

LONG EZ

Construction Log

Serial # 2053 - L

Date	Work	Time
1986		HOURS
July 28	2:15 PM Shipment arrived! Inventory boxes.	3
7/29	Inventory & store.	5
7/30	Inventory complete. Al extrusions not present. Call AS&S. Cut front seat bulkhead. Check epoxy ratio.	5
Aug 1, '86	Front seat bulkhead glassed, forward side; knife trim.	2
8/4	Glass FS Bulkhead, rear side; knife trim	2
8/5	Cut holes and corners on FS bulkhead	1
8/6	Rear seat bulkhead, cut and glass front; knife trim	2
8/7	Glass RS bulkhead, rear side; knife trim 2	
8/11	F28; F22; Doubler; Instrument panel cut ; includes leg, conduit & lightening holes, NOT instrument holes; clean shop	3
8/12	Glass forward side 8/11/86	4
8/13	Curve edge of F28, cut for flox corner; Curve part of Doubler. Clean shop. This foam is hard to shape! Prepare to glass	3
8/14	Glass other side per plans. This is not as easy as the plans lead one to believe. They leave out much, not vital steps, but helpful ones. I could improve them. Ditto! 1/12/87.	3
8/15	Dissatisfied with RS Bulkhead. Cut a new one & glass front side.	2
8/19	Carve rear side RS Bulkhead; clean shop, glass.	3
8/20	Cut firewall. Layout the future holes and connections; clean up	1
8/21	Glass aft side firewall	1
8/22	Drill holes (6) for AN 509-10R10 set screws; flox heads and glass over	2
8/25	Cut holes for longerons & engine supports; Cut longerons	2
8/26 - 28	Cut Right Side Fuselage foam. Change: Cut holes and insert 2mm foam to give more room behind control stick & Accessory Instrument Panel. Clean.	5
8/29	Glass right side, interior surface. Peel ply.	6
8/31	Cut glass for right side Landing Gear Support.	1
Sept 1, '86	Shape Urethane and wood pieces; Glass LGS per plans p 5-3	4
9/2	Clean shop	
9/3	Set up left side Fuselage; Clean shop	3
9/6	Shape left side fuselage	1
9/7	Glass left side fuselage, interior. Peel ply.	6
9/8	Left Landing Gear Support cut, cleaned up, and glassed	4
9/10	Clean up	
9/11	RST Light Dimmer Control	2
9/12	Complete Light dimmer	2
9/16	Pick up Featherlite Landing Gear at bus station	1
9/24	Trim & sand LG pieces, as needed	2
9/25	Inventory Ken Brock shipment; AS&S shipment	2
9/28	Contact Roland Villeneuve about Machinist metal work	
Oct 4, '86	Pick up Nose Gear Wheel Door - Roland Villeneuve; review drawings	
10/11/86	Pick up Landing Gear Attach angle aluminum - Roland Villeneuve	
10/13 - 23	Build foam box to hold epoxy ratio pump & keep it warm in hanger. Built from scraps 1" pvc foam, covered w glass & epoxy. Inside lined w aluminum	5

Signed: _____

foil. Top and front open, hinges are glass w/o epoxy. Heater is 75 watt aquarium heater in plastic milk bottle, filled with water, saran wrap cover. 5" fiberglass water heater insulation added on outside.

See Diagram 1

10/ 29	Drill holes for landing gear attachment, in fuselage sides.	1
Oct 31	Anodize and dye (gold) the Alum Landing Gear attach per CP 38, p4 & Chemical Education Reports reprint. Two stoves in hanger will (eventually) raise the temperature 40 ° F.	2
Nov 5, '86	Sand edges where Peel ply transitions - fuselage & bulkheads	2
11/ 7	Trial fit. Clean shop	2
11/ 9	Made doublers for F28. Shop up to 80°F; Alan Leone did not show. Yuck!	2
11/ 11	Tom Soja assisting. Snow today. Fitting fuselage and bulkheads together. Bow in left side. Why?	3
11/ 13	Took apart, trimmed ends, put together again. Seems perfect $\pm 1/8$ " in front, perfect in rear. Oiled tools to protect from rust	4
11/14	Tom Soja assisting. Put together w flox; taped aft side of all bulkheads, except F28. Screws used to temporarily hold rear seat in place.	4
11/15	Knife trim. Remove screws, remove peel ply	1
11/17	Its not right!	
	See Diagram 2	
Dec 2, '86	Call RAF for help.	
12/ 10	Removed F22 and F28 w sabre saw & Dremel. This hurts.	1
12/ 12	Clean up F22, removed tapes and sand smooth	2
12/ 13	Ditto F28; Sabre saw Instrument Panel from fuselage sides. Microed the fuselage floor pieces together	3
12/ 14	Removed scraps & tapes from Instrument panel, sanded smooth. NEXT TIME MAKE TEMPLATES, EVEN IF RAF DID NOT SPECIFY THEM.	2
12/ 16	Freed front & rear seat bulkheads from sides. It was sure built tough.	2
12/17	Cleaned up front seat bulkhead	2
12/ 19	Cleaned up rear seat. This is tough - need to be aggressive, yet you cannot remove to much. I do not want this again.	2
12/ 20	Clean up shop. Green dust everywhere. Microed 2 new sides together, per plans	3
12/ 21	Flat, smooth top edge. Drew in all measurements. For aft section, there were 3 DIFFERENT sets of measurements! I made and used a new master set averaging them together.	3
12/ 22	Cut right side fuselage; filed and sanded smooth - ON THE LINE. Cut holes for inserts at accessory instrument panel & control stick clearance (8/26); sanded edges of holes to smooth curves; Similar for Right side fuel gauge	4
12/ 23	Microed in inserts for control stick and accessory panel clearances	1
12/ 25	Cut rear & bottom side of Left fuselage side similar to 12/22. Entire R & L fuselage sides are the same $\pm 1/64$ ". All bulkhead marks have same fuselage station. Left fuel gauge made like the right. Merry Christmas.	4
12/26	Cut wood longerons, 2 LWZ; 2 LWX and 2 LWY. Sanded longeron edges round	2
12/27	Clean up hanger. Bonded left side to table. Cut BID & UNI	2
12/28	Glassed left side; Saran Wrap on fuel gauge; Top longeron installed w flox, w nails to align; Stiffener installed w flox, "C"-clamps to align; Lower longeron installed w flox, nails to align & weights at each end. LWX & LWY installed w flox & weighted. Peel ply.	4
12/ 30	Doubler to make lower rear left longeron into a square (c/s) added, floxed & clamped in place	1
12/ 31	Glassed top longeron, peel ply edges	2
1987	Total of 149 hours to here (149); 56 days of construction	
Jan 1, 1987	Shaped Urethane foam to fit behind rear seat between LWX, LWY, LWZ & lower	6

Signed: _____.

	longeron. Floxed LWZ into place, microed Urethane in place; floxed all nail holes & slits in lower longeron; glassed over Urethane and made two 15 ply pads to accept the landing gear attachments. Peel ply.	
1/2	Knife trim 6 ply and after wait, Dremel saw 15+ ply. Sand edges. Cut & sand edges F28 doublers, R & L. Removed L side from table, cut out spar area; removed plastic draping, clean up. Recovered table.	3
1/3	Glass right side fuselage, upper & lower longerons & upper doubler; LWX & LWY; Fuel Gauge (RE: 12/28); Knife trim. Took longer this time.	5
1/4	To cold. Some clean up	
1/5	Glassed top longeron, R side, per plans; made lower, aft longeron doubler & fitted	1
1/7	Installed aft doubler w wet flox	1
1/8	Cut glass for R Main Landing Gear attach, 6 ply & (2) 15 ply	1
1/9	Installed LWZ; cut & shaped urethane foam & installed; Glassed, 6 ply BID, (2) 15 ply BID for Landing Gear Attachment	3
1/10	Trimmed as on 1/2/87; Made Spar cutout, both halves clamped together & sanded W orbital sander to ensure that both are the same; Repaired any sand-thrus in bulkheads from the disassembly (12/10 - 12/19). Caught up with where I was on 9/10/86! Front seat is to be 2" forward of plans specification.	3
1/16	Fitted pieces together and trimmed to fit; sanded over peel ply; drilled holes for Landing Gear Attachment and countersunk on the exterior; Put CenterLine on each piece. Clean up shop	3
1/20	Built 3 jigs, 1/4" birch plywood to hold the fuselage square	2
1/21	Set up jigs, square & level on the table CenterLine	1
1/22	Setup fuselage in Jigs; Rear bulkhead is plumb & square ϕ 1/16"; Rear seat screwed into position; Front needs work	2
1/23	COLD! Stoves on maximum & it is 62°F. Squareness checked.	1
1/24	Squareness. Rear bulkhead is now square ϕ 1/32" & plumb; Front bulkhead is square ϕ 1/16" & plumb; Remaining bulkheads appear square ϕ 0", BUT right side is NOT plumb, nor does it match the left after the front seat - a difference of up to 1/4"	2
1/25	Square and symmetrical ϕ 1/32"; R & L are plumb OR symmetrical on both sides; F22 and firewall are plumb. Disassembled, Photo of parts; put together again	3
1/30	Square & symmetrical ϕ 1/64"; Front and Rear are plumb. Problem, Center-Line is displaced 1/4" at front seat	3
1/31	Bulkhead CenterLines forced to the Fuselage CenterLine. Ends symmetrical ϕ 1/32"; Ends and sides are plumb. Wait overnight.	4
Feb 5, '87	Walls and bulkheads are all symmetrical, plumb and square ϕ 1/64". Bonded in place. See diagram. Distances are to CenterLines; CenterLines are on Fuselage CenterLine. Photos. See diagram 3	4
2/16	Epoxied rear side, Rear seat, Front seat, Instrument panel w 2 ply BID tape; Peel Ply9. Flox used fill gaps and foam scraps for any gap \leq 1/4"; Floxed F22 to front. Last check of symmetry the same as 2/5	4
2/17	Knife trim	
2/18	Epoxied front side of Instrument Panel, rear side of F22. Knife trim. Cleaned Epoxy Ratio pump & checked ratio.	2
2/21	Installed F28 doublers, covered w BID	1
2/28	Anodized Firewall in large trash can & dyed gold.	2
Mar 20, '87	Anodized miscellaneous parts	2
Apr 20, '87	Anodized up to Nose Gear Fork. Anodizing takes so long!!! Clean up shop	2
4/21	Taped forward side of Front & Rear seat bulkheads	2
4/22	Used Dremel to trim tapes. Fixed bubble void on right side of rear seat tape	2
4/24	Made 2 saw horses, leveled w each other & bonded to floor about 5' apart;	3

Signed: _____.

