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RAZORBACK THUNDERBOLT

Improving a 1/32 scale P-47, page 42

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Detailing Revell's 1/32 scale P-47

A classic "Razorback Jug" of WWII ace Francis Gabreski

Before WWII ace Francis Gabreski flew his familiar bubbletop Thunderbolt, he flew this razorback, seen here with eight victory markings.

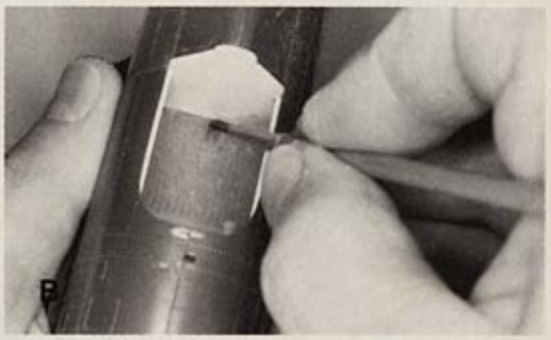
BY PAUL BUDZIK

NO MATTER how you look at it, Republic's P-47 Thunderbolt is an impressive airplane. Its large size makes it an equally impressive replica in 1/32 scale, but the old Revell kit's inaccuracies have kept enthusiasts from seeing its real value: a palette for the detailer's brush.

I started this project by comparing the features of the real aircraft with the kit, then decided what modifications would capture the features of the prototype. After looking through my references, I found that most P-47s were parked with cowl flaps open and wing flaps up (despite a training film's suggestions to the contrary). The elevators were frequently dropped several degrees. Most often the tires had a diamond tread pattern. I wanted to incorporate these features in my model, along with improvements to the landing gear, engine, and cockpit.

Thunderbolt

As big as they get. The massive P-47 Thunderbolt model by Revell receives Paul's superdetailing treatment. Scratchbuilt landing gear and an intricately detailed engine are among his improvements. Paul Budzik photos.

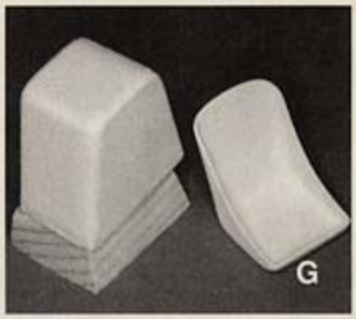


Step 1. Cockpit improvements. The stock cockpit is spartan even for a kit of this vintage (**A**). I made a new cockpit floor from two pieces of acrylic sheet, then carved ribs into it with a grinding bit in a miniature milling machine. Using the kit's rear bulkhead as a guide, I cut a new one from .030" styrene. I traced the outline of the front of the razorback onto the bulkhead, then cut it to fit inside the taped-together fuselage. Next I cemented the new front and rear bulkheads to the floor (**B**).

I cut new cockpit walls from .030" sheet styrene using the kit walls as a guide for the height (**C**). With thin strips of styrene cemented to the front and rear bulkheads to hold the walls in position, I built the remaining tub structure with sheet acrylic and styrene (**D**).

I sanded the kit instrument panel/rudder pedal assembly thin and used it as a mount for new scratchbuilt items. I photoetched my own instrument panel (**E**) and used a reduced photo image of an instrument panel I drew for the gauges (see "Photoetching for modelers," July 1991 FSM). I cut notches in the sidewalls to locate the panel and pedal assembly, then fashioned troughs for the rudder pedals from sheet styrene and cemented them to the floor (**F**). I vacuum formed a new seat over a homebuilt form (**G**), and built the supporting frame from brass wire and machinings.

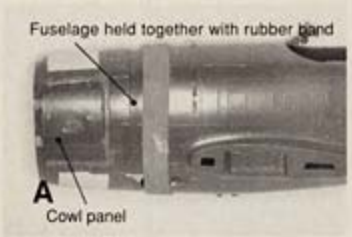
Step 1 continued on next page

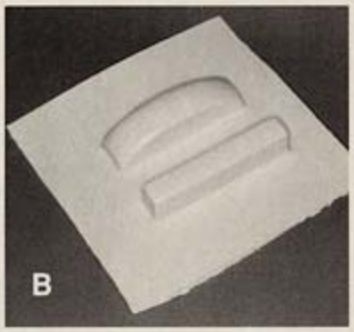


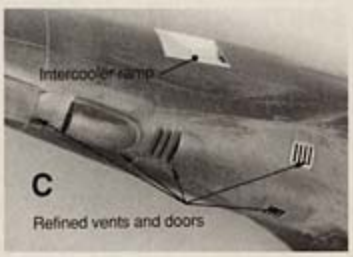
All the boxes in the cockpit were milled from acrylic rod, while the control stick, manual hydraulic pump, and flap equalizer were machined from brass. I used brass wire and machinings for the buttons and knobs along with some of Waldron's P-47 placards.

