JULY/AUGUST

Dakota Territory Air Museum's P-47 Update

by Chuck Cravens

AIRCORPS AVIATION

DAKOTA TERRITORY AIR MUSEUM

The rectangular notch in the skin on the fuselage side in this image is the hole for the exit door that controls the intercooler cooling airflow.

Update

Our P-47 restoration continued in late July and early August despite the busy times surrounding AirVenture in Oshkosh, WI. While some of the AirCorps folks were in Oshkosh displaying Lope's Hope 3rd, others were hard at it on the P-47. The progress on the upper fuselage was remarkable to see after being away for a couple weeks.

Clarification

To clear up any confusion about the logo change on our updates and correct some speculation, Texas Flying Legends Museum (TFLM) in Houston and the Dakota Territory Air Museum (DTAM) in Minot, ND, have been sister museums since TFLM was established in 2010. DTAM was established in 1987. Both museums have shared in the operation and display of the TFLM collection for eight years. Both museums have also shared two major donors, one of whom has decided to step back from the warbird industry to contribute to another foundation.

A few of the warbirds have been, or are being, sold. The remainder of the collection, nine airworthy aircraft,will continue to be maintained, operated, and displayed by DTAM in Minot, ND. These planes include a Normandy invasion veteran Spitfire Mk IX, P40E, FM-2 Wildcat, C-47/C-53 Skytrooper "Duchess of Dakota", Harvard Mk IV, P-51C "Lope's Hope 3rd", P-51D "Little Horse", Iwo Jima veteran Stinson L-5 Sentinel and an F8F Bearcat recently emerging from restoration by Ezell Aviation in Breckenridge, TX. www.ezellaviation.com

The museums have always had a commitment to not only campaign flying warbirds, but also to bring them back to life. To this end, they have a long standing, close working relationship with AirCorps Aviation based in Bemidji, MN. AirCorps has completed two award-winning projects for DTAM so far – the Harvard and the P-51C "Lope's Hope 3rd".

DTAM currently has two other projects in progress with AirCorps, this P-47D Razorback and a P-38, both Pacific theater veterans. They also have a Hurricane being finished up next year by Ray Middleton in Fort Collins, CO and a P-51D Mustang expected to fly next year after restoration by Casey Odegaard in Kindred, ND.

For eight years these owners, pilots, and crew have given us the gift of displaying their aircraft throughout the U.S. They have tirelessly moved aircraft and engaged enthusiasts, honored veterans from all service branches, and flown for both President George H.W. Bush and the Air Force Academy. Most importantly, they have honored our greatest generation while inspiring our future generations.

DTAM will be updating its website later this winter so you can come back and check the site for more information at that time: www.dakotaterritoryairmuseum.com. **Thanks for your continued interest.**

Close Quarters

This month, considerable work was done inside the fuselage frame. On a P-47, the spaces aren't that closed in compared to other warbirds like Mustangs, Spitfires, or Warhawks.

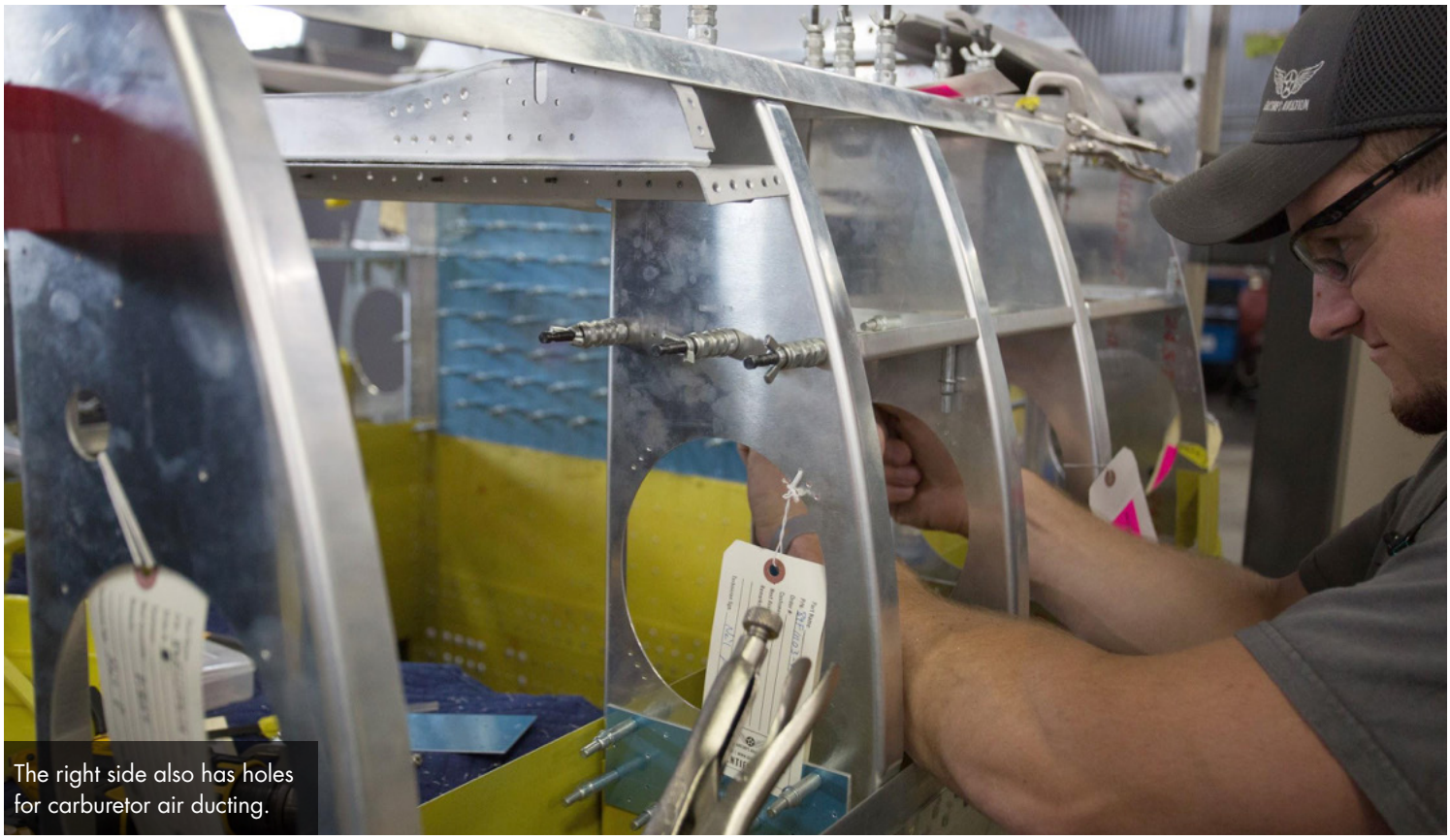
Matt works in the narrow section near the aft end of the forward fuselage section.

Dave works in the main fuel tank bay space.

