



March/April-2019

MARCH/APRIL



AIRCORPS AVIATION

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



The P-47 fuselage is out of the fixture at last.



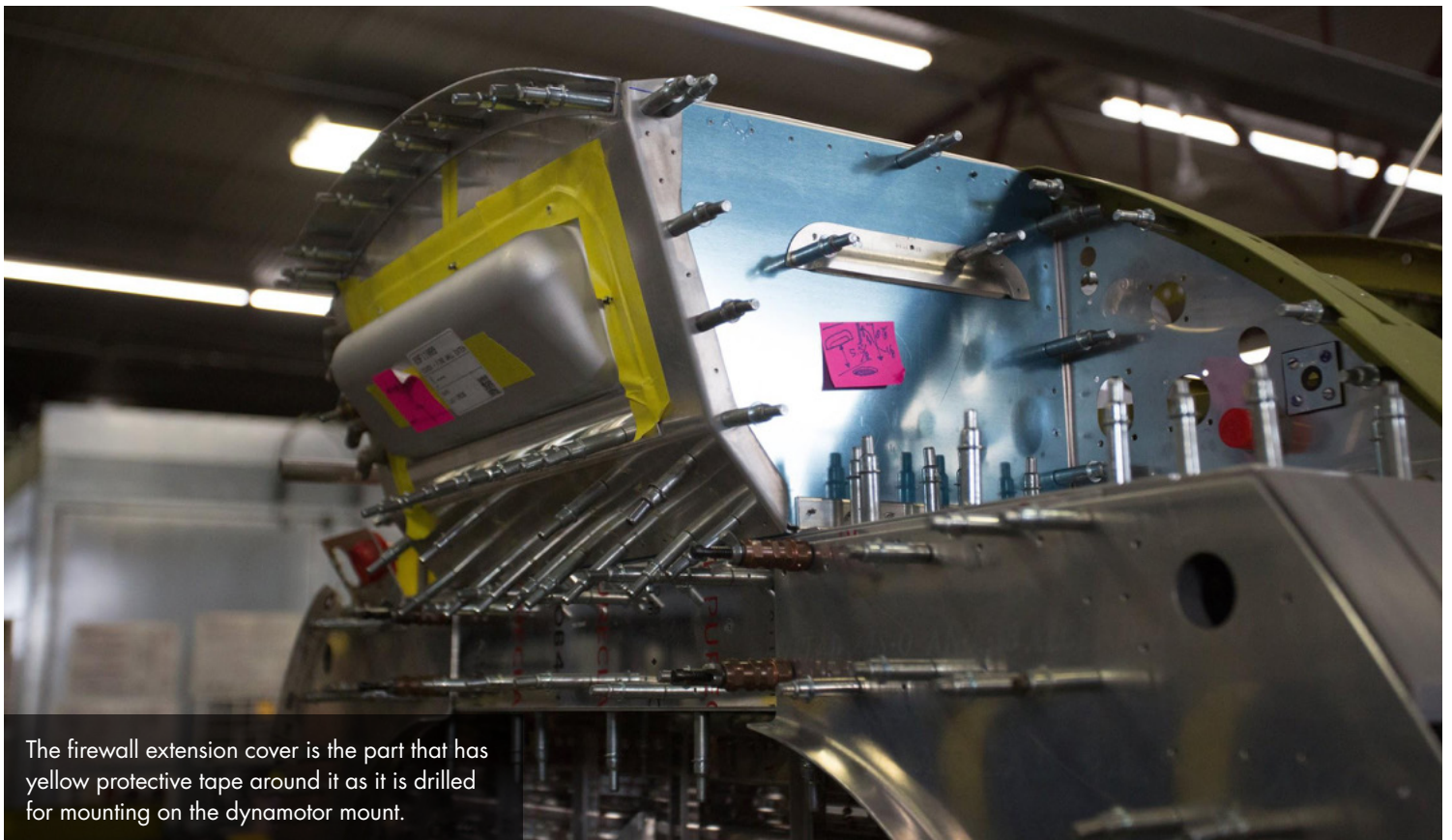
www.dakotaterritoryairmuseum.com

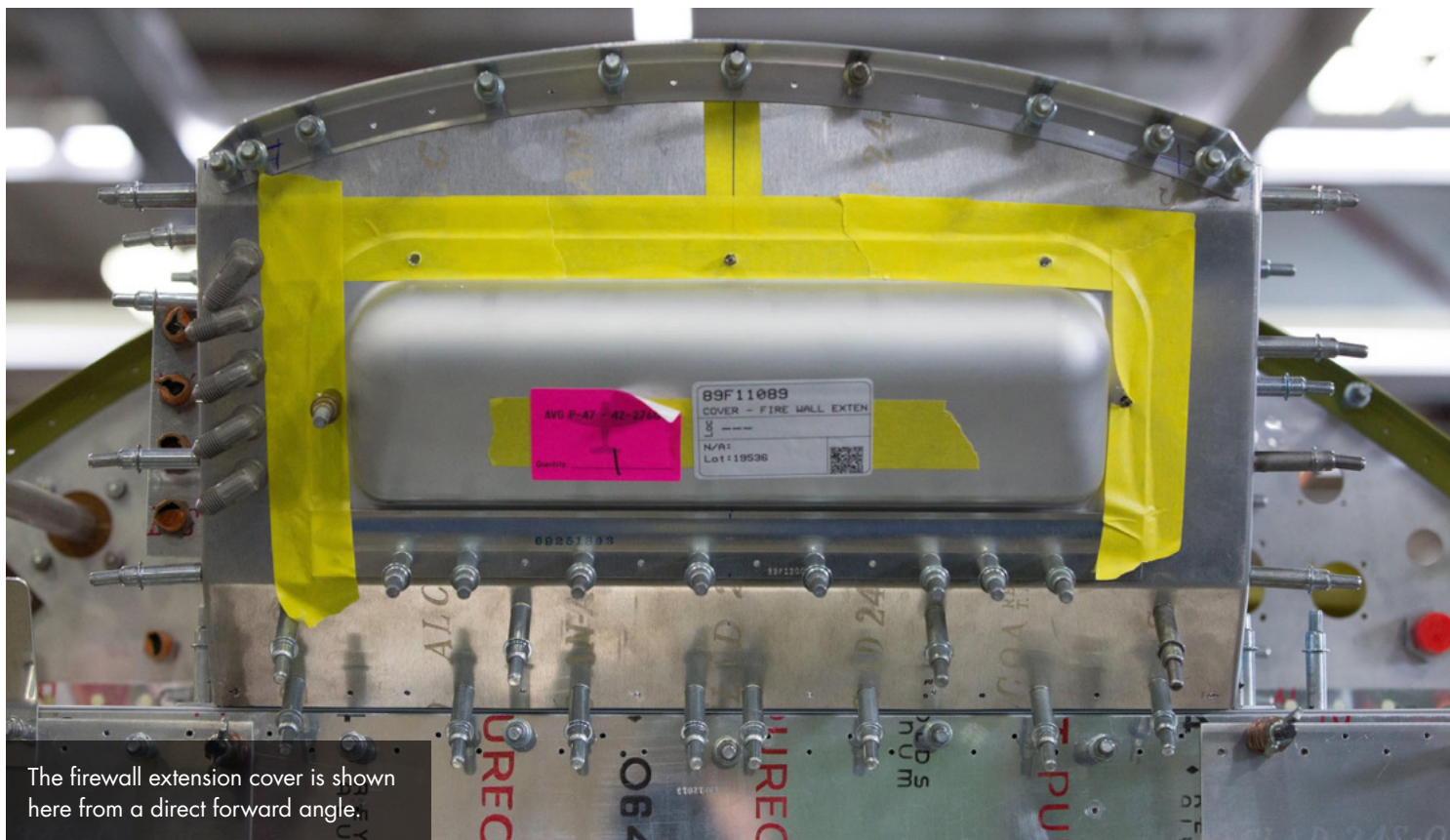


Update

Fuselage work continued this month, including removing the fuselage assembly from its fixture in the