I made the oxygen hose by wrapping .015" solder around another piece of wire. The hose and regulator were fit onto the fuselage before the tub was in place. I added the throttle quadrant after painting so it wouldn't be in the way.

The finished cockpit looks a lot better than the one provided in the kit (**H** and **I**).







Step 2. Fuselage. I wanted to pose the cowl flaps open, so I needed to cut the cowling from the fuselage halves. First, I cemented and filled the seams around the cowling panels (**A**), then carefully scored around the edge of the cowl from the inside with multiple passes of a hobby knife. I wanted to cut almost all the way through. Next, I held the fuselage halves together with rubber bands and applied cement to glue only the cowl portions together. Once set, I carefully snapped the cowling from the fuselage; this left me with a small lip to help me relocate the cowling later.

I replaced Revell's flat intercooler ramps in the aft fuselage sides with curved ramps I produced by vacuum forming over a wood mold (**B**). I boxed them in with sheet styrene. I added the intercooler doors just before painting to keep them out of the way while I sanded and rescribed the fuselage. I improved the other vents and doors on the bottom rear fuselage (**C**), then glued the fuselage halves together, incorporating the cockpit tub and engine fire wall.

SOURCE

- **Photoetched detail parts**: Waldron Model Products, P. O. Box 431, Merlin, OR 97532

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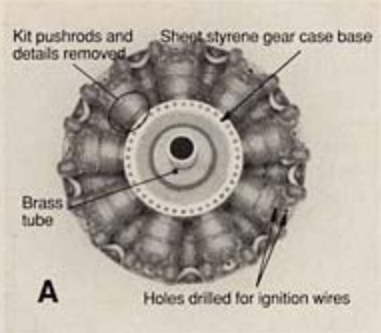
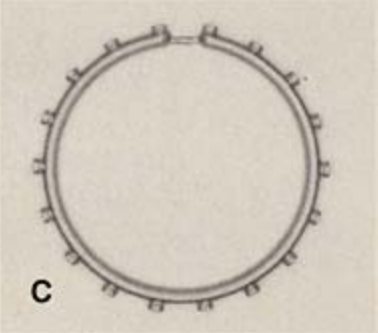
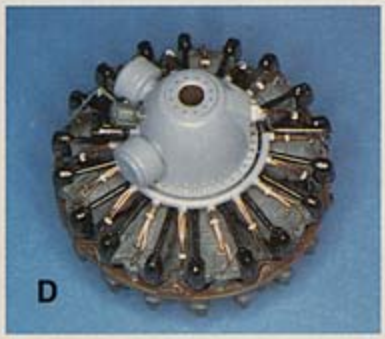
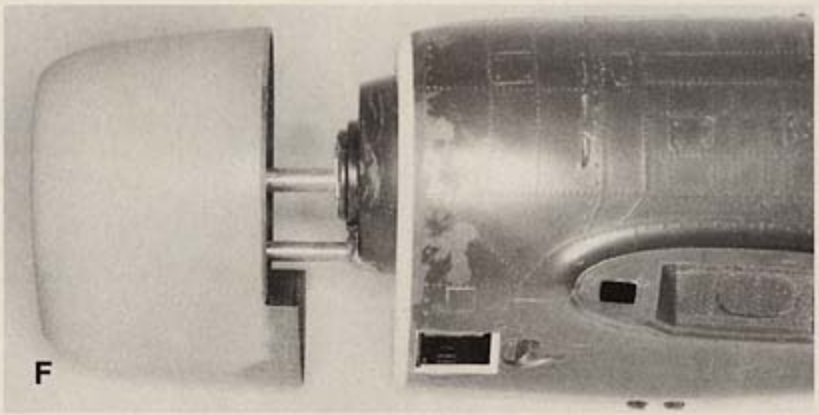
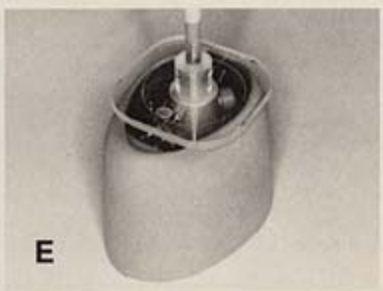










Step 3. Engine detail. One of the things I like about radial engines is that I can superdetail the power plant without opening panels that destroy the lines of the airplane. I assembled the cylinder banks as per the instructions but spent time removing the molded ignition wires. I drilled holes in the cylinders to accept new ignition wires, then removed a little plastic from the back of the front cylinder row to place the two rows closer together. After gluing the cylinder banks together, I placed the engine in the lathe and bored a hole through the center to accept a 5/32" brass tube long enough to anchor in the fire wall and extend past the gear case.