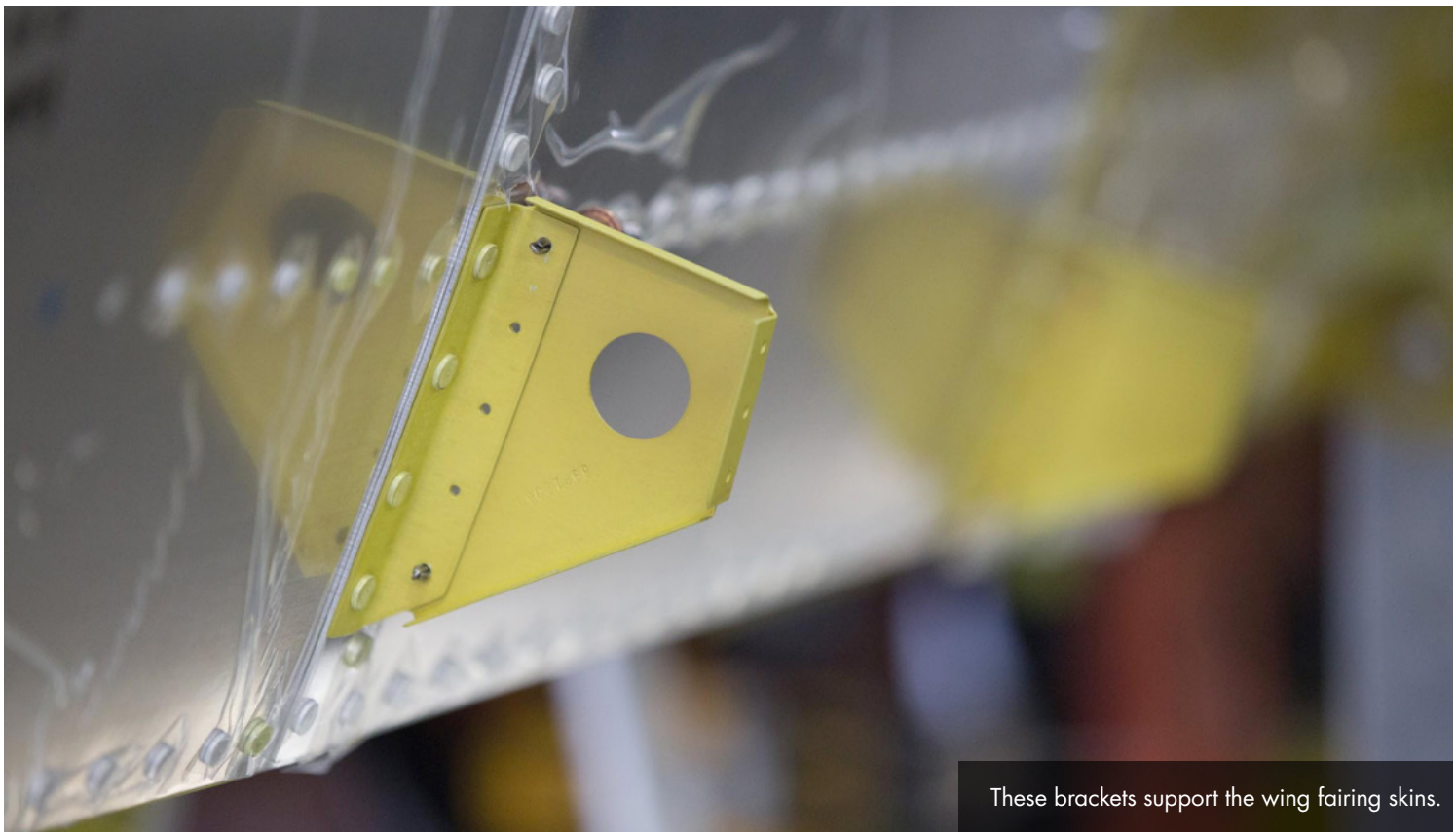
Matt is in the turbocharger area.

One of the guys works on an upper fuselage former located just behind the firewall.

The same left side forward fuselage formers showing the circular holes for the carburetor air ducts that return compressed air from the turbocharger via the intercooler.

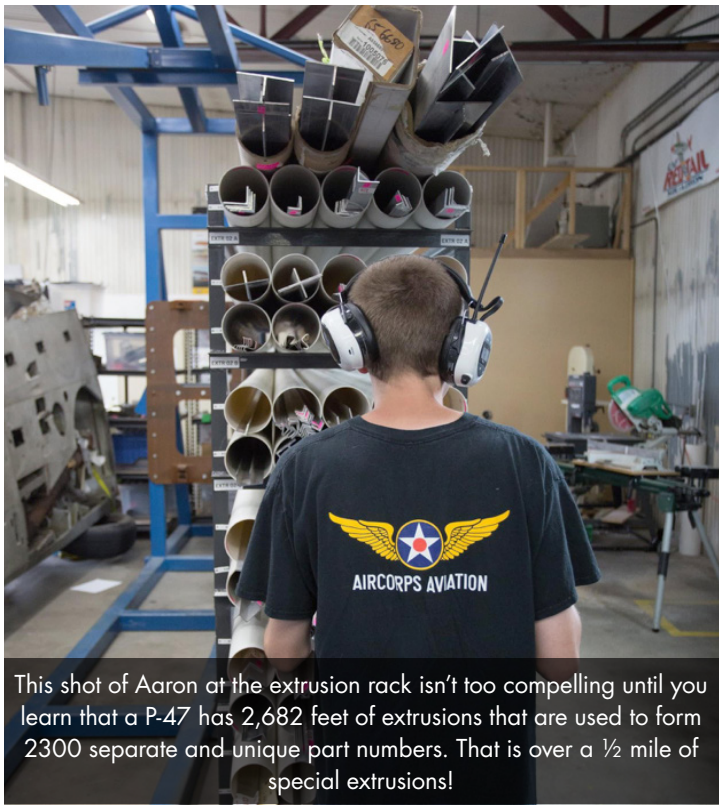


The right side also has holes for carburetor air ducting.



These brackets support the wing fairing skins.

