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NOV/DEC

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



AIRCORPS AVIATION



With the tail cone attached, the fuselage is 7 feet 2 inches longer!





Update

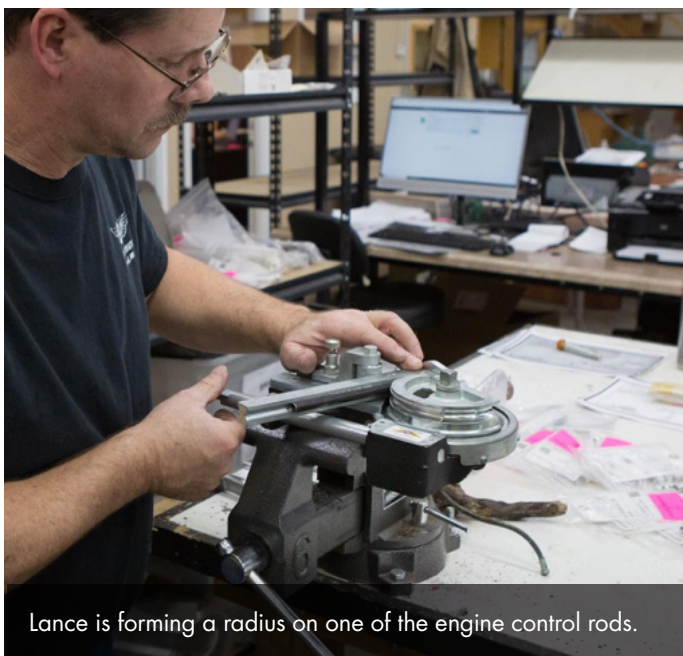
A milestone was reached this month as the tail cone was fitted to the forward fuselage. Other areas of focus were the tailwheel assembly and cockpit enclosure. As skin sections undergo final fitting, clecoes are replaced with permanent rivets. Other new skin sections go through the fitting process, with hundreds of clecoes holding them in place.

Sub-assembly Work

Work always continues away from the main fuselage fixture. This makes sure that parts and assemblies flow smoothly to the P-47, when they are called for in the assembly sequence.



Intercooler intake and exit ducts are arranged on shelving for their turn in the assembly order.



Lance is forming a radius on one of the engine control rods.



Here's a close up view as Lance forms the control rod.



The tail wheel assembly is complete except for the actual wheel and tire.



The cylindrical housing at the top contains the tail wheel centering spring.



This is a look at the end cover of the centering spring housing.



The linkage is the tail wheel centering lock.



The anti-shimmy disk assembly is the lighter green part with the black friction disk sandwiched in the center.