	Set fuselage on horses, checked alignment and bondoed to horses. Clean up table	
4/25	Cut foam for floor and marked out depressions	1
4/26	Carved depressions in floor w wire brush & sandpaper	2
May 1,'87	Finished carving depressions	1
5/2	Cut wheel well for front tire; Fitted floor to fuselage. Attached 2" x 4"s w bondo per plans	2
5/3	Clean shop; photos. Transfer floor to work bench	1
5/8	Cut glass for floor. Using Masking tape per CP51 works, but has its own problems	1
5/9	Glassed inside, floor, then, after 2 hours inverted it & attached to fuselage w flox. Weighted in position. Remove excess flox. Knife trim edges and wheel well.	4
5/24	Sanded inside edges for reinforcing tapes	2
5/28	Attached Landing Gear Brackets w flox and nuts on the studs. Get a small socket set	2
Jun 6,'87	Cut reinforcing tapes for floor corners	1
6/10	Reinforcing tapes installed between IP and FS22 at bottom corner	2
6/11	Trim, sand, dust & vacuum. Reinforcing tapes installed between Front seat & IP; Peel Ply	1
6/15	Reinforcing tapes, rear seat compartment, right side. Peel ply	1
6/17	Ditto, left side	1
6/19	Remove peel ply & trim	1
6/20	Clean up. Carve outside bottom corners	3
6/21	Sand outside left bottom corner. (They said 1 - 3 hours for entire outside - HA! Less than 25% complete.	6
6/22	Finished sanding w hard (30") pad on left, roughed the bottom right down to longeron w orbital sander. (1 - 3 hours - HA!)	7
6/23	Worked on bottom right outside corner	5
6/24	Finished bottom right & also top right	6
6/25	Did top left corner. Marked in area for landing light and Speed brake & for tubes for radio coax's from under front seat to behind rear seat	4
6/29	Made template for canard cutout & glued on w rubber cement	1
6/30	Cut out space for canard, R & L between F22 & F28 w coping saw.	1
July 1,'87	Sanded to shape between F28 & IP - Top R & L; Sanded canard cutouts	2
7/2	Marked out, cut and sanded outside of fuel gauge	2
7/3	Foam cut for Radio coax conduit along left side of floor. Conduit is PVC 0.61" ID and 0.85" OD, cut down to 0.73" OD by Speed brake area and the rear seat area. For 4 coax cables	4
7/7	Ditto on right side. PVC tube 0.5" ID and 0.61" OD. 3 coax cables	4
7/14	Radio coax cut: COM 1 left rudder 196" 34-82-80 XPDR left wing 177" 15-82-80 G/S left wing 196" 34-82-80 COM 2 right rudder 184" 34-70-80 Loran right wing 184" 34-70-80 DME right wing 166" 16-70-80 MKR BCN right wing 177" 27-70-80 Coax's bundled and inserted in PVC flex conduit. Very little room by speed brake and rear seat See diagram 4	
7/15/87	All penetrations of interior floor reinforced w 2-ply BID	1
7/17	PVC conduits were installed in carved grooves, bedded in dry micro	2
7/18	Conduit grooves filled w Pour-in-Place foam, as well as any dings in exterior foam	1

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7/19	Excess P-in-P carved away and sanded flush. Voids are refilled.	2
7/20	Ditto. 36 grit followed by 100 grit	2
7/21	Landing (Speed) Brake marked and covered w Duct Tape. \odot 30° guide lines added; lines for future fuel and baggage strakes added	3
7/22	Firewall and F22 covered w Duct Tape; Wheel well covered w plastic; Landing Gear Attach areas covered w plastic, excess RG58 coax coiled and taped securely in place	2
7/23	Vertical pylons, w pivots built and clamped securely to firewall & to F22, to support fuselage, for exterior fuselage glassing. Able to be rotated. See 8/11	2
7/24	Wood inserts & 4 Alum 7/8" extrusions cut to shape for front seat Shoulder Belt Anchors	2
7/25	Landing Brake wooden parts cut, 1/4" aircraft plywood. LB 9, 17, 19, 23 cut	2
7/26	Phenolic bearings cut for LB. Need to get 5/8" drill. LB 7 & 8	2
7/28	Aluminum parts for Landing Brake cut to shape LB 18	1
Aug 3, '87	Anodized alum parts for LB	2
8/5	Sanded Main Gear; floxed onto 3 nails, on table	2
8/7	Cut glass for fuselage exterior & for Main gear strut torsional reinforcement	2
8/8	4 ply BID @ \odot 30° torsional reinforcement to Main Gear. Knife Trim	2
8/9	Edges faired in; entire strut sanded	3
8/10	4 ply BID @ \odot 30° torsional reinforcement added to other side of strut	3
8/11	Tom & Mike Soja. Fuselage external layup, 2 ply @ \odot 30° UNI & 1 ply @ 0° forward half & 3 ply upper longeron stiffener	6
8/15	Compared progress, notes techniques w Frank Nowak, LEZ builder in Huntington, MA	
8/16	Roll Over Structure - foam cut & shaped; fuselage sanded for bonding; Shoulder Harness wood anchors embedded in ROR & ROL	2
8/17	Glassed inside pieces of roll-over structure; knife trim; assembled on front seat, per plans	3
8/18	Glassed outside of roll-over structure; Peel ply	1
8/19	Cut holes in roll-over structure & drilled holes for shoulder harness anchors	1
8/20	Installed 1/4" plywood doublers & 7 ply layup for seat belt anchors	1
8/21	Drilled holes for seat belt anchors, installed alum extrusions & the step	2
8/24	Faired down the TE of the landing gear struts; Fitted to airplane & bondoed to 4 plywood tabs	2
8/25	Removed from airplane, faired in tabs; cut UNI and BID for LG attach tabs	2
8/26	18 ply UNI w 18 ply BID, each end, LG tabs, left side	3
8/27	Ditto for right side	3
8/28	Trimmed all tabs to match plywood jigs; sanded smooth the transitions to the LG. Each tab is \square 1/4" thick & they are only half done!	3
8/31	Drilled out holes for LMGA tubes on LG tabs. Installed on airplane. With taut string between axle centers (inner face) & level clamped vertically to firewall, the distance is 14.76". Legs are level across the ends	4
Sept 1, '87	Laid up glass UNI & BID on upper side of LG	3
9/2	Trimmed glass down to match 8/30 tabs & drilled out LMGA holes w 8/31 tabs as template	2
9/4	Inserted LMGA tubes & mounted on aircraft. Distance from taut string between axle centers to firewall is 14.9" Carved Urethane blocks to mount between LMGA & strut	3
9/5	2 ply BID over each LMGA. After 2 hours to tack up, mounted on fuselage, upside down, to set	2
9/6	AN960-1018 washers floxed on each outer face & covered by 2 ply BID	1
9/7	Trimmed work of 9/6; Mounted on fuselage; Moved site of axles: R, forward 0.1" and L rearward by 0.05" (upside down R & L); Wire stretched between axle CenterLines to forward of Firewall is 15.03" R axle (interior) CenterLine to F22 CenterLine: 94.5"; L axle (interior) CenterLine to F22 CenterLine: 94.5" See	3

Signed: _____.

