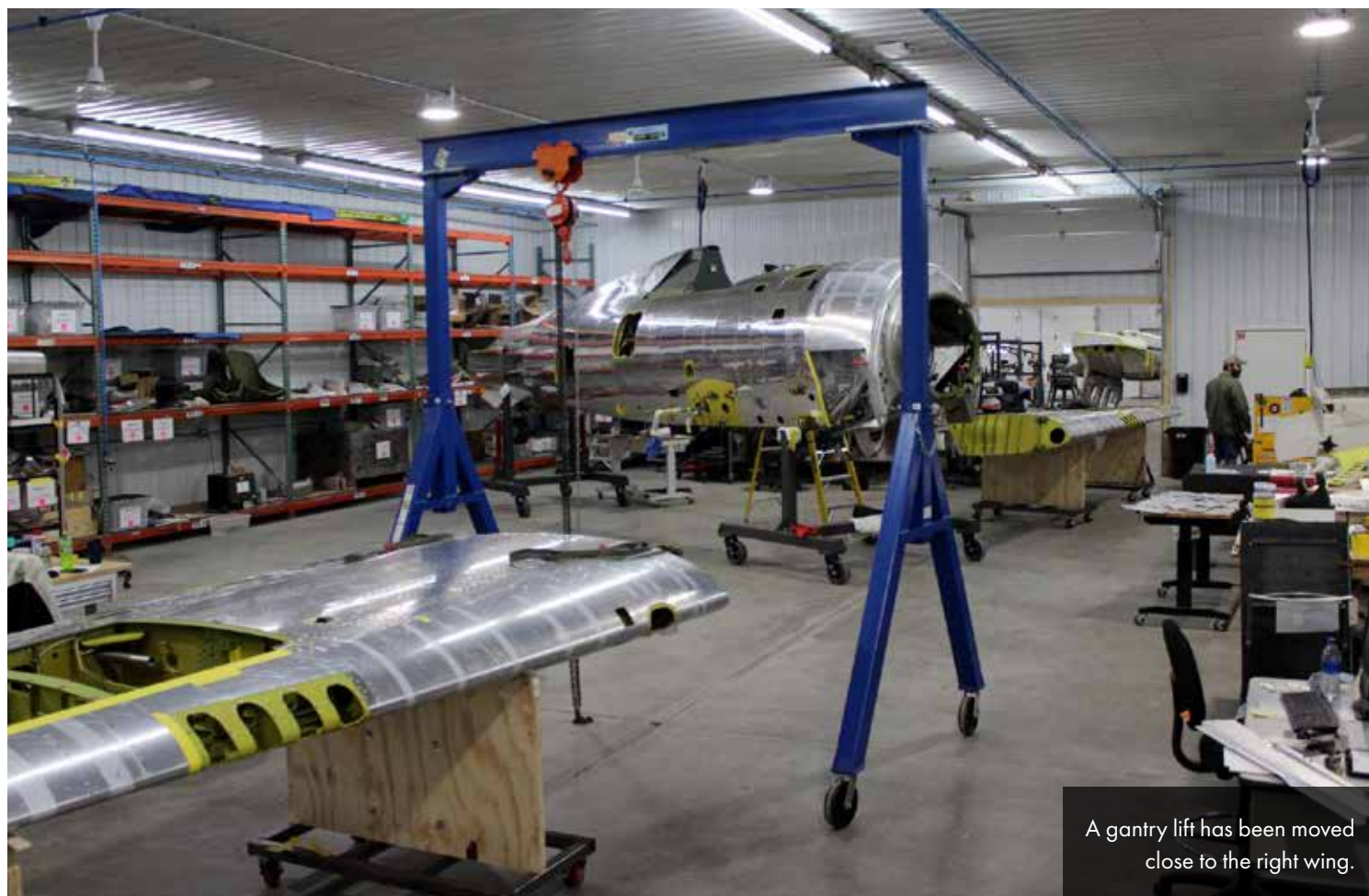


The Wings are Fitted to the Fuselage for the First Time

The significance of this step in the restoration process is that the complexity of the P-47 wing design makes absolute precision in the wing and fuselage attachment points necessary for the four different points on each side to line up properly.

As general manager Erik Hokuf explains, the Republic wing attachment design is more complex than that of the P-51. If the fit isn't perfect, major work would have to be done on the wing and fuselage attachments and that would delay the restoration finish by a substantial amount of time.

The great care taken all through the process of assembling the wings and fuselage up to this point paid off as the attachment points slid smoothly into place with no issues.



A gantry lift has been moved close to the right wing.



Chad (left) and Randy plan how to proceed with this all important step.



The fuselage in its rolling fixture, ready for the wings. Notice the shine of the mill run, unpolished aluminum skin.



The ammunition bay opening is visible on the left wing as it rests in the movable dollies.



The guys move the right wing toward the fuselage.



The aileron control rod is the first of several connections that have to slide into the wing as the process proceeds.



The cannon plugs that connect the fuselage wiring to the wing wiring harness are visible here.



The wing is slowly moved in closer in small increments as everything is aligned properly.



The holes in the wing attach fittings have to precisely line up.



As each component is aligned, the wing is pushed closer and closer to its connection with the fuselage.



Chad lines up the large, machined, temporary wing retaining pin. Even though these are just temporary for the fitting, they had to be made with close tolerances.