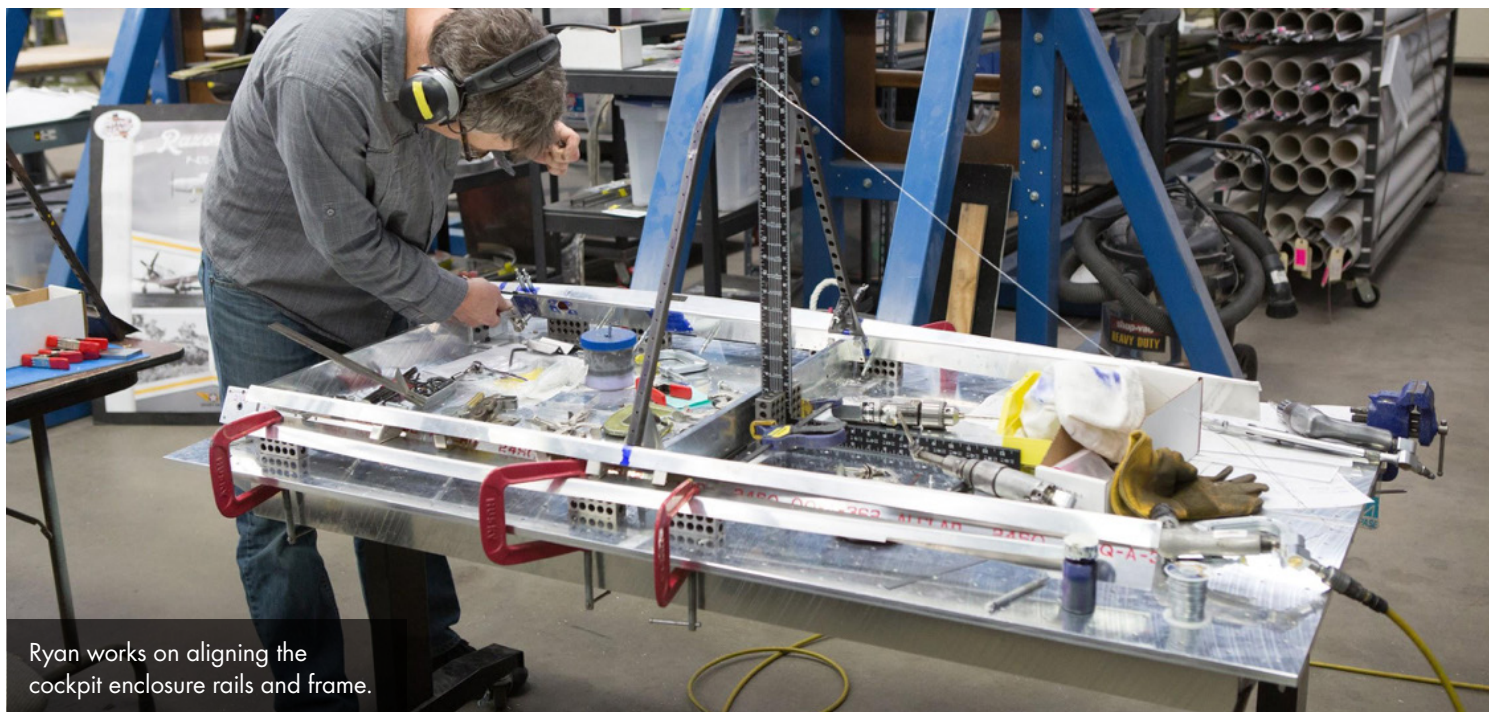


The mechanism linking the centering spring and the main tailwheel shaft shows here. The pulley is for the centering lock cable.



Cockpit Enclosure

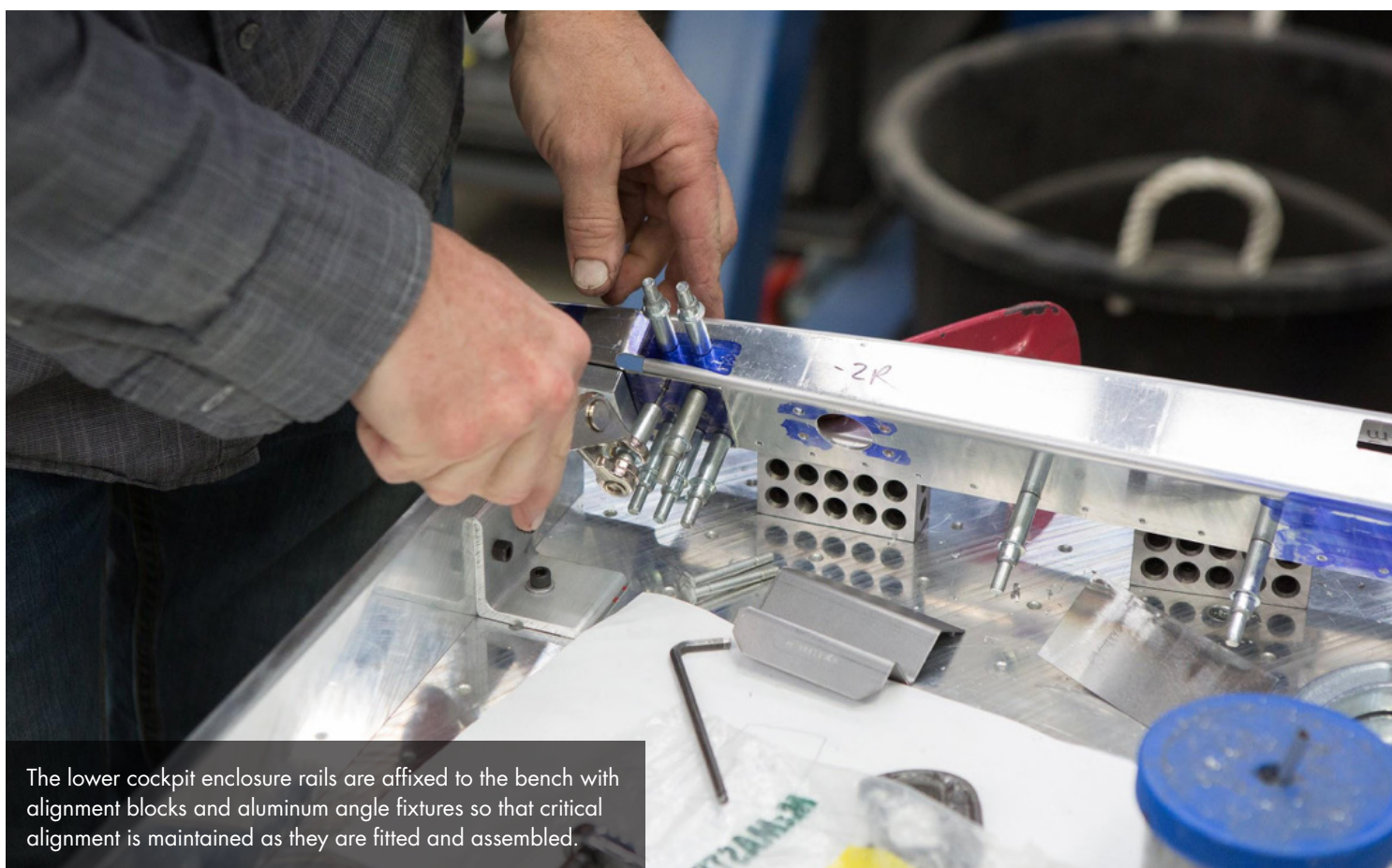
The distinctive “greenhouse” cockpit enclosure of the razorback Thunderbolts is a challenging structure to restore. Like many assemblies in this restoration, new parts were made using originals for patterns. In this case the original’s value as patterns was incalculable. New old stock parts were also used when they were available. On the cockpit enclosure, the window emergency release hardware is new old stock

