



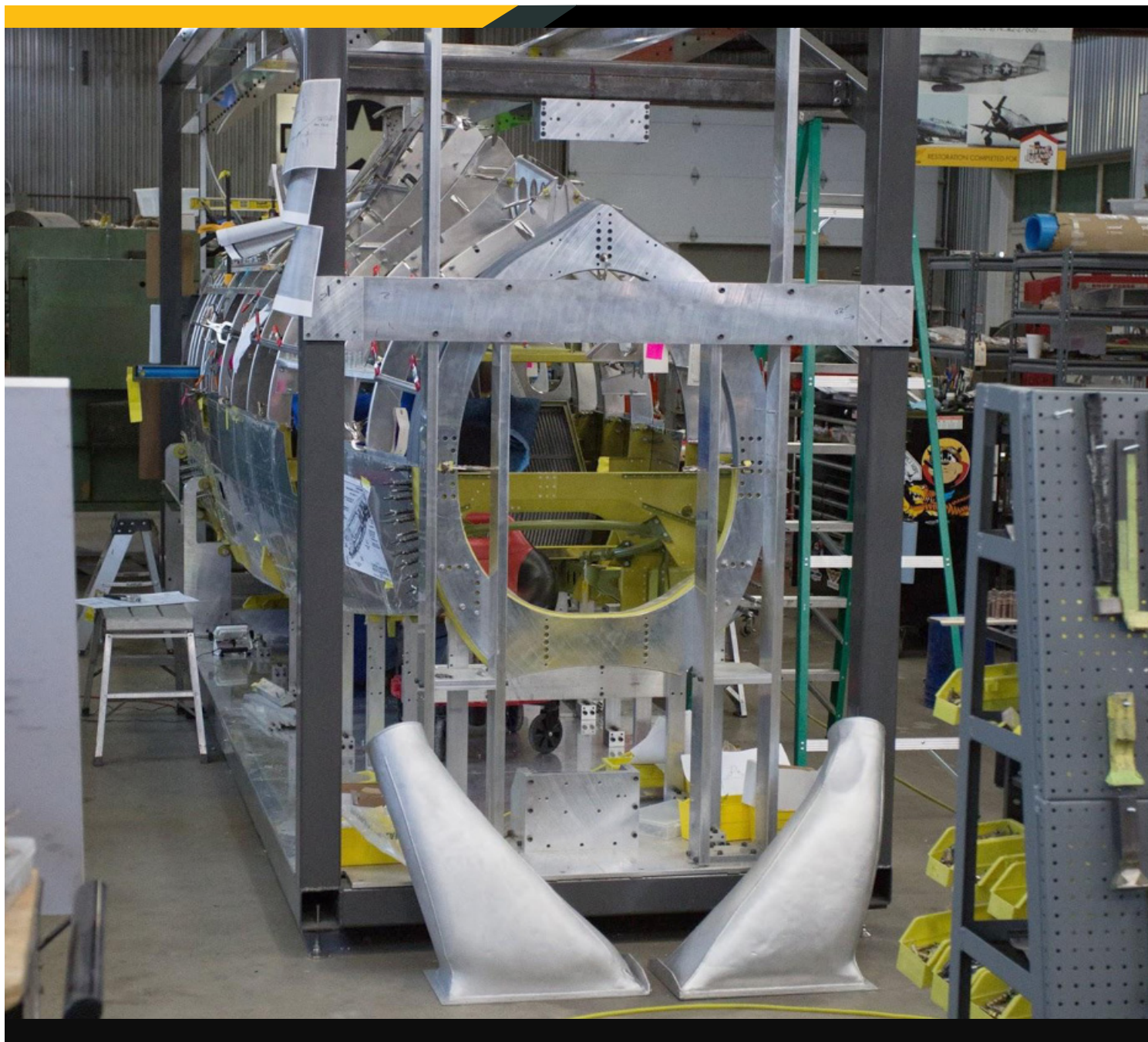
August/Sept-2018

AUGUST/SEPT



Dakota Territory Air Museum's P-47 Update
by Chuck Cravens

AIRCORPS AVIATION



Two sections of the complicated duct-work in the P-47 await installation.

These ducts will mount on the top forward face of the intercooler and route cooled, compressed air forward to the carburetor.