later part of the month. Work on wing spars was begun and, as always, parts fabrication and finishing continues. Included in this month's update is an image of a page from (at the time) Major Bill "Dingy" Dunham's own 342nd Squadron class book.

Fuselage Assembly Work





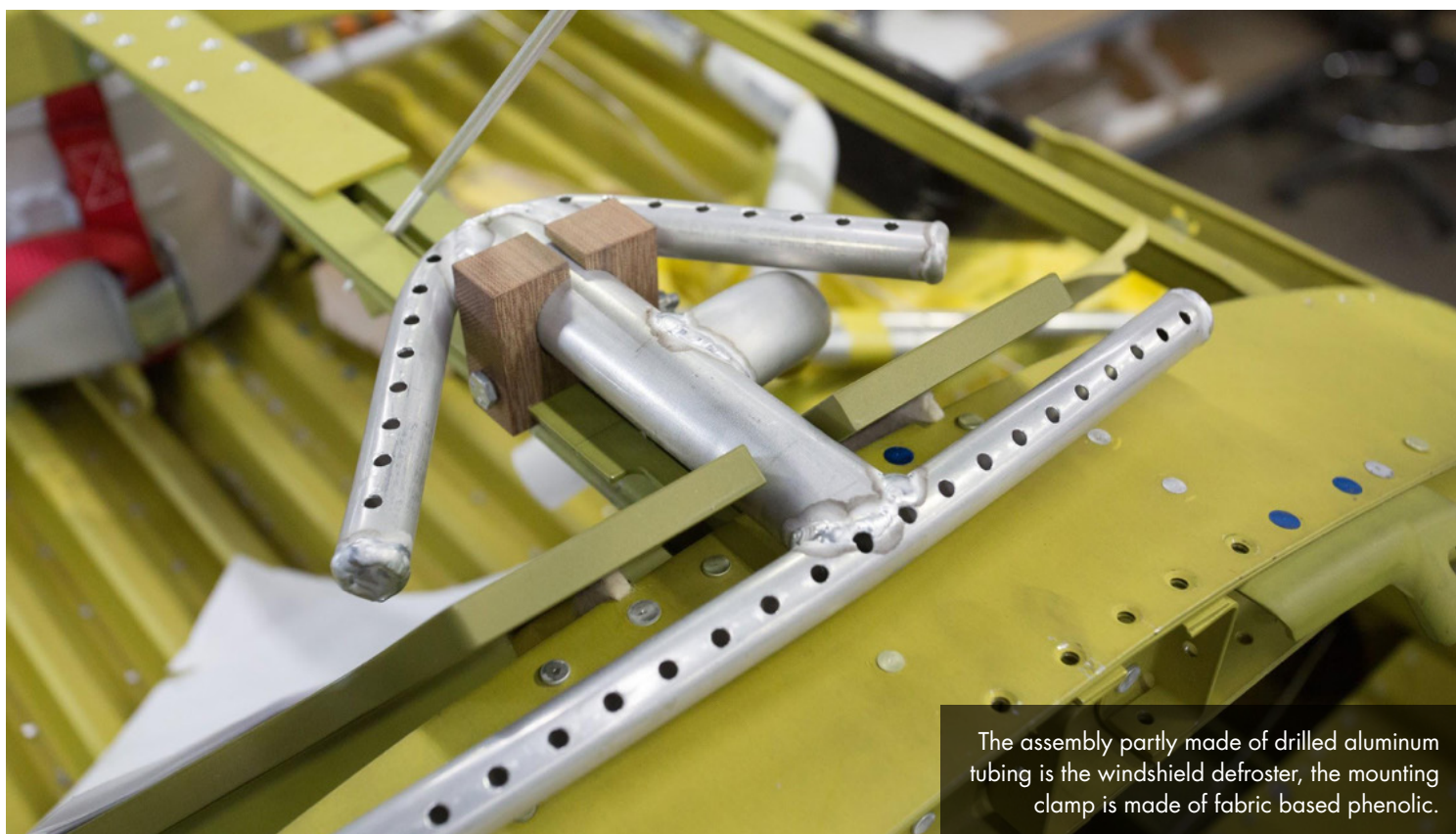
The firewall extension cover is shown here from a direct forward angle.