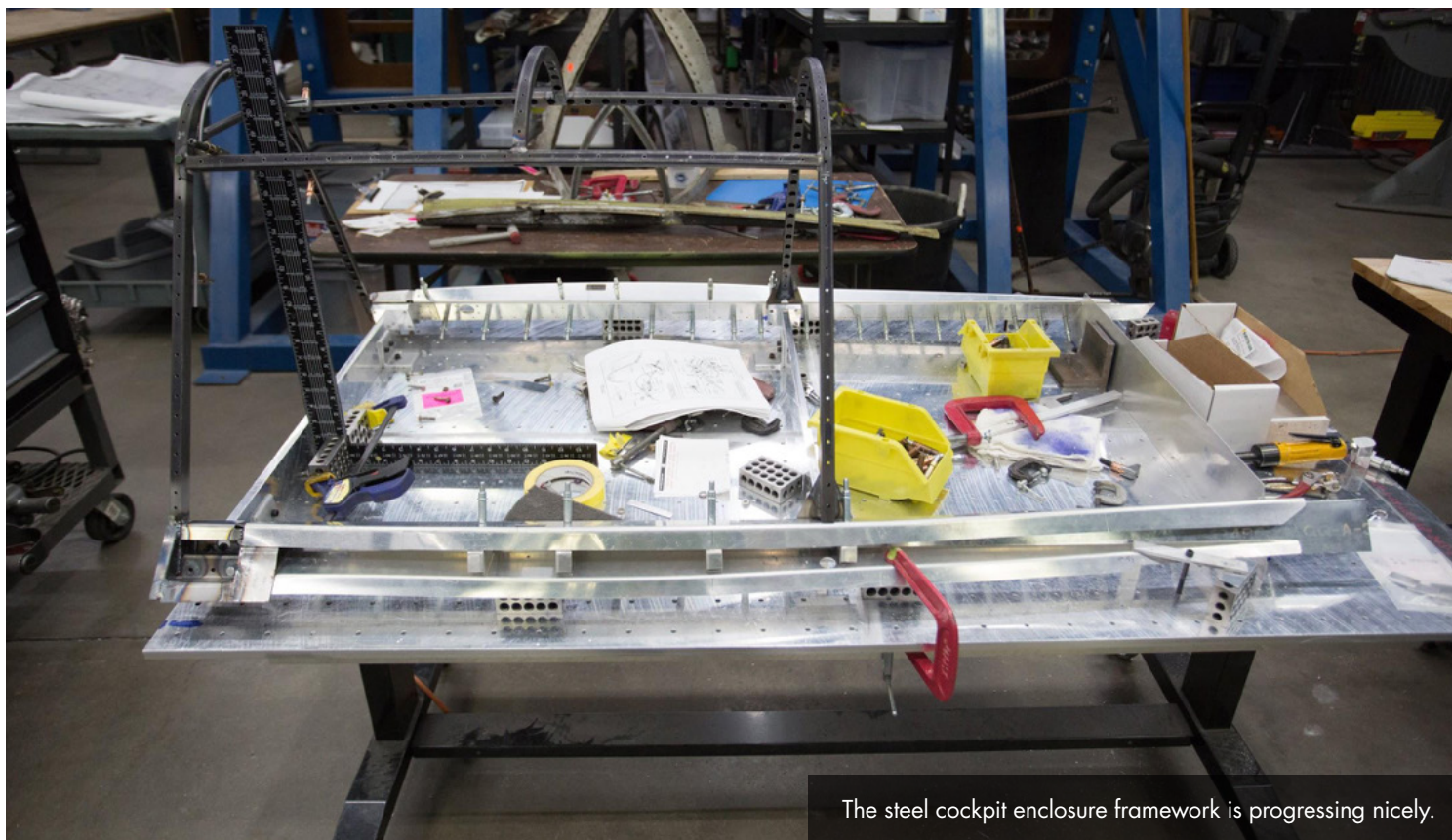


Ryan works on aligning the cockpit enclosure rails and frame.

