

Construction: Empennage





Carefully trim, align and jig fuselage quarters in place as described in detail in fuselage section of this construction log. Nov. Dec., 1985





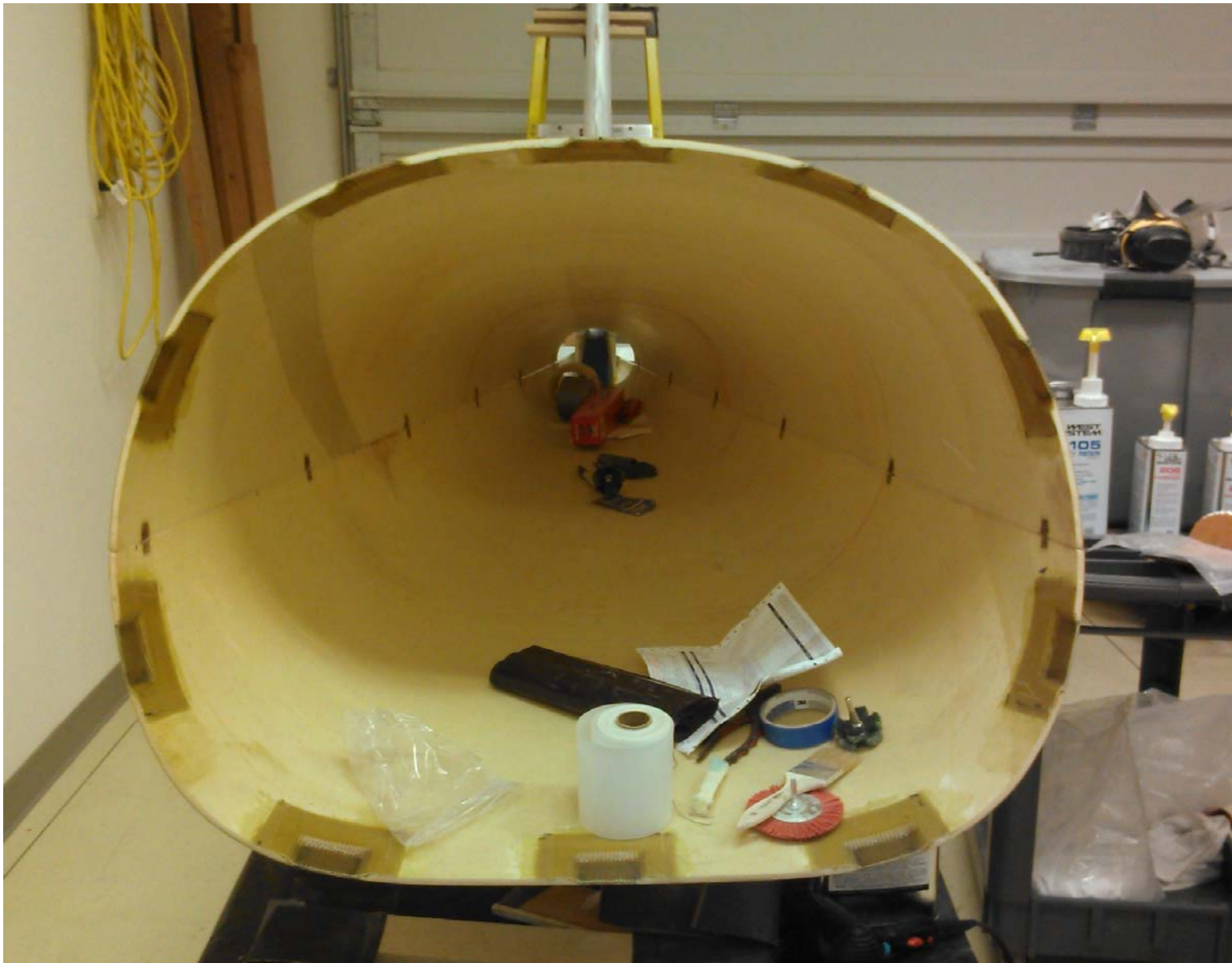
Vertical fin is built per plans with comm antenna installed beneath skin on right side of fin. Fin is test fit to lower-rear fuselage quarter. Fuselage mount points in lower and upper fuselage are cut, trimmed and glassed per Q-2 plans 15-1 and 15-2. Rudder cable nylon-flow fairleads are carefully aligned and fit through foam core as described in detail in control systems portion of this construction log.





