

Propulsion





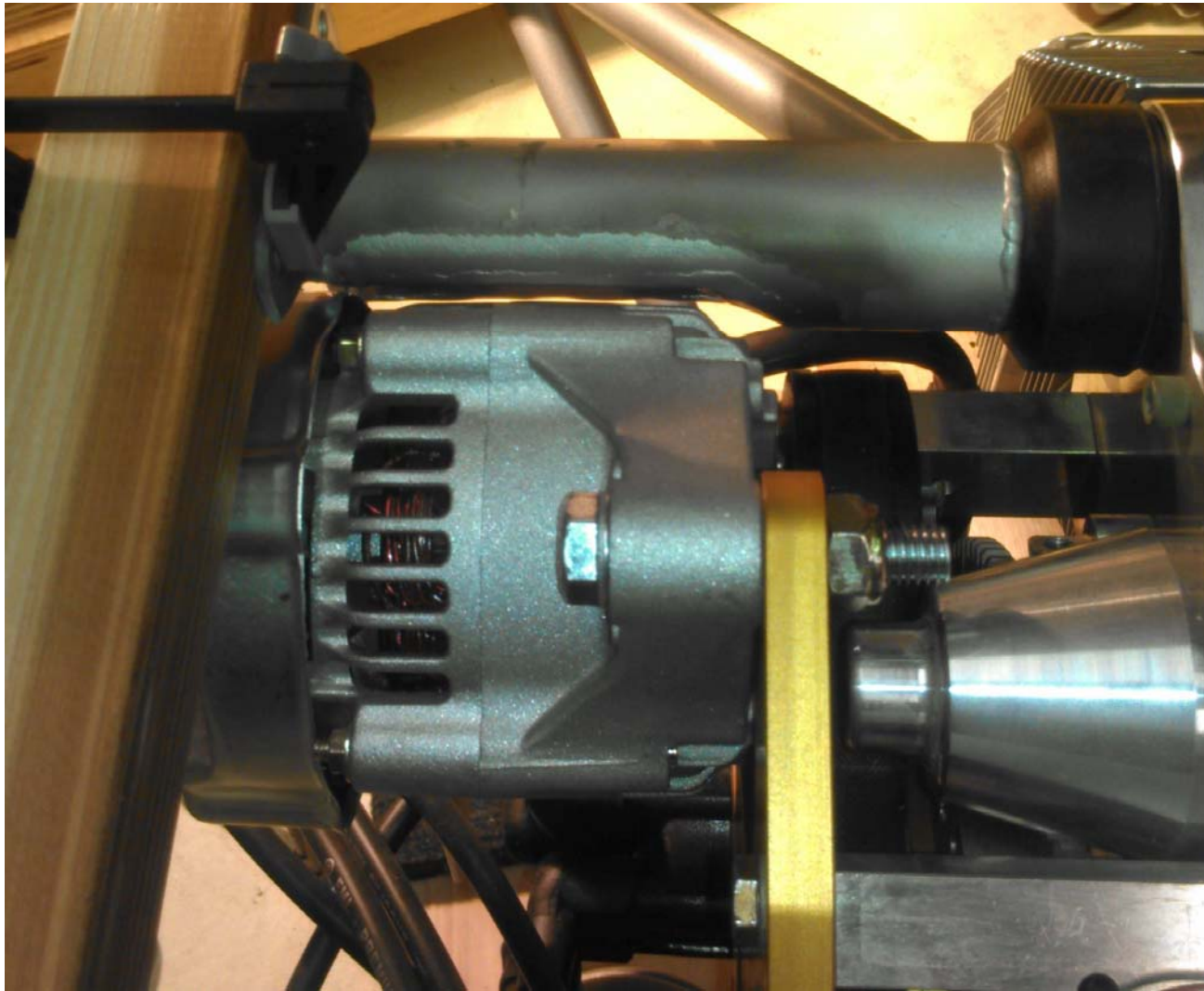
Test fit new Jabiru 3300 engine and Paul Spackman style engine mount to the firewall, adjusting thrustline to match O-200 from Q-200 plans.





Jabiru J3300A, SN 1891 after uncrating and fitting to Paul Spackman style engine mount.





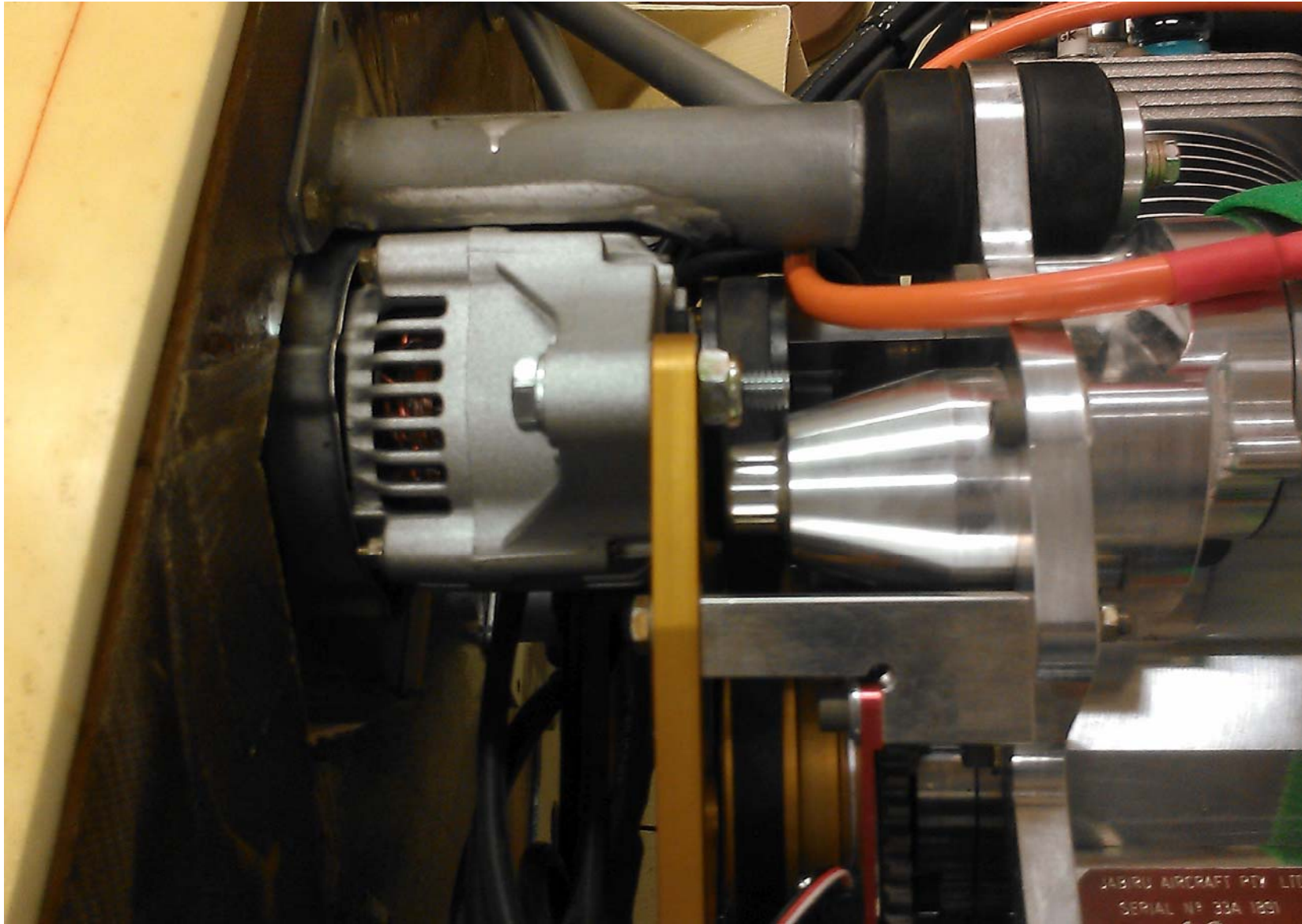
Cut out part of engine mount pillar, invert piece that was removed to make pillar concave, then weld back in place to accommodate the alternator included in Rotec alternator conversion. This alternator was later replaced with the B&C 40 Amp alternator with the same housing size, so external regulator (B&C) can be used.