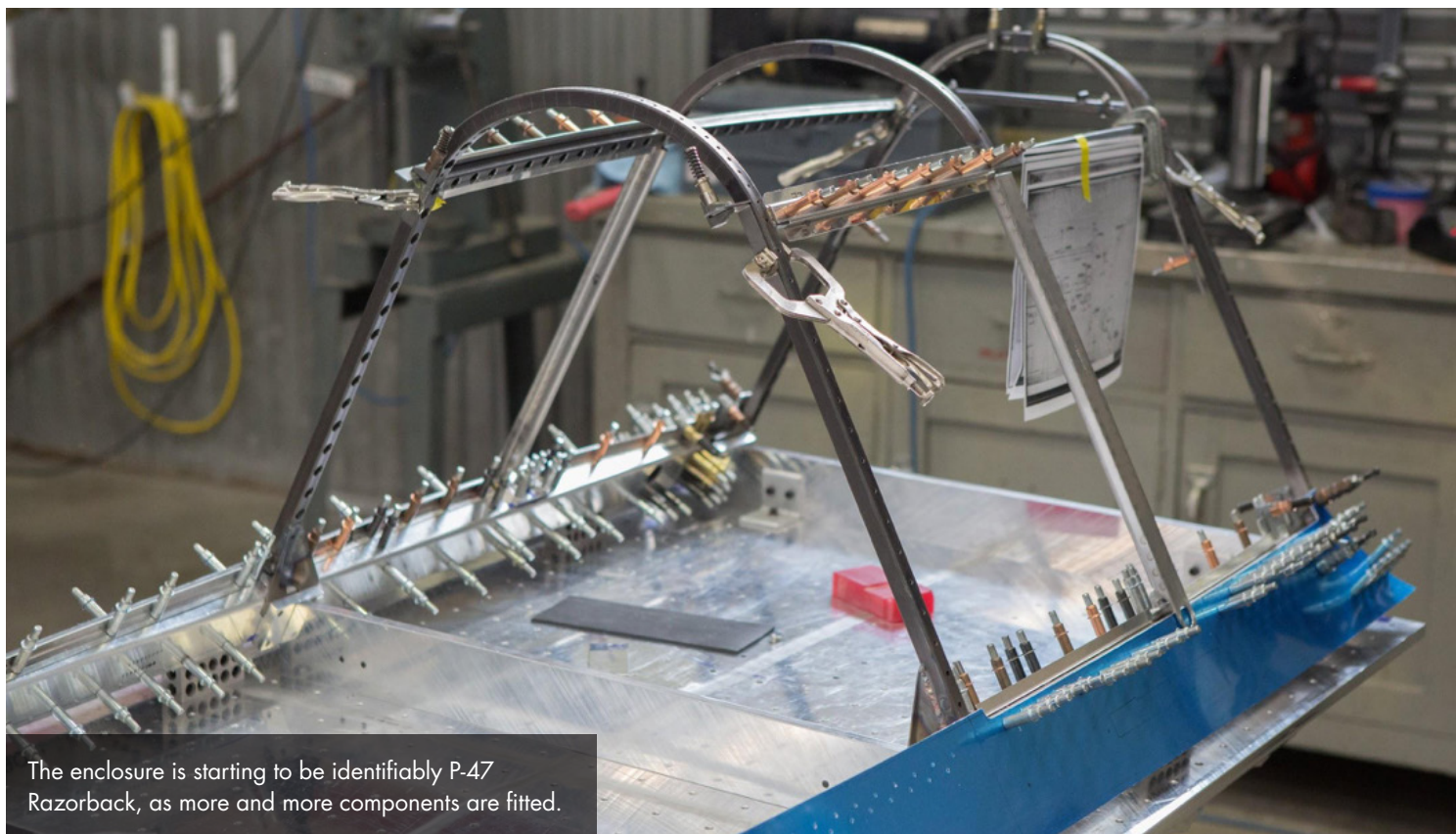


On the table behind Ryan is an original enclosure that clarifies the way the assembly goes together.





The steel cockpit enclosure framework is progressing nicely.



The enclosure is starting to be identifiably P-47 Razorback, as more and more components are fitted.



George has been working on creating the curved window panels for the cockpit enclosure.



George polishes one of the top windows.