The windshield frame and the firewall extension are visible in this image.



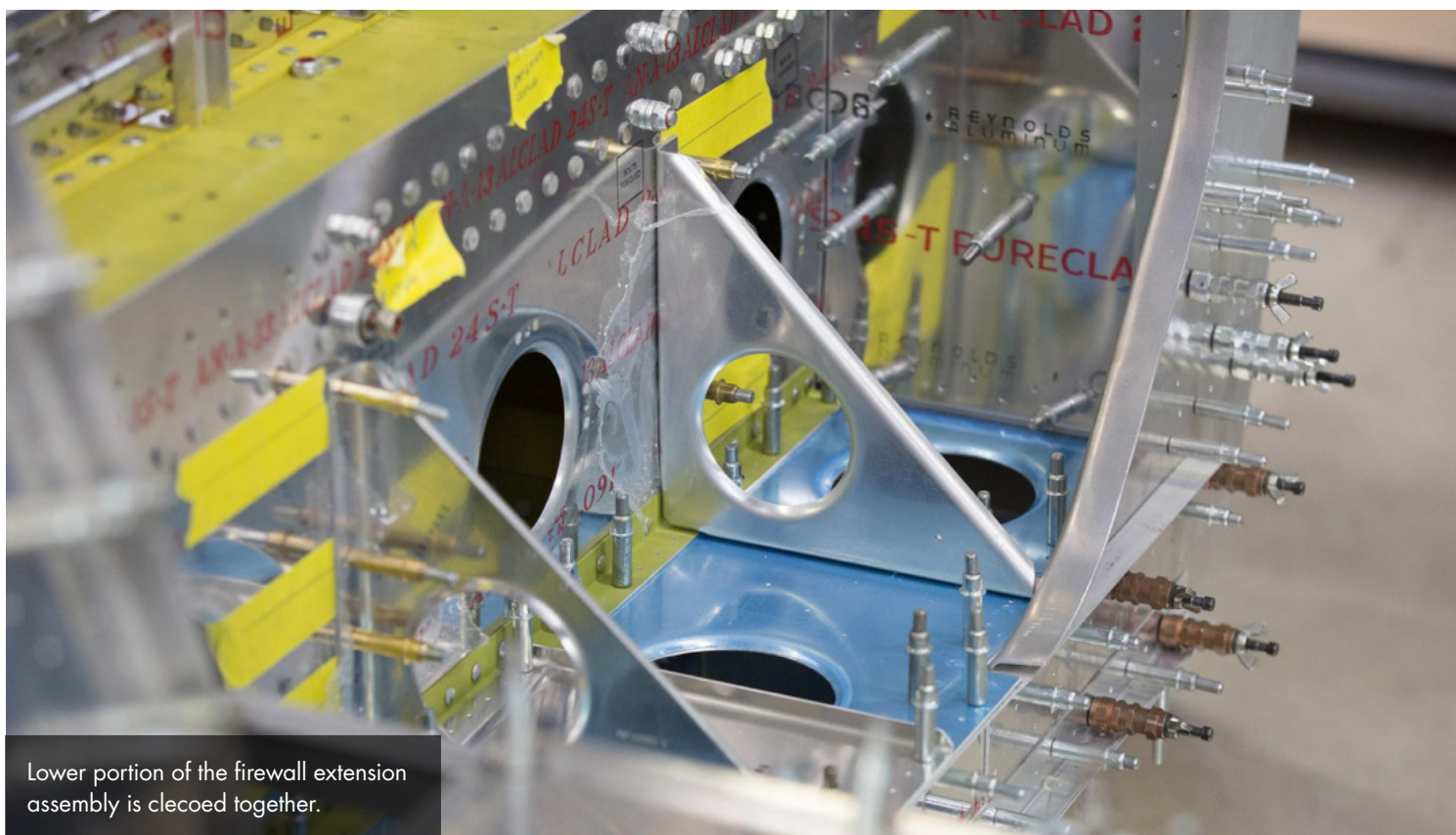
Another angle shows more detail of the windshield frame.