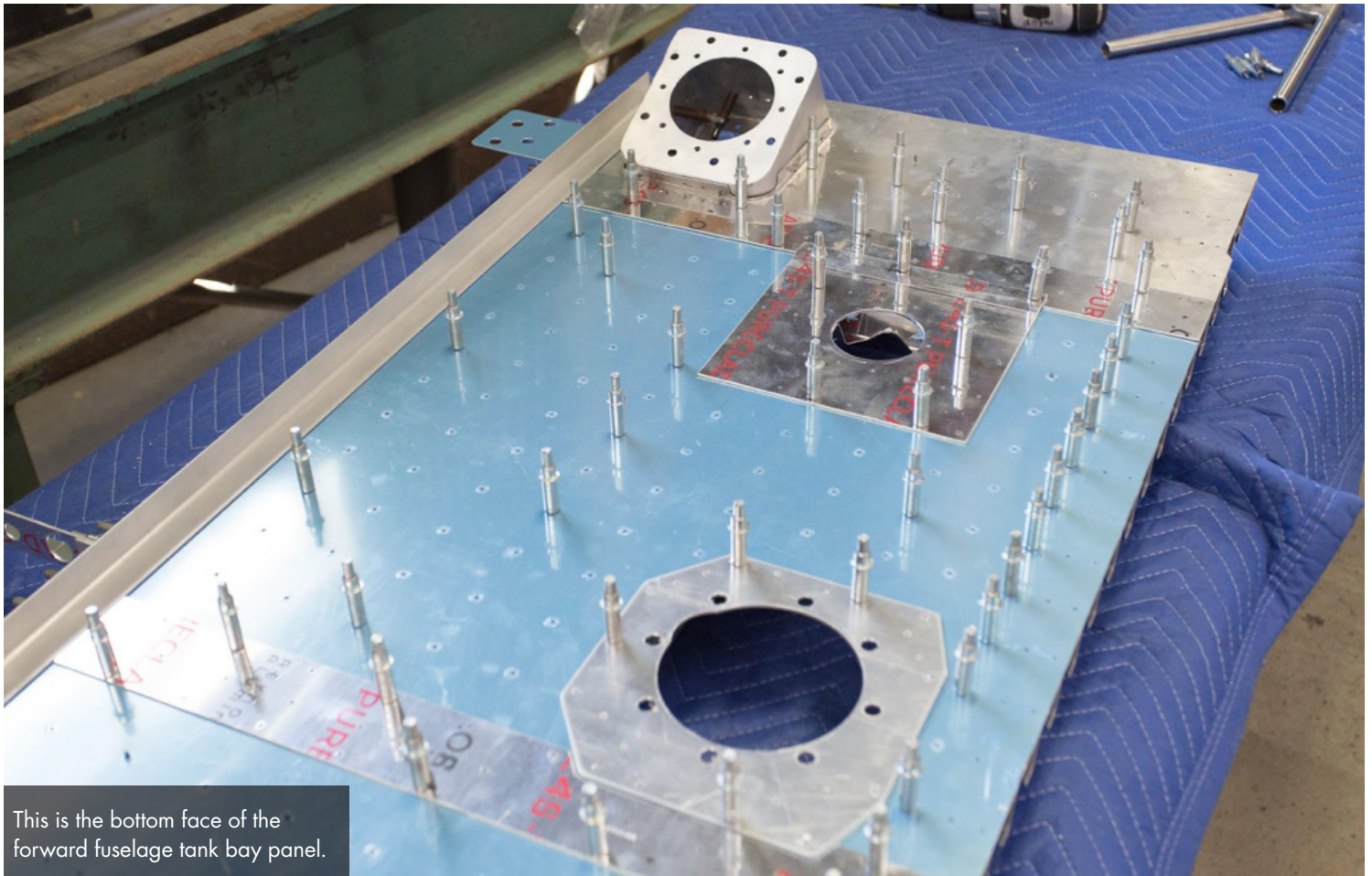
Update

During late July and early September restoration emphasis in the AirCorps shop was centered on the intercooler system and its complicated ducting, along with continuing the assembly of the upper fuselage structure. During the month, we were contacted about a possible lead on the squadron assignment. While it remains tentative, if more information can be confirmed I will write about it in subsequent updates.

Each added component, frame, and skin section drives home the fact that the P-47 was the largest single engined fighter of WWII. The size and shape of its massive fuselage was heavily influenced by components of the General Electric super/turbocharging system, the Harrison intercooler, and all the ducting that was necessary to make them both function efficiently.