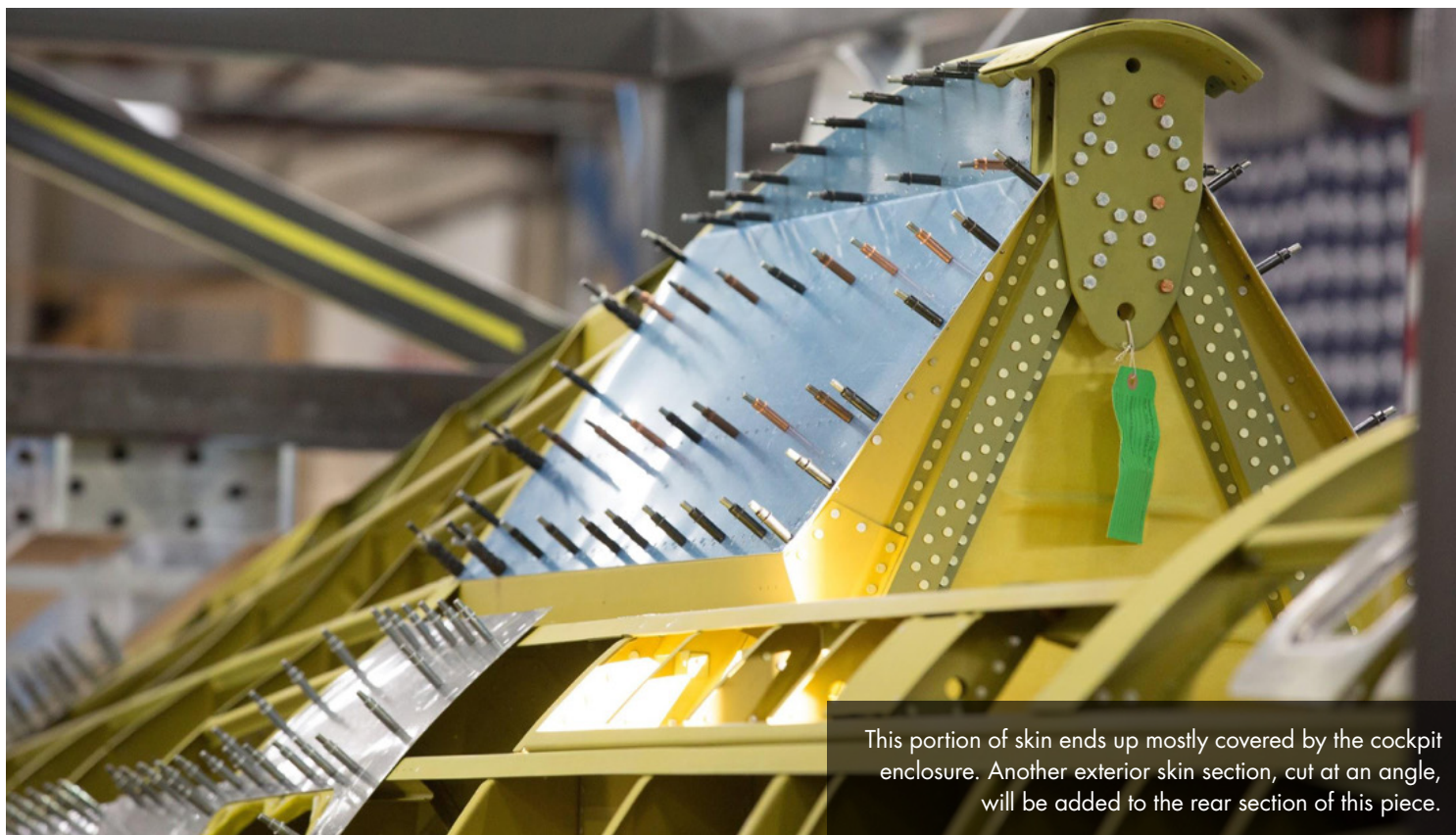


Forward Fuselage





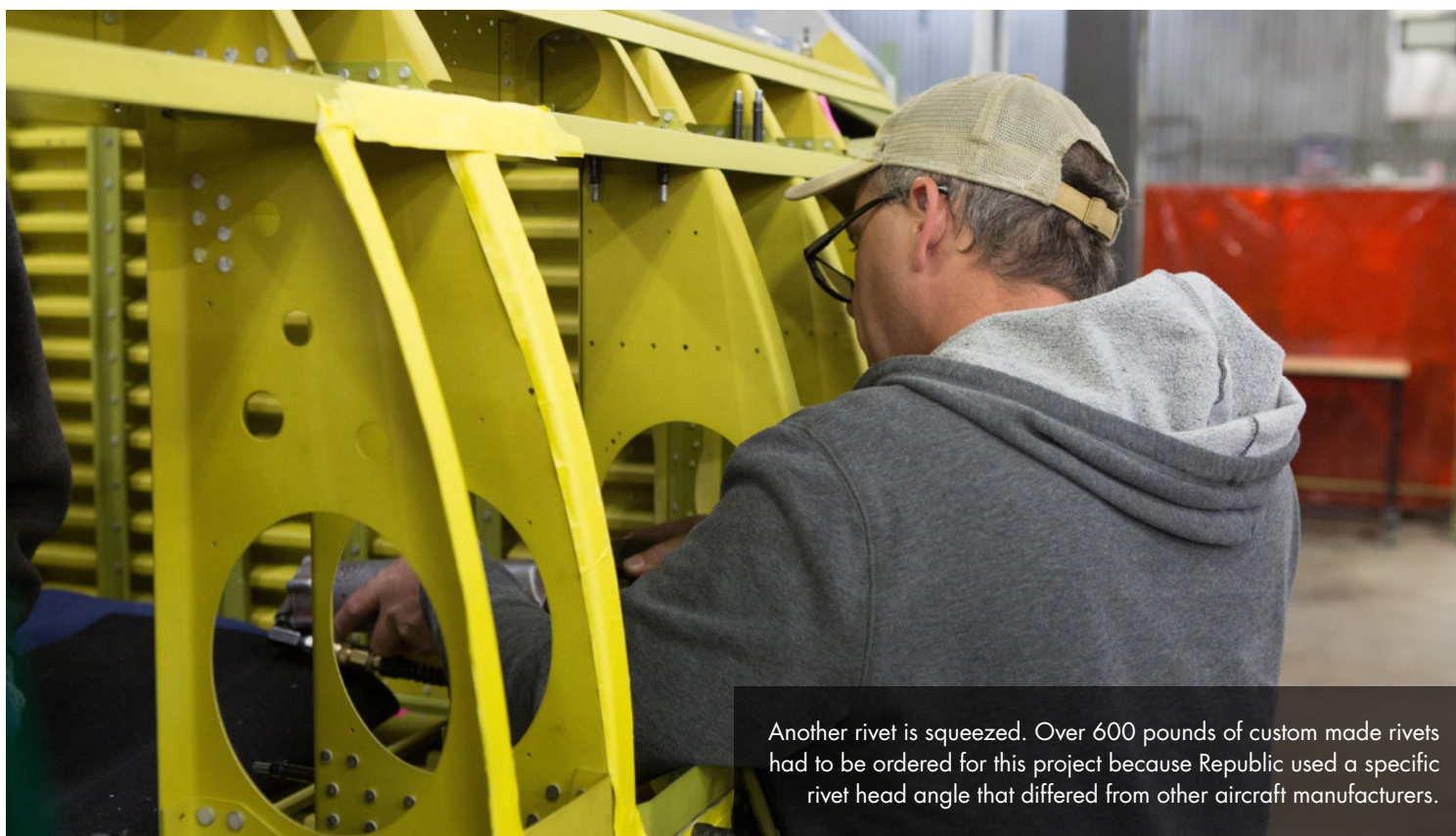
It is remarkable how many rivets are used on the rollover structure, visible in this rear facing angle.