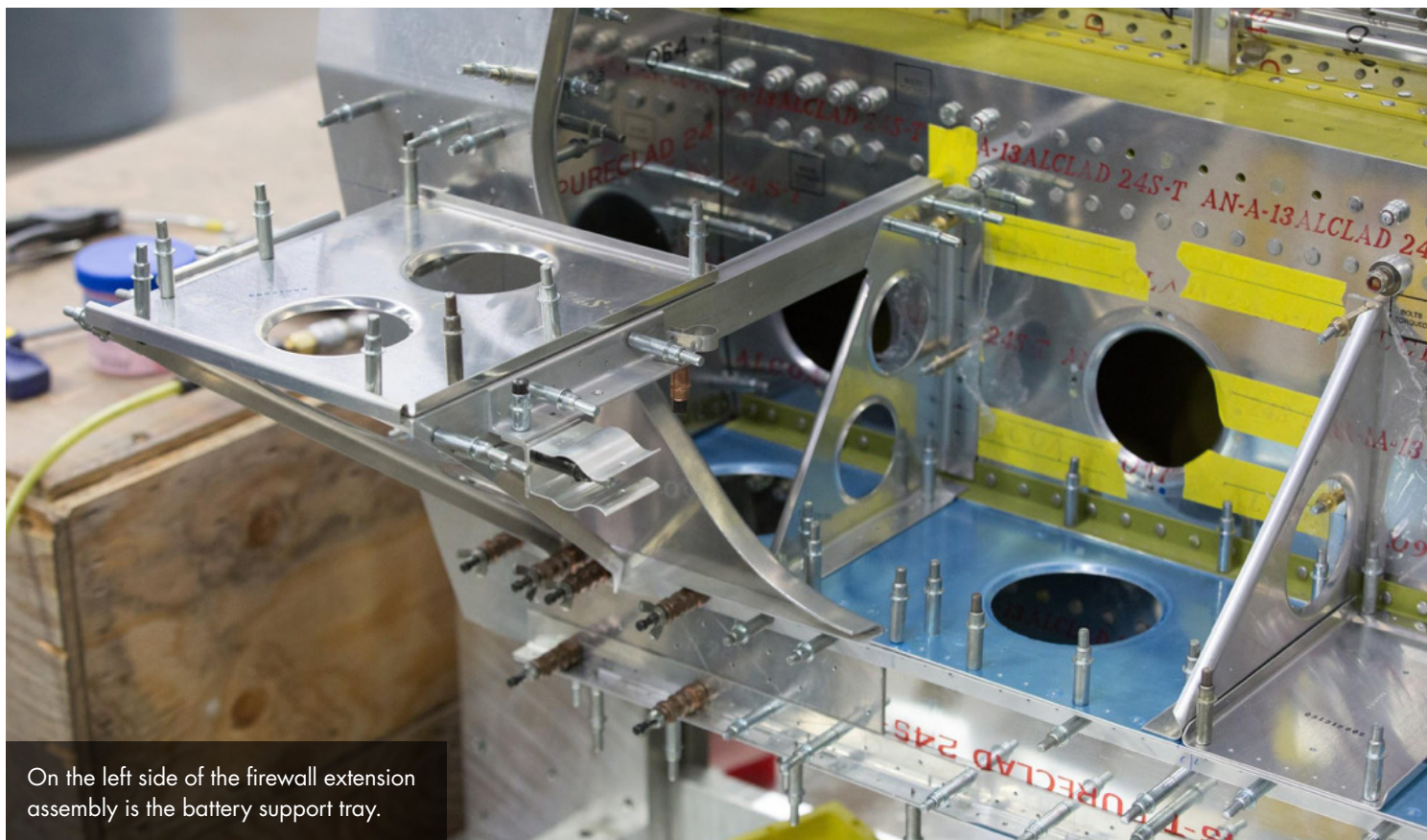
The assembly partly made of drilled aluminum tubing is the windshield defroster, the mounting clamp is made of fabric based phenolic.