	10/10/87	
9/9	Located L axle on strut per CP 30, p7 & Ch 9	2
9/11	New Shimmy Damper Assembly for NG. Drilled new pivot shaft for roll pin; fitted together	2
9/18	Anodized parts	2
9/19	3 ply BID pad both sides I & O of L strut; Mounted Alum plate & Axle w flox & 4 clamps. Checked position. Vertical & rear edge is 26.7" to CenterLine (per CP30 p6) & forward is 26.6" to CenterLine	3
9/20	Drilled 4 holes through strut w axle as template. Used Dremel to grind away strut & Alum plate to clear brake caliper by 1/16". 1 ply BID over end	3
9/25	Cleaned epoxy ratio pump & checked proper ratio 100:45	1
Oct 4,'87	Sanded toe-in on R strut; Ditto 9/19 for R strut; Vertical rear edge & horizontal side of caliper. Rear edge to CenterLine is 27.1" and front of carpenter square is 27.0" to CenterLine	4
10/6	Ditto 9/20 for R strut	3
10/8	Took wheels apart	
10/10	Wheel assembled w tube & tire per plans p 9-2(A); First thread of Right axle 31.7" from CenterLine; First thread of Left axle 31.6" from CenterLine; Axle CenterLine to Firewall (vertical) is 15"; Flox injected like frosting into space at end of LMGA tubes to prevent slippage fore or aft	3
10/11	Clean up. Prepare for another winter. Cut 1" x 2" hole in floor of rear seat area for landing brake, 3.5" behind front seat bulkhead, on CenterLine	3
10/12	Removed outside skin for LB per plans; Shaped interior of depression w wire brush in drill, then wood rasp & sand paper	3
10/13	Made holes for screws in LB24; fitted LB22 & LB23; smoothed depression; drilled LB24, then glued LB22 Alum plates over them, centered w SS wire in hole; Cut glass for depression	4
10/15	Glassed depression for LB, 2 ply BID & 1 more over LB23	2
10/23	Cut hole in floor for LB21. Cut PVC foam for LB; 5-min'd. in depression	1
10/24	Sanded LB to level w fuselage	1
10/25	Glassed outside of LB. Rudy visited.; liked results. Knife trim.	2
10/28	Bonded frame onto outside of LB; removed LB from fuselage	1
10/29	Fitted hinge to LB	1
10/30	Shaped foam, "inside" of LB; foam removed down to glass for LB 19 & at edges. Small foam insert carved to fit over LB19 slope	2
10/31	Glassed "inside" LB	2
Nov 4,'87	Removed frame from LB; trimmed edges; drilled screw holes (AN525-10R8 & AN525-10R10); installed screws	2
11/5	Tacked hinge to fuselage, drilled & tapped 1/4-28; installed AN4-5A bolts; small gap under hinge at left end - 3 ply BID to fill (6", 3", 2") x 3"	3
11/12	Installed LB18 & Heim Rod End F34-14 w AN3-7A; Turned fuselage over, Cut foam for left arm rest	3
11/20	Put together Shimmy Damper Assembly as modified by Bob Davenport, CP51p5; adjusted for 5 lb turning force by hanging 5 lb weight over a pulley, and tied to axle; Sanded nose gear strut	2
11/25	1 st layer BID on NG strut, peel ply	1
11/27	2nd layer BID on NG strut	1
11/28	Trimmed & fitted strut to Nose Gear Assembly	1
11/29	Pieced together foam to make NG30's; drew separate plan for them	2
12/4/87	Cut NG30's & trimmed to make them identical.; glassed NG30, left on interior; brought into house to set	2
12/5	Knife trim NG30L; Laid up NG30R, inner surface; Cut glass for NG30 exterior & 15 ply reinforcements. Knife trim	3
12/6	Drilled out guide holes for NG30 bolts; Removed foam 1.2" & 2.8" dia. Areas. Laid up 15 ply reinforcements & 4 ply outside coats	4

Signed: _____.

12/7	Knife trim	
12/10	Cut & glass F6, forward side	1
12/11	Knife trim. Cut & glass Left Front Console, inside (hidden); 1 ply BID extra at LB14	2
12/12	Glassed left console (outside), 2 ply BID	1
12/13	Knife trim, edges of seat belt & pitch trim cutouts are rounded & glassed	2
12/15	Left console cut into LC1, LC3 & LC4	1
12/23	LB 17 attached to left side fuselage w 5 min & flox; covered w 3 ply BID. Set. Drilled through, to clear bolt hole. Right front console cut, 5 min together	3
12/30	Holes cut in right front console for seat belt access, fuel lines, roll control, radio conduit & control stick. 1 ply BID on inner side	2
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1988	Total of 315 hours to here (166); 127 days of construction	
Jan 1, '88	Knife trim, Name & date on inside	1
1/2	2 ply BID outside right front console; Edges rounded, except for CS 109 attachment area	1
1/4	Cut foam for rear consoles	1
1/9	Cut Alum rod & tube for nose tie down per CP49p7	1
1/10	Right rear console fitted in place & 5 min together	1
1/15	Left rear console fitted together & 5 min together	1
1/16	Glassed interior both rear consoles; made jigs to hold glass in place for exterior of the rear consoles	1
1/17	Glassed exterior R & L consoles	1
1/23	After welding 1/4" Alum plug in Alum tube (CCHS) (1/9/88); drilled 5/16" hole in plug, and #12 hole through tube, 1" from end per CP26p8; Inventoried parts from Roland; Clean up shop	2
1/24	Cleaned Alum parts for anodizing	1
1/25	Anodized & dyed alum parts	3
Feb 12, '88	Changed wicks in stoves. Haven't been able to go above 60°F in weeks. Reassembled NG wheel, lubricated wheel bearing w Hi-Temp Wheel Grease from San-Val (Permatex PET S-743)	2
2/13	Drilled holes in NG30's & trial fitted NG retract mechanism (NG51 et al & NG6 et al)	3
2/15	Drilled NG6, & fitted strut into it	1
2/16	Bonded NG Strut into NG6, centered between NG30's & counterdrilled through NG6 & strut, then the backup plates (NG5); Disassembled NG51 assembly, cleaned and painted NG 53 - 52 w ZnCrO ₄	3
2/18	Measured LB 1,2,3,4,5 in fuselage - it is perfect according to the plans, & to short in the EZ! How I love these plans! Return to Roland for a 0.8" extension. Drilled LB4 & 5 for riveting & AN3 bolt; countersunk holes in NG5 for screw heads; Anodized & dyed NG5	2
2/19	Attached NG8's to NG 30's 4 4 machine screws & flox. I could have used shorter screws	2
2/20	Assembled NG30's w NG retract mechanism, NG6, etc.; aligned w CenterLine ± 0.01"	2
2/21	Distance between NG 6 & NG3 pivots is 6.71 ± 0.05"	1
2/26	NG3 & 4 are not a loose fit as plans state, already very snug. Sand, flox & mount per plans w/o any extra BID. Made NG63, drilled & riveted together NG 60, 63 & 59 & reassembled the NG box.	3
2/27	Added NG strut to NG30 box & LST assembly. Had to rethread 1 end of LST to fit the HEIM HM6 end bearing; Greased LST	2
Mar 4, '88	Added NG 31 & F6 per plans	1
3/13	Prepared NG30's & F22 for bonding	3
Apr 19, '88	LB 4 & 5 drilled per diagram, p A2; held together w rivets in holes; clamped LB 4 & 5 to LB 1,2,3 & drilled holes through. Cleaned all corrosion, buffed w em-	2

Signed: _____.

	ery, washed and cleaned again. Electroplated Nickel coat w JNT MetlCote system (JNT Mfg. Co./ Mead's Lane, RR2/ Box 870/ Stormville, NY 12582 (914) 878-6868); Sprayed inside of LB1 w ZnCrO ₄	
4/21	Assembled LB1,2,3 to LB4,5 to Lb10. Made LB spacer from 1" Nylon rod, using drill press as lathe to turn down to 7/8"	2
4/22	Installed LB9 support w 5 min, then flox & 2ply tapes per plans; swaged s/s cables	3
4/28	Assembled entire LB system. It works. Closes w 40 lb. of force on it	1
May 5,'88	Floxed LB11 in place, attached NG30's to F22 bulkhead w flox and taped inside corners only. Square. Clean up	2
5/9	Taped outside corners of NG30's to F22	1
Jul 1,'88	Completed LB. Readjusted tension on LB12 springs	1
7/5	Nose floor blocks carved from 2" urethane foam; rudder pedal pivot blocks cut from H250 foam; 0.063 alum support cut & anodized and K1000-3 nut plate riveted on; clean up	3
7/6	Glass cut for nose floor, blocks microed in place and glassed, K1000-Alum plates 5 min to h250 support blocks; knife trim	3
7/7	Nose side pieces cut to shape	1
7/8	Nose side pieces sculpted (inside), hole for nose tiedown cut; Tiedown tube drilled for bolt CP49p7 and anodized	3
7/9	Rudder pivot block fitted into place, 5 min; clean up.	1
7/11	Glassed interior, right side nose section, 3 ply reinforcement of canard attachment area on F22 & 4 ply over rudder pivot	2
7/12	Drilled out rudder pivot right side; glassed interior, left side nose section;	2
7/13	Drilled out rudder pivot left side; Cut Pitot tube, 1/4" Alum tube, and rudder spring support blocks. Anodized them & Oil breather/separator	2
7/14	Cut nose top & 3 blocks for nose; installed pitot tube	
7/15	Extend F28 & IP per Debbie Irwatate. F28 up 0.86" & IP up 1.25" at Center-Line. Cut H250 & glass one side. 1 additional ply BID over entire rear IP face See 3/8/90.	2
7/17	Glassed other side of IP and F28 extensions	1
7/18	Added foam blocks to nose, centered on pitot; Large cover block of urethane	1
7/20	Carved nose and sanded smooth. NGSB stainless block drilled; k1000-3 riveted to 1.1" x 0.7" x 0.63" alum	2
7/21	Prepared prefab strut cover (SC); touch up nose foam; clean up	1
7/22	Glassed nose outside, 2 hours top, 3 on bottom, 3 in between to allow it to set up before turning over	5
7/26	Rubber bumper for nose cut from tractor tire to match NGSB; Sanded nose. Removed SC prefab part, to sloppy. Reinstalled w 5 min flox, minor repair, 2 ply BID lapped on per plans. Looks good	2
7/31	Drilled out NG 3,4 and inserts in the Heim rod end bearings on the LST and NG62 (HM6) to 5/16" per CP54p6. Alum PR4 cut drilled & tapped & grooved per CP30p8 and plans 8-1A. Wood dowel cut & drilled to hold PR4	2
Aug 12,'88	Made templates for New Canard plans by gluing page C3 to Formica w 3M Super 77 Spray Adhesive. Made steel form from 1/2" square steel rod as template for PR2 & 3 of canopy stay (p8-1A); made PR2, PR3	2
8/13	Drilled PR2 & 3 per plans, drilled PR1 & 1A. Anodized all parts of Canopy Stay system & handle for NG retraction	2
8/14	Worked on templates for canard	1
8/22	Cut foam cores for canard inboard section - twice. First had errors. Drilled holes for dowels, 10 places; removed flashing, sliced core into front & rear, to form shear web	3
Nov 6,'88	Cleaned up hanger interior. New roof on hanger, repainted all doors. Cleaned tools for winter	
11/11	Drilled CLT & CLI & made 2" x 12" x 1/4" drilling template. Riveted K1000-4	2

Signed: _____.