Fuselage Structure

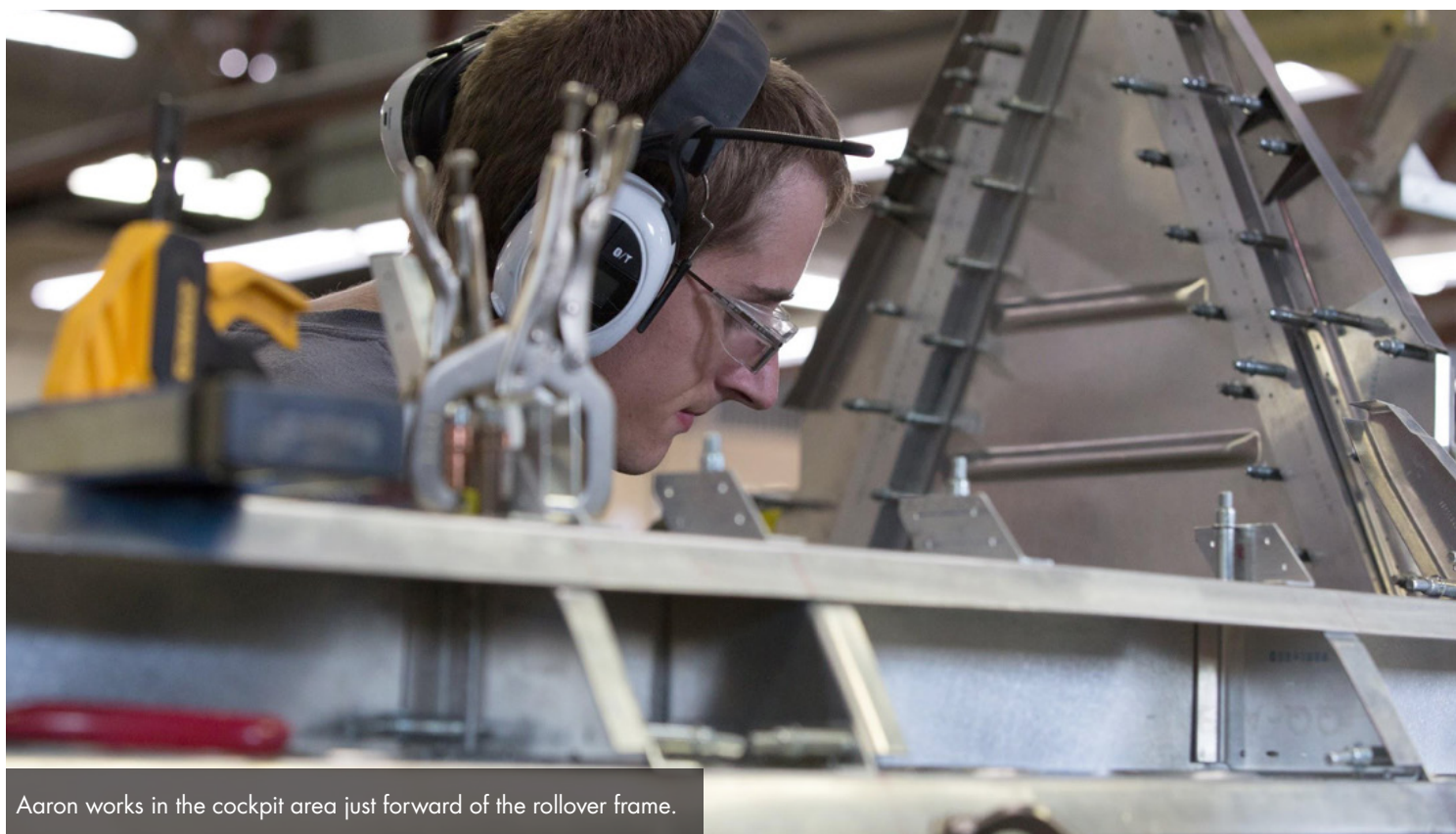
The rollover structure and the structural frame for the fuselage forward of the cockpit were just some of the projects undertaken this month as the upper fuselage goes together.



This is the bottom face of the forward fuselage tank bay panel.



Aaron peers through the structure just behind the A-frame that makes up the forward bulkhead of the razorback section and provides rollover protection for the pilot.



Aaron works in the cockpit area just forward of the rollover frame.