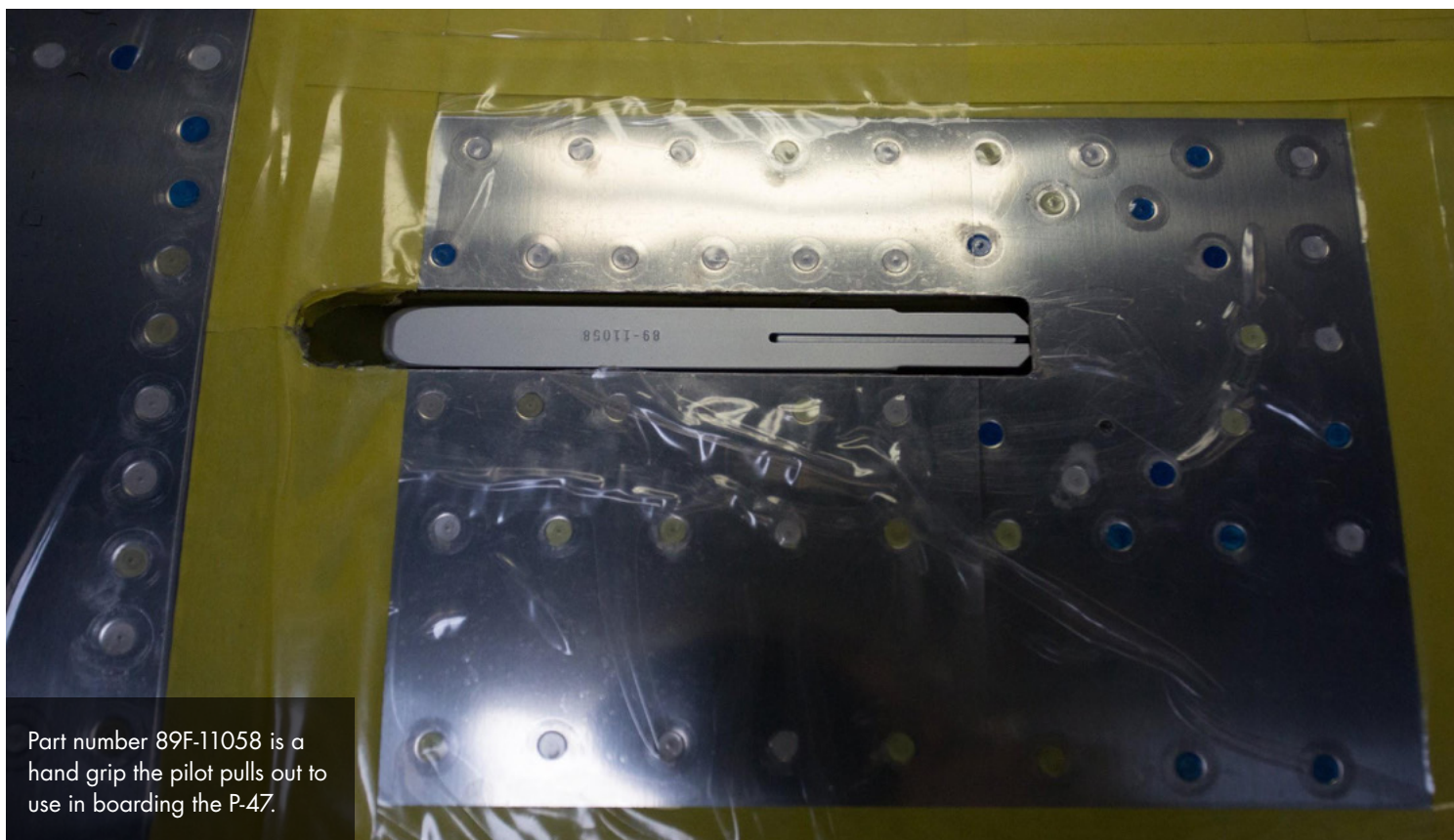
This image shows the windshield defroster assembly as it sits relative to the windshield itself.



Lower portion of the firewall extension assembly is clecoed together.



On the left side of the firewall extension assembly is the battery support tray.



Part number 89F-11058 is a hand grip the pilot pulls out to use in boarding the P-47.



The item with the red straps around it is the hydraulic reservoir.