	nutplates to rear side of CLI	
11/12	WL 19.8 drawn on Shear Web; Jigged per plans, p 10-3 & forced straight, level. 2 cores joined w dry micro	2
11/15	Recessed foam for CLI's, radiused forward edge of spar troughs; Supports for Alum drilling jigs cut & Bonded in place per NC plans, pC5#5	2
11/16	Dry microed CLI-CLT into Shear Web. CLT is perpendicular to WL 19.8	1
11/17	Reset canard in Jig - it had moved on the nails. Reset the Alum strips to be able to find the blind holes for the CLT. Cleaned Epoxy Ratio Pump, checked ratio	3
11/23	Glassed Shear Web; peel ply	7
11/24	Knife trim shear web	
11/25	Removed peel ply, checked for straightness; drilled out the inboard holes (to bolt CLT onto CLI) undersize & filed carefully, bolted on jig & drilled last 4; drilled out 10 holes for dowels	3
11/26	Cut 9 jigs, K , to hold canard for glassing from ½" Particle Board. Cut two tip cores for canard	3
11/27	Sanded Shear Web flat on all three sides. Inserted 10 dowels w Micro & "Hot Stuff"; bolted CLT to CLI (50 inch-pounds each bolt) w wet flox; Microed canard Leading Edge to rear portion, on the dowels, clamped R & L sides between two straight wood pieces outside of foam jig from initial cutting to ensure straightness. No micro on spar troughs. One of the last days it will reach 90°F in this hanger, this year.	2
11/28	Jigs K sanded to be identical, & bonded to table	2
Dec 3,'88	Glued canard to jigs w 5 min per plans. Microed ends onto canard & 5 min onto their jigs. Marked location of VOR antennae & path for RG58 cable. Front & rear straight	3
12/4	Almost perfect match for Template E . Laid up bottom Spar Cap. Each ply stippled & squeegeed as if it were the last. Original canard plans claim 2 hours for self & helper - it took 6 hours for me. Room was cool, low 70's. Peel ply.	6
12/7	Stripped off Peel Ply. Sand spar cap to smooth transitions between plys	3
12/9	Sanded spar cap for smooth transitions. Good fit to template E	3
12/10	Routed channel for RG58 cables and for copper foil for two VOR antennae. Made antennae (RST, Grass Valley, CA), each arm 22.8", centers are not touching, but separated 1 cm; centers of each are 46.0" from canard CenterLine, and 7.25" from LE. 3 ferrite torroids each, cable center wire attached to outside arm. Cable tacked in groove w Hot Stuff, then Pour in Place Foam	2
12/11	Trimmed Pour in Place, touch up PiP; Clean shop; cut glass	3
12/16	Plastic drapes on table; grey tape on CLT's; plastic wrap on antennae cable roots	1
12/20	Glassed bottom of canard, per plans	5
12/21	Knife trim	
12/27	Cut 130" Black Steel Pipe, 1¼" dia., cleaned & degreased, mounted on canard w bondo. Cut 4 1"x 4"x 8"boards & bonded approx. 40" apart, shimmed as needed to be level & straight	2
12/28	Freed from jig's K & turned over, bonded to table - level	1
12/31	Removed fishtail, checked level & twist of canard, adjusted far right block w shim & rebonded	1
1989	Total of 464 hours to here (149); 198 days of building	
Jan 1,'89	Fitted NC2 hinge inserts into machined pockets, corners of inserts had to be filed to fit (RAF phone); NC6 needed light sanding to fit into ends; NC12A needs turning down to fit inside torque tube (THANKS Ken Brock, HA!); Sprayed tubes on NC 12a w ZnCrO	5
1/2	Cut holes in canard for seven 6 lb/ft ³ PVC inserts	2

Signed: _____.

1/4	Cut & shaped seven PVC inserts; faired in LE of lower skin	3
1/5	Microed in inserts, grey tape around & weight on top, to ensure flush	1
1/7	Masked off spar cap, draped table; Clean up	1
1/14	Laid up top spar cap' hanger is 85 & it still took forever for the UNI tape to wet out. Each layer squeegeed as if it were the last. Peel ply. Cut glass for top skin	8
1/15	Sanded the spar cap to fair in each layer. Template F O.K. on forward & rear edges, but there is a gap over 90% of canard spar cap	2
1/17	Laid up 1 ply UNI tape on spar cap, entire length, when sanded, will provide smoother transitions & fit to template.	2
1/21	Sanded spar cap	2
1/22	Sanded spar cap	2
1/25	Sanded spar cap	2
1/28	Completed sanding spar cap	3
1/29	Anodized NC2's; NC6's and Torque tubes. Used 3" PVC tube, plugged and sealed to hold acid, Inner tube is 2"PVC, w many holes, open at both ends, loosely wrapped w alum foil; Also used for dye.	4
Feb 10,'89	Repaired dings and glassed top canard surface: Knife trim, dry micro on TE. 98"	6
2/11	Few lean areas, about 1%; weight: 19 lb. Looks good, BUT does not match template E & F. It is 0.1" - 0.13" to thick! Letter w photos to RAF	1
2/24	Telephone RAF. M. Melville: shape is far more important than anything, esp. the upper side & slot, than thickness. Began cutting elevator templates.	1
Jun 29,'89	NC2 inserts in torque tube pockets, #30 holes, BSP rivets, Permatex PET S-743	2
6/30	High Temp grease in hinge pin holes Foam ready to be cut for elevator	1
Jul 4,'89	Cut 2 elevators. Neither good enough	1
7/5	Squared up another piece of foam. Attached templates.	1
7/7	Cut two elevators. 2 sec between #, more on top of curve; Mounted left TT on NC7 jigs w S/S hinge pin Micro in groove & TT rolled onto it. Set on table w five 5 lb. weights	2
7/9	Microed second elevator to TT per 7/7. Cut glass	3
7/12	Faired in foam to TT	1
7/13	5 min'd both elevators to table, bottom up. Glassed both, Knife trim. 90°	3
7/14	Sanded LE & TE. Removed fish tail	2
7/17	Glassed tops	2
8/1/89	I do not like things that are "adequate" (2/24/89) and I'm going slower & slower w less & less accomplished, therefore, I will rebuild the canard. Oh, no! Foam block squared up; templates filed smaller, to ½ line and lubed w graphite	3
8/2	Cut canard sections	1
8/3	Drew WL 19.8 on Shear Web face; Bonded 2 2"x4" to table as jigs	2
8/4	Mounted rear canard to jig. No twist or dihedral. Tight thread along WL 19.8 & TE	2
8/9	Riveted K1000-4 nutplates to CLI's; bolted CLI to CLT to alum jig & microed CLI in forward face of shear web. Cut glass for shear web	3
8/10	Added silicone to 3 holes in each CLI; glassed shear web, peel ply	7
8/11	Removed peel ply, drilled holes for AN4-7A bolts, the ten dowel holes in the shear web; bolted CLT to CLI, microed forward portion of canard to shear web; removed fish tail in two places to test templates E & F. Canard is slightly small, as it should be. LE is straight & level	3
8/13	Photos. Cleaned up jigs K and set two at Ø 63", stretched 5 threads, tangent at 5 points to all nine jigs K - fore, aft, center & high points	3
8/14	Mounted canard to jigs microed end pieces on, LE & TE are straight & level.	2

Signed: _____.

	Maximum discrepancy in shape from template E is 1/16" in 54"	
8/15	Clean shop. Light sanding on shear web	2
8/16	Laid up bottom canard spar cap, peel ply. Anodized hinges NC3 & shoulder tabs for seat belt. Hanger is 90°	2
8/18	Sanded spar cap	5
8/19	Routed path for RG58 radio cable to VOR antennae, behind spar cap; Made 2 RST type VOR antennae - 3 ferrite torroids on each; Cu tape is 22.8", and coax center conductor is attached to the outer arms	1
8/21	Heat shrink tubing on root of RG58 where it will penetrate the glass skin. Routed path is filled w Pour in Place. Trim foam & sand flush. Clean up. Glass lower skin. Knife trim	6
8/22	TE sanded straight \varnothing 1/64", measured from taut string. Forgot to peel ply LE, sanded. Steel pipe Bonded to TE	3
8/23	4 1"x 4"x 8" boards & Bonded approx. 40" apart to pipe & lower side of canard, shimmed as needed to be level & straight. Turn over. Fish tail removed, peel ply stripped out. LE glass faired into foam. 7 foam inserts cut; 7 matching holes cut in Styrofoam. Clean up & drape table	2
8/24	Microed 7 blocks in holes, below surface. Spar cap laid up & peel ply	8
8/26	Sanded spar cap flush w foam	8
8/28	Filled dings, depressions, holes, gaps between blocks w micro. Glassed upper side canard. Peel Ply on ends & rear edge. 85°	5
8/29	29 Anodized NC2's & NC3A's; admired canard	1
8/30	Anodized an dyed torque tubes	4
8/31	Freed from jig, clean up. Weighs 19.5 lb.; NC2 hinge inserts riveted into torque tubes w Hotstuff along edges; slots filed in torque tubes to match hinge slots in the inserts.	2
Sept 1, '89	Microed torque tubes to elevators	1
9/2	Elevators sanded to shape on torque tubes; 5 min'd. onto table; glass cut	1
9/3	Bottom of elevators glassed	4
9/5	LE faired in; TE sanded straight	2
9/6	SCHOOL again! 65 Lb. Pb on elevators to ensure straightness; Bonded to table every 4" around edges. It took 3 tries for left one	1
9/8	Prepared LE & TE; Grey tape & plastic dressing; Clean up	1
9/10	Glassed top of elevators, micro in TE depression	4
9/12	Removed Bondo from elevators; faired LE & sanded TE straight; Left weighs 1.75 Lb.. Right weighs 1.25 Lb. No paint, no hinges	3
9/13	Master template L on Formica	1
9/14	Made 4 identical Template L from 1/4" plywood	2
9/15	Flox corner outside ends of elevators, BID	2
9/16	Knife trim. Clean out torque tube, insert NC6's and pop rivet MSC43	2
9/17	Trace NC6 on Saran Wrap (Pilot Fine Point Marker), tape over end of TT & drill #10 hole for 10-32 set screw	2
9/23	Template L Bonded to elevators & canard. Holes drilled for NC3's & NC3A's; wood scraps over NC3's & NC3A's per CP47p8; Removed templates & checked elevator DOWN movement - Only 12", MUST be 15°!	3
9/24	Sanded TE per plans 10-10. Shimmed up all template L off canard w tongue depressors. Repeated motion test, produced 14° movement	2
9/29	Shimmed up by thickness of 2 tongue depressors; T.E. gap almost 0.3"	2
Oct 6, '89	Tacked sheet C-1 to wall, w WL 21.8 level. Angle of bottom of NC3 is 7°;	2
10/7	Shimmed all NC3 to that angle & Bonded. NG	
	Shimmed all template L 0.095": Bonded all NC3's and NC3A's to 5°; TE gap about 0.2"	2
10/8	Left elevator 15.5° and Right elevator 16.5°; Injected some wet flox into bottom of slot to hold NC3 & 3A's; NC3A bolts are 0.55" from vertical, forward face of Torque tube	2

Signed: _____.