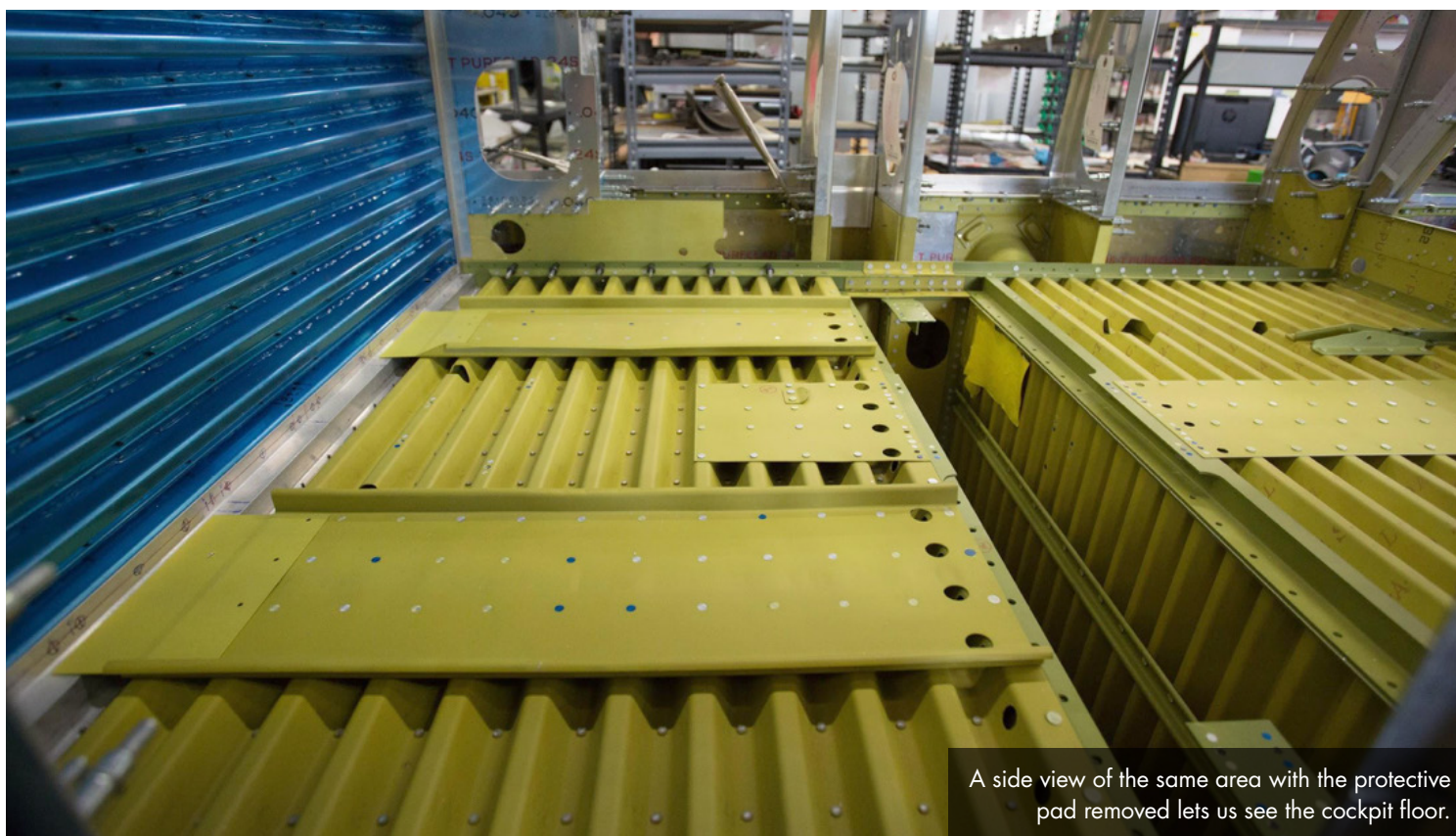
A similar perspective of the rollover frame shows the fuselage crash protector fitting. The green tag indicates the fitting will be proven serviceable if it passes dye penetrant testing.



Chad works on an interior panel of the main fuel bay.