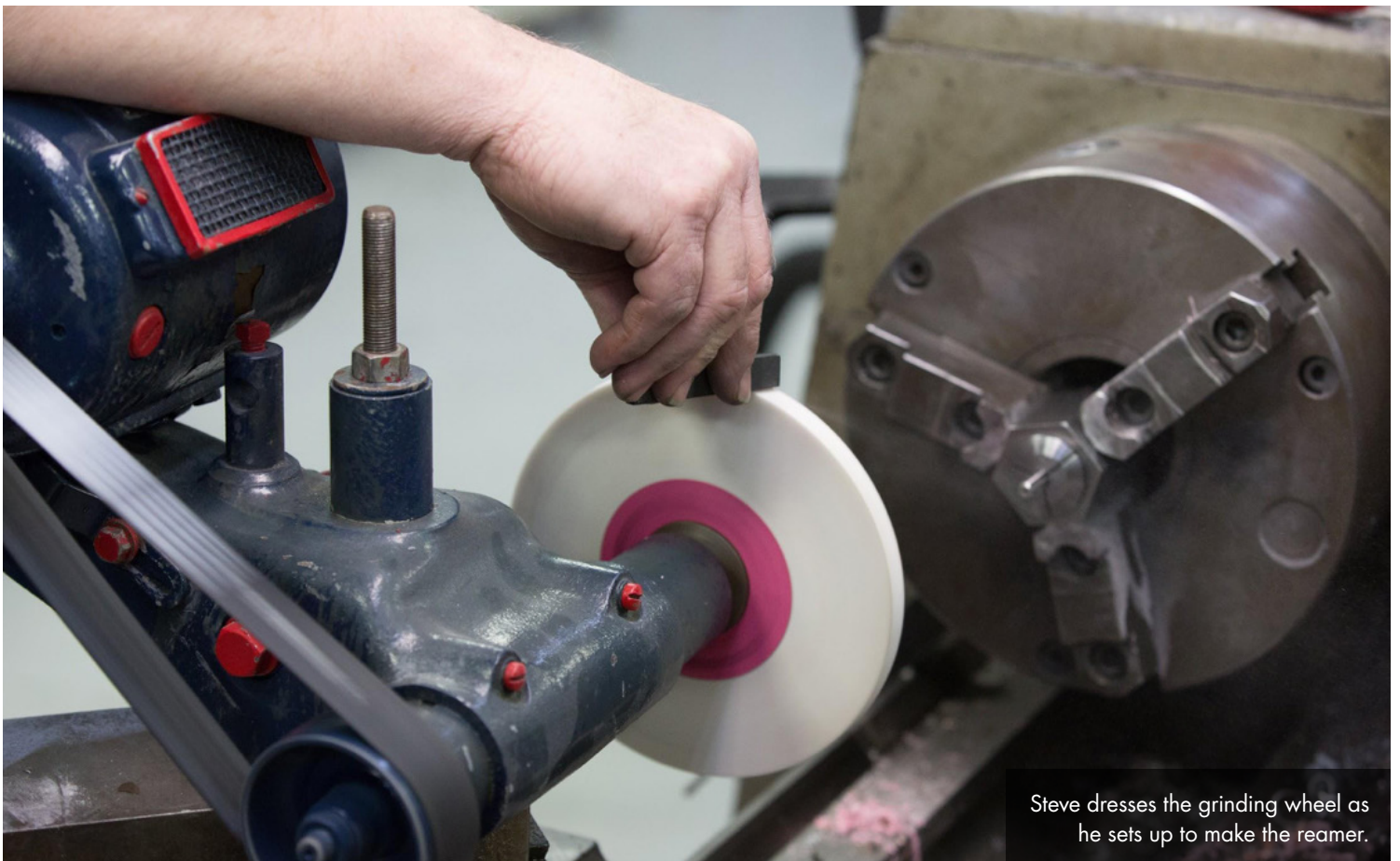


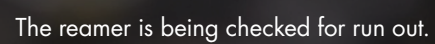
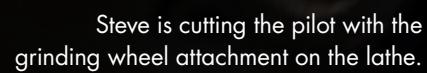
The tail wheel will soon support the fuselage as it is removed from the fixture.

Fabrication



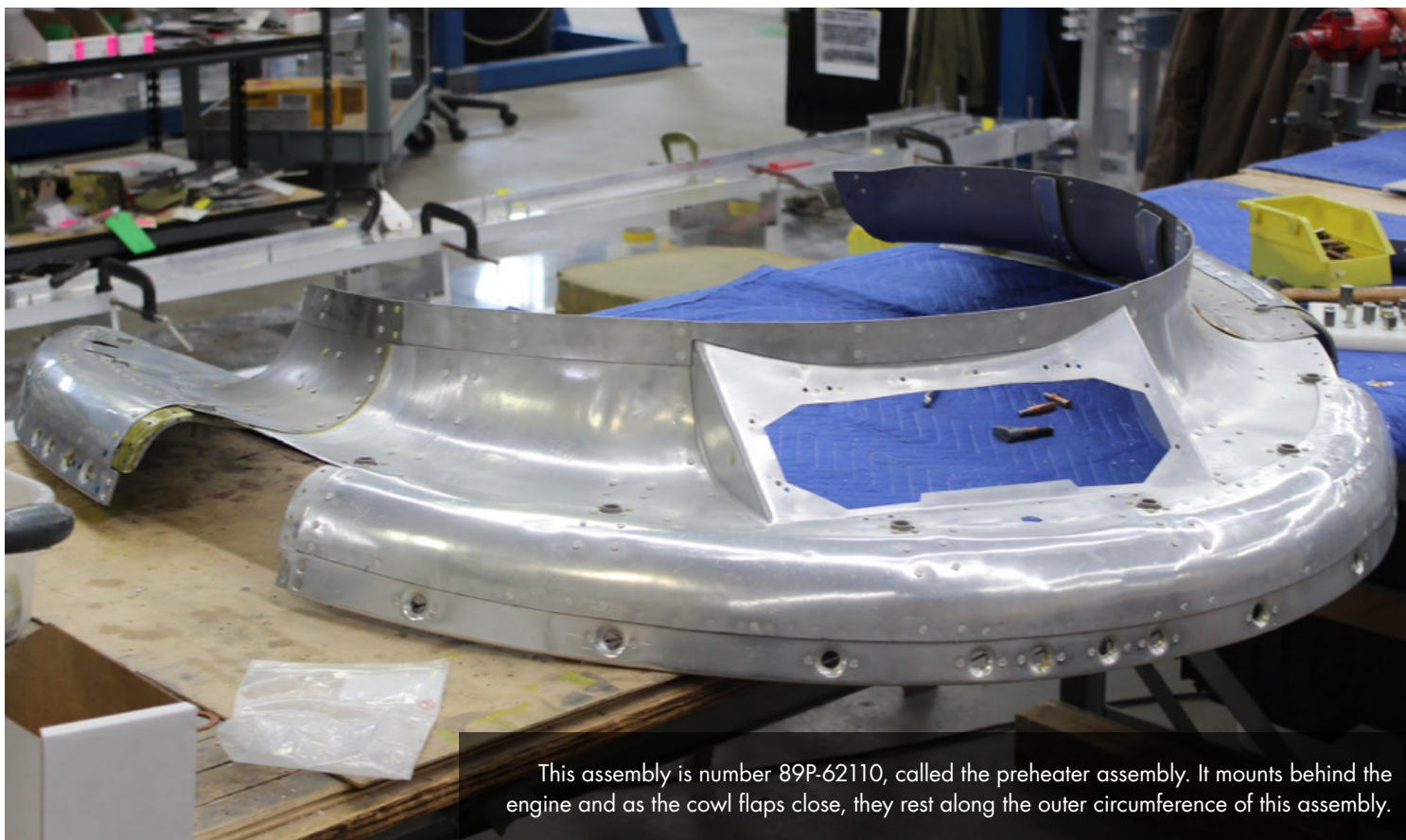
Matt spot welds a wing tank control bracket leg assembly, part number 93C-78135.







Rob works on one of the intercooler exit doors.