This portion of skin ends up mostly covered by the cockpit enclosure. Another exterior skin section, cut at an angle, will be added to the rear section of this piece.



Rob squeezes a rivet in the structure that supports the main fuel tank.



Another rivet is squeezed. Over 600 pounds of custom made rivets had to be ordered for this project because Republic used a specific rivet head angle that differed from other aircraft manufacturers.



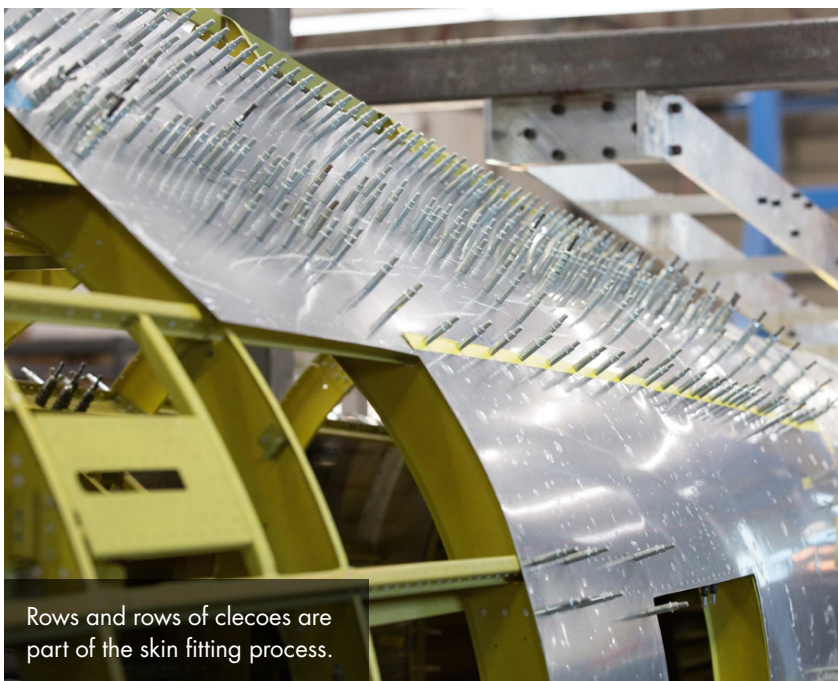
Left side view of the forward fuselage, this shot was taken from the rear of the fixture.



This image is of the inside of the rear part of the forward fuselage, again taken from the rear of the fixture.