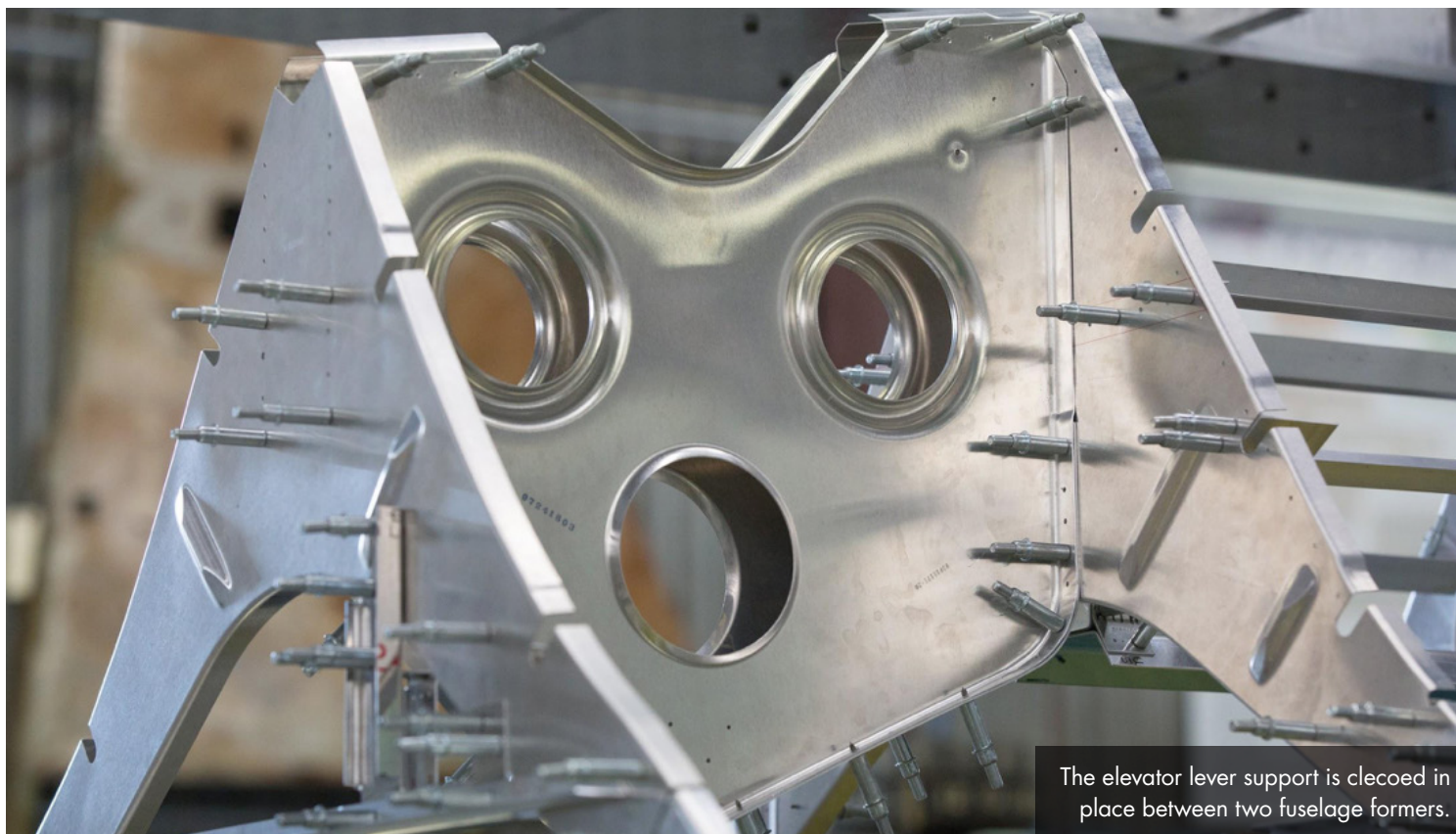
This is the cockpit area and rear of the main fuel tank panel shown from slightly above.



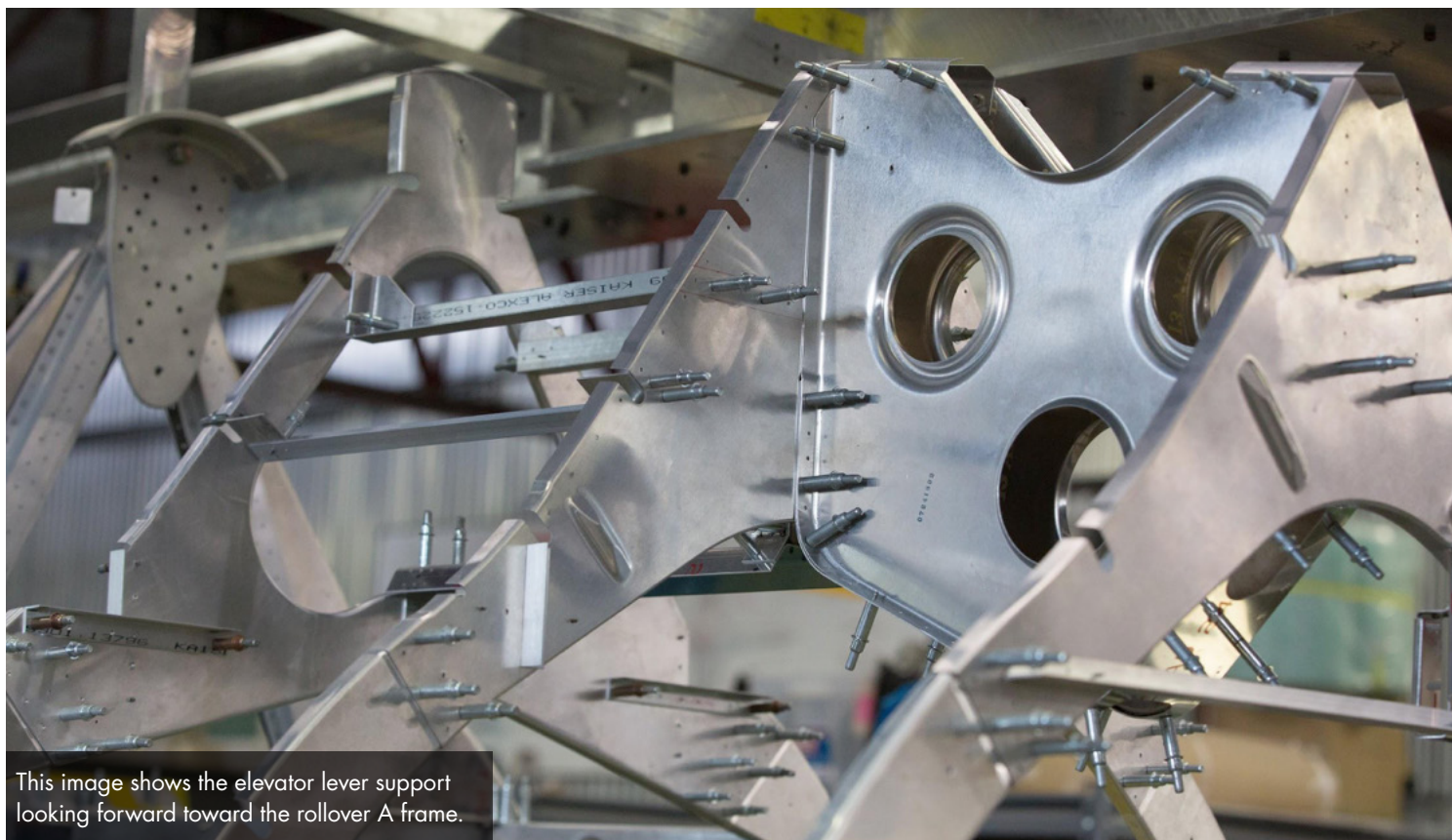
A side view of the same area with the protective pad removed lets us see the cockpit floor.