The moment of truth.

Because each wing has four attachment points and the precision required to line up the four temporary retaining pins; everyone feels a little pressure, even though they know they'll fit. These pins will be replaced by the permanent wing bolts at final assembly.



The upper rear right wing temporary retaining pin is in place.



Here is a close view of one of the two forward temporary retaining pins. There are upper and lower forward pins, and upper and lower rear pins on each side.





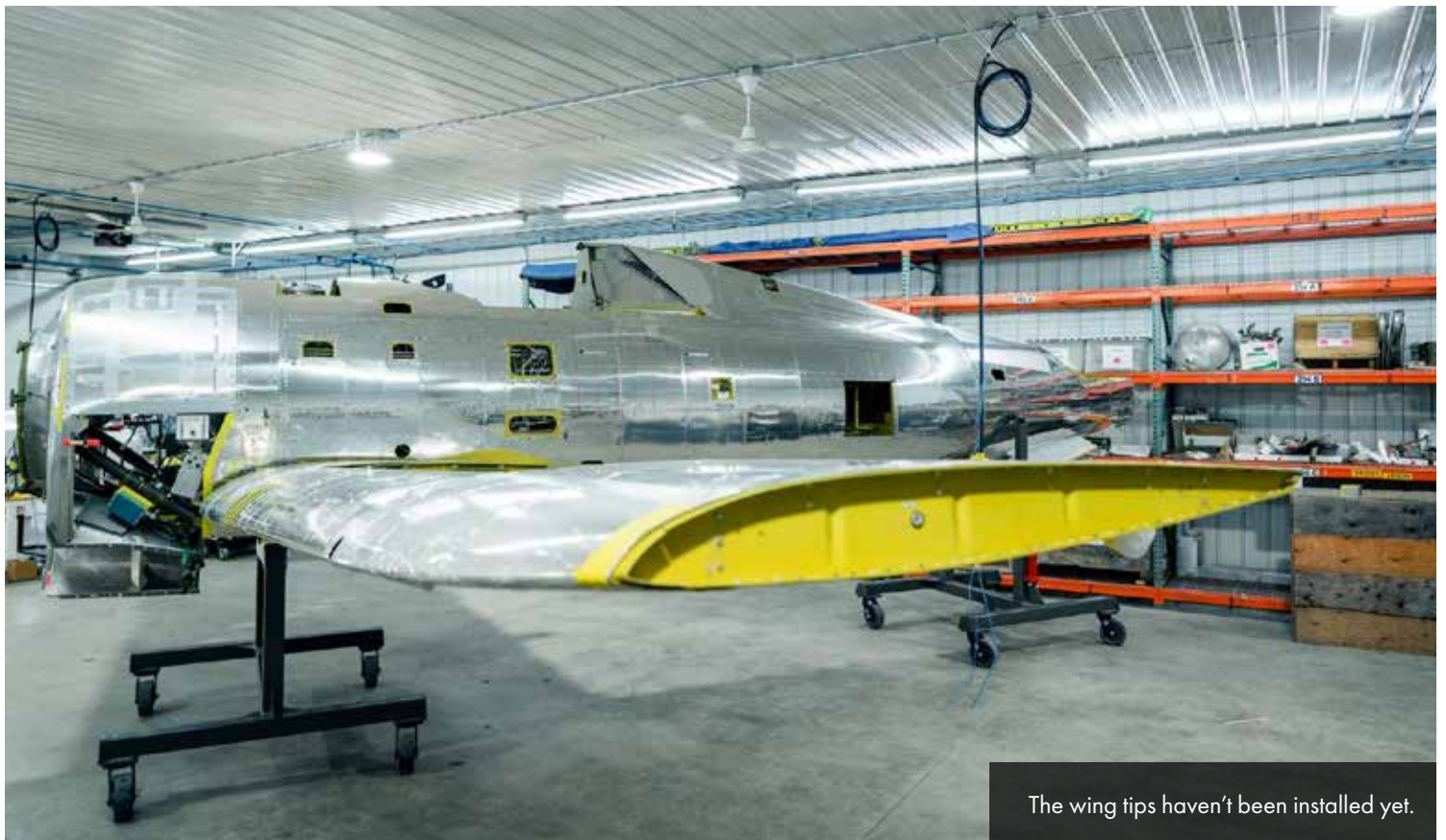
Here is an angle from the forward right side.



A closer view shows the open accessory section behind where the R-2800 will go.



Here is a similar view from the left side.



The wing tips haven't been installed yet.



The larger openings on each side of the lower secondary cowl are shrouds for the oil coolers.



The oil cooler shrouds show from the front along with the oil tank and many accessories behind the engine mount ring.



The assembly surrounding the green ring that is the front of the engine mount is called the preheater.



The gear wells and gun openings are clearly visible in this photo.



Near the wing root are the ovoid opening for the cabin air intake and the rectangular gun camera opening.

As restoration specialist Randy Kraft said, it is a great feeling to reach this milestone in the restoration of such a historically significant, rare warbird. "It went really nice, it is always a concern that everything fits and we are able to just slide the fixture pins in."

Randy and the other restoration specialists have started on the control surfaces. The rudder, elevators, ailerons and flaps all will be assembled in the coming weeks.