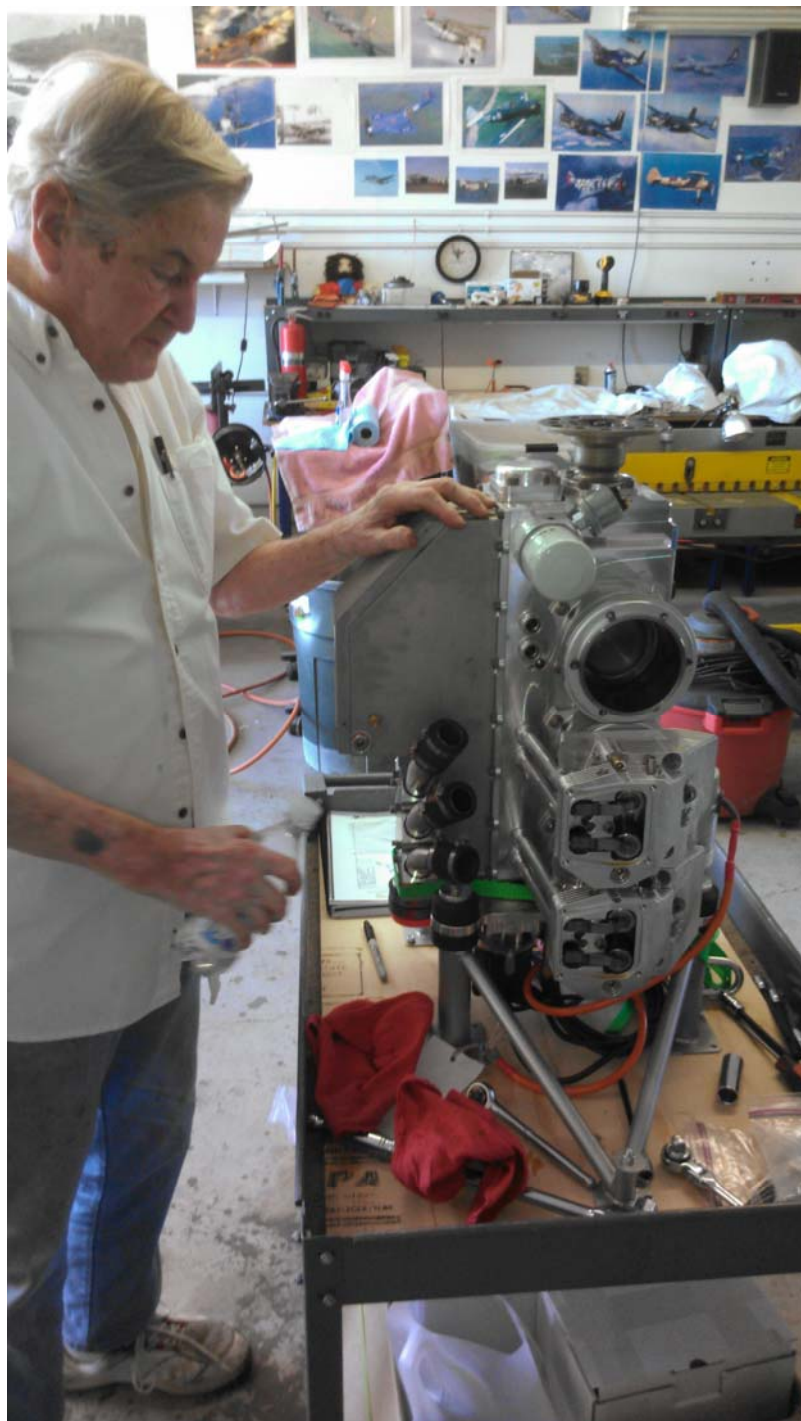
Test fit engine with after market alternator installed. Measure clearance and cut out firewall recess to fit alternator. Build and fit recess housing from 1/8" mahogany ply and original cutout from firewall, then floc to firewall, then glass front and back with 3+ plies of BID overlapping 1 inch onto firewall. May, 2015. Inspected by Jay Scheevel





Verify alternator fit and clearance from mount and recess and wire routing for alternator.





Good friend and A.I., Gerry Miller assisting and reviewing replacement of air cooled heads and replacement with Rotec water cooled heads per Rotec instructions.





Air cooled heads (above) and compared to a typical new water cooled head from Rotec conversion. Existing valves from air cooled heads are used in water cooled heads.





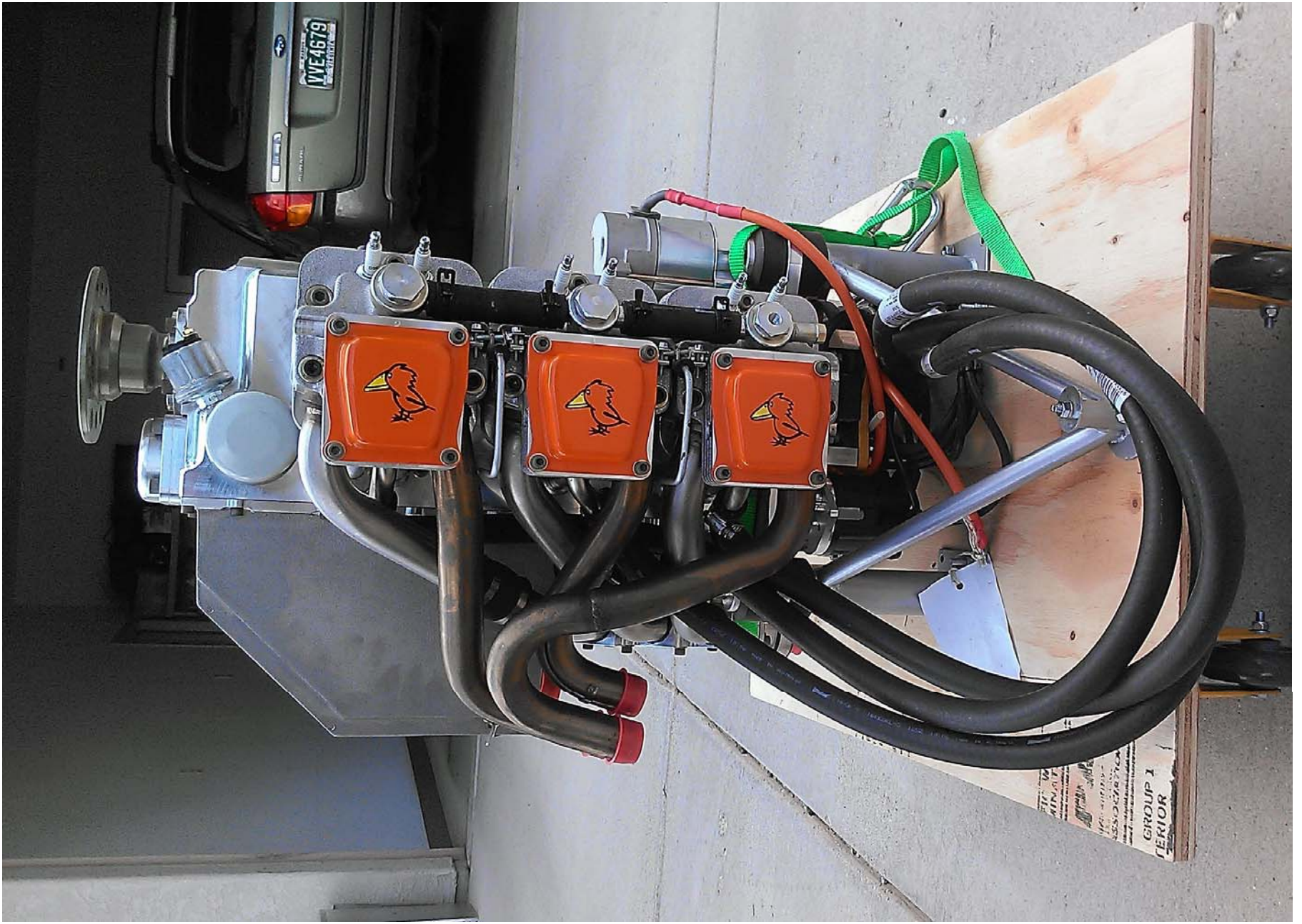
Rocker cover hole pattern in water cooled heads are slightly different. Hole pattern is modified with a round file as directed by Rotec.