From near the rear of the fuselage, we look forward at the turtledeck supporting structure and the rear face of the intercooler.



The elevator lever support is clecoed in place between two fuselage forms.



This image shows the elevator lever support looking forward toward the rollover A frame.



Randy works in front of the cockpit to install an arch assembly at station 132 of the upper deck, forward fuselage.



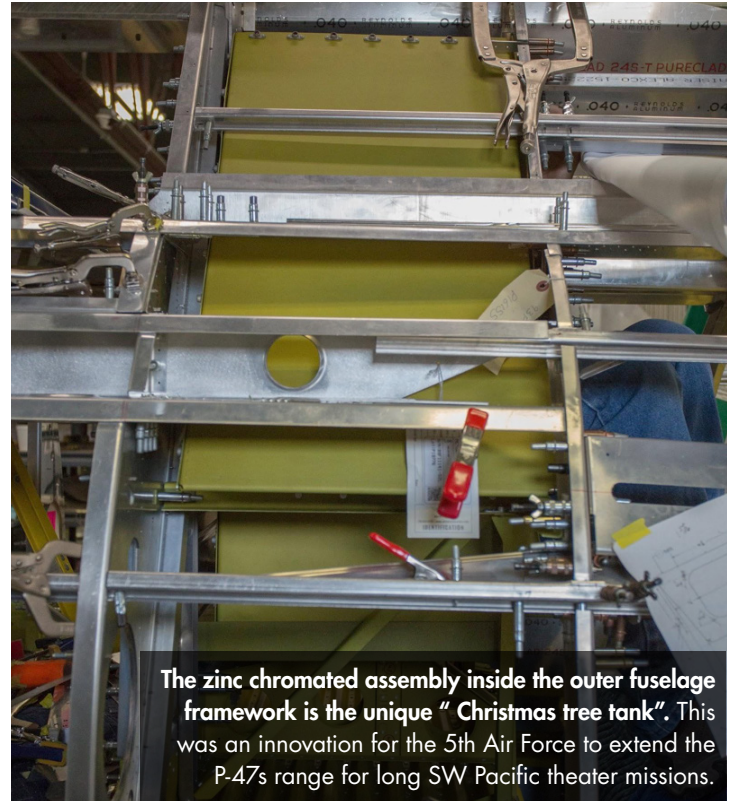
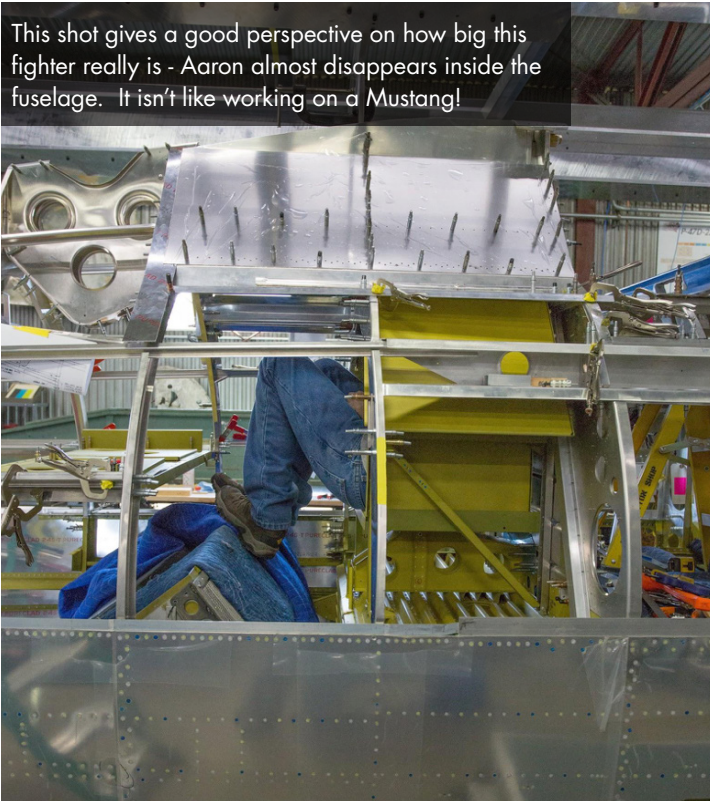
The instrument panel will be mounted to this former assembly as the restoration progresses. Sometimes it takes a great many clamps and clecos to hold a part tightly enough that rivet holes end up in the correct place and assure that the piece lays tight to the formers or structure beneath it.