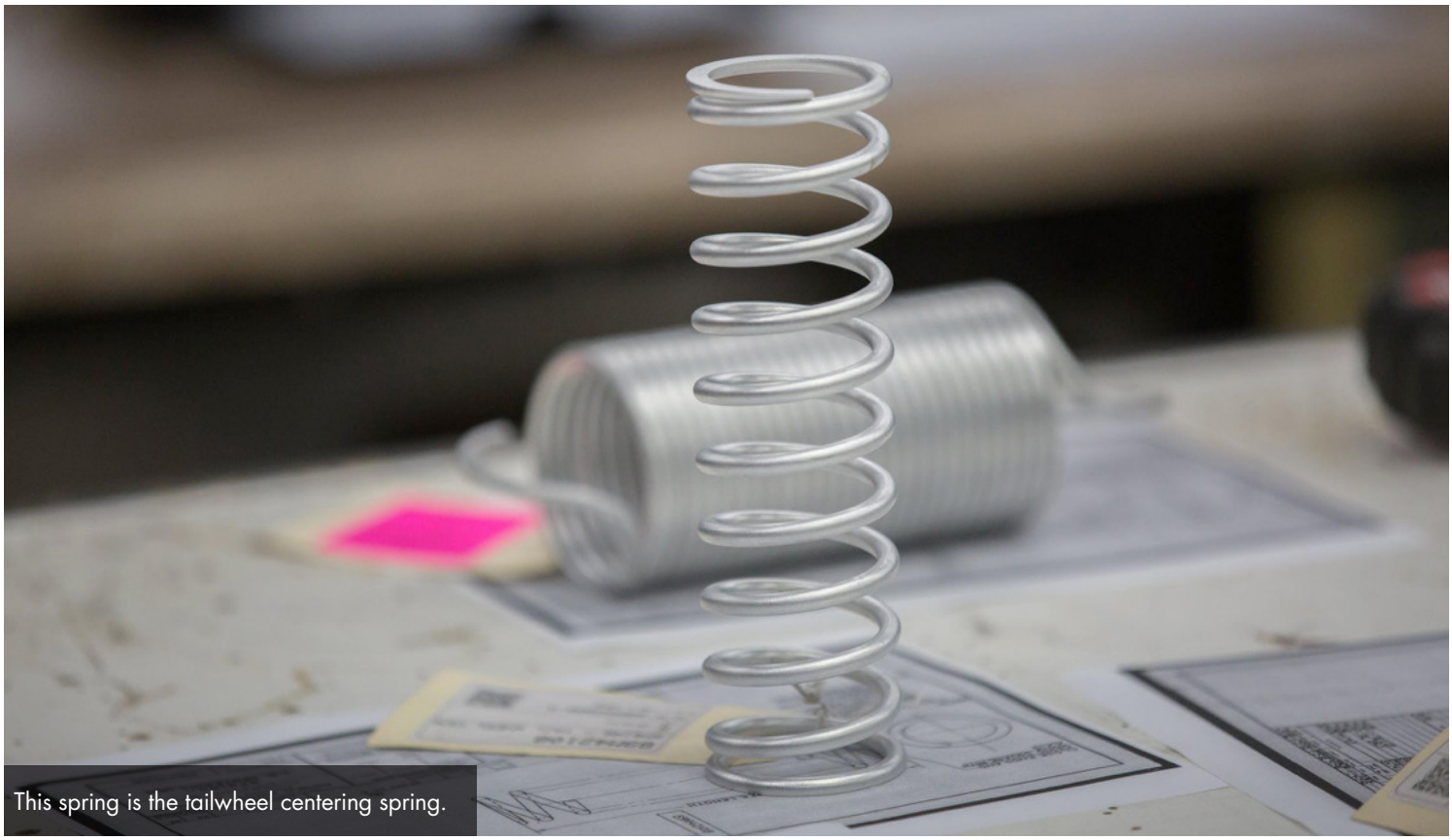
Parts Preparation



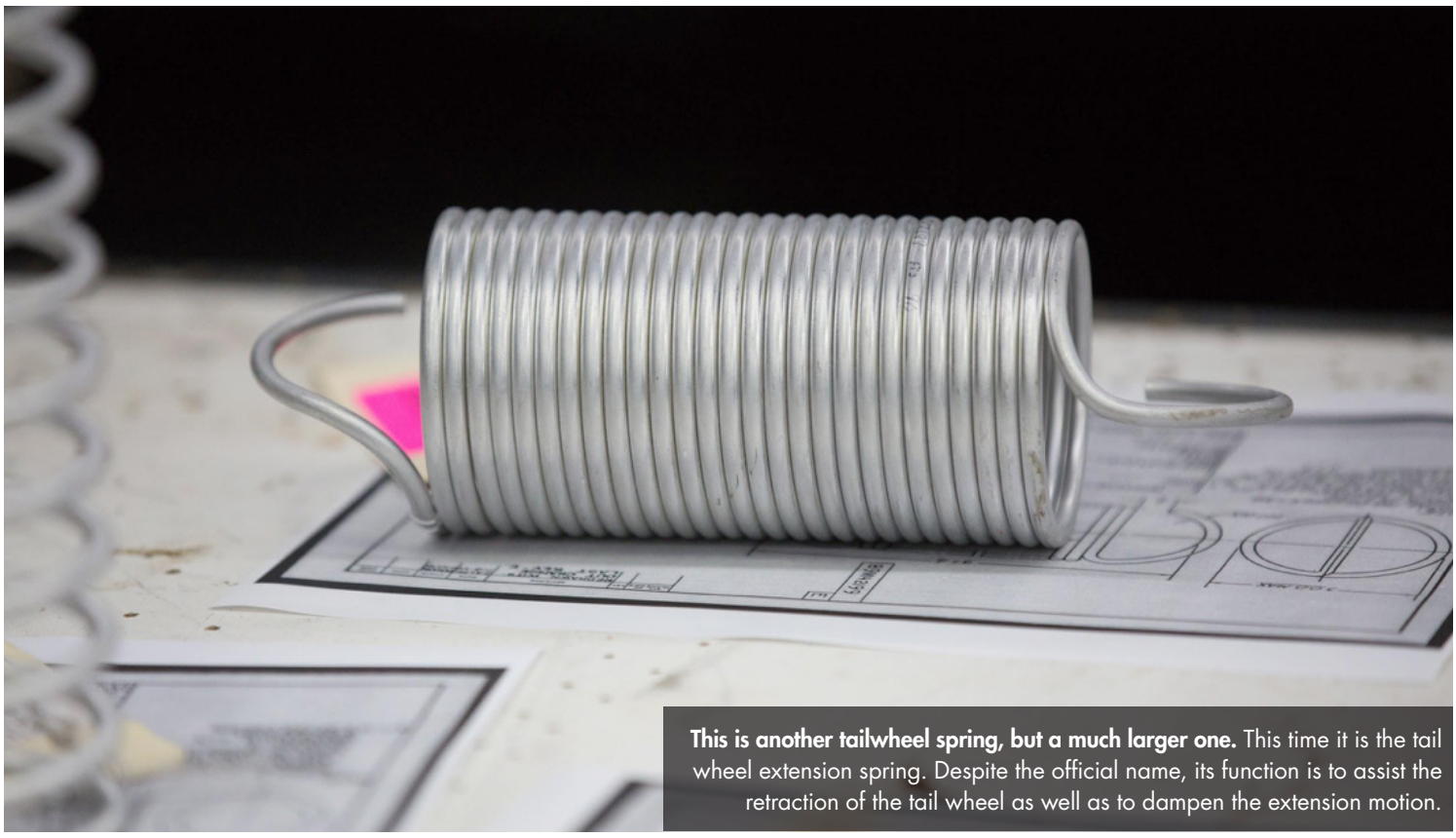
This shot of Aaron at the extrusion rack isn't too compelling until you learn that a P-47 has 2,682 feet of extrusions that are used to form 2300 separate and unique part numbers. That is over a ½ mile of special extrusions!

This view of Alex at the same rack lets us see the various shapes of the extrusions.

Aaron examines the parts manual to cross-reference the dimensions of an extrusion before using it to produce a finished part.