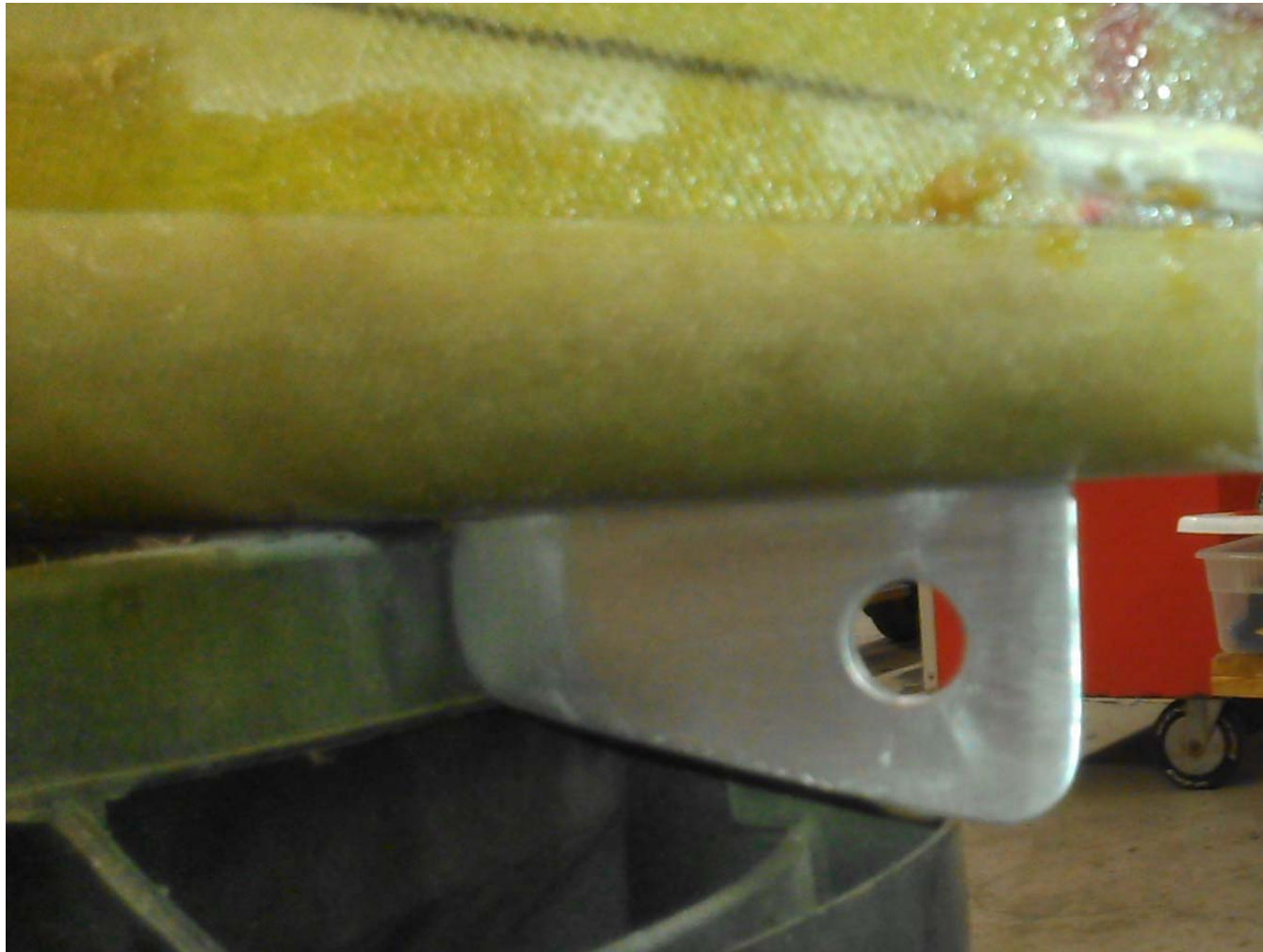
Test
alignment
of vertical
fin





After filling and countour sanding upper surfaces of vertical fin, it is final fit and trimmed to fit in lower fuselage quarter and upper rear quarter of fuselage is removed aft of FS175 location for later fitting and re-installation. November, 2014





Rear tie-down anchor (and tail strike guard) is constructed from 1/8" aluminum bolted with AN3 bolts through two 1/2" phenolic blocks, then slid down through a slot in the lower fuselage quarter and cemented in place with liberal flox. This fits beneath the rear part of the vertical fin which is floxed and glassed in place on top of this anchor. This anchor is similar in mounting form and strength to tail-spring mounting technique in Q-2 plans 14-1.