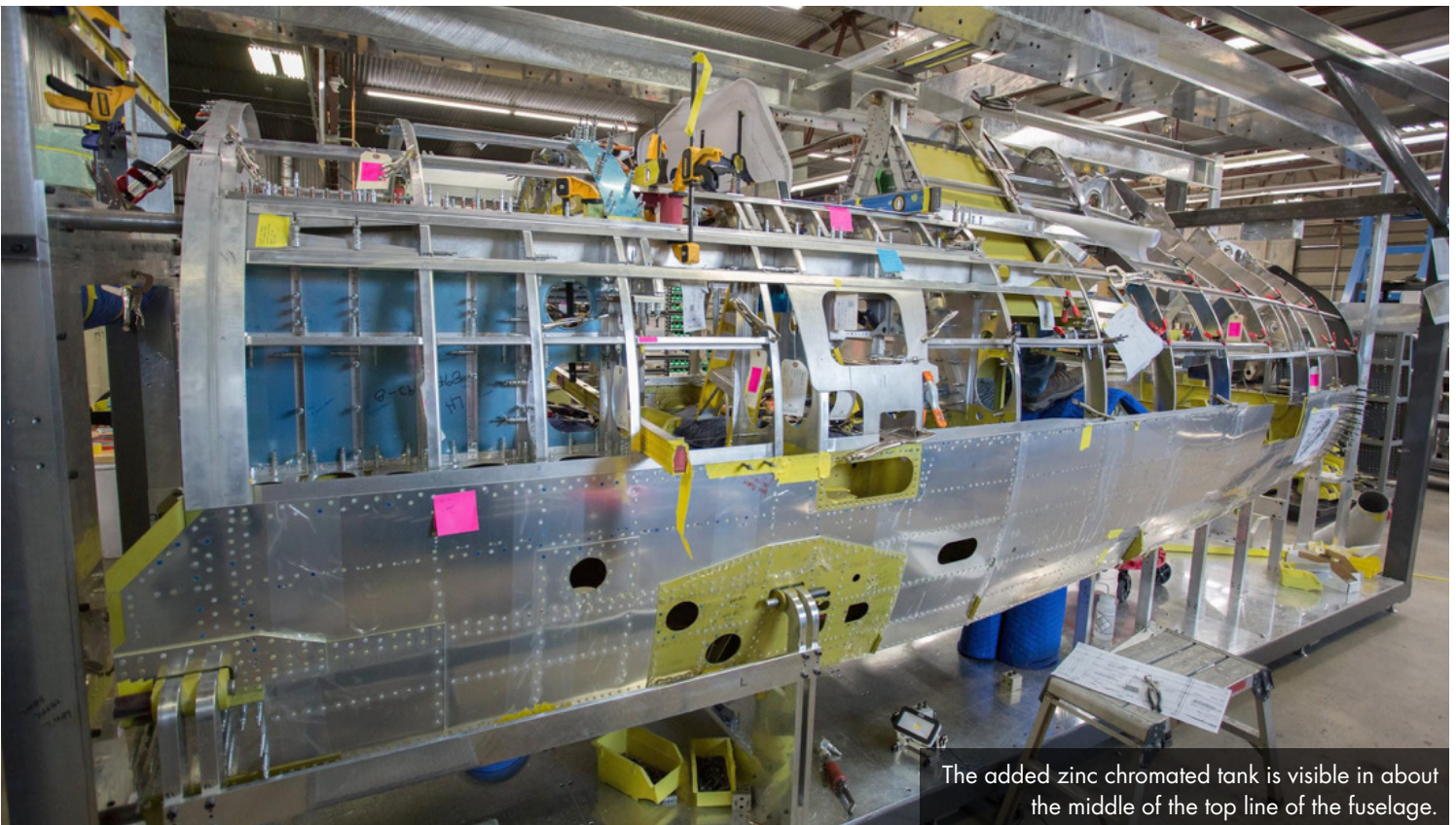
Work progresses on skinning the forward turtledeck.