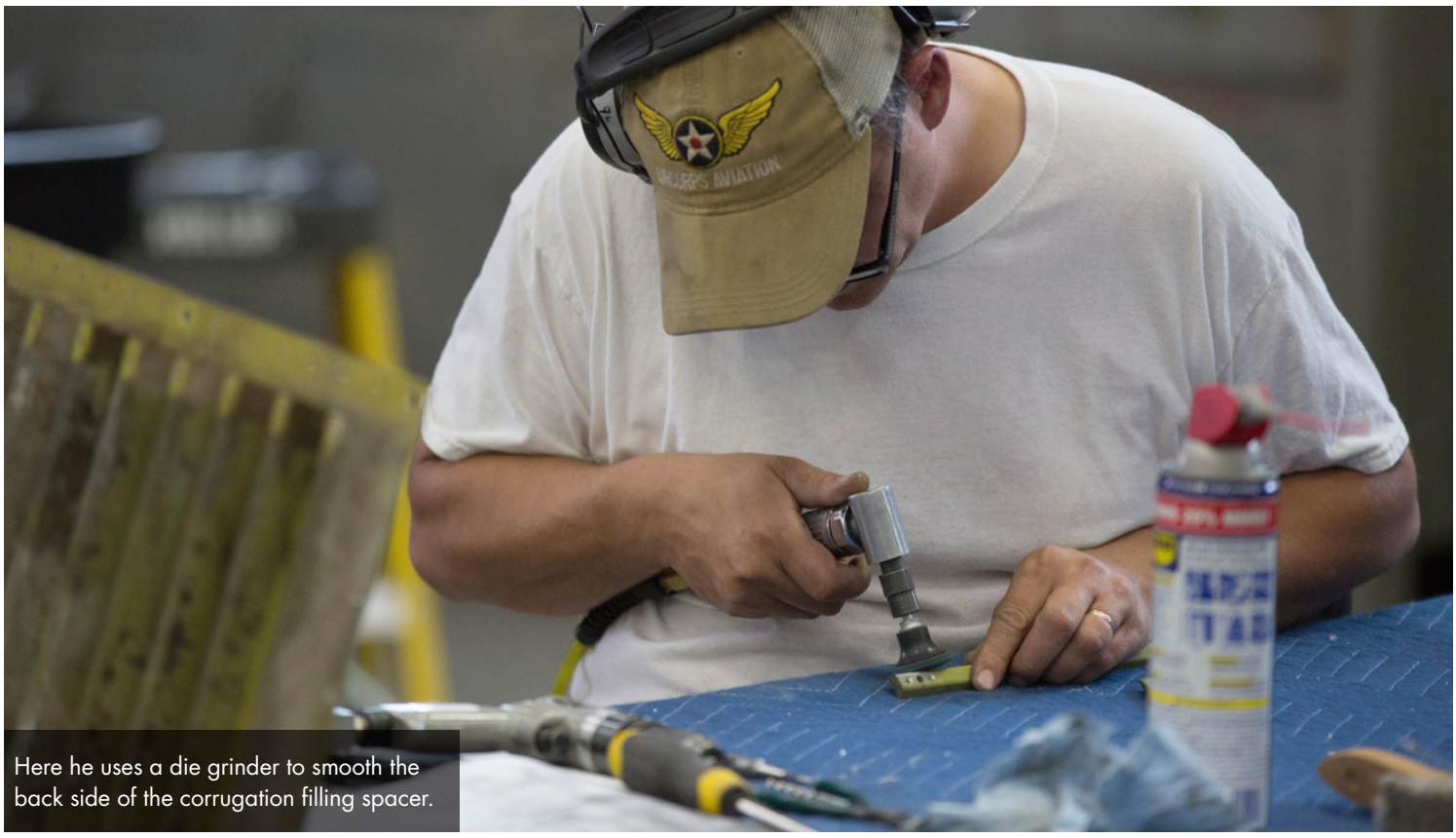


This spring is the tailwheel centering spring.



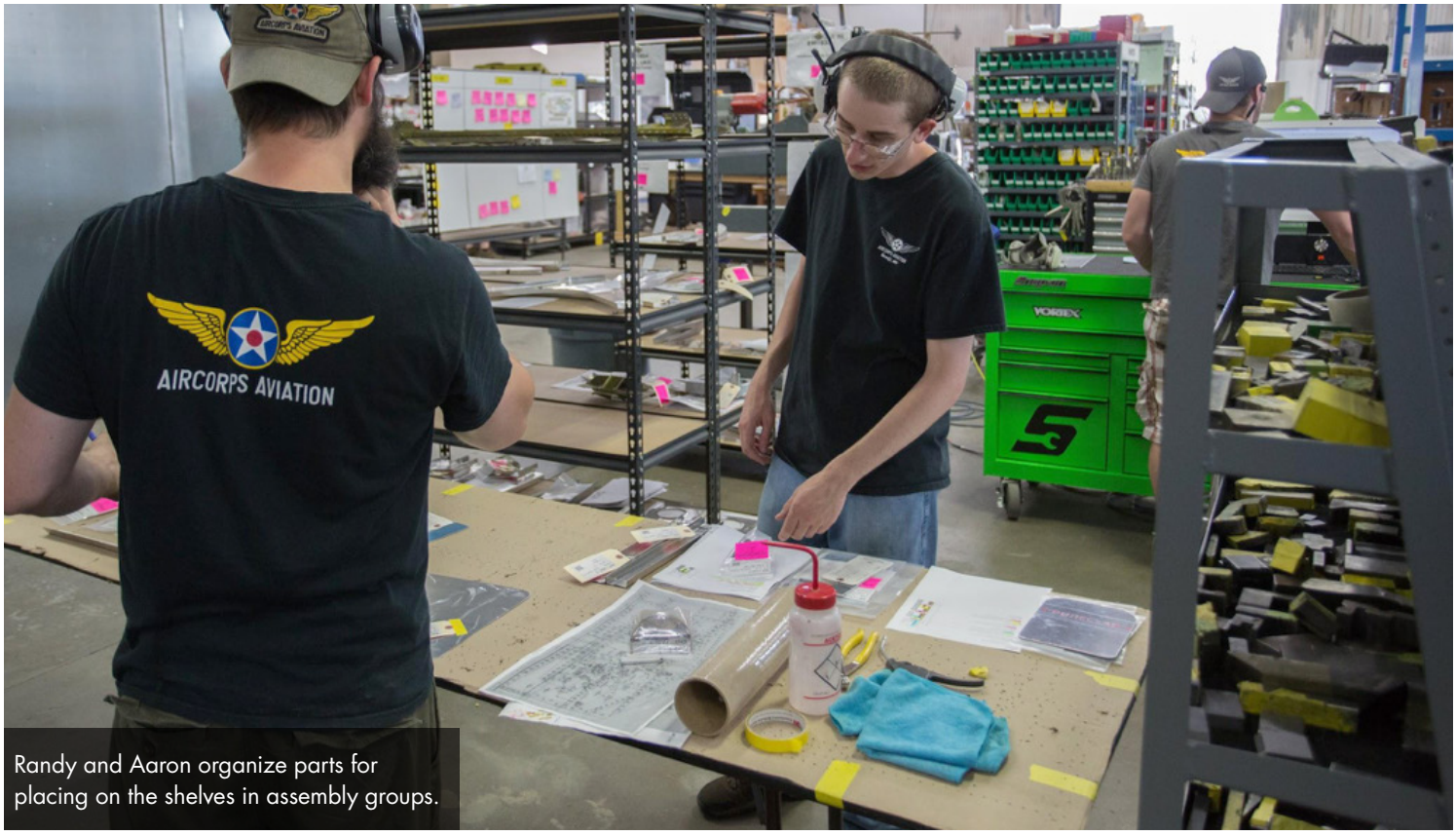
This is another tailwheel spring, but a much larger one. This time it is the tail wheel extension spring. Despite the official name, its function is to assist the retraction of the tail wheel as well as to dampen the extension motion.

Robb is filing spacers that fit under the corrugated floor of the main fuel tank bay.



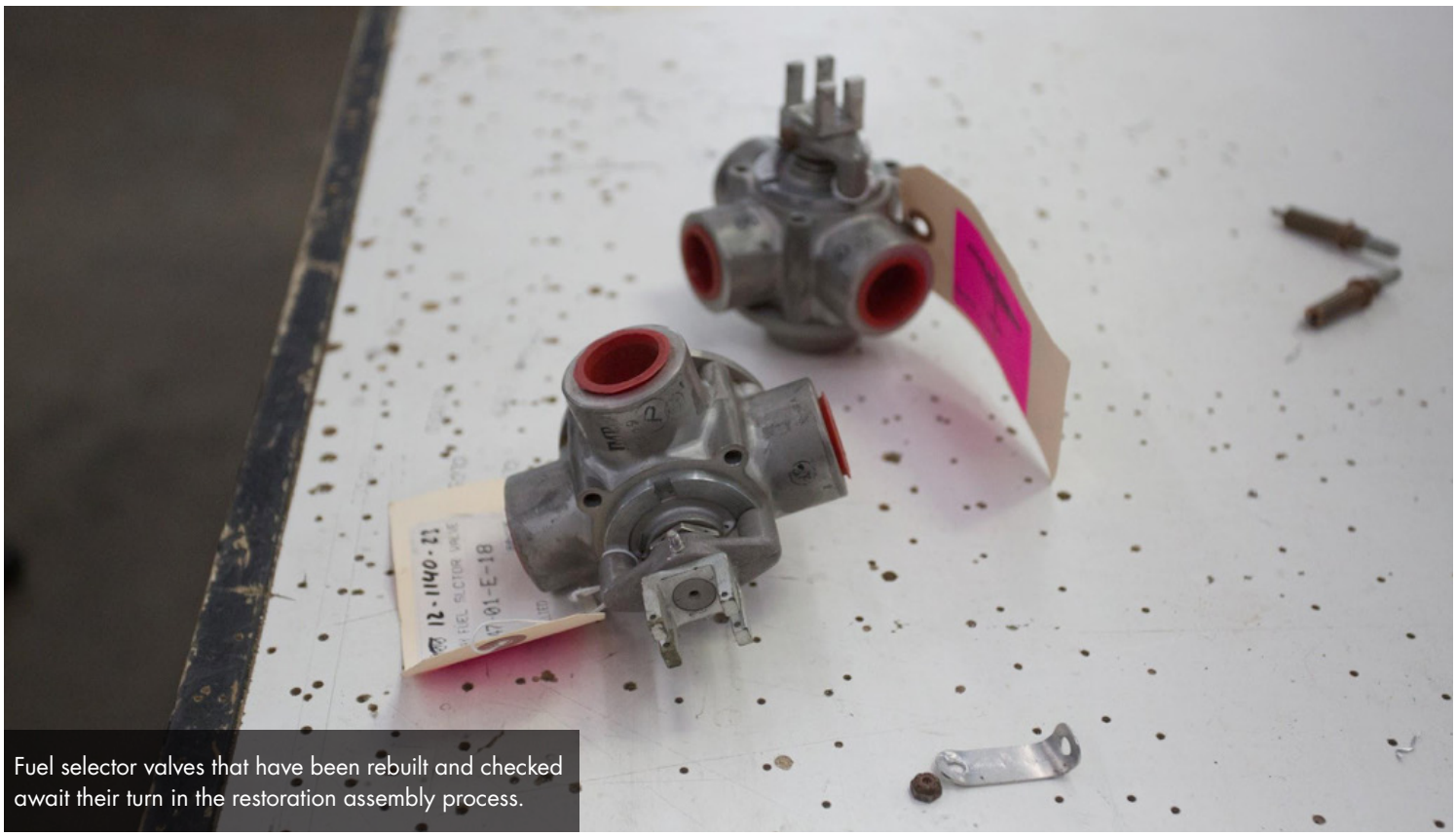
Here he uses a die grinder to smooth the back side of the corrugation filling spacer.