Revell's gear case didn't look right, so I made a new one. First, I cut a hole in a piece of sheet styrene, then cemented it in place over the front of the cylinder banks. I drilled holes to accept bits of .028" steel wire which simulate the nuts and bolts on the base of the gear case (**A**). Next, I turned a new gear case from acrylic rod, then added the oil drain, magneto mount, and holes for the distributors. After cementing the gear case in place (**B**), I added .032" wire pushrods into holes drilled around the circumference of the crankcase.

Next came the wiring harness, which I made by machining a brass ring, then press fitting tiny brass machinings into holes drilled around the ring (**C**). I mounted the ring with .016" wire supports that fit into holes drilled into the engine behind the gear case.

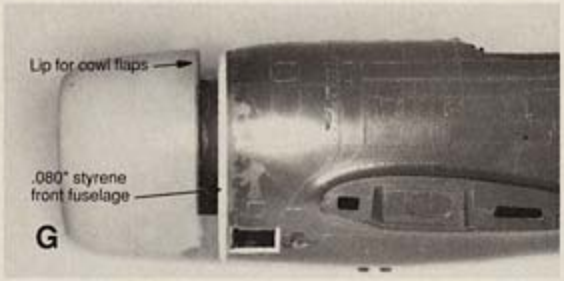
I had to paint and assemble in stages to create a realistic look to the engine. First, I airbrushed the cylinders Floquil Grimy Black, the gear case gray, and the wiring harness flat aluminum. Next I brushed the pushrods with Testor gloss black, then inserted sections of hypodermic needle to simulate spark plugs on the cylinders. At this stage I could epoxy the wiring harness in place, add the acrylic rod distributors, and repaint the gear case. I added unpainted copper wire for the spark plug wires to simulate the shielding. Finally, I machined brass for the prop governor and magneto (**D**).

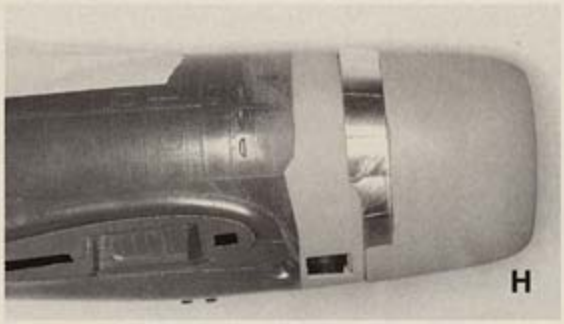
With that big open front end, I wanted to be sure the engine was properly aligned in the cowling, so I made an alignment jig. I scribed a circle in a scrap of sheet acrylic, then drilled a hole in the circle's center. The brass tubing that fits through the engine also fits through this hole while the acrylic sheet rests against the front of the cowl (**E**). I anchored the engine to the cowl by applying small dabs of dental acrylic between the cylinder heads and the inside of the cowl. Dental acrylic contains a solvent that reacts with styrene, so the material bonds to the plastic when set.

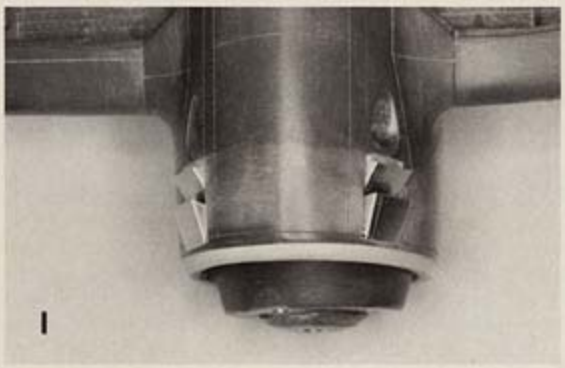
To help anchor the engine/cowl subassembly to the fuselage, I drilled an oversize hole in the kit's engine mount, larger than a piece of telescoping brass tubing I placed over the tube projecting from the back of the engine. I applied a little dental resin to the outside of this new tube, and positioned the cowling on the fuselage. When set, the resin fills the space in the oversize hole. Now I could slide the engine/cowl off the fuselage while the outside tube remains in the engine mount. I repeated this telescoping tubing technique on the bottom of the engine to ensure correct alignment (**F**).