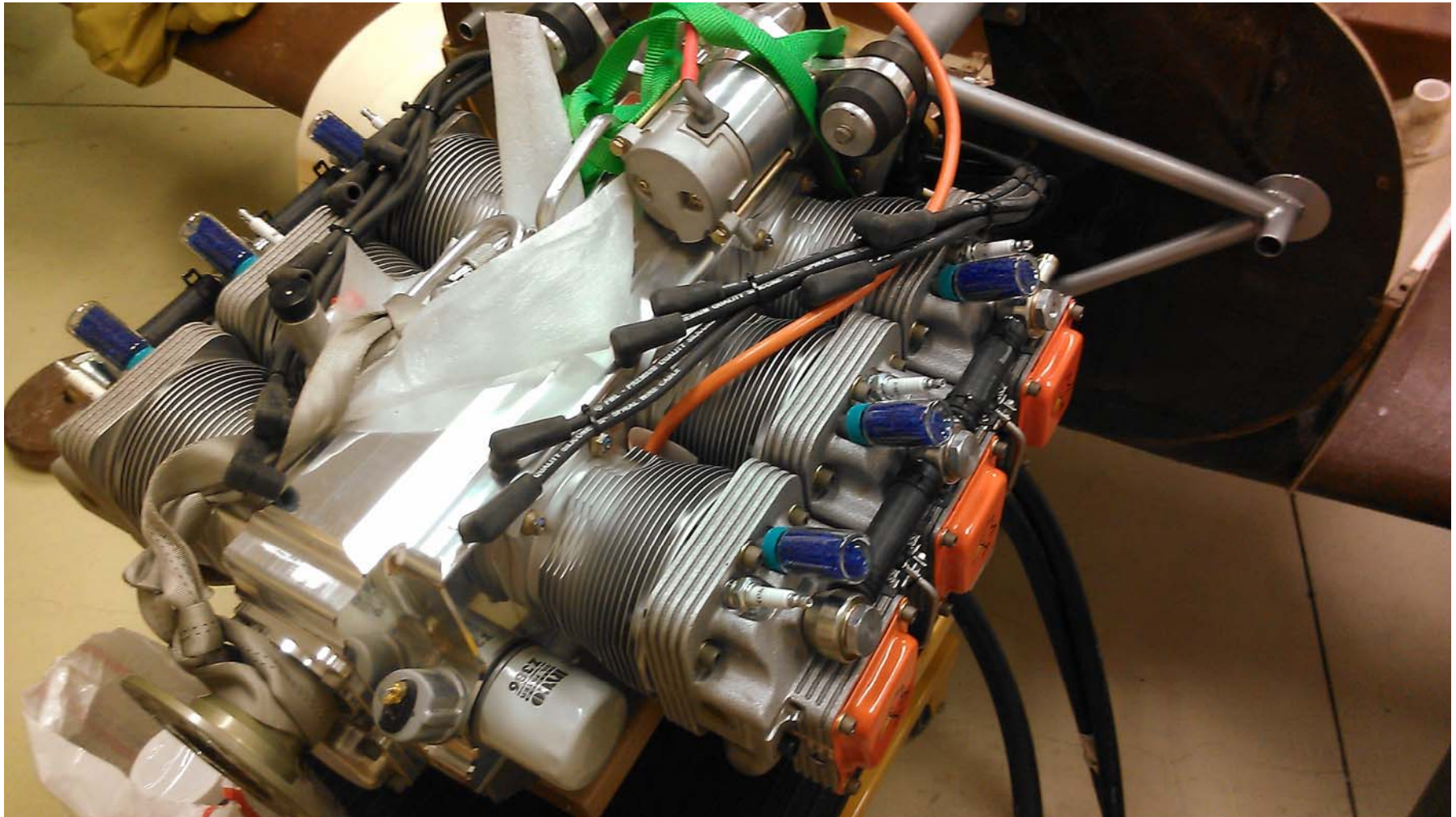




Reassembled engine with new water cooled heads in place.







Engine, test fit into position on firewall. All clearances verified.

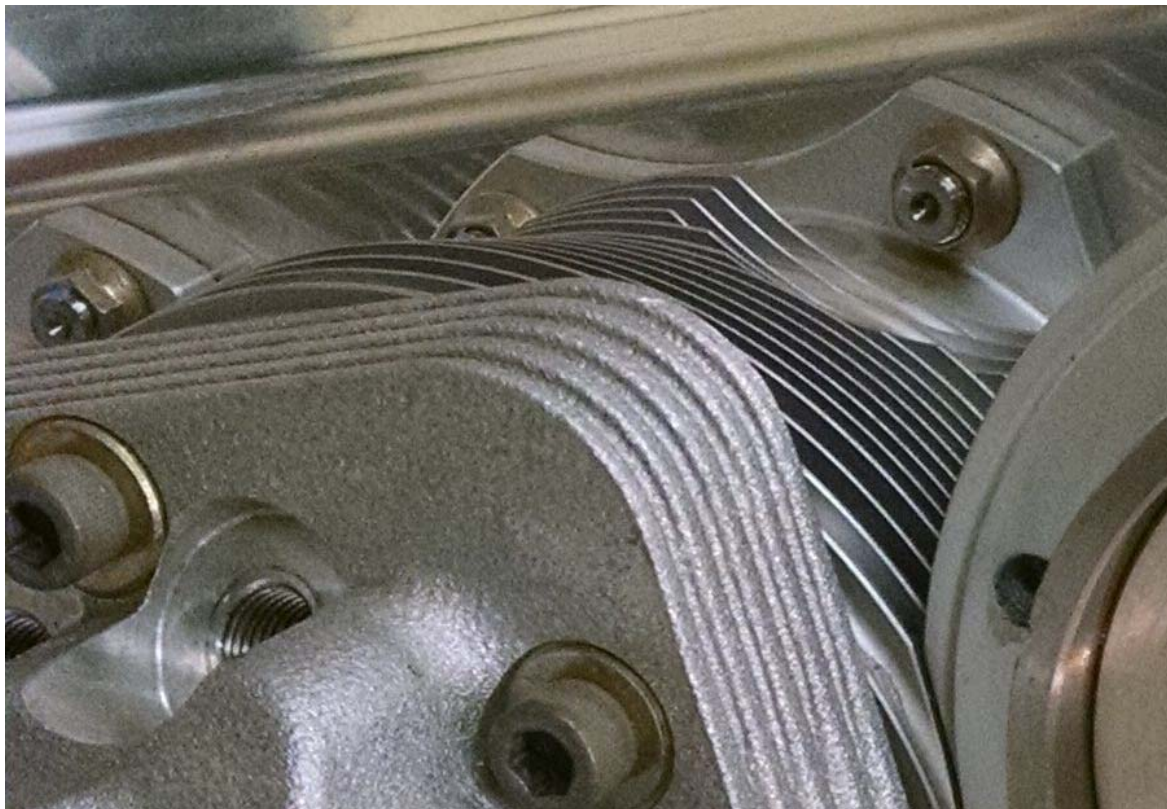


Original Jabiru hydraulic lifters, pushrods and rockers were replaced with upgraded CAMIT solid lifters, hollow pushrods and rockers with spiral cut bronze bushings. All parts and instructions provided by CAMIT followed per specs in those instructions



Comparison of original Jabiru
rockers on left with newer solid
lifter rockers from CAMIT





Through bolts, studs and nuts replaced with newer model bolts and nuts per JSB031-3 as required.

Engine is zero time, so through bolts will be due for replacement again at 500 hours.

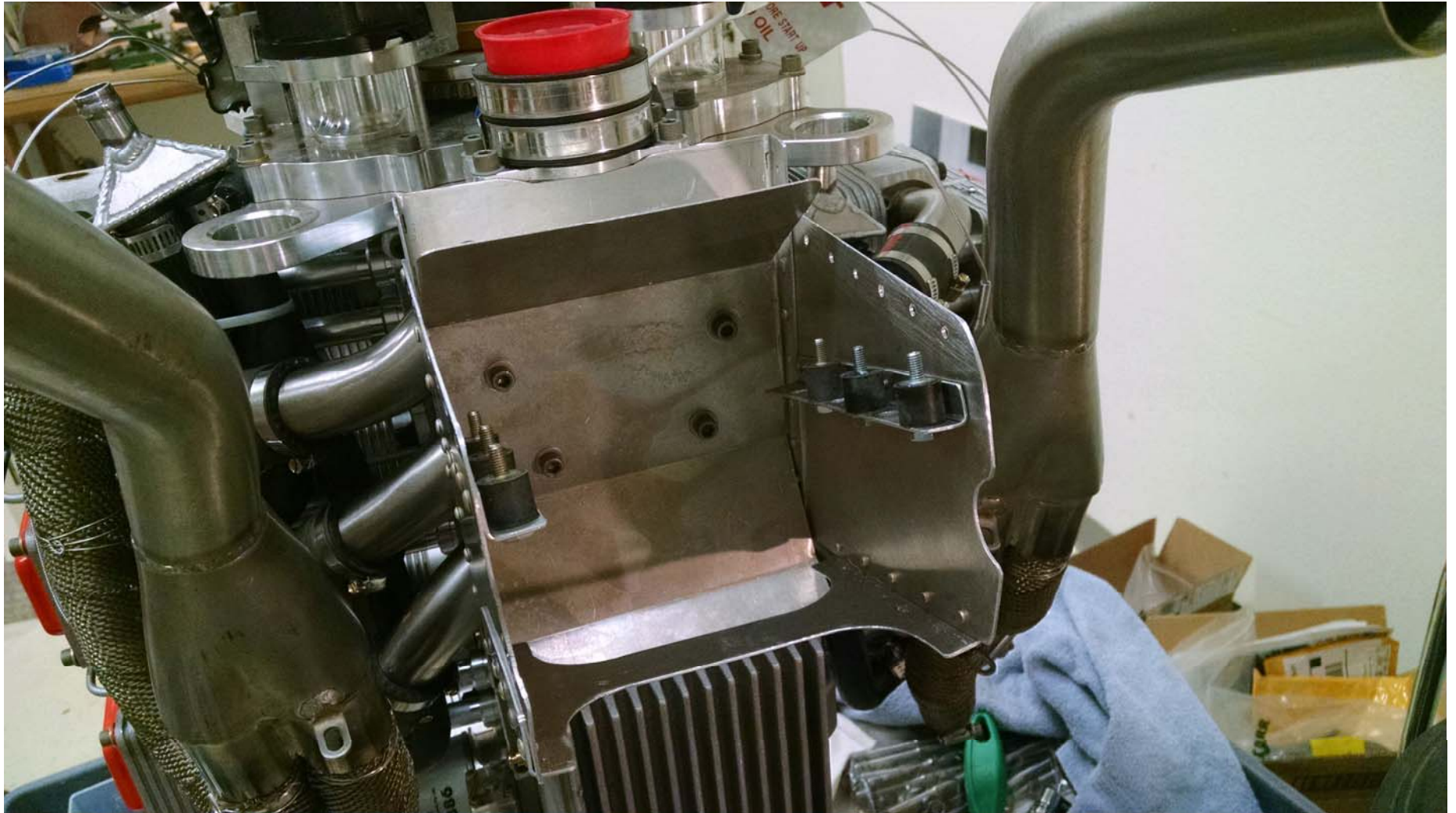
Original configuration is shown on upper photo, revised configuration on lower photo. September, 2016