This close up shows us the cross section of the spacer clearly.



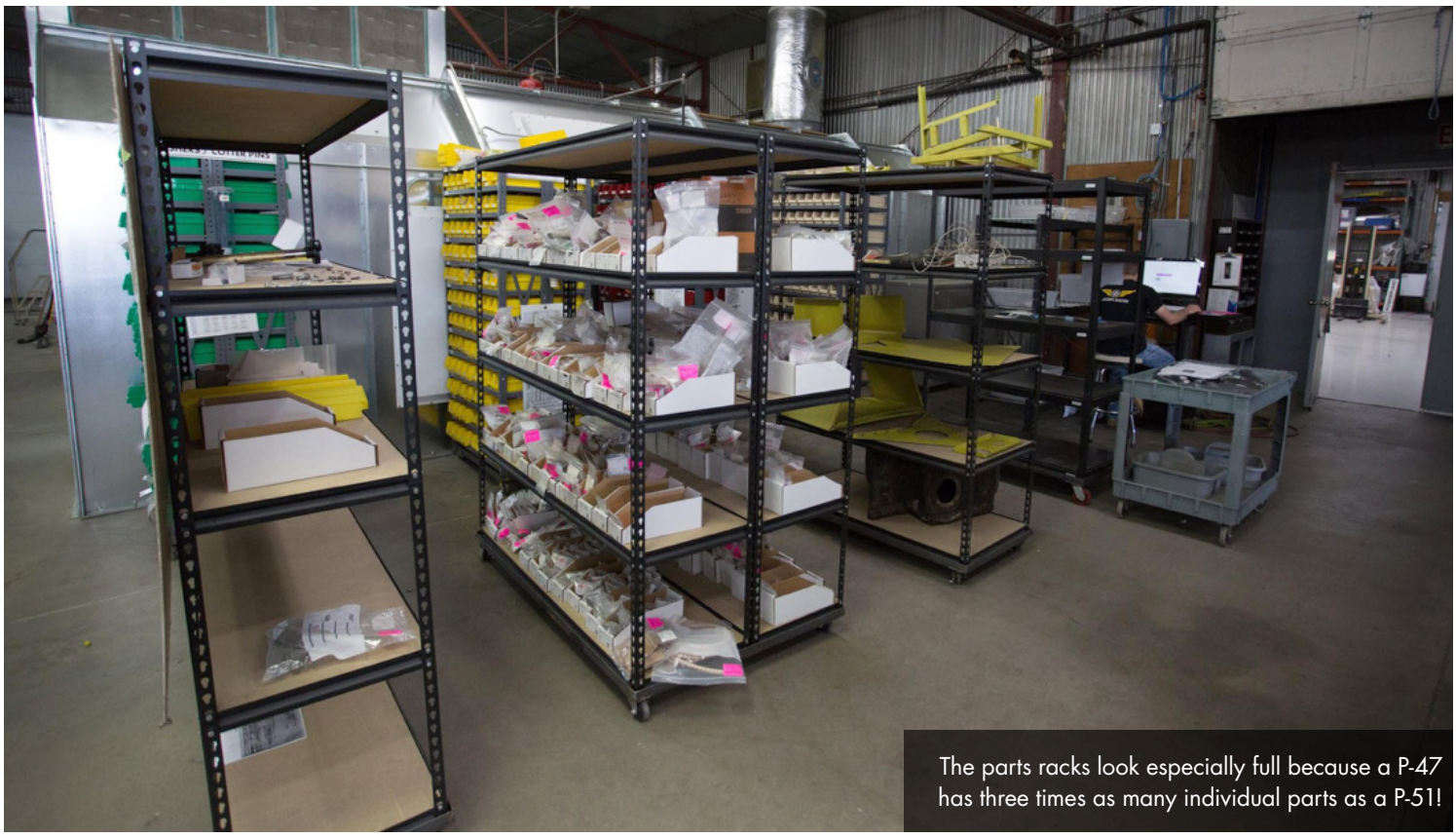
Randy and Aaron organize parts for placing on the shelves in assembly groups.

Lance inspects a fuel selector valve.