Next, I evened off the front of the fuselage with .080" styrene to represent the rounded structure under the cowl flaps. I marked the location of the cowl flaps, then removed the plastic, leaving a shallow lip to serve as a mount for my new cowl flaps (**G**). I cut the flaps from .005" shim brass

Step 3 continued on next page







and formed them to the contour of the cowl (**H**). To position them properly, I placed the cowl on the fuselage and built up a spacer with layers of masking tape. Now the flaps could lie in the shallow lip and rest on the tape spacer as I secured them to the cowl with super glue. Once this had set, I removed the cowl and took off the tape spacer.

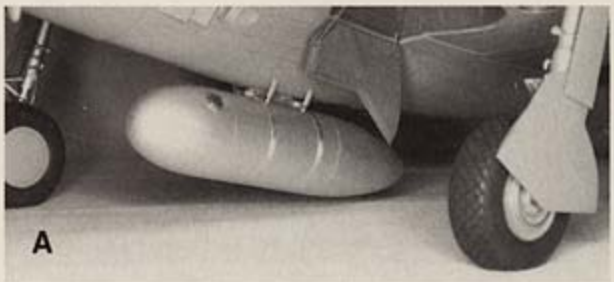
I formed the forward intercooler doors and the oil cooler shutters (**I**) from .005" shim brass and cemented them with super glue. The rear turbo doors are also made from shim brass (**J**).

Step 4. Wings, guns, and tail. The kit's main landing gear mounts are skimpy, so I replaced them with small blocks of acrylic. I added sprue inside the wing root to stiffen the wing structure.

After cementing the wing halves together, I cut out the navigation lights at the tips, replaced them with clear acrylic, and sanded and polished them to shape. I glued the wings to the fuselage, then drilled the mounting holes for the gear struts all the way through the top surface of the wing. I inserted short pieces of brass tubing which would eventually hold the main struts. According to reference photos, the struts canted outboard about three degrees at the wing, then bent perpendicular to the ground. The kit struts were incorrect, so I made new ones from brass tubing, wire, and machinings (**A**).

I machined and carved a new tire from acrylic, then used this as a pattern to make an RTV mold for polyester resin castings (**B**). I sanded the bottoms of the tires for a realistic appearance (**C**).

Revell molded the machine guns along the center line of the wing, but the real aircraft's weapons were aligned parallel with the ground. I cut away the kit guns, then bored oversize holes along the correct line in the leading edges. Next I made a jig from scrap acrylic. I drilled four 3/32" holes at the proper interval with a drill press, then inserted four lengths of 3/32" brass tubing. The jig held the tubes in the proper alignment against the wing as I added dental acrylic resin into

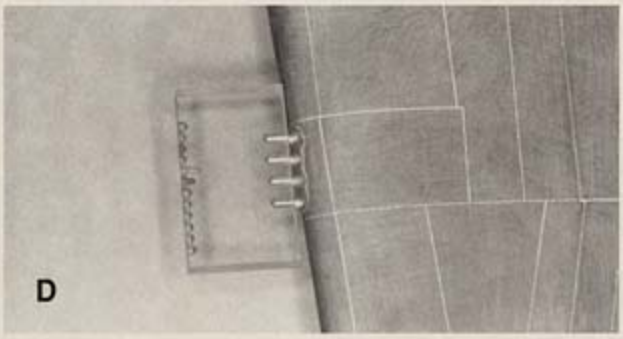


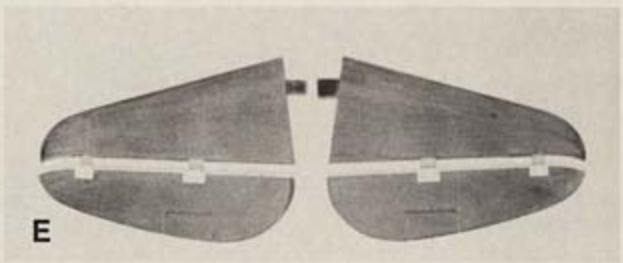
Step 5. Drop tank, prop, and paint. I used a 108-gallon paper tank from a 1/32 scale Hasegawa P-51D. I glued the tank halves together, then sanded all the detail away. I masked the front and rear portions with artist's striping tape, then sprayed the tank with a lacquer primer. After sanding, I removed the tape, leaving a subtle simulation of the doped paper. I machined the upper attachment points from brass and acrylic stock. I airbrushed the tank with Floquil silver, then used adhesive metal foil for the circumferential bands (**A**). Styrene makes up the fuselage center line mount, while brass machinings and wire make up the sway braces.