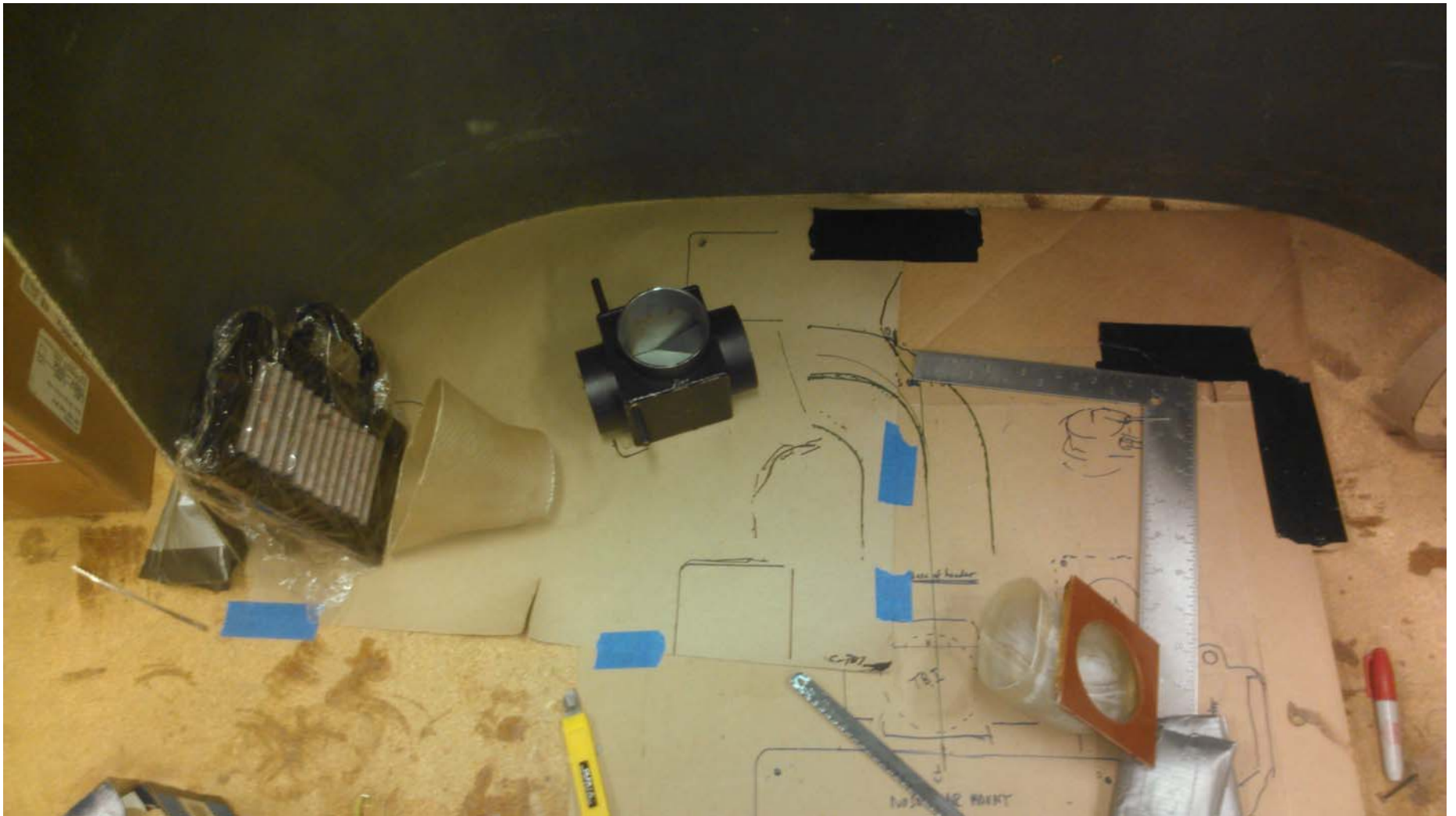
Install TOCA (temperature controlled oil cooler adapter) from CAMIT, wrap exhaust pipes upstream from 3-into-1 that has hi-temp cerakote paint.





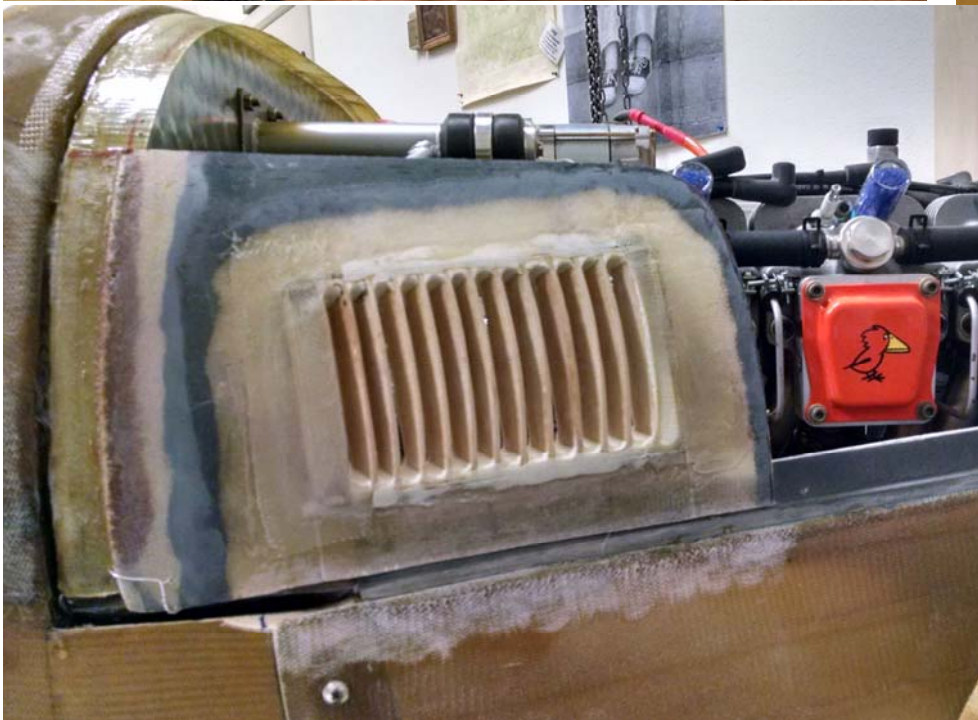
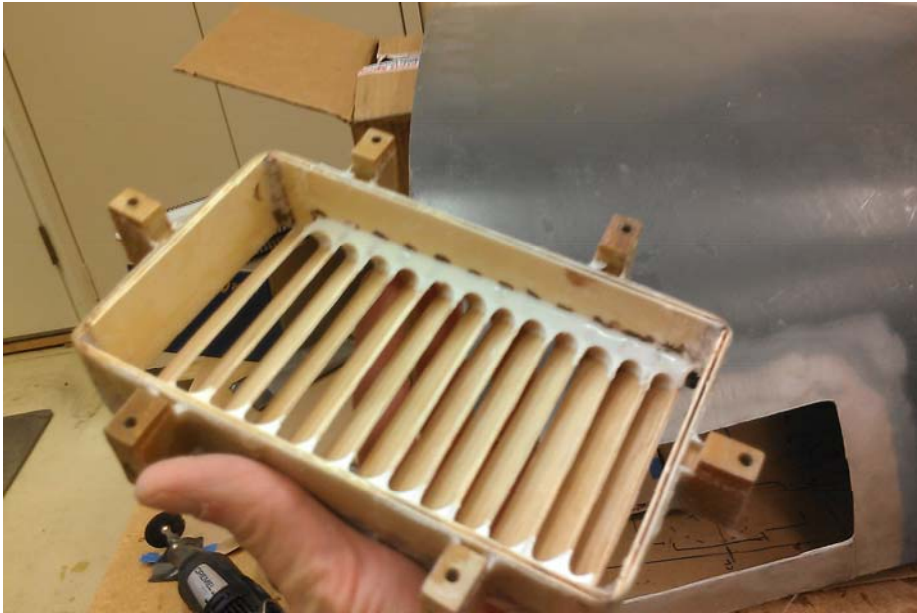
Detail of oil cooler mounting attached to bottom of intake manifold. Attachment points of the cooler are bolted to 6 shock mounts to limit vibration.