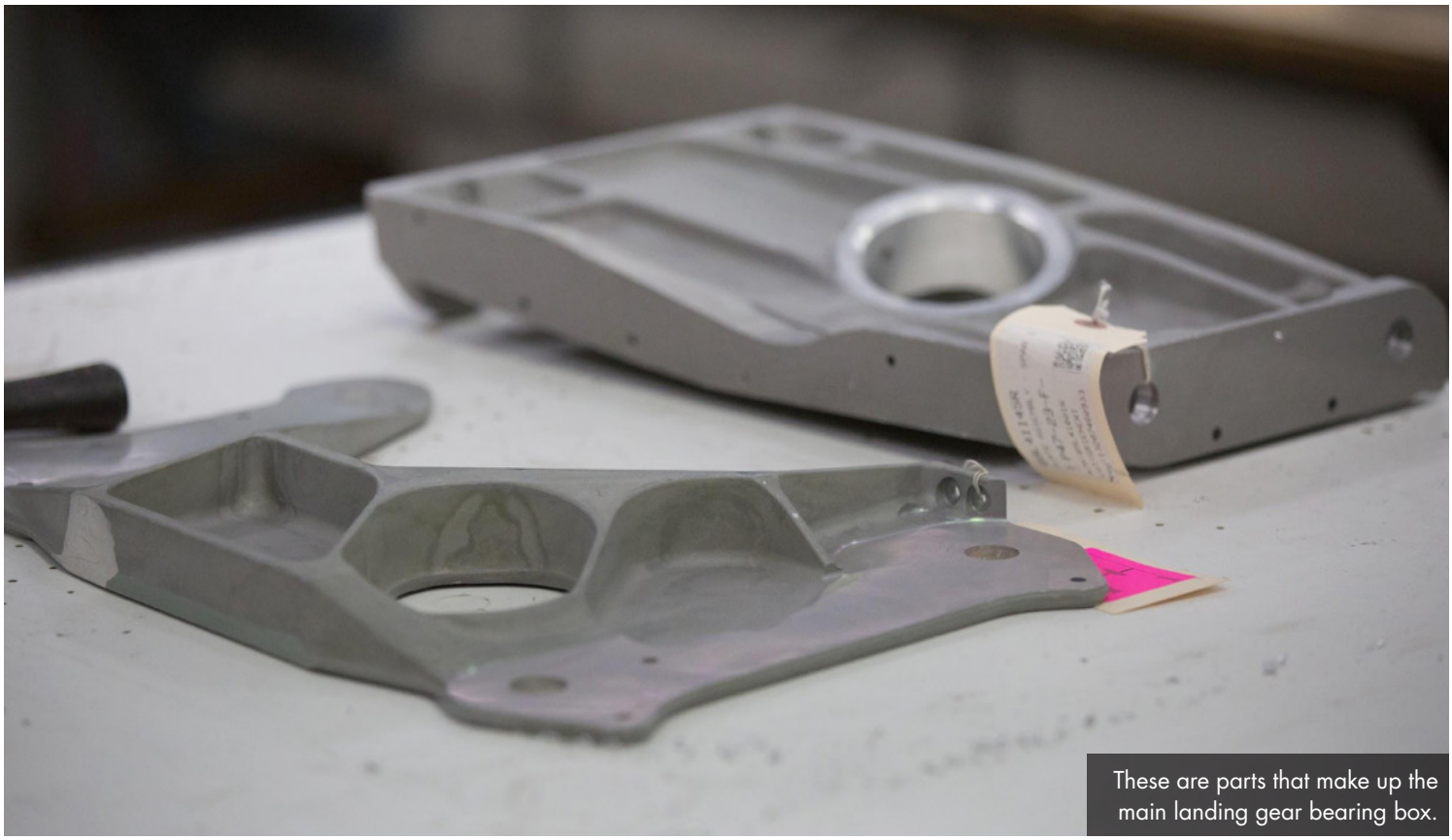


Fuel selector valves that have been rebuilt and checked await their turn in the restoration assembly process.

These parts go together to make formers in the upper turtledeck.



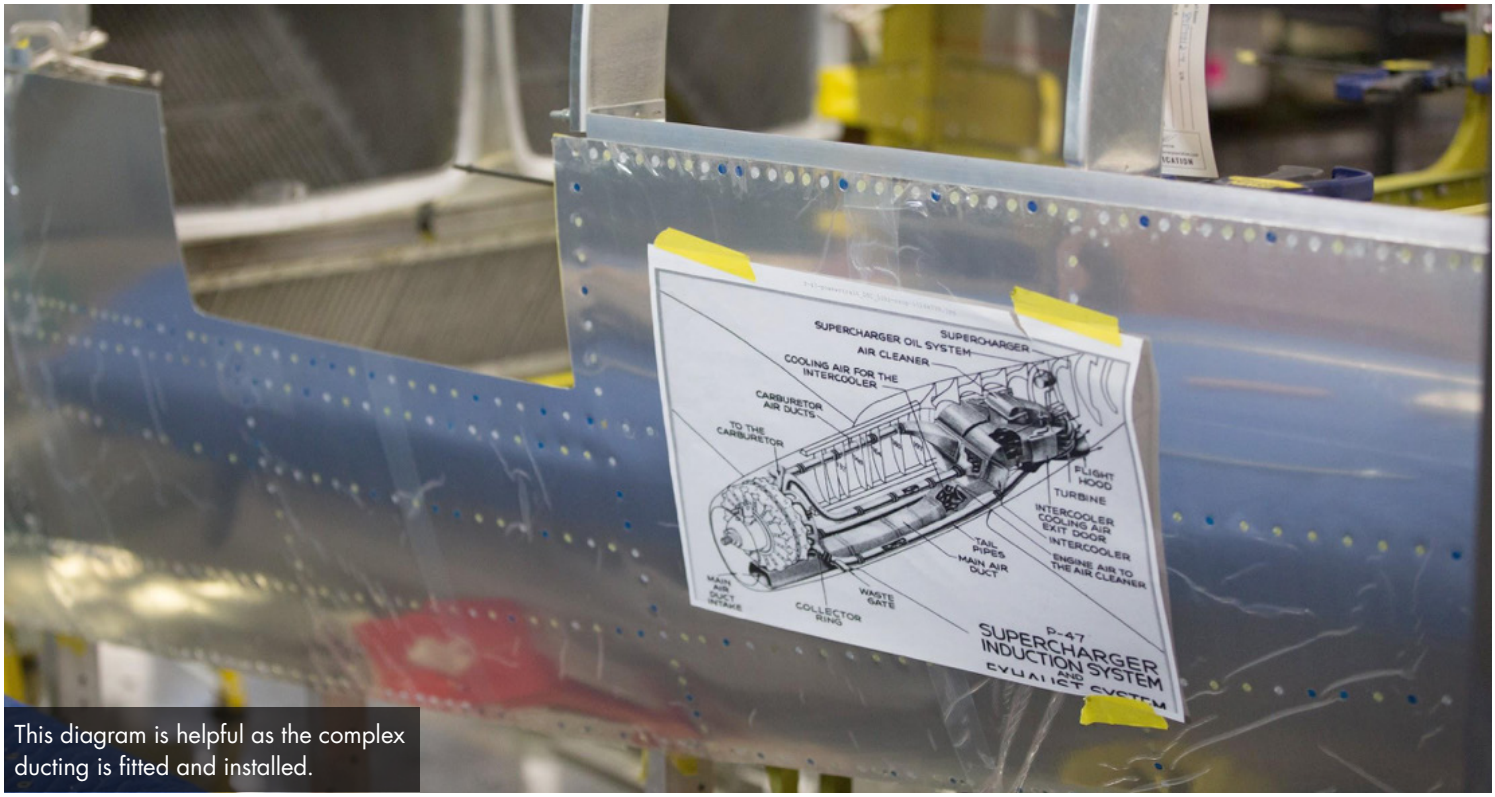
The parts racks look especially full because a P-47 has three times as many individual parts as a P-51!



These are parts that make up the main landing gear bearing box.

This casting goes atop the most forward former of the turtledeck and is part of the roll over structure.

Turbocharger System

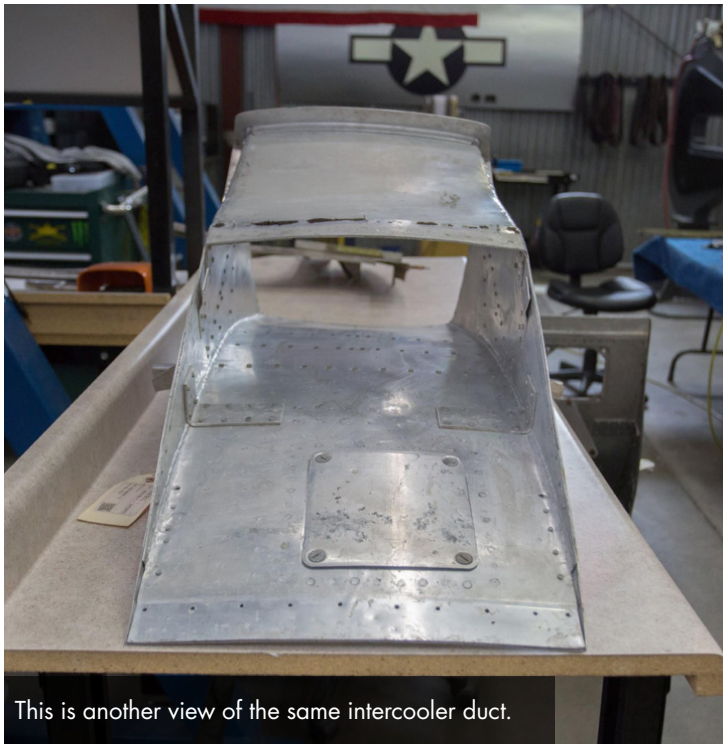


This diagram is helpful as the complex ducting is fitted and installed.