10/11	Jigged canard upside down at approx. 40° nose down w foam & Bondo; Injected wet flox w squeeze bottle & soda straw into slots, jiggle wire to eliminate air bubbles. 90°F	3
10/16	Remove elevator, add enough wet flox to bring it even w foam/glass surface	1
10/17	Leveled canard, reinstalled elevator. Difficult to insert the hinge pin alone.	1
10/21	NC12's bolted together, w rod end bearing; Bondo end of NC12 to mix stick to canard to jig in position; Drill hole through TT & NC12, about 0.5" from end of TT; Bolt together	3
10/28	Foam cut for ends of canard. Canard w elevators jigged in place; turned over & placed on blocks, leveled & Bondoed; Ends microed in place	3
10/29	Jig X made to guide carving; Right block carved/sanded to shape	2
Nov 3,'89	R & L tips matched w pin device; sanded 1.25" of skin; clean up	3
11/4	Glassed upper canard tips; peel ply	1
11/5	Knife trim	1
11/9	Carved & sanded lower surface, canard tip, shapes matched R & L; End of VOR antenna unrolled over foam	2
11/10	Glassed bottom canard tip, dry micro & peel ply at TE and distal edge; 90°	2
11/11	Knife trim	2
11/18	Bump in right canard tip, lower side, repaired. Dry micro to top off any subsidence in holes drilled for NC3 & NC3A's to fair in; Knife trim	2
11/21	Microed 1/4" ID x 3/8" OD tubes in canard tips per plans	1
11/24	Trimmed tip tubes flush; filed S/S hinge pin ends & drilled 1/16" hole in one end each	2
11/29	Finished NG67 in nylon; Drilled holes for AN364-832 screws in it & Inst. Panel. Assembled & tested NG61 to NG retract mechanism. Riveted NG65 to NG 61. Interference w screws & rivets. MUST replace NG67 w a larger one See 12/29/89	3
Dec 3,'89	Test entire assembled NG retract mechanism. NG Strut Cover interferes w bolts & part Dremeled away; Opened hole for Nose tie down	3
12/8	Removed L Main Wheel & axle; Sanded off all corrosion on Magnesium wheels, buffed w Scotchbrite, cleaned w acetone & inside wheel halves sprayed w ZnCrO ₄ ; measured for LG heat shield (CP57p10)	2
12/9	Sprayed outside wheel halves & brake fitting; Fitted nose gear to strut	2
12/10	Put L wheel together, w tube & tire; Made pattern for 1/8" LG heat shield	2
12/12	Removed R Main Wheel & axle; ditto 12/8	2
12/14	Sprayed outside R Main Wheel	1
12/15	Put together R Main Wheel w tube & tire	1
12/16	Disassembled NG wheel, sprayed w ZnCrO ₄ ; Wet floxed NG15A to strut See 12/25	1
12/18	NG doors drilled to match NG15A casting	1
12/23	Alum spacer cut to fit behind rear NG door. 3 holes drilled thru spacer, then NG 16, then rear door. Drill #21, tap 10-32; open holes in spacer & door to #13	3
12/24	Anodized NG doors & spacer. Installed rear door & spacer	3
12/25	Removed NG15A, New shimmy Damper plans part #2 My shaft is not at 90° to reference & ground -instead is 85°. Added 4 ply BID to end of NG1 & ground away some strut at top of NG15A	3
12/27	Replaced NG15A at 90°, w wet flox	1
12/29	Installed new NG67 nylon bearing - still is not right See 1/1/90	1
Total of 695 hours to here (231); 292 days of building (91)		
Jan 1, 1990	Made Nylon bearing #5, larger than original. Looks better than theirs	2
1/6	Began wiring RST Intercom	5
1/7	Completed RST Intercom (3); began making wiring harness (2)	5
1/8	Completed wiring harness, sent to RST for testing	2
1/10	Soldered circuit board for RST lamp dimmer	2

Signed: _____.

1/11	Completed lamp dimmer	2
1/17	Sanded flat on Main Strut so brake heat shield would lie flat; Anodized Heat Shields & Wheel Balance Tool	3
1/18	3 ply BID on each strut per plans, beneath heat shields	2
1/19	Drilled holes & assembled w axle. Wrong toe-in. Removed & sanded again and added 2 BID, 1 UNI at forward side	2
1/20	Drilled strut, assembled w axles. Proper toe-in - forward measurement, per plans is 51.75"; rear measurement is 52.1"	3
1/27	Removed assembly, sanded strut white & reassembled axles, shields & brakes w floc, new AN22 bolts & new MS21042-4 nuts. Rechecked measurements and difference between the two is 0.35". Filled tires w air, to 40 lb.	3
1/30	Balance wheels per CP61p6. Added Pb to Main #1, 1.75 oz., Main #2, 2.75 oz., Nose, 1 oz.	1
1/31	All wheels mounted, 30 ft.lb. torque on mains, 60 ft.lb. on nose; cotter pins inserted	1
Feb 9,'90	Cut hole for landing light under left thigh support; drilled holes in LL6 & LL7 for rivets; made plywood support for hinge	2
2/10	Sanded & cleaned all LL parts for anodizing (except hinge); glassed inside hole through floor for Landing Light	2
2/14	Riveted LL assembly	1
2/16	Installed LL assembly	2
2/17	Glassed sides of hole for Nosegear	2
2/18	Knife trim NG hole; Faired in landing brake w dry micro - 1.75" sides, 2" fore & aft	2
2/19	Sanded LB fairing; Faired in LL	2
2/22	Sanded fairings	2
Mar 2,'90	Turned over onto wheels. Spent all evening sitting in cockpit, dreaming	
3/8	Pour in Place Urethane foam spread over glass on top of nose, to produce a better shape w new IP and F28. Needs +0.7" at F22. Cut & sanded. See 7/15/88	1
3/10	Cleaned Epoxy Ratio Pump, refill, checked ratio. Sanded nose.	1
3/16	Cut glass, 2 ply BID over urethane, lapping onto glass. Micro fairing 80°F	2
3/23	Sanded micro fairing. Plastic wrap over nose; Battery door laid up, BID, UNI, BID sandwich	2
3/25	Bondo frame on battery door & trim	1
Apr 18,'90	Added Pour in Place foam to inner side of battery door; 0.7" margins. Shaped NG doors & added to strut	2
4/20	Designed hinge for battery door. Cut hole for battery door. Bondo frame on top of nose around battery door; Removed top nose piece	4
4/21	Made NG30 cover, 2 ply BID over male form	2
4/22	Knife trim NG30 cover; carved interior nose top; mounted canard, checked incidence, sweep & level	3
4/28	Foam carved for inside nose roof, & battery door; K1000-3 nut plates anchored in nose roof w 5 min for hinge bolts; bend 5/32" hinge to proper shape; Range of travel checked	4
4/29	3 K1000-3 nutplates anchored to 5/32 ply and 5 min'd into battery door. NG fender prepared to attach; cut glass	3
May 4,'90	Glassed inside battery door	1
5/5	Knife trim; Drilled holes for AN3A bolts in hinge, anodized hinge; attached NG wheel fender to NG fork	2
5/6	Fuselage level, R-L & F-A. Canard, leveled, centered, zero sweep, from firewall to tip is 111.95" (measured just beneath where main spar crosses); incidence matches longeron, measured on template	2
5/7	Ground head off two AN3-20A bolts and rounded; 3/16" hole drilled in F28 & wood doublers	1

Signed: _____.