This shot gives a good perspective on how big this fighter really is - Aaron almost disappears inside the fuselage. It isn't like working on a Mustang!



The zinc chromated assembly inside the outer fuselage framework is the unique "Christmas tree tank". This was an innovation for the 5th Air Force to extend the P-47s range for long SW Pacific theater missions.



The added zinc chromated tank is visible in about the middle of the top line of the fuselage.



As assembly gets more detailed, the guys insert engineering drawings into handy spaces in the structure for quick reference.



From the left: Dave, Ryan, Randy, and Aaron - The last three appear to be discussing the restorations progress.



Intercooler System

It is easy to see how much space the Harrison intercooler and associated ducting takes up, and why this system had so much to do with the Thunderbolt's size and shape.



The front face of the complex intercooler faces forward and connects to the carburetor through ducting. It passes cooled, compressed intake air from the turbocharger to the carburetor intake.



The back side of the intercooler connects to ducting that takes air from the intercooler to the exit doors. The air gains heat as it flows through the intercooler and cools the compressed air that is headed forward to the carburetor.



Robb prepares an intercooler exit duct for installation.



The intercooler exit ducts are clecoed together and ready for riveting.



The turbocharger mounting ring sits behind and below the ducting leading to the intercooler exit doors.



The two triangular former sections are actually supports for a pivot shaft that controls the intercooler exit doors. The open space below them is the hole where those doors will eventually be mounted.

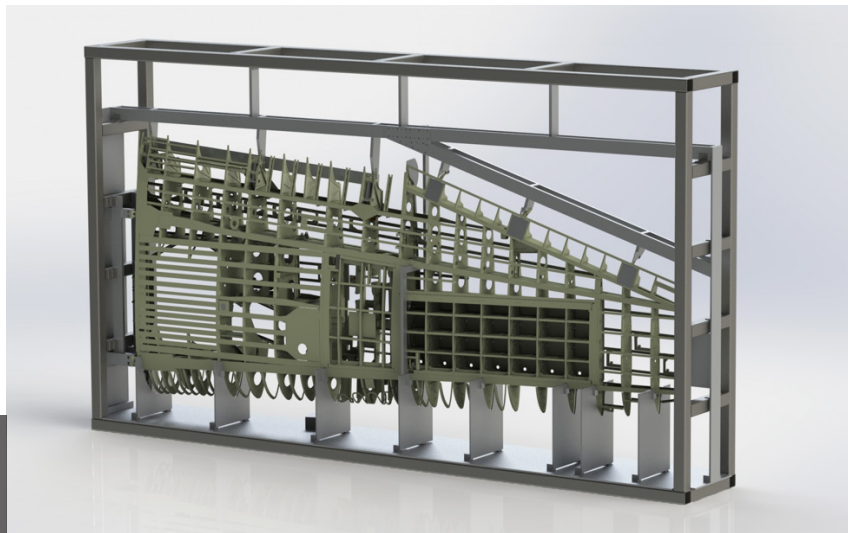




Parts

Inspection and restoration of parts needed in upcoming steps goes on as always. Another critical task is design and fabrication of the wing jig that will be needed after the fuselage is essentially complete. Steve Wold, of our CAD engineering department, shared his work on that wing fixture. It isn't complete yet, but rather a work in progress.

This CAD rendering of the future wing fixture is the result of hours of design work.



Of the two hydraulic reservoirs seen here, the one in front is a reproduction, while the one behind is an original Republic part that will be used in this restoration.



Lance disassembles and inspects a tail wheel strut.

LANCE SUMSTAD, Airframe Component Repair

Our profile subject this time is Lance Sumstad.

Lance is a relatively new face in the restoration shop. His background is varied and interesting and his skills are a welcome addition to the restoration crew at AirCorps Aviation.

Lance was a B-52G crew chief and currently is a licensed outstation A&P mechanic. He owned his own welding and manufacturing business making a wide variety of products including truck utility bodies, trailers, and specialized ice fishing trailer/houses that can be lowered onto the ice surface by rotating the wheel assemblies. Lance also worked as a production manager at a laser and powdercoating business, and designed production equipment for Mann Lake, LTD a beekeeping supply company.

Akeley, Minnesota is where Lance and his wife Sheri call home. They have a grown son and daughter and are blessed with 5 grandchildren. The Air Force runs in the family, both of the Sumstad offspring also served.

Lance's favorite warbird is the P-47 he is currently working on. He says the best part of his job at AirCorps Aviation is working with knowledgeable and talented people in a very organized and structured company.