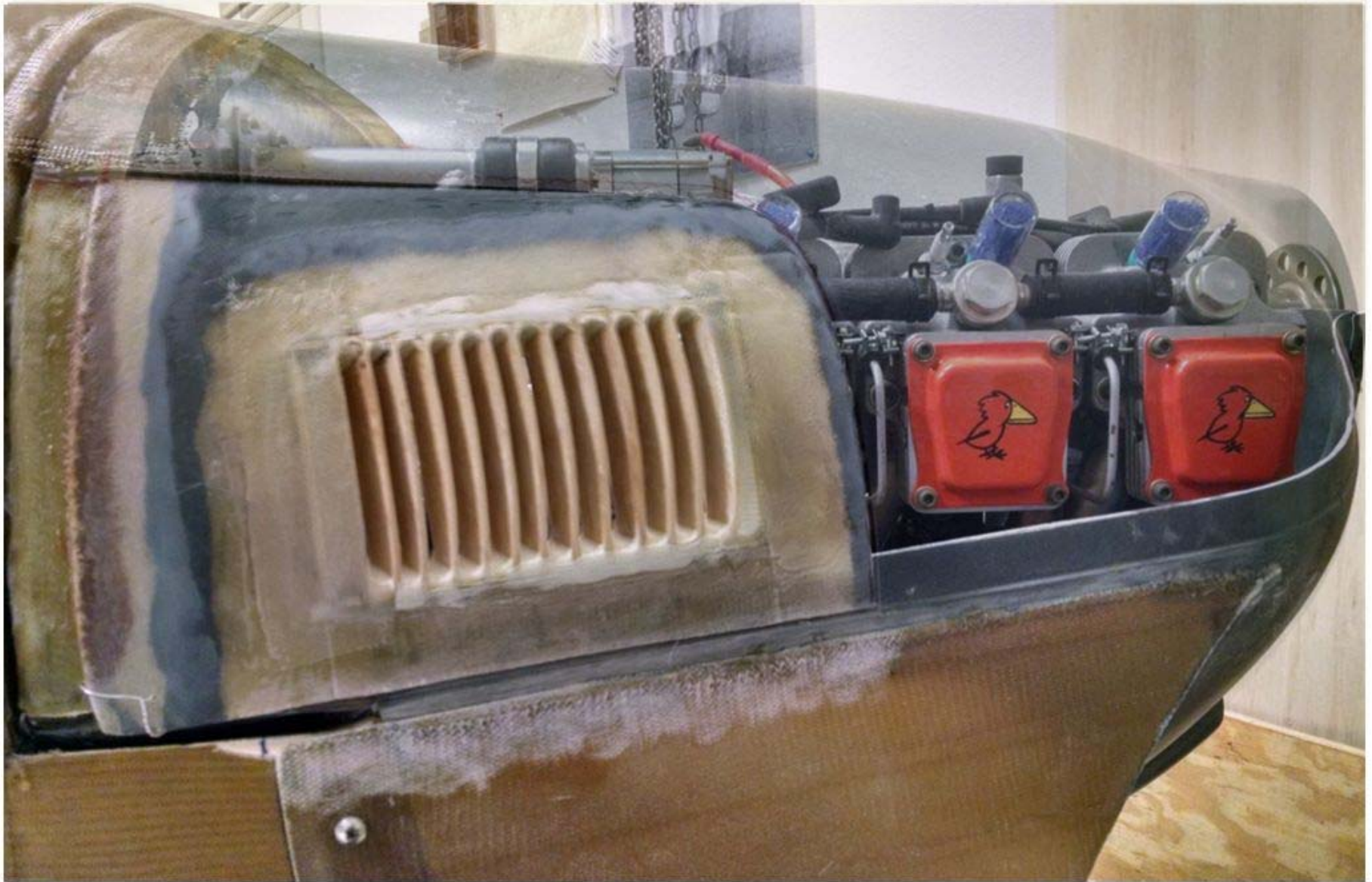
Sketch full scale layout location of critical items on firewall. November 2014





Design, fabricate and install air filter box in upper cowl and test for fit on mounted engine. Permanently mount section to fuselage. January, December 2015





Verify photographically, the fit of the upper cowl to the engine mount and revised position of air filter assembly. December 2015.





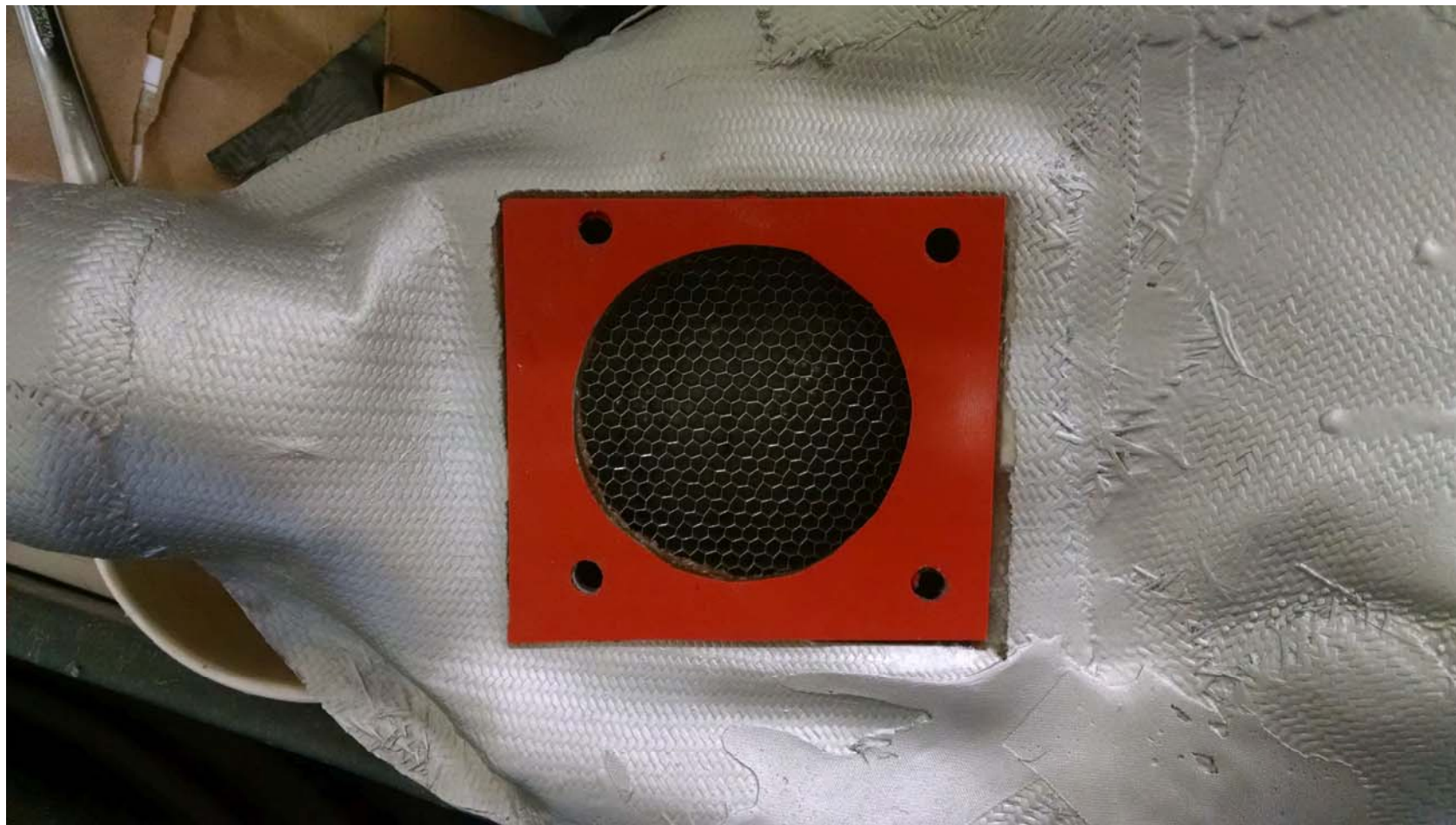
Fabricate a flow plenum to feed air to the TBI. This allows air to be pulled from all directions. May 2017.





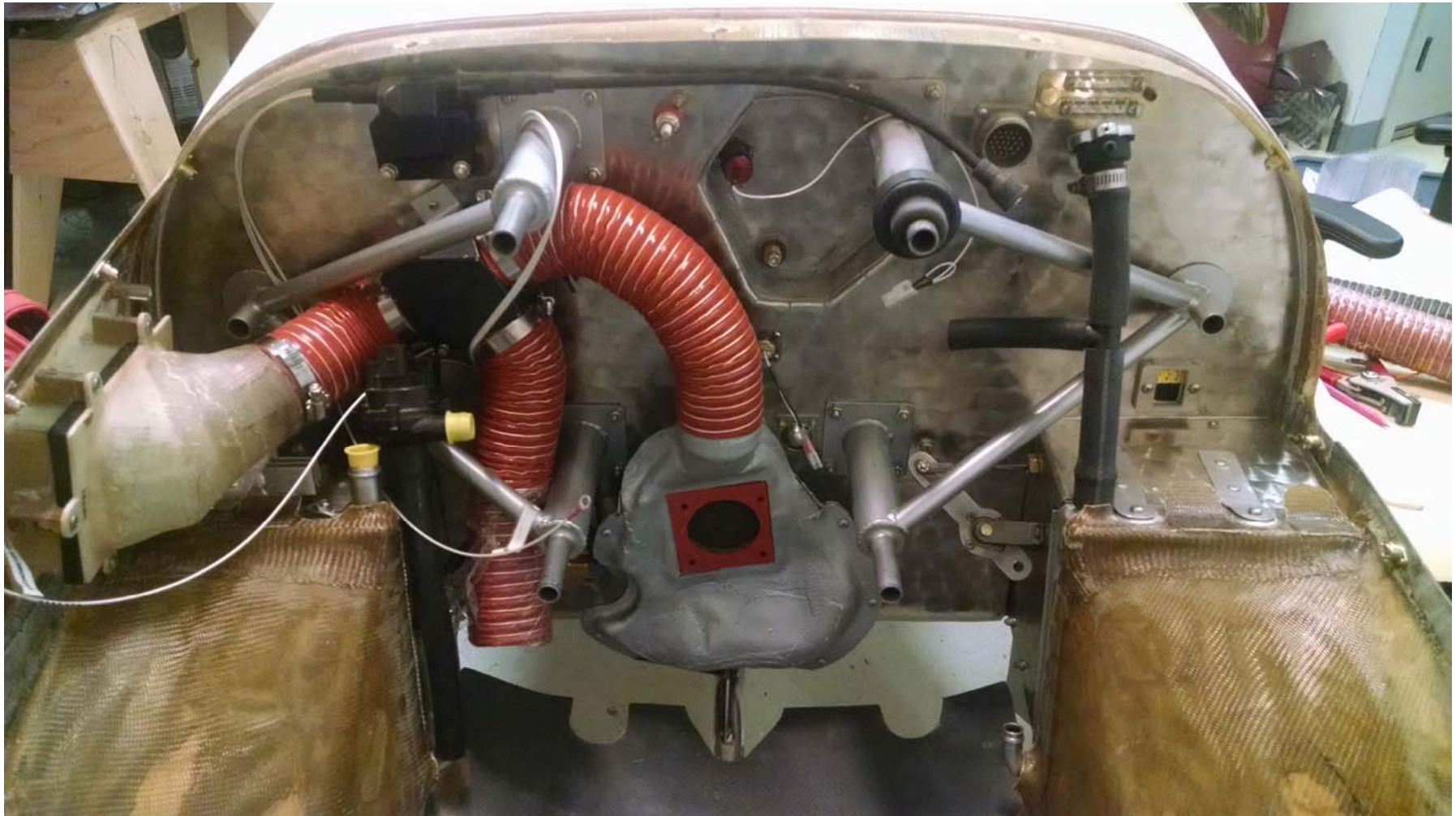
Add flange to plenum to seal chamber and re-shape perimeter of the plenum to clear firewall items (fuel regulator, nose gear mount).