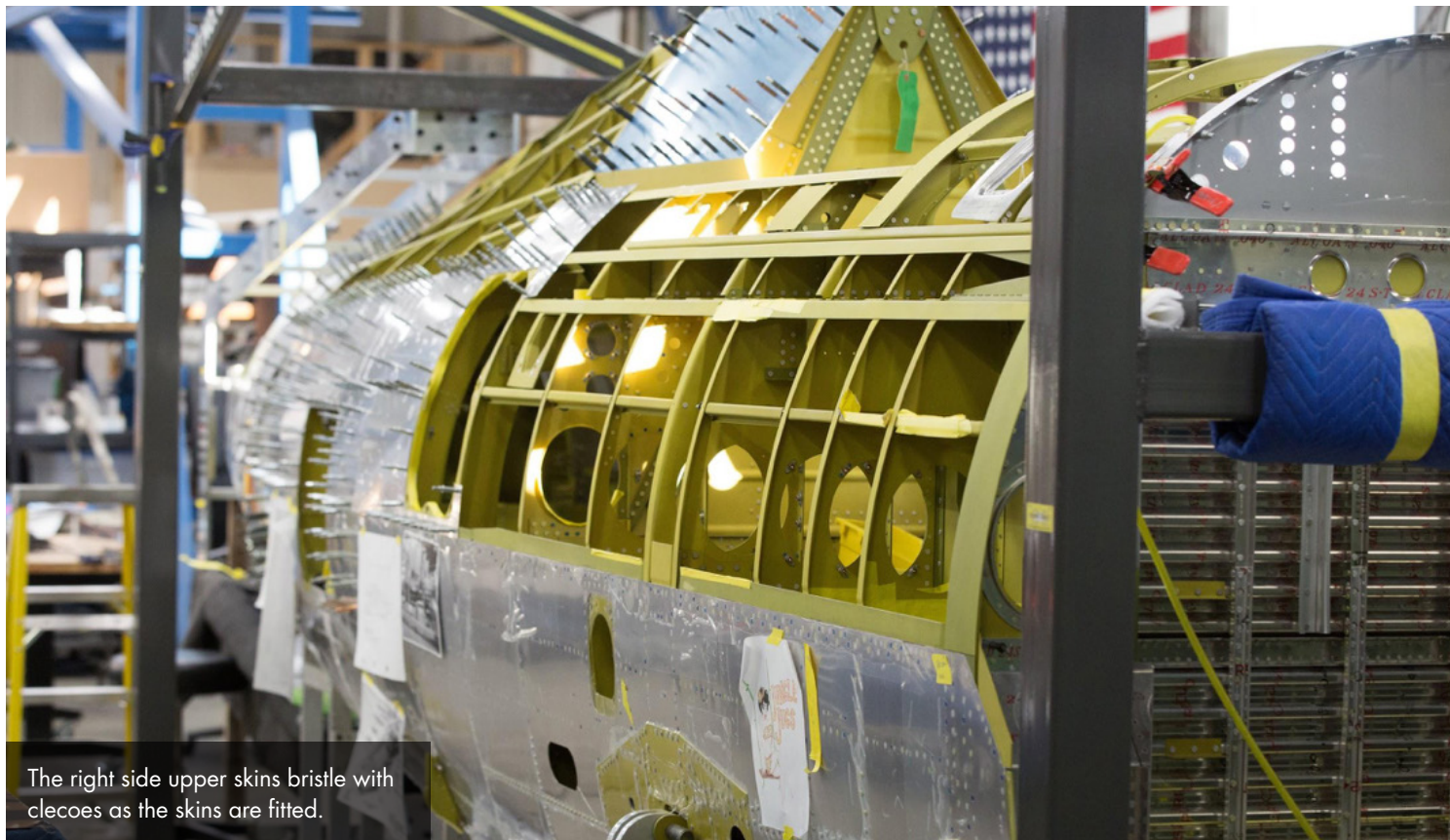
This pulley routes the tail wheel lock cable past the auxiliary fuel tank.



Rows and rows of clecoes are part of the skin fitting process.



A skin section above the intercooler exit door opening is clecoed on here.





The tail cone and its fixture are added to the forward fuselage.



The sheer size of the P-47 fuselage is apparent from this angle. The firewall forward assemblies will add another 8 1/2 feet to this for an overall fuselage length of just over 36 feet.



P-47 History, Part 2



The Republic Aviation plant in Evansville, Indiana.
Photo courtesy of Harold Morgan collection

Last month, I detailed the early history of the Thunderbolt through the prototype's first flights. This time we will look at the production of the P-47 from the earliest versions through the end of the D model series.

The first production versions were the P-47B models. 171 were built and most ended up being modified. You may recall that the XP-47A was a completely different, lightweight airframe, so that is why the first production Thunderbolts carried the "B" designation.

The P-47C introduced shackles that allowed a bomb or belly tank to be attached on the fuselage centerline. C models were also the first equipped with cockpit heating. Beginning with the P-47C-1-RE, the fuselage was extended by 8 inches, forward of the firewall. The change was done to improve handling through relocation of the center of gravity. The "C" models sent to the European Theater of Operations were the first to see combat in any numbers.

There were 55 P-47C-1-REs produced, 128 P-47C-2-REs, and 362 C-5-REs.

The "D" series P-47 was the most produced. Unlike the North American P-51, the change from "C" to "D" did not happen concurrently with the switch to a bubble canopy. The P-47D through P-47D-23-RA were all razorbacks. The bubble canopy was first used in production models on the P-47D-25-RE and continued through all subsequent models with the last of those being the P-47N-25-RE.