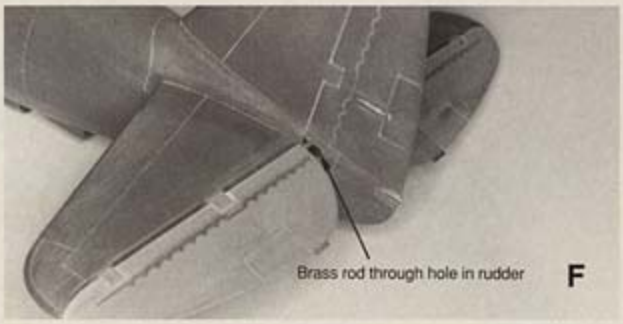
I cut the blades from the kit propeller and built a new hub


B


C


D

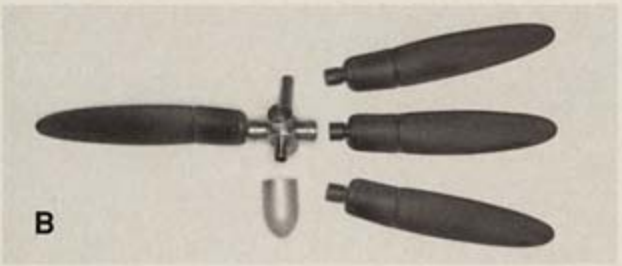

E



F

the oversize holes (**D**). Once the resin set, I removed the jig, cut off the tubes, and sanded them smooth with the leading edge. After the model was painted, I inserted 1/16" tubing into the tubes in the wing to represent the gun barrels.

I cut the elevators free from the horizontal stabilizers, then cleaned up the edges to prepare them for reattachment (**E**). I wanted the elevators facing down slightly and mounted them to a short brass rod that runs through a hole drilled in the rudder (**F**). I refined the rudder trim tab control arm and the rear navigation light with brass rod and wire.


B


C

assembly from brass machinings. I machined the spinner from aluminum and painted the hub with a touch of Testor Chrome Silver and Floquil Reefer Grey. I like this combination of paints for a flat aluminum appearance. I cleaned the prop blades and adapted them to press fit into the hub assembly (**B**). Now I have a working variable-pitch prop!

I first applied white for the front of the cowl, code letters, and identification bands on the tail. After the white had thoroughly dried, I lightly sanded it to minimize the grainy texture.

Next, I masked the areas to remain white and applied the camouflage colors, Olive Drab and Neutral Gray. The decals were a mix of whatever I could find in the right size. The insignias in the kit were too large according to my references, so I replaced them with aftermarket items.

My model represents a Razorback T-Bolt that Maj. Francis Gabreski flew in late 1943. "Gabby" went on to become the top-scoring ace in the European theater, with 38 confirmed air-to-air victories. I made the victory symbols from layers of solid-color decal topped off with swastikas cut out of Super Scale sheet. I started with a white rectangle, then applied a red rectangle, white circle, and the swastika (**C**). Finally, I airbrushed the entire model with Testor Dullcote.

Whew! This model required a lot of work, and I could do more, but what an improvement over the kit as it comes from the box! **FSM**

P-47 Thunderbolt

Testo e Foto di
PAUL BUDZIK

Un classico 'Razorback' dell'asso della II Guerra Mondiale

Francis Gabreski

FASE 1. COCKPIT

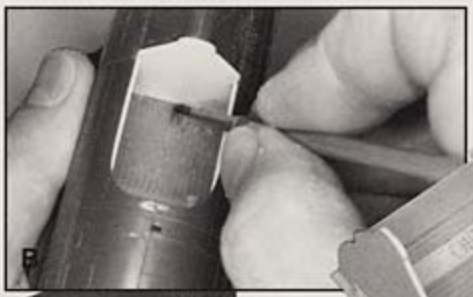
A

L'abitacolo fornito nella scatola è spartano anche per un kit anziano come questo (A). Da due pezzi di foglio di perspex è stato fabbricato un nuovo pavimento; le modanature di rinforzo sono state intagliate con una mola montata su una fresatrice.