Mount aluminum honeycomb airflow straightener in at inflow port to TBI in order to eliminate rotation of airflow into TBI. May 2015



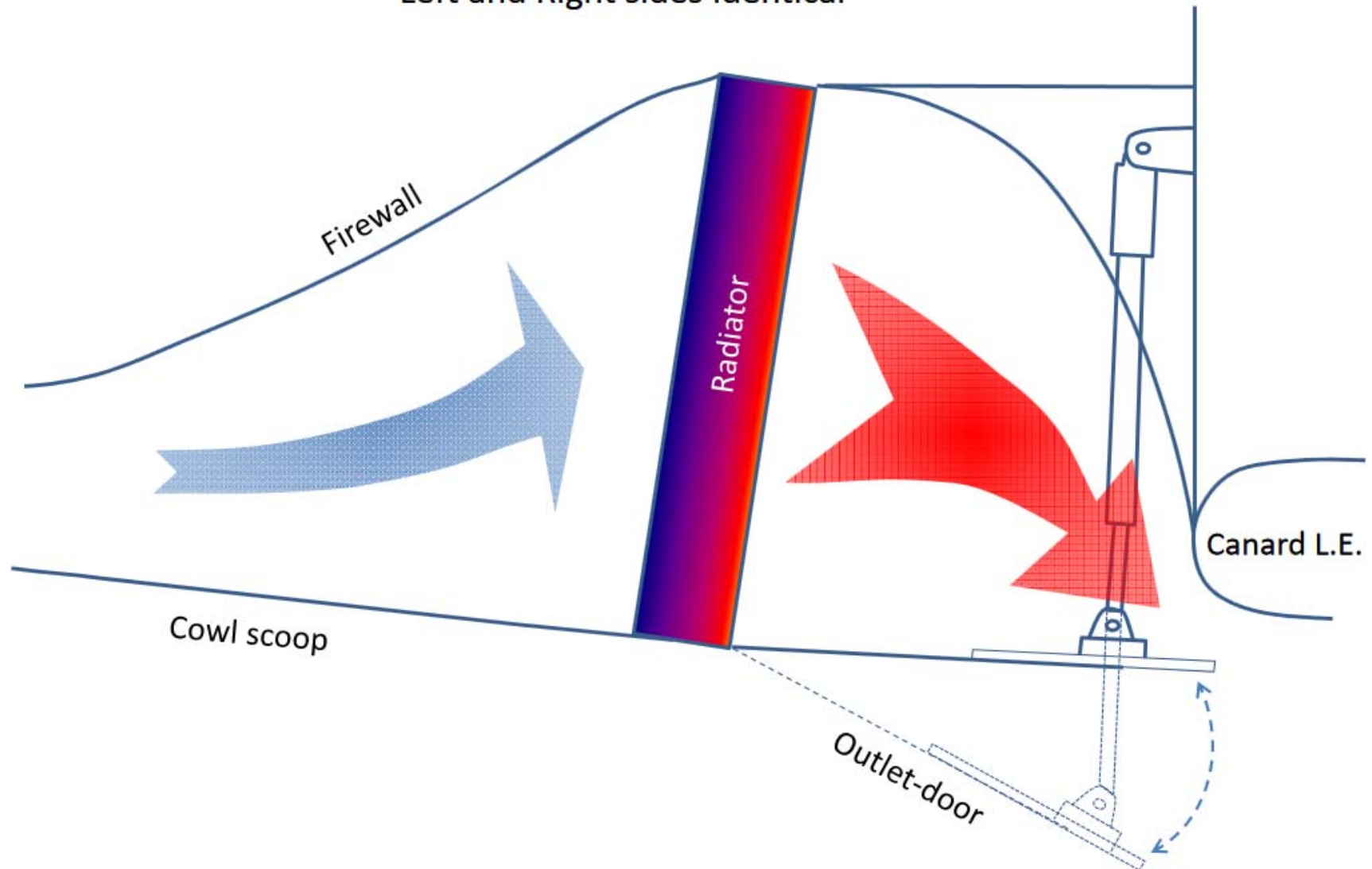


Airflow induction system with lower cowl section in place. Note custom fabricated intake plenum at airbox (filter in place) on left, SCAT tube routed to carb heat box (original from Q-200 kit), then SCAT to custom intake plenum for TBI. Vertical portion of SCAT tube will attach to heat muff on right exhaust stack. May 2015.



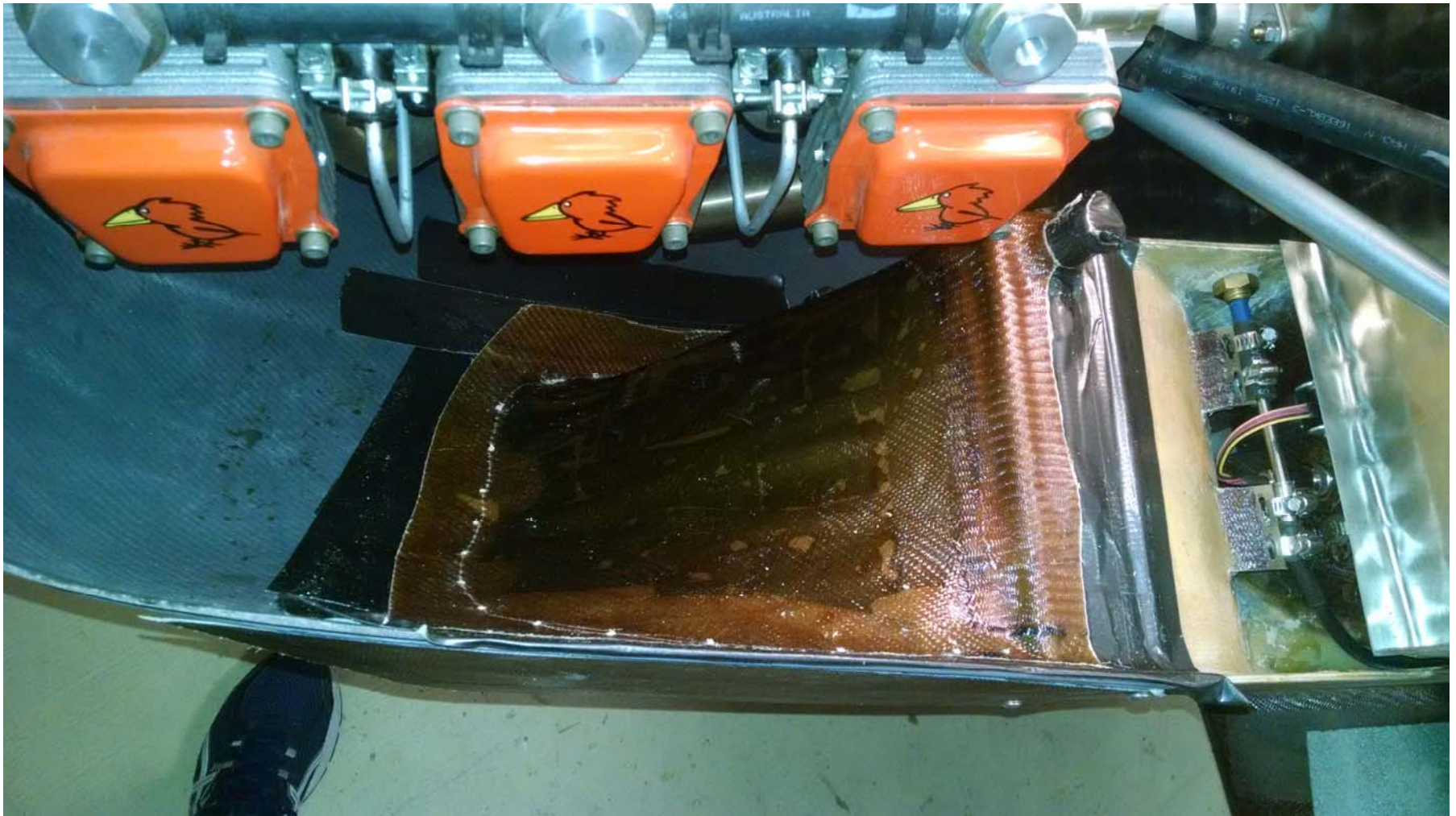
N8WQ Jabiru Liquid Cooled Heads Radiator-flow Schematic

Left and Right sides identical



Schematic design for airflow through radiator as designed. Intake air plenum is attached to the lower cowl section and the exit air plenum is built into the firewall. Outlet door is controlled by electric servo actuated by controller in cockpit. November 2015.