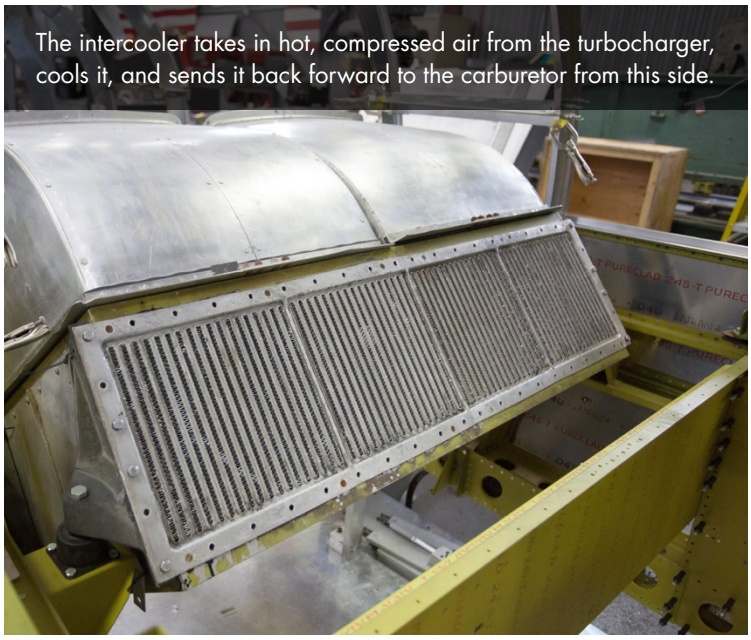
These gaping holes are the exits from the intercooler back side.

Here is another angle on the intercooler exits.

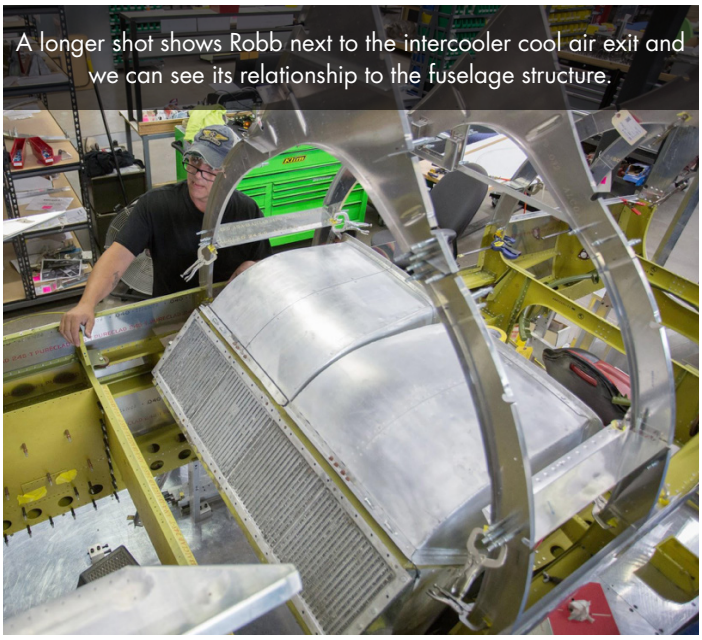
This duct will connect the intercooler to the intercooler exit control door on the exterior side of the fuselage.



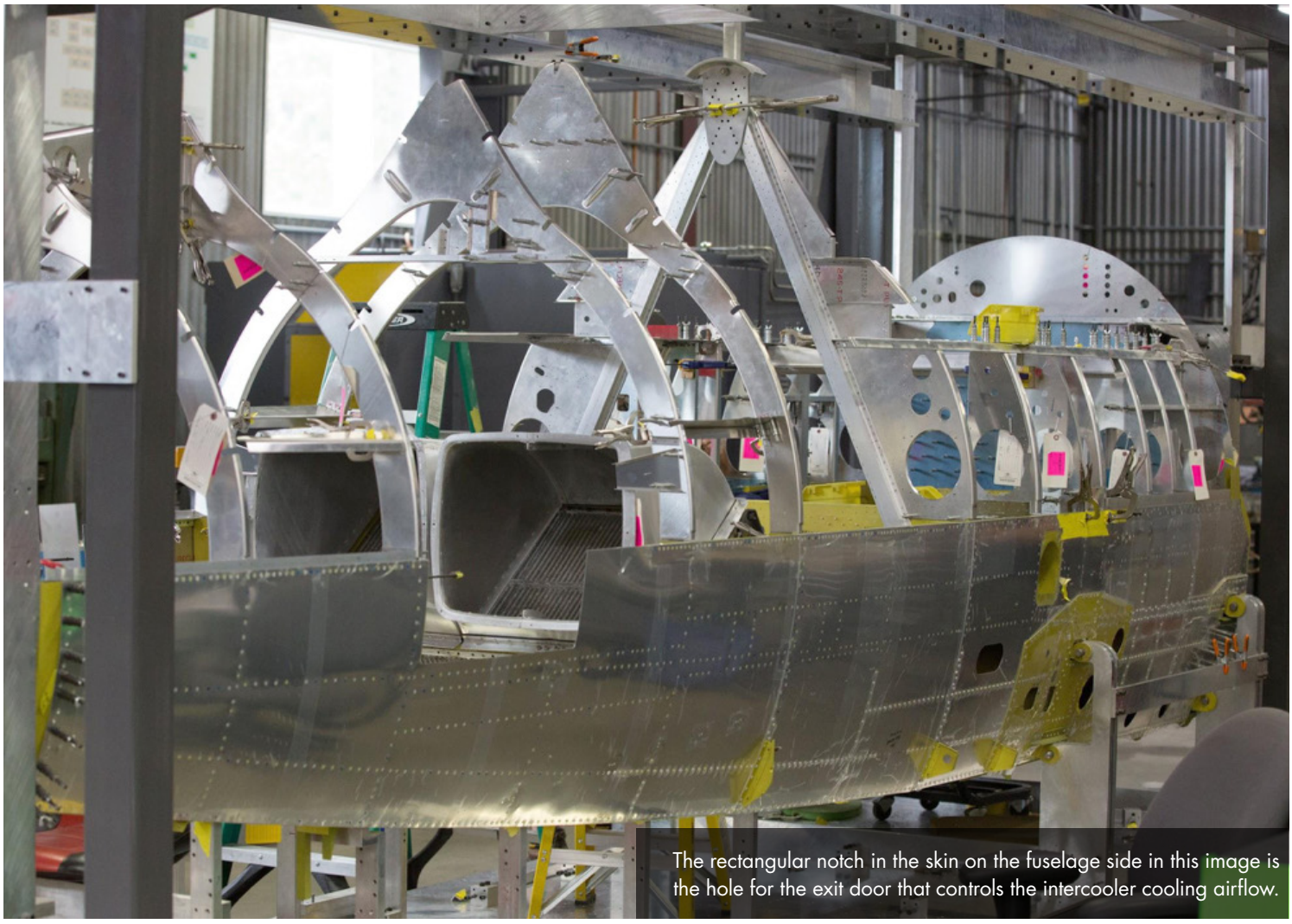
This is another view of the same intercooler duct.



The intercooler takes in hot, compressed air from the turbocharger, cools it, and sends it back forward to the carburetor from this side.