5/9	2 tabs made of H250 foam for canard; #10 holes drilled in longeron, doubler, tabs, & F22; Tabs 5 min'd to canard w 1/16" shim	1
5/11	Glassed top forward side of H250 tabs, 5 ply BID, plus 1 extra on vertical part	1
5/12	Knife trim tabs, back drill #10; glassed bottom, rear side of H250 tabs, 4 ply BID	1
5/13	Knife trim tabs	
5/14	Back drill tabs; cut glass pads to shim Right left tab on F22	1
5/24	11 ply BID shim on right side of F22	1
5/26	Mounted canard on fuselage; fitted elevators to TE canard, then removed 1.6" to allow for elevator fairing	1
5/27	Closed down the original clearance holes in fuselage sides, for Torque tubes w pour in place; Sanded	1
5/28	Glassed over the close down area to match fuselage - same # & type plies	1
5/29	Knife trim. Remove 3/16" pins, add 1 ply BID over top bearing surface, w 1/4" flox corners	1
Jun 9,'90	Checked level, sweep & incidence; drilled lift tabs7 F22; Floxed pins in F28	2
6/10	Removed NG retract mechanism, cut new NG61 & prepared new ratchet lock on NG64; Glassed inside nose roof, 3 ply at hinge pins; peel ply	3
6/11	Drilled clear hinge holes for battery door	1
6/20	Moved RG58 coax conduit, see p7-2	2
6/22	Installed ratchet for NG retract mechanism; Air seal around NG61 at F22 (BID w RTV silicone seal)	2
6/23	Anodized NG61; riveted NG61 to NG65	3
6/24	Installed all Nuts & bolts, NG retract mechanism, torqued to 50 in.lbs.; it takes 2 people to connect nut & bolt for NG59-NG61	1
6/26	Installed rudder pedals (perhaps nutplates inside NG30 are a good idea?)	1
6/28	Nose tie down, CP49p7 welded up; Receiver anodized & cut down to size; Pour in place added around edges it fair into fuselage	2
Jul 8,'90	4 ply BID inside fuselage, 2 ply outside, flox corners, NG tie down done	4
7/11	Two K1000-3 nutplates riveted to 970-3 washer & fixed in place on inside of NG30, for rudder pedal attach	1
7/12	Removed NG retract for the 10 th time, added shims to NG60 & NG52 per CP43p5 & CP30p7 to eliminate chatter on gear extension; reinstalled & torqued down	1
Aug 8,'90	Air seal, like 6/22 at forward end of SC, connecting to F6; CNL floxed into F22, along w K1000-4 nutplates	2
8/11	Canard torqued to F22; w fuselage leveled Fore - Aft, Right - Left, there is zero sweep, tips are 112" from firewall (above main spar), canard check template is level; removed from fuselage; Outboard mass balances attached to elevators; Made template J	3
8/12	Inboard mass balances bolted to NC12A control arms, arms inserted into torque tubes & tested for balance; w hinge pin supported on knife edges, they tilt down 40°-45°, if suspended, hang inverted, nose down; ZnCrO ₄	1
8/15	NC5A does not fit over MSP43 rivet at inboard hinge insert, left elevator. Drilled out & replaced w MSC43 rivet	1
8/17	Cut out slot in canard lower surface to provide clearance for outboard mass balance; 0.9" clearance all around	4
8/20	1 ply BID in slots, flox corners	1
8/22	Trim; Dry micro, top, TE canard w peel ply; NC5A painted inside w ZnCrO ₄ ; Installed in TT, drilled for 12 rivets	2
8/25	LB1,2,3,4,5 started rusting - the nickel plating is inadequate. Removed, cleaned, ZnCrO ₄ , and white painted; Installed NB nose wheel housing	4
Sept 2,'90	Reinstalled LB1,2,3,4,5 & rest of LB system; glassed inside nose roof, 1 ply BID, 2 extra on hinge flanges	3
9/5	School again. Glassed inside fuselage floor where coaxial conduit was moved,	2

Signed: _____

2 ply BID See 6/20/90

Oct 1,'90	Ch 14. Cut LWA2's; LWA4's; LWA5's for main spar	2
10/2	Laid out parts A,B,C,D for Spar Jig; Cut out D	2
10/4	D was cut 1/10" oversize, sanded to shape	1
10/5	Cut & sanded A,B,C	3
10/7	Assembled main spar jig, 5/8" particle board, reinforced - every section - w more 5/8" particle board to ensure straightness	6
10/8	Set up & Bonded level, to work bench	1
10/11	Sanded LWA2,3,4 & 5's w 220 grit	3
10/15	Cleaned LWA's in TSP	0.5
10/16	Rinsed in acetone, anodized & dyed LWA4's	1
10/17	Rinsed in acetone, anodized & dyed LWA2's & 5's	1
10/18	Completed anodizing LWA's	1
10/21	Cut foam for main spar	2
10/22	Cut foam for main spar	2
10/25	Fitted & microed CS1's on jig	2
10/26	Fitted CS2 & 3's on CS1; microed CS2's onto CS1	2
10/27	Microed CS3's, CS5 & CS8 in place, all square & vertical	3
10/30	Glassed interior main spar (Step4, pp 14-1 - 14-2)	5.5
Nov 1,'90	Trimmed and sanded flat the interior main spar; drilled 2" holes in CS6 & 7 for lights & coaxes; Test layup 5 ply UNI tape only 0.127" CP25p6	3
11/2	CS4 microed to spar & weighted in place	1
11/10	Cut out spar cap templates, main spar removed; laid out top & bottom spar caps; began carving trough	3
11/11	Completed bottom trough; turned over, level & square; contoured top & carved top trough; carved front edges	6
11/12	Floxed 6 hard points into shear web LWA4 & 5; location w 5/64" hole through opposite side & bright light	2
11/14	Rounded corners on shear web; covered foam w grey tape; anchored spar to table; dressed table; clean up	2
11/16	Glassed shear web; peel ply	3
11/19	Grey tape on shear web; "dam" of furring strips (w grey tape) Bonded along top rear of spar cap	2
11/21	Top spar cap, 18 ply UNI tape, each stippled & squeegeed as if it were the last	6
Dec 1,'90	NEW heavier hinge, 0.125" alum hinge for battery access door, p 13-10A, See 4/20/90	1
12/2	Finished edges, drilled up holes to size; fitted to Battery Door; cleaned & anodized	2
12/6	Fitted to fuselage; added 2 bronze bushings; installed	1
12/7	Fitted S/S hinge pin into elevator & L canard & filed slot for set screw	1
12/8	Filed slot for set screw ; Set screw changed - 1/4-28	2
12/11	Fitted S/S hinge pin into elevator & R canard & filed slot for set screw ; Set screw changed - 1/4-28	2
12/13 - 12/21	Top spar cap problem: dam was not close enough & spar cap is wider than it should be, also it is about 1 ply below surface. Sanded off wide part & added 1 ply UNI tape. Amount removed seems equal to the 1 extra ply added. Next time try Rutan method. See 12/26/90	6
12/23	Turn over, Bondo down properly; set up dam & grey tape; clean shop; cut glass UNI tapes for bottom spar caps	3
12/24	Glassed bottom spar cap, added 1 ply extra since dam is again not an airtight fit; lip will have to be removed. Peel ply. 3 visitors! 90°	6
12/26	Rutan method requires at least as much sanding - dribbles; perhaps a combination will work better on the wings. Next time try braces to hold it firmly against the shear web & no grey tape on shear web, under the dam	4
12/27	Cut glass for aft face, outside of spar. Microed Spruce blocks forward of spar	3

Signed: _____

12/28	caps - held in place w sticks & string Clean shop; dressed table; grey tape on end bulkheads; 4 ply UNI cloth; LWA2 & 3's installed, weighted; Peel ply along forward edge & for layup 7	6
12/30	Flox fairings along edges of LWA2 & 3's3 ply UNI over Alum & 1 BID on forward face; peel ply; knife trim 90°	2
12/31	Carved hole for baggage/access in forward face of spar; Grey tape on rest of spar not being glassed in layup 8; cut glass; cleanup 2	2
Total of 936 hours to date (241); 399 days of building (107)		
Jan 1, 1991	2 ply UNI forward side spar: peel ply	2
1/2	Cut baggage access hole; 1 layer BID on each end CS5 & CS8	1
1/3	CS Spar weighs 29 LB. CP26p3	
1/5 - 1/11	Adjust firewall & main spar so they are square and level, verticals per plans	4
1/26	Build wings prior to installing main spar, CP53p6; Jig templates made	2
1/27	Cut hole in jig template at TE to be able to line up TE w line marked on plywood; glued template to jig. Made Styrofoam cutting jigs	2
1/28	Cut two jigs for wing	1
Feb 4,'91	Finally the 5 jigs are cut, filed & sanded exactly to size - EXTERNAL	3
2/15	Finally the 5 jigs are cut, filed & sanded exactly to size - INTERNAL	5
2/21	All templates for wings cut, filed and sanded exactly to shape - TO MANY HOURS!	
Mar 16,'91	All wing jigs have doublers at edges to prevent warping; coated w epoxy, all sides; cut into 4 parts	8
3/18	17 "links" floxed to jigs	2
3/23	Drilled "F" holes for 1/4" bolts; sanded	2
3/26	17"links" coated w epoxy, all voids filled w flox	2
May 16,'91	Wing jigs bolted together. Major hanger cleanup started	3
Aug 8,'91	Two Southco #160 Fasteners added to Battery Access door; locks close very firmly	2
8/9	Foam blocks for right wing assembled with sticks & 5 min.; Cut to proper shape	2
8/20	Second set of foam blocks cut to shape	2
Sept 15,'91	Third set of blocks cut	2
Oct 4,'91	1" hole cleared for electric wires & coaxes, through wing; IT IS DIFFICULT TO MAKE ANY PROGRESS WHEN YOU DEPEND UPON OTHER PEOPLE TO ASSIST, AND THEY ARE TO BUSY TO COME OVER!	1
Nov 29,'91	Finally finished insulating roof. Just in time. Do it right the next time!	
11/29	5 min'd. the shell back onto FC1. Pour in Place frugally added to slice made to cut aileron; ditto for wire & coax 1" raceway	3
11/30	Cleaned up, set up 5 wing jigs on floor	4
Dec 4,'91	Reset jig #5, square, straight & plumb; cleaned pump	2
12/6	Moved jig #1 & 3. All are plumb, square and aligned \varnothing 1/32" in 8'; (12/7 - 6/12 Install new tools as time allows)	2
1992 Total of 997 hours to here (57); 422days of building (23)		
Jun 30, '92	It took 3 days to clean up hanger & to recycle wing into insulation <i>Go to 8/14/93</i>	
Jul 2,'92	Square up 3 blocks for new wing	3
7/6	Square up 3 blocks for new wing	3
7/8	Square up 1 block for new wing	1
7/12	Inboard section, right wing planform cut; Templates mounted (up 3.5" from table; weighted,	4
7/13	Cut airfoil & torque tube hole E. Darcy	0.5
7/14	Cut wedge from FC1; Layout templates for Inboard shell;	1
7/16	Made up center section right wing, scrap piece added; Cut planform	3

Signed: _____.