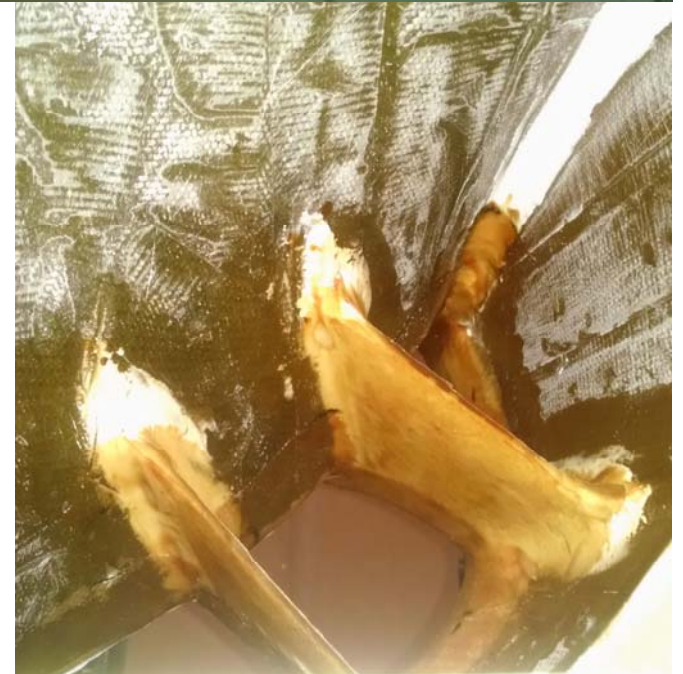


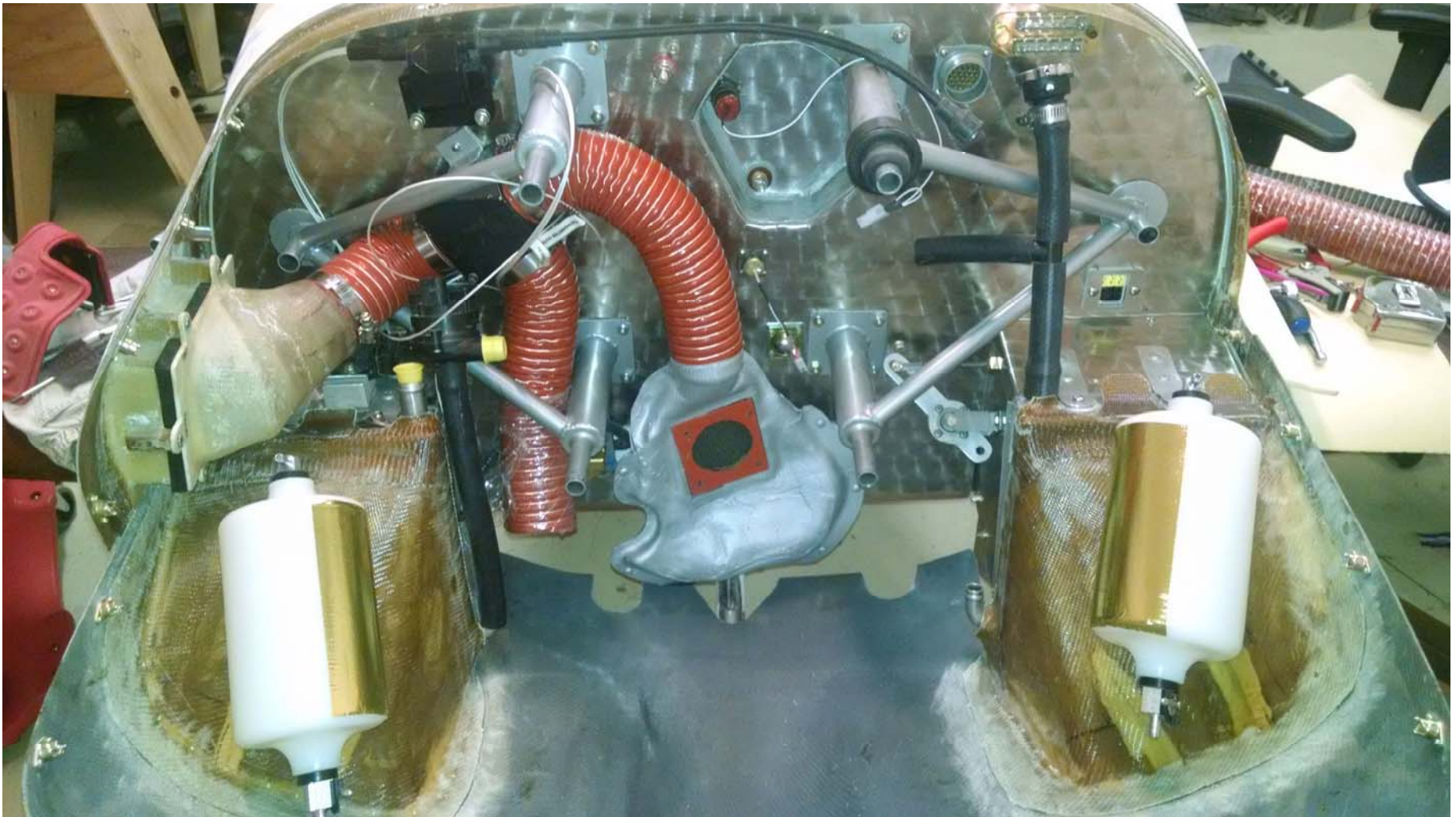
Duct tape is stretched from lower cowling contour over edge of mounted radiator to create a male mold, then plenum is laid up as 2 BID overlapping onto radiator and cowl. The layup is then trimmed to approximately 1" overlap on cowling and $\frac{1}{2}$ to $\frac{3}{4}$ " overlap on radiator. $\frac{1}{16}$ " registration holes are drilled to identify the portion of the cowling to be removed for intake air. Note that intake scoop has been previously laid up (2-BID) on form attached to exterior of lower cowling (see outer edge of cowling in this photo).





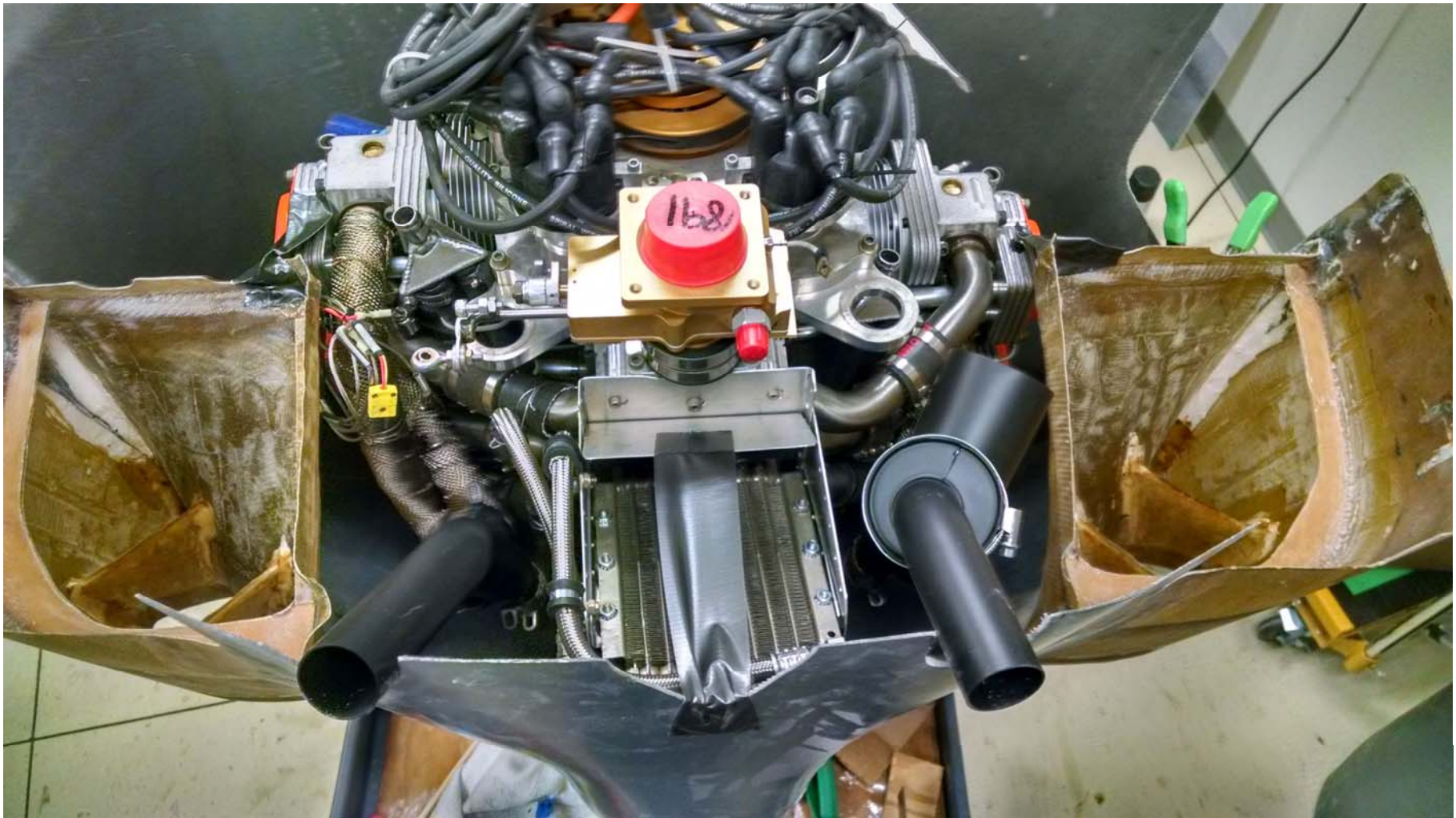
Outer scoop is fitted with foam and glass flow dividers and support, then faired into lower cowl and intake plenum. Glassing both into place. Left and right are mirror images. January 2016.