Vertical fin is floxed in place and glassed to bottom fuselage with two BID tapes, the FS175 bulkhead is attached to forward face of fin foam with micro and is then glassed in place with 2BID on front and back face and overlapping on vertical fin. A vertical 2BID alignment flange is attached to lower fuselage quarter for fitting and securing upper fuselage segment





Redundant methods used to verify vertical and longitudinal alignment of vertical fin as it is bonded in the lower shell of the tail section.





Two pieces of lath are clamped on either side of the fin to assist in lateral alignment of the fin. The center of the two laths should line up with the centerline (blue line on bottom of the fuselage shell). Vertical alignment is verified by extension of the tail (white PVC pipe) and plumb bob.



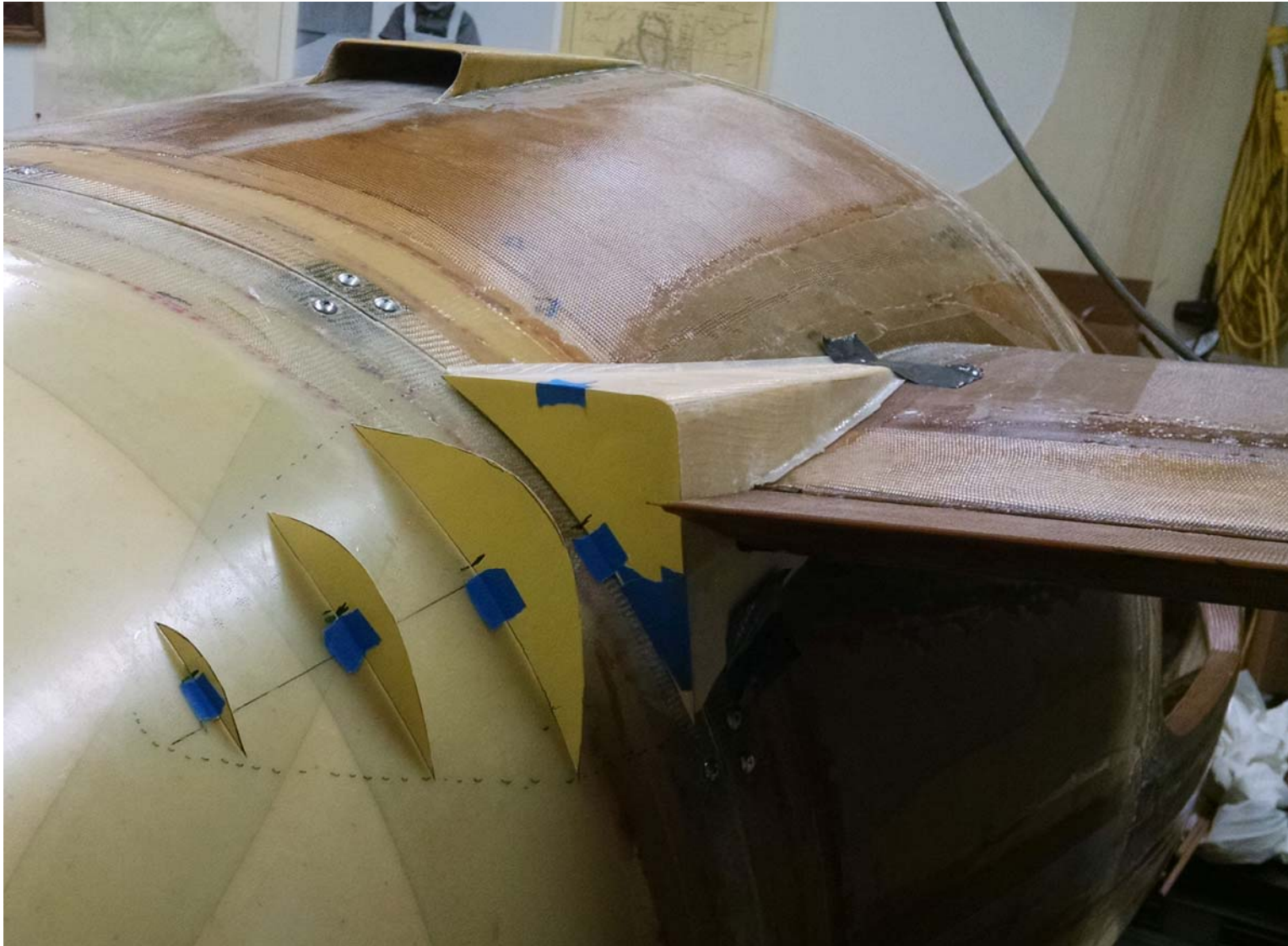


Attachment of the tail section (with bonded fin in place) is fastened to the forward fuselage section to verify fin alignment. All measurements validate the alignment of the fin. Upper rear fin-tip measurement to left and right canard tips measure to less than 1/8".



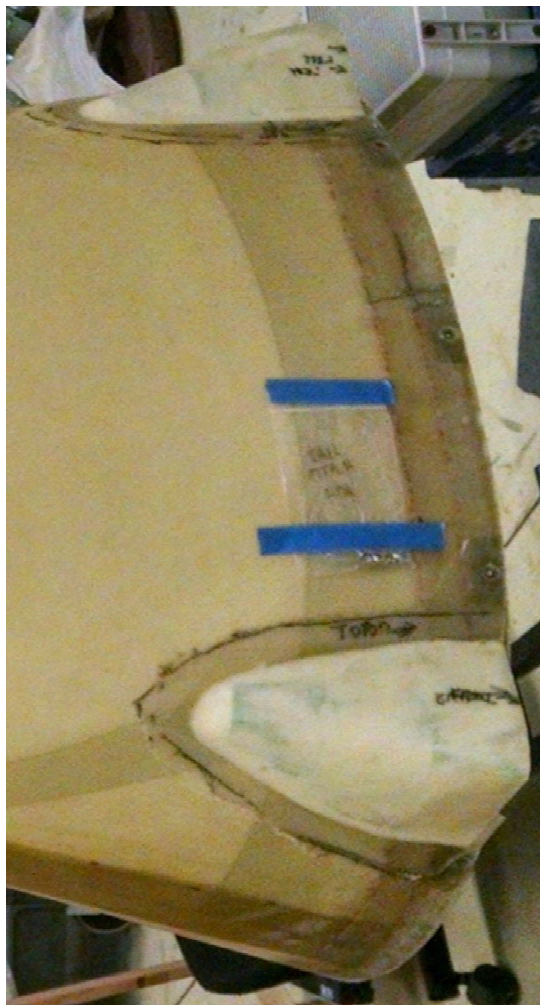
Upper half of rear fuselage shell is fit into place and bonded to lower shell. Upper section of fuselage shell is removed behind FS 175. This is trimmed to match outer contour of the fin. This rear section is then bonded to lower section, fin and FS 175 by 2 BID on all surfaces





Custom fairing geometry on rear fuselage is designed to limit drag and airflow around deflected ailerons. The yellow cardstock pieces are used to create hotwire templates for foam sections in these fairings. Left and right are identical and align with the fairing mounted on main wing inboard of aileron inboard edge.





Fairing foam is smoothed and filled with micro, then sanded to proper shape and glassed with 2 BID overlapping onto fuselage shell (left photo). The entire assembly is filled with micro and sanded to contour awaiting fill-primer (right photo).



Access port cut into tail section on bottom of fuselage to service/inspect rudder cable pulleys and comm coax connection. Rear end of opening aligns with forward edge of FS 175. Foam is removed from 3/8 of sandwich on both the fuselage and the closure panel, then filled with flox for strength. 2 bid flange is laid up overlapping on fuselage interior and 6 number 6 nutplates are riveted in position to hold flush screw fasteners (bottom photo).