Usando come guida la paratia posteriore dell'abitacolo fornita nel kit, ne è stata tagliata una nuova dal plasticard di spessore 0.75 mm.

La parte mancante dalla paratia del kit - quella posta superiormente in corrispondenza del poggiatesta - è stata ricavata disegnando il profilo della parte terminale del 'Razorback' (ossia il raccordo canopy-deriva) sul pezzo di plasticard su cui è stata tracciata la nuova paratia, che è stata ritagliata a misura per poter essere inserita tra le due semifusoliere unite temporaneamente con del nastro adesivo.

Le due nuove paratie (anteriore e posteriore) sono state quindi incollate al pavimento (B).



B

C

Da plasticard da 0.75 mm. sono state ritagliate delle nuove fiancate dell'abitacolo usando come guida quelle fornite nel kit per non commettere errori circa l'altezza (C).

Le nuove fiancate sono state incollate alle paratie con l'aiuto di quattro strisce di plasticard applicate per assicurare un corretto posizionamento. Il resto della "vasca da bagno" dell'abitacolo è stato costruito con pezzi di perspex e plasticard (D).

D

I componenti forniti nel kit per il complesso cruscotto-pedaliera sono stati assemblati e assottigliati in modo tale da costituire un supporto sul quale applicare una serie di dettagli autocostruiti. Il pannello strumenti è stato realizzato in fotoincisione (E), mentre gli strumenti sono stati prima disegnati (limitando il tratto ai soli quadranti) e poi fotografati riducendone le dimensioni in scala 1/32 (per la fotoincisione e la riduzione fotografica vedere MT n. 8, aprile 1992: "Fotoincisioni fatte in casa").

E

F

Da qualsiasi punto di vista lo si guardi, il Republic P-47 Thunderbolt è un aereo impressionante.

Le grandi dimensioni ne fanno una replica altrettanto impressionante nella scala 1/32.

Il vecchio kit Revell, a causa delle sue inesattezze, non è stato però apprezzato dagli appassionati alla luce del suo giusto valore, ossia quello di una base ideale per il "tocco" del modellista amante del superdettaglio.

Questo lavoro ha preso le mosse da una comparazione del modello con l'aereo reale per stabilire quali modifiche e aggiunte avrebbero portato a "catturare" in scala le caratteristiche del Thunderbolt.

Studiando la documentazione emerge che di solito i P-47 in parcheggio presentavano le alette di raffreddamento del motore estratte e i flap chiusi (nonostante un film girato per l'addestramento del personale suggerisse il contrario).

I timoni di profondità erano di frequente abbassati di diversi gradi. Spesso il battistrada dei pneumatici del carrello principale presentava la trama a rombi.

Queste caratteristiche sono state incorporate nel modello, insieme a migliorie al carrello, al motore e all'abitacolo.

Prima di ricevere il più famoso 'bubbletop' (canopy a goccia), a Gabreski fu affidato questo -D in versione 'Razorback', qui raffigurato con otto simboli di vittoria.

G

Due tacche intagliate sulle fiancate dell'abitacolo hanno consentito il corretto posizionamento del complesso cruscotto-pedaliera, mentre le nuove guide per i pedali sono state ricavate da strisce di plasticard incollate al pavimento (F).

Un nuovo sedile è stato stampato in vacuoform su un master di legno realizzato per l'occasione (G); la struttura di supporto del sedile è stata realizzata con filo di ottone e pezzi lavorati al tornio.

H

I

Gli accessori dell'abitacolo sono per la maggior parte barre di perspex tornite e fresate, mentre la cloche, la pompa idraulica a mano e le leve equalizzatrici del quadro di controllo dei flap sono in ottone tornito. Filo di ottone e pezzi lavorati al tornio sono stati usati anche per i pulsanti e le levette del cockpit, per il quale sono state impiegate anche le placche metalliche prodotte dalla Waldron per il P-47.

Il tubo dell'ossigeno è stato realizzato con un filo di stagno per saldature da 0.37 mm. attorno al quale è stato avvolto altro filo della stessa misura. Completato con l'aggiunta del regolatore, il tubo è stato applicato sulla fusoliera prima di installare al suo posto la "vasca" dell'abitacolo. Il quadro delle manette del motore è stato invece montato dopo aver dipinto l'abitacolo per evitare che venisse danneggiato.

Il cockpit, una volta terminato, ha un aspetto di gran lunga migliore di quello contenuto nel kit (H e I).