7/17	Mounted templates; widened table to permit better support	3
7/20	Cut FC2, FC4 and cut out shell for FC1 end (Soja)	0.5
7/23	Bonded FC4 together; ditto FC1; Cleaned pump, checked ratio	1
7/29	Cut cable passage in FC4; Aileron cutout in FC2	0.5
7/30	Bonded FC2; squared blocks for FC3 & FC5	2.5
Aug 3, '92	Planform set, CenterLine set; templates set on foam	2
8/4	5 min w flox to close cuts in wing sections for ailerons torque tube & wire cutouts	3
8/11	Cut outboard section; Made two LWA6's & two W18's	2
8/12	Cut Cable passage in FC5; cut out 3" x 8" block in FC3, cut aileron;	2
8/15	Cut two (outboard)wing access holes in FC1 w router, sanded floors to have a slight depression; LWA 4 & W18 set flush w foam; Set (inboard wing mount) LWA6 so it is flush w foam	6
8/16	LWA6's & W18's anodized	2
8/17	Glassed wing access hole, top	0.5
8/18	Glassed wing access hole, bottom; Set up wing jigs on 12' wood beam that is level, square and true; Jigs are plumb, true & aligned; Bonded in place; Aligned w laser pointer	2.5
8/20	Set wing in jigs. Jigs are small. (!?); Trimmed some; FC3 3" x 8" block microed in place	3
8/25	LWA6 & LWA4's microed in place; 5 min w flox used to close cuts in wing sections for ailerons and wire & cable passage	2
8/28	WA18's 5 min microed in place	
Sept 1, '92	Microed FC1,2,3 together	1
9/2	Removed top half jigs; rounded shear web edges - 0.2" r	1
9/3	Cut glass for shear web	2
9/8	Dressed jigs & trailing half wing w grey tape & plastic to avoid dribbles; clean hanger	1
9/9	Layup shear web	5
9/10	Removed plastic & tape	
9/12	Forward half wing microed onto wing; Top half jigs reinstalled	1
Dec 24, '92	Merry Christmas. Moved wing to table; aligned it & Bonded in place	1
12/29	Sanded top of shear web for spar cap, repaired some dings w Pour in Place; dam built along inboard shear web, Bonded in place; wing dressed in tape & plastic	3
12/30	Made foam cap strips to press spar cap level; covered w grey tape	1
12/31	Glassed spar cap, R wing, bottom 7 plies UNI tape, peel plied; weighted in place w foam blocks (12/30), covered w 2" x 4", then Pb weights. 95°	4
1993	Total 1061 hours to here (68); 455days of building (33)	
Jan 1, '93	Removed weights, peel ply, photos	1
1/9	Removed grey tape from edges of spar cap; sanded spar cap steps flush w wing;	4
1/10	8 ground wires for Loran (24 AWG, Radio Shack)placed in slits in foam, lower surface	3
1/11	Connected ground plane wires	2
1/12	Dressed table. Clean shop	1
1/14	Wing marked for layups; glass cut; Attach bolt access holes covered w grey tape & peel ply; edges of depression prepped for flox corner; peel ply forward of (& covering slit for) aileron; Grey tape at LE, Grey tape on inboard shear web	4
1/16	Glassed lower surface wing; knife trim; dry micro at TE. 90°	6
1/17	Removed grey tape, peel ply, table dressing. Wing bolt access holes allowed skin to make a dip. Not nice. WING HAS MANY BUBBLES! Where nail holes existed, crevices, joints, air came out through micro just as glass surface became impermeable, so glass lifted off foam. What a mess! NEXT TIME, FILL	1

Signed: _____.

1/21	ALL VOIDS W POUR IN PLACE OR MICRO & LET SET FIRST. Began sanding	
1/24	Sanding bubbles	1
	Ditto	3
Jul 24,'93	More sanding of wing defects	2
7/25	Ditto. This is for the birds!	4
7/26	Ditto	4
7/29	Ditto	4
Aug 2,'93	Ditto	2
8/5	Ditto	2
8/6	Ditto	2
8/10	Ditto	1
8/11	Ditto	4
8/12	Ditto	2
8/13	Ditto. Tried to even up sections, to recoat glass. Looks lousy!	2
8/14	Right wing is trash! Use it for practice aileron cutouts, etc. Ordered parts	
8/15 - 8/31	Cut new LWA2,3,4,6 & W18's; clean up hanger	3
Sept 4,'93	Sanded LWA 2,3,4,6,W18's; anodized	4
9/7	Prepped & anodized PTB & CCB	2
9/11	Prepped & anodized BA1;CS181;CS131	2
9/18	Prepped & anodized A2's & A5's	2
Oct 1,'93	Prepped & anodized LWA9's	2
10/20	Received wing, winglet, strake foam from Featherlite	
10/30	Opened boxes, sorted out right wing foam. Checked their sections against my templates. In every case, their section was slightly smaller than my templates. Why? Hotter wire? Smaller templates?	
10/31	Cut out center of shell on FC1 w hot wire; microed FC1 together	4
Nov 1,'93	Glued FC2 & FC4 together w wet micro	2
11/2	Microed FC3 & FC5 together; microed 3" x 8" block back into FC3	2
11/5	Cut notches for wing bolt access in FC1	2
11/6	Added LWA4 pieces to notches; Pour in place to fill some dings	2
11/7	Notched FC1 for LWA6, W18's; glassed lower wing bolt access hole	2
11/11	Trimmed BID, notched for LWA4 & W18; turned over FC1, glassed upper wing bolt access hole	3
11/13	Cleanup jigs & bolt together; set up on beam (see 8/18/92); Used laser to check alignment	3
11/17	Jigs double checked w strings & laser. Level & plumb & aligned. Bonded	1
11/19	Braces bonded to jigs	1
11/20	Fitted foam cores to jigs. Jigs need to be split to insert; drilled drain/ventilation hole between the two wing bolt access holes; microed in straw; W18's 5 min'd; Micro FC1,2,3 together	3
11/25	Removed upper half jigs; voids, nail holes in spar cap/shear web area filled w Pour in Place; trimmed flush; Duct tape on edge of trough; clean up	4
11/26	Cut scraps of foam into pressers to cover spar caps (see 12/30/92)	1
Dec 2,'93	Draped right wing, posterior, in jigs w grey tape & plastic	2
12/3	Cleaned epoxy pump, checked ratio	2
12/24	Cut glass for shear web; all dings in shear web area filled & trimmed	4
Total 1169 hours to here (108); 499 days of building (44)		
Jan 9, '94	Shear Web glassed; LWA2,3 weighted in place 80° Respirator works fine	6
1/10	Knife trim; remove drapery; Check jigs	1
1/15	Photo Shear Web; Put wing in jigs, microed on forward half of cores to shear web; Bolted on top half of jigs; Checked for plumb, straight, square and aligned	1
1/19	Added some Pour in Place to gap between FC4 & FC5 w syringe	
1/20	Sawed off corner of FC4 joggle	1

Signed: _____.

1/22	Put wing on table; checked Squareness; alignment; level; Bonded to table	2
1/23	Double-check alignment, etc. Use laser beam as well as string	1
1/26	Removed jig bottoms, for access	1
1/29	Cleaned up edges of spar cap trough	1
1/30	Dam built, inboard, forward edge of spar cap; grey tape along trough; Wing & table dressed; steps moved along table; clean up	3
Feb 2, '94	Cut UNI tapes	1
2/5	Pour in Place at a few locations, forward edge of spar cap; trim; light sanding of shear web; Vacuum; Layup spar cap, squeegeeing each layer as if it was the last one; Styrofoam blocks covered w gray tape, 2"x4" and Pb weights (see 12/31/92)	5
2/6	Remove weights, drapes, tape	1
2/8	Began sanding spar cap to feather steps & smooth w foam surface	1
2/9	Sanded Spar Cap	2
2/11	Ditto & Sanded spar cap flush w forward face inboard shear web	2
2/12	Ditto	2
2/13	2 ground plane wires placed in slits in foam, held w 5 min	2
2/14	2 more ground plane wires placed in slits in foam; all connected	1
2/15	To prevent problems, all gouges, dings slits, etc. are to be filled w Pour in Place, then trimmed - before glassing. Use Dremel router	1
2/17	Ditto	1
2/19/94	Pour in Place squirted into dings, holes, etc., trimmed & sanded	2
2/21	G/S antenna made, Cu foil & ferrite beads per RST directions on lower surface, forward of shear web, right wing; Bolt access hole lined w grey tape, 5 sides, filled w Pour in Place (grey tape wall prevents any P-I-P from going under W18) to provide smooth surface for building wing skin, trimmed & covered w grey tape (Re: 1/7/93)	4
2/22	Finished filling & shaping; clean up hanger; Grey tape tangent to LE & on inboard & outboard ends & on top of jigs; Dressed the table; Cut glass	4
2/23	Knife trim, remove grey tape; removed peel ply	1
2/25	Sanded edges, inboard & outboard & TE to smooth; Could not top of jigs back on	2
Apr 2, '94	Letter from Mike Melville - OK to remove some wood from each jig to make it fit - only critical areas are the forward & posterior several inches	
4/3	Sanded jigs to fit; Bonded to wing; turned over	1
4/4	Table extensions Bonded under overhanging jigs	1
4/5	Jigs checked, square, plumb, aligned, etc.; Bond to table	1
4/8	Removed top jig, began marking all dings, depressions, holes that need to be filled	1
May 7, '94	Clean up wing top, remove bits of grey tape, epoxy drips	1
5/29	Ditto	2
July 1, '94	Top surface ground plane wires placed in slits in foam, R wing; Wing bolt attach depression lined w grey tape & filled w Pour in Place (see 2/21/94)	3
7/3	Filling holes w Pour in Place; Trimming flush	2
7/4	Ditto	4
7/5	Damage to LE from Grey tape removal repaired w Pour in Place, trimmed flush while maintaining curve	1
7/6	Caught up w 8/14/93. Groove cut w Dremel router for rudder cable	1
7/10	Nylaflo tubing placed in groove and spotted w dry micro to tack in place	1
7/11	Pour in Place filled groove, Dremel router flush w foam surface; Filling nail holes, trim flush w Dremel router	3
7/12	Sanded LE for smooth transition; sanded shear web for spar cap	2
7/15	Grey tape along spar cap area; Dam built at inboard section covered w grey tape; Wing & table dressed; Foam cap "weights" covered w grey tape; UNI tapes cut	5

Signed: _____.