This assembly is number 89P-62110, called the preheater assembly. It mounts behind the engine and as the cowl flaps close, they rest along the outer circumference of this assembly.



Out of the Fixture!

Another restoration milestone was reached this month. The fuselage has progressed to the point where it was removed from the main alignment fixture. With such a large assembly, the process was complicated and done very cautiously.





Randy is checking that the forks are perfectly aligned with the main fuselage longeron before lifting.



Very slowly the forward fuselage was moved away from their main fixture.



As the forward fuselage moves out, the rear had to be shifted in the opposite direction.



It is easy to see how tight the clearances between the fuselage and fixture became as it was angled out.



Next the fuselage was moved forward. The straps holding up the rear fuselage are just visible in this image.



The move continues after the rear fuselage was set down on the tailwheel to reposition the straps.



Aaron and Randy keep anything from contacting the fixture in the last part of the move.



The cockpit area will be more accessible with the fuselage out of the fixture.



This view from the front shows the remaining part of the fixture used to hold the forward fuselage up by the wing attachment points.



The rear is held up by a floor jack at the rear jacking point under the fuselage.



Wing

As the fuselage progresses, the wing assembly has been started. First comes the spars which were begun this month. Of course parts have been in the fabrication process for a long time, and some still are, but it is great to see the parts coming together in the fixtures.



Neil sets up the CNC router for machining a wing spar cap. It takes from 4 to 5 workdays to produce one of the spar caps from a custom extrusion. Each one has to be repositioned 9 times during the routing process.

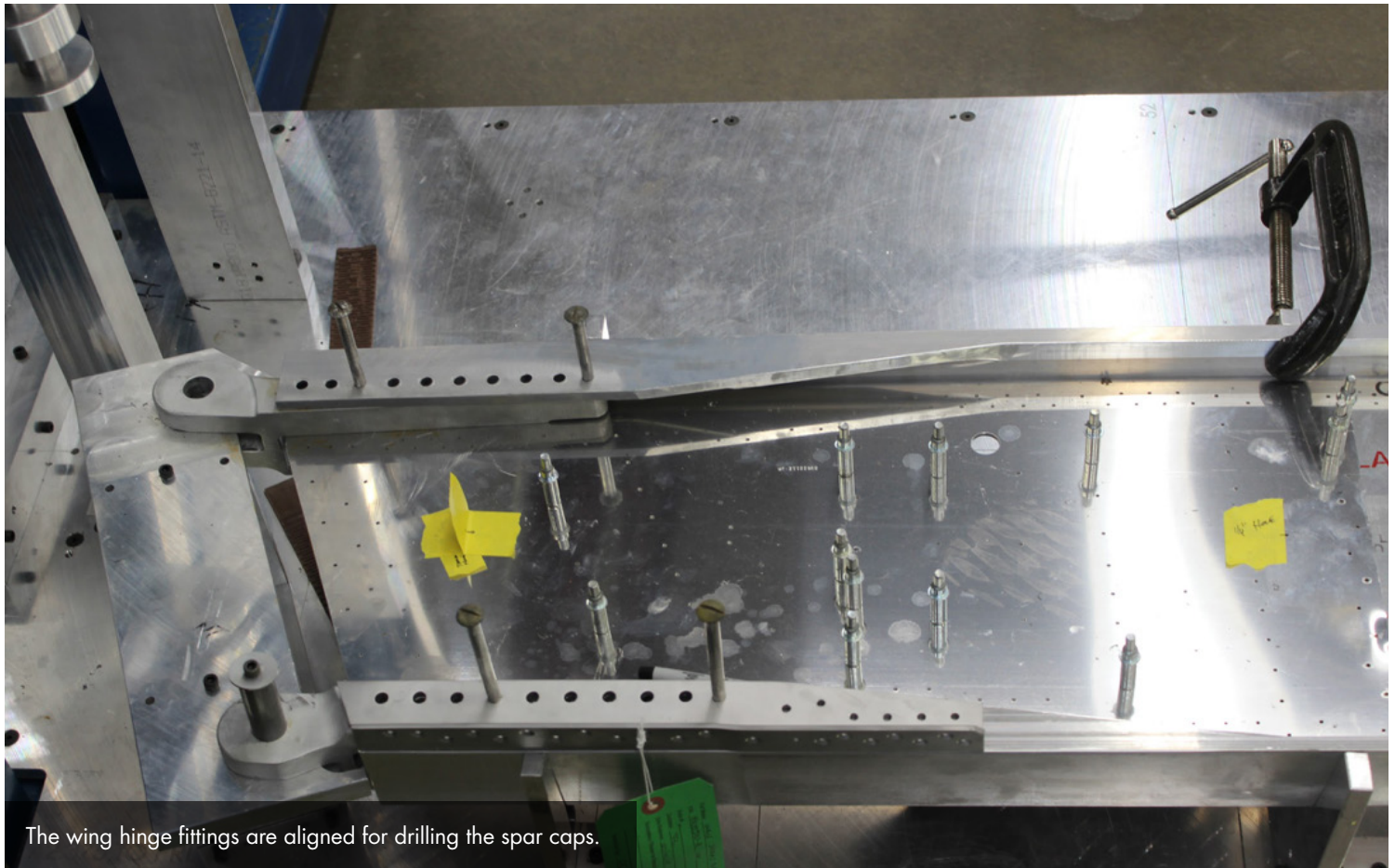
There are four of these in each wing, so eight will be machined.