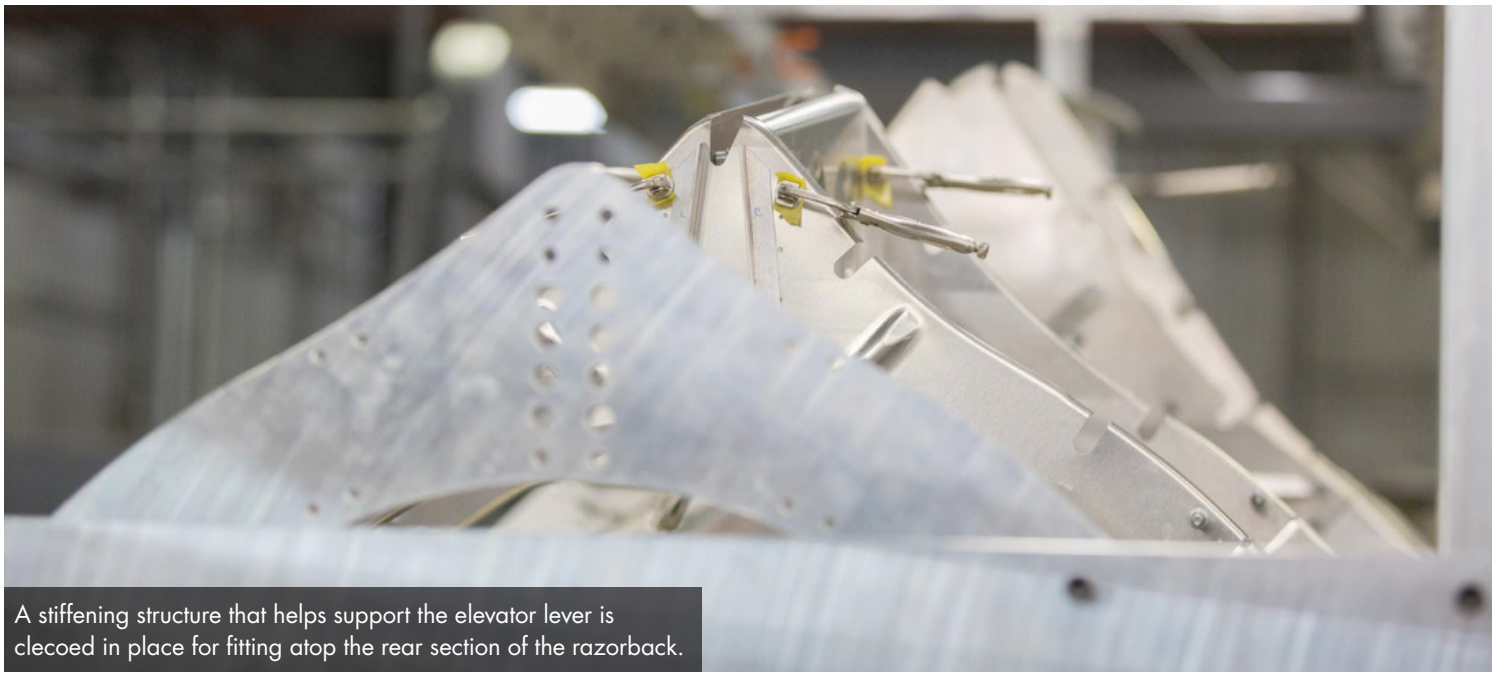
A longer shot shows Robb next to the intercooler cool air exit and we can see its relationship to the fuselage structure.



The rectangular notch in the skin on the fuselage side in this image is the hole for the exit door that controls the intercooler cooling airflow.

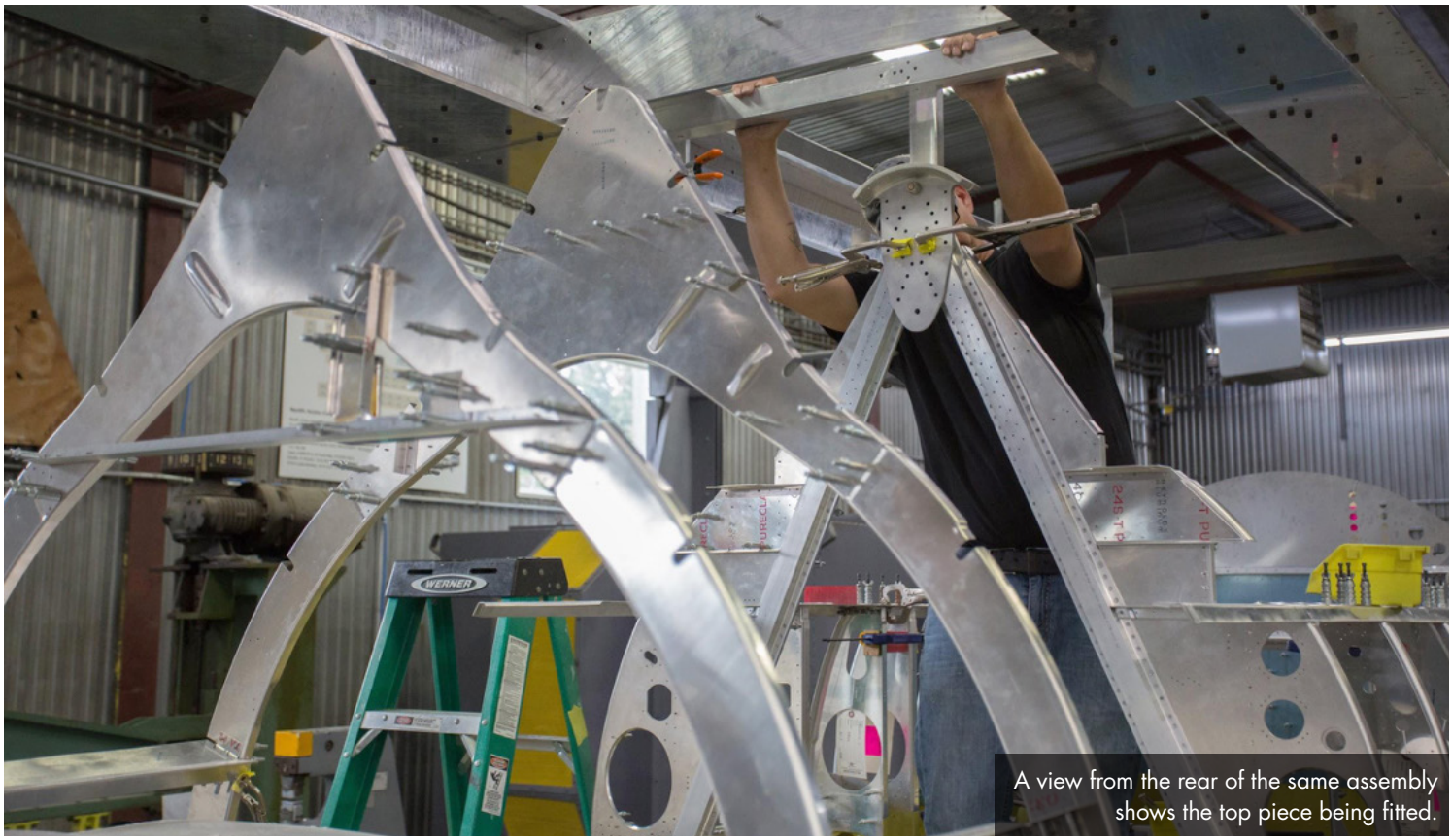
Turtledeck

The sharply ridged turtleback is the reason the early P-47s were called razorbacks. As that structure takes form, our Thunderbolt establishes its identity as a D-23, the last of the razorbacks.



A stiffening structure that helps support the elevator lever is clecoed in place for fitting atop the rear section of the razorback.

Robb works at assembling the rollover structure and forward turtledeck former.



A view from the rear of the same assembly shows the top piece being fitted.

The top casting is easy to see in this view of the rollover assembly.

It is always great to see the characteristic shape of a fighter emerge as the restoration progresses. Here we can see the outline of the razorback from the front.

A rear side angle gives us another look at the razorback framing.

Here we can see the left side of the forward fuselage.

Our last image is the right side of the forward fuselage.