Polyethylene overflow radiator bottles are fitted into position and mounted to intake plenums tested for fit to each radiator and engine clearance. Heat shield tape is fitted on side closest to exhaust stacks.





Fit flow fitting flanges to interior of intake plenums (press fit to radiator front face frame). Then fit cowling to engine on stand to verify clearance with exhaust and other engine components. October 2016.





Standard cooling ducts provided by Jabiru are modified to accommodate the liquid cooled heads, but narrowing to only provide airflow to the cylinder barrels. This is done by cutting them longitudinally and sealing and riveting back together along a seam. The sides are cut to fit new cylinder inboard of new cylinder heads, and custom opening is designed on front to mesh with air intake openings cut into front of upper and lower cowls near prop spinner. November 2016





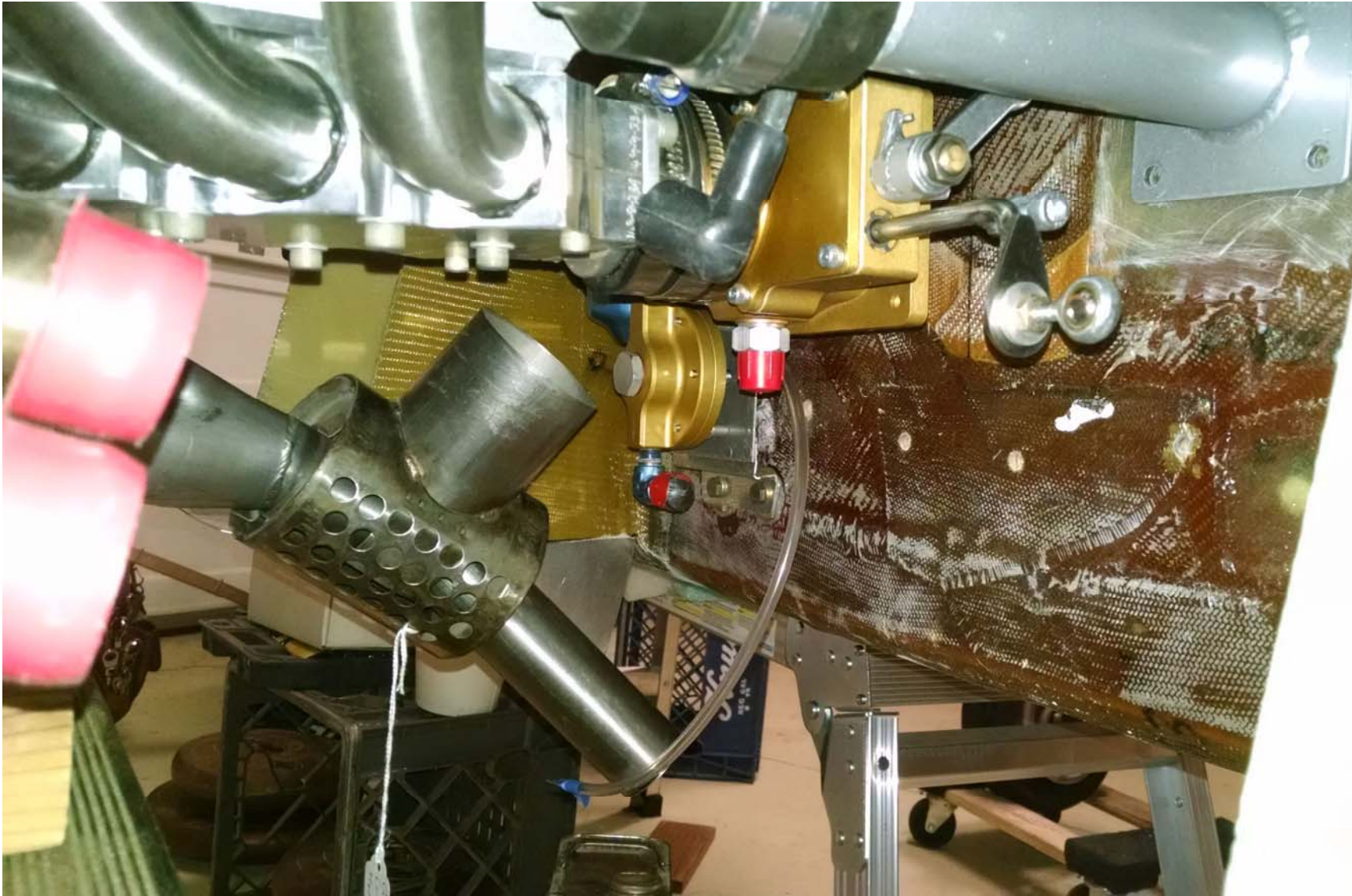
Fit engine with plenums to firewall to verify fit. Install remaining Camloc (#2700) base anchors in plenum and test fit upper and lower cowling to entire install.
November 2016





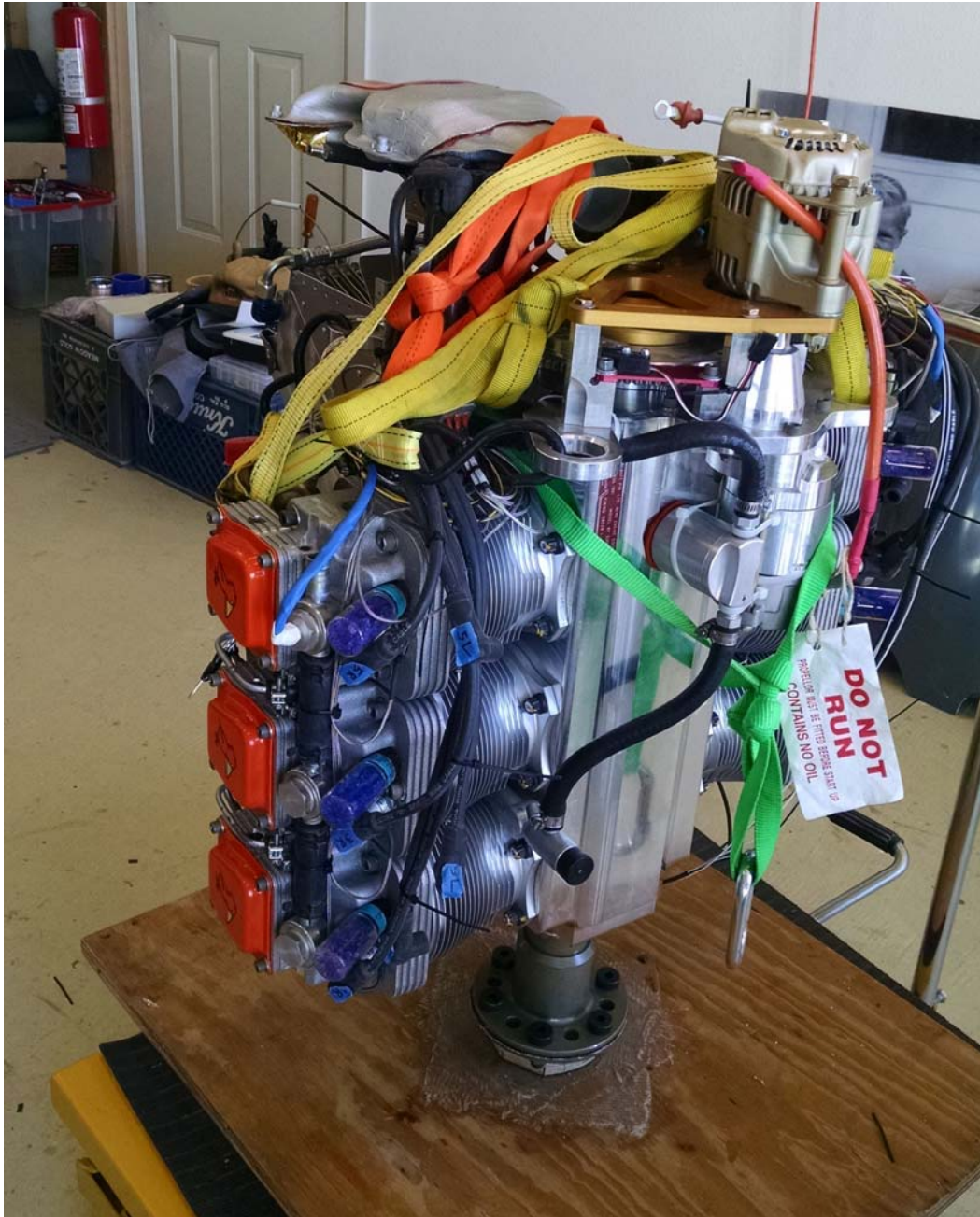
Layout locations of oil and radiator check doors, cut out panels, install hinges and layup flanges per Q-2 plans instructions, then install access latches and test for fit and clearance with engine. December 2016





Carb heat muff fitted with fuel regulator in place. Gascolator later removed and fuel line rerouted to regulator. Heat shield fashioned to shield fuel line and regulator from heat of exhaust. September 2015





Finalize all fitting of engine monitoring wiring including CHT, water temp, EGT, oil pressure switch and oil pressure and temperature wiring. Also install crankcase pressure and overflow canister and verify clearance of all wiring. May 2017