One of the eight spar caps on a bench as wing assembly begins.



One of the first major wing assemblies is the main spar, shown here as the spar and spar caps are test fitted in the fixture.



The wing hinge fittings are aligned for drilling the spar caps.

5th Air Force's William "Bill" Dunham, second leading P-47 ace against Japan

Bill Dunham was the second leading ace (behind Neel Kearby) of the 5th Air Force's 348th Fighter Group. While our research indicates that 42-27609 was more likely to have been a 35th Fighter Group Thunderbolt, it is still possible that it could have been assigned to the 348th, at least for a short time.

Bill's daughter, Margo Prudente, very generously allowed us to digitize Brigadier General Dunham's 342nd fighter squadron class book from his late 1942 training in P-47s.



The 342nd FS trained at Bedford, Mass. The notes in the image above are in Bill Dunham's handwriting, and list his air to air victories up until October 11, 1943. He kept notes in this class book on all the members of the squadron. Notes were written on each pilot's photo page and listed victories and their loss or transfers out, when appropriate.

In January 1943, Dunham deployed with the 342nd Fighter Squadron in Australia and New Guinea and served as operations officer and later commander. In July 1944, he became commander of the 460th Fighter Squadron in New Guinea and remained in this position until December 1944, when he became operations officer of the 348th Fighter Group, Philippine Islands.



Major Bill "Dingy" Dunham's P-47D-23 Bonnie when he was in command of the 460th Fighter Squadron in the Philippines. *Photographer unknown*

Bill Dunham flew three different P-47s in combat, a D-2RE, a D-21RE and the one shown above, a D-23RA, his final P-47 before the 348th FG switched to Mustangs.

In January 1945, Lt. Col Dunham returned to the United States and attended gunnery school at Foster Field Texas, until May 1945. Upon graduation, he immediately returned to the 348th Fighter Group in the Philippine Islands and continued to serve as operations officer. He later became deputy commander.¹

Dunham's final World War Two victory tally reached 16 on August 1, 1945 in a P-51 named Mrs. Bonnie. All 15 earlier victories were achieved while he was flying one of his three P-47s.²

Physical and Performance Specifications of the P-47D-23RA

The P-47D-23 from the Evansville factory and the D-22 from the Farmingdale, N.Y. factory were the first of the Thunderbolts to use paddle blade propellor blades. These wider and longer blades were installed to better use the horsepower of the R-2800 at high altitudes, and to increase climb performance. The D-22 used a 13 foot 1 inch Hamilton Standard hydraulically actuated prop and the D-23 used a 13 foot 1 inch Curtiss Electric, with the pitch change accomplished via an electric motor driven mechanism.

Coupled with the water injection and the higher turbo rpm limits, the P-47D-23 represented an increase in performance.

In his excellent book, "Check Six", co authored with Terry Poprovak; James Curran mentions the D-23. " Later in the war, my last Jug, a P-47D-23, had a turbo relined at 23,000 rpm. Coupled with alcohol/water fuel injection, the Pratt & Whitney engine delivered 60 inches of manifold pressure all the way to 40,000 feet. What a ride!"³

¹ USAF Biographies, downloaded 4/18/2019: <https://www.af.mil/About-Us/Biographies/Display/Article/107188/brigadier-general-william-d-dunham/>

² John Stanaway, *Mustang and Thunderbolt Aces of the Pacific and CBI*, Aircraft of the Aces Series (Book 26), (New York: Osprey Publishing, 1999) p47

³ Jim Curran and Terrence Poprovak *Check Six!: A Thunderbolt Pilot's War Across the Pacific* (Havertown, PA, Casemate Publishers, 2015) 64

**Performance and physical specifications from USAAF data explicitly for the D-23 follow:****Engine:** Pratt & Whitney R-28800-59 Turbo**Propellor:** Curtiss 13'0" Diam. 4 Blade

constant speed electric

Brake Horsepower at altitude:**Take off:** 2,000 at sea level**Military:** 2,000 at 27,000 ft asl**With water injection:** 2,300 at 27,000 ft. asl**Continuous:** 1,625 at 29,000 ft asl**Overall Length:** 36 feet 2 inches**Wingspan:** 40 feet 9 inches**Weight:****Empty:** 9,900 lbs.**Basic:** 10,500 lbs.**Combat:** 14,000 lbs.**War Maximum:** 17,000 lbs.**Fuel:****Main:** 205 gallons**Auxiliary:** 100 gallons**External:** 2X 150 gallons wing (Plus 1X 75 gallon belly drop tank)**Total:** 680 gallons*NOTE: There were other fuel tank configurations including the 200 gallon Townsend belly tank made by Ford of Australia***Take Off (T.O.) and Landing**

	To Clear a 50 foot Obstacle		Landing Speed	Ground Run	
	T.O Distance	Landing Distance		T.O.	Landing
14,000 lbs.	3,400 ft.	2,700 ft.	106 mph	2,300 ft.	1,800 ft.
17,000 lbs.	5,200 ft.	2,700 ft.	106 mph	3,600 ft.	1,800 ft.

High Speed and Climb

Altitude High Speed	War Emergency Power Rate of Climb		Military Power		Continuous
5,000 ft.	350 mph	2,940 fpm	345 mph	2,570 fpm	329 mph
15,000 ft.	383 mph	2,725 fpm	379 mph	2,465 fpm	342 mph
30,000 ft	426 mph	1,600 fpm	414 mph	1,360 fpm	382 mph



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