

1934 Waco UMF 3 Restoration Notes

The complete list of Waco factory drawings can be found [here](#).

The restoration was done by David Allen of Coronado, California over a period of years ending in 2011. Dave's estimate of his total hours in rebuilding the plane was 12,000. Dave is retired dentist by profession and a licensed A&P. NC13571 was restored as his personal airplane and was the sixth aircraft restoration.

The project was sourced by Barry Branin of Morro Bay, California and originally consisted of fuselage framework, the original wheel pants, landing gear and some miscellaneous parts.

Fuselage: Dave and Barry hired a gentleman to build a jig and build from scratch the fuselage framework and engine mounts for both their projects. Jon Nace overhauled the main landing gear, Dave made the empennage adjustment mechanism and a full swivel/locking tail wheel was installed.

Using Waco drawings Dave made all new sheet metal parts for the airplane. He installed all fairing strips in the fuselage.

It was impossible to obtain a new bump cowling for a Continental W670 engine so Dave borrowed a section from another cowl and created a mold. Using the mold he laid up the required sections in carbon fiber and then built a cowl replica.

Wheels and brakes were sourced as Hayes expander tube type.

Original throttle levers were sourced and used to create the look of the original hand brakes though toe brakes were installed in the rear cockpit only.

New seats were fabricated. Red leather upholstery was sewn by a local contractor and installed by Dave.

Barry sourced some period map boxes and one was installed in the rear cockpit to hold the Becker com radio and transponder.

Wings: Dave built the ribs in a jig and constructed the wings himself using hardware obtained from the wing set of a wrecked Waco Classic YMF 5. New aluminum fuel tanks of 24.5 gallons each (44 useful total) were fabricated.

New Brunton wires were obtained.

Originally, the fuel tanks were covered with fabric but after one tank developed a leak at the site gauge Dave reinstalled it with a sheet metal cover. After I purchased the plane, I

requested that he do the same on the right side over that fuel tank which he did while removing the old sight gauge bung and welding in a new one.

Four new ailerons were obtained from Tom Brown and Dave fabricated the wing struts from drawings.

Covering: The airplane was covered with Ceconite and Randolph Butyrate dope was used to paint. The original colors were derived from the Waco factory build sheet and the paint scheme is as it was when it left the factory in 1934.

It took 27 coats of primer, silver and dope to finish the fabric with hand sanding between each coat.

Silver detail tape was installed on the wings between the red and black upper and lower surfaces.

Dave spent an entire week laying out the checkerboard pattern before painting on the vertical stabilizer and rudder.

Engine: A newly overhauled 0 time engine was purchased from Air Repair Inc. and a 96 inch Hamilton Standard Ground Adjustable propeller with fresh overhaul was installed.

Dave added a 12 volt electrical system powered by a JASCO alternator.

An oil tank cut off/ignition interlock was obtained from JKE Works in Florida and installed.

Additional Restoration

Additional restoration by Rob Lock.

There was some carbon fiber printing on the cowl so Rob had Neal Butterworth correct and repaint. New stripes were hand painted.

Jamie Lyons polished the paint on all surfaces and installed ceramic coating for protection.

All Phillips screws were replaced with slotted screws as Phillips were not invented until 1934.

The prop hub was re-anodized.

All hoses were replaced.

Hayes brakes were adjusted.