Republic had two factories producing the P-47. Additionally, Curtiss built 354 P-47Gs on license. The first Curtiss versions, the P-47G-CU and P-47G-1-CU were comparable to the P-47Cs built by Republic, while the P-47G-5-CU through P-47G-15-CUs were comparable to "D" models. The Curtiss built P-47Gs were used stateside, primarily in a training role.¹



Evansville, Indiana Republic Aviation factory floor.
Photo courtesy of Harold Morgan collection

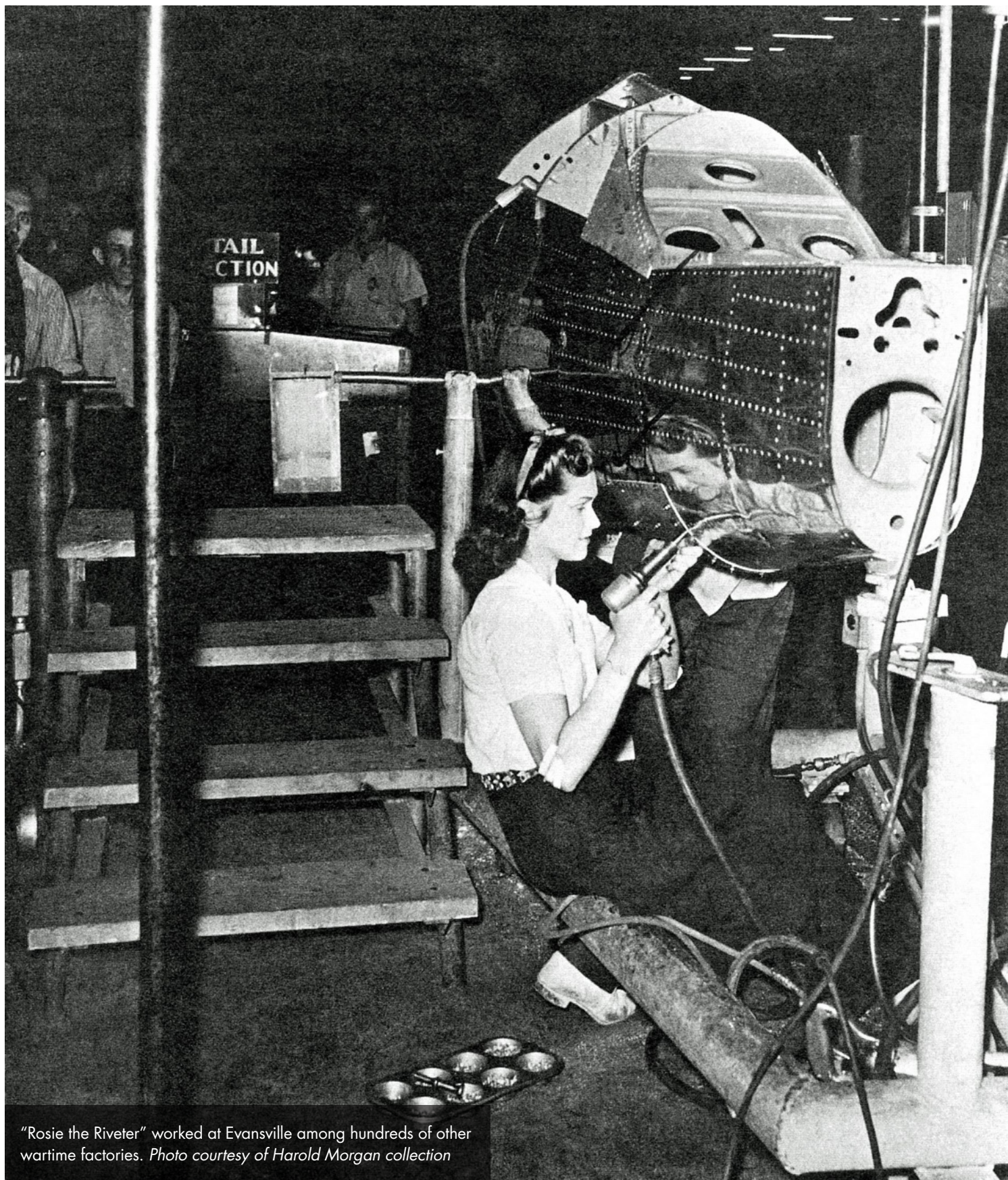
In almost all cases the RE suffix meant that the P-47 was built at the Farmingdale factory and the RA suffix indicated an Evansville, Indiana built airframe. The exception to that is the first two Evansville P-47 production blocks. The plan had been to use the "D" model designation only for Evansville Thunderbolts. But with the introduction of manufacturer's identification letters, the first P-47s built at Evansville were P-47Ds with no letter suffix, the next 110 Evansville Thunderbolts were designated P-47D-RE.²

Subsequent to those first 114 Evansville produced P-47s, the naming system was standardized to designate P-47s from both Republic factories as "D" models with a manufacturer's letters of RE for Farmingdale and RA for Evansville produced Thunderbolts.

Over 12,608 "D" models were produced, by far the most for any model. 5,429 were razorbacks and 7,179 were the bubble top versions.

¹ Roger Freeman, *Thunderbolt, a Documentary History of the Republic P-47*, (New York, Charles Scribner's Sons, 1978), 126.

² Roger Freeman, *Thunderbolt, a Documentary History of the Republic P-47*, (New York, Charles Scribner's Sons, 1978), 113.



"Rosie the Riveter" worked at Evansville among hundreds of other wartime factories. Photo courtesy of Harold Morgan collection