7/16	Laid spar cap; Peel ply; Foam caps, 2" x 4"s & Pb weights on top; Knife trim 80°	4
7/17	Removed foam caps, drapery; sanded spar cap to fair the steps as needed level w foam; LE, inboard rounded; removed fin from TE	5
7/19-7/28	Pour in Place added to dings, depressions, nail holes, ground wire slits, gaps at junctions between foam blocks 7 trimmed flush; FOAM TENDS TO CONTINUE GROWING & NEEDS TO BE TRIMMED A SECOND TIME	12
7/29	Cut UNI & BID; Dressed table & jigs; Peel ply where required	3
Aug 1, '94	Glassed top R wing skin; Peel ply 80°	6
8/2	Knife trim; cleanup	1
8/4	Fitted pieces for aileron control	1
8/7	Removed foam for Layup #6 - wing root forward of shear web, 0.7" glass lap	1
8/8	Removed large foam block - wing root, behind shear web; removed more foam for glass lap of 0.7", except near LWA7 (0.5") and under top spar cap (0.5") as in view M-M p 19-16; Carved depressions above & below CS132 weldment, for W111-1 (Weldtech Ball bearing rather than Rutan Phenolic bearing); removed foam from shear web for LWA7 and under CS127	6
8/9	Sanded glass at inboard ends for glass to glass bond and under CS127, above lower spar cap removed most foam for wrench access to CS127	6
8/13	Sanded glass at inboard ends	4
8/15	Removed from jigs, mounted nose down on foam blocks on floor, braced erect & Bonded; TE sanded straight & smooth	1
8/16	LWA4 made, cleaned, anodized; glass cut for inboard ribs; wing turned so it is TE down, braced & Bonded	5
8/17	Glassed wing ribs, layups #5 & 6, forward area, Knife trim	2
8/18	Opened hole for cable raceway; opened lower wing bolt attach depression, removed foam & grey tape	1
8/20	Opened upper wing bolt attach depression, removed foam & grey tape	1
8/23	Glassed wing rib, layup #7, rear area	4
8/24	Knife trim; opened hole for torque tube & for wing ground plane wire attachment	1
8/25	Root of ground plane wire in Heat shrink tubing, potted in silicone sealant; ditto for root of glide slope antenna; 1 ply BID over LWA7	2
8/28	Turned wing LE down, braced & Bonded in place; laid out dimensions for aileron cutout; Cutout aileron	2
8/30	Removed peel ply & foam from aileron cutout & from each end of cutout	1
Sept 2, '94	Glassed spar & ribs in wing around aileron 82°	3
Oct 15, '94	Directions for aileron cutout are obscure (why am I surprised?), aileron cannot move properly. Added glass to lower surface (inside cutout)	1
10/16	Glassed outside surface (total of six plies)	1
Nov 20, '94	Trimmed excess off aileron; cleaned up repair	1
11/24	Made hinge cutout, 0.2" deep	2
11/26	Cut A4 & A3 hinges; trimmed both A4's so one leg is only 0.85"; cut 3/8" 4130 steel rod counterweights & trimmed foam from aileron LE	4
Dec 3, '94	Cut A10 tube, anodized; 5 min microed 4130 counterweights to aileron; fitted A2 & A5 pieces to aileron (had to bend to fit, they were NOT 65°)	3
12/10	Aileron on TE; fitted A2 & A5 pieces, wet microed in place w A10 tube dry microed in place; the A2 & A5's are flat and parallel	2
12/11	Rounded forward side lower skin to match counterweight; Sanded skins, Top & bottom for 1" join & 0.25" peel ply	2
12/13	Pour in Place for dings in LE aileron & trim	2
12/14	Air pump for respirator mask installed in "attic" Connected A4 & A5's w ground wire	4
12/22	1 ply BID, LE of aileron	2
12/23	Removed 0.4" from ends of aileron	2

Signed: _____.

12/25	Layup 11, 2 ply end ribs on ailerons	2
12/28	Drilled holes for attaching hinges to wing; installed K1000-3 nutplates on wing w AN426-AD3-3 rivets	3
12/31	Bonded hinges per p 19-9 w sponge rubber	1
Total 1349 hours to here (180); 574 days of building (75)		
Jan 1, '95	Drilled & pop riveted hinges to ailerons	3
1/5	Hang aileron from wires, hangs with bottom level. Aileron weighs 4 lb, 9.2 oz (2073 g)! This is lighter than Mike Melville's by 9 oz. BUT it still does not balance properly! Profile matches plans.	
Feb 5, '95	Received letter from MM	
Jun 29, '95	Followed Mike's suggestion & added weight behind mass balance. 13.8 oz allowed, 13.5 added. Hangs properly. Diagram added to plans of where tire balance weights were added	2
6/30	Pour in Place to bring holes flush; trim	1
July 1, '95	1 layer BID over additional weights, lapping 1" on all sides	2
7/2	Sanded top of aileron	1
7/3	Dry micro added to top TE to fair in aileron	1
7/4	Dry micro added to bottom TE to fair in aileron	1
7/5	Sanded, about ready to finish aileron	1
7/8	Drilled A10 for MS20271B10 bearing; drilled bearing for CS151; Cut CS151 to 28.6"; drilled other end for W111-5 (=CS152)	3
7/10	Anodized CS151; ZnCrO ₄ on W111-1 Imbed Anchor Plate and W111-7 bearing	2
7/11	Installed W111-1 imbed plate w dry micro	2
7/12	2 ply BID over W111-1 imbed plate	1
7/13	Opened hole in W111-1 & bolt holes; 1 - 2 ply BID in TT hole in wing at out-board end - interference w MS20271B10 bearing required internal grinding & roof is very tin, Top skin flexes there. Glass is 2 ply on top, 1 ply the rest, 2" all around. Peel ply. Sanded aileron	3
7/15	Ready for CS129 et al; Aileron moves freely @ 30°, edges of aileron cutout trued up	2
7/16	Installed aileron, removed aileron	1
7/18	West System Micro on top	0.5
7/19	Sanded	2.5
7/22 M	Hang right wing from ceiling	
Aug 1, '95	Organized left wing pieces	1
8/3	Hot wire cut wedge from FC1 piece per plans; cut out core	1
8/4	FC1,2,3,4,5 slurried & bonded together, many nails (more holes to fill); stand on shear web; bonded aileron cutout back into FC3	3
8/5	Remove nails	
8/7	Box Beam setup level;	1
8/8	Jigs setup square, level, plumb and braced in position	3
8/9	Check alignment w laser beam, still OK; cut depressions for wing bolt access holes in wing w router; sanded; Glassed lower access hole, knife trim; LWA4, LWA6 made, anodized; Clean up	4
8/10	Glassed upper access hole, knife trim	2
8/11	FC1,2,3 mounted in jig; microed together w many nails (more holes); LWA4, LWA6 microed in place	2
8/12	Removed top half jigs; Pour in Place into small gaps at joints, some nail holes; trim	2
8/13	Nicks, dings, holes filled w Pour in Place; saw trim & Dremel router	2
8/18	Two W18 made, anodized, installed	2
8/19	Wing & jigs dressed; Glass cut; Glassed shear web; Peel ply, knife trim	8
8/20	FC4 & FC5 installed, microed; Front half jigs reinstalled	2
8/21	Wing put up on table, square, level aligned; Bonded to table; Removed grey	6

Signed: _____.

8/22	tape; Dings, holes, etc. filled w Pour in Place; Saw & router trimmed	
	Ditto; Marker Beacon antenna installed flush w foam; cable buried and 5 min every 2 inches	4
8/24	RG58 cable groove filled w Pour in Place; Trimmed flush; electrical continuity tested, both sides; Built dam for inboard spar cap; Dressed wing & table; Cut glass for spar cap	6
8/28	Lower spar cap glassed; peel ply, foam "weight", 2" x 4", Pb weights	3
8/29	Removed weights, grey tape and plastic sheets	1
8/30	Sanded spar cap for smooth transitions; Filled dings, elbow prints, etc. w Pour in Place; Trim & router trim	3
Sept 1,'95	More work on dings & trim; Dressed wing & table; Clean up	4
9/2	Glassed bottom of wing; Peel ply Gerard Labrecque	3
9/3	Removed peel ply; dry micro in TE	1
9/5	Turned over; Rudder conduit marked	1
9/6	Cut rudder conduit; repaired edges of spar cap w Pour in Place	1
9/8	Cut and Dremel router trim repairs	1
9/10	Clean up; Dressed wing & table; cut glass for spar cap	3
9/11	Glassed top spar cap; peel ply, foam "weights", 2" x 4", Pb weights 80°	3
9/12	Clean up wing	
9/13 - 12/10	Fair in steps, fair in LE & TE of spar cap as needed	8
Dec 11,'95	Pour in Place in dings, holes, gaps, elbow prints; trim w saw blade when "firm"	1
12/13	Ditto; Dremel router trim	2
12/15	Ditto	2
12/20	Nylaflow tube placed in rudder groove; wet micro drops every 1"-2"; dry micro at each end, held flat w numerous small nails	3
12/23	Dremel router trim, Pour in Place; repeat	5
12/24	Ditto; remove peel ply from TE; dress up TE	5
12/25	TE glass to glass bond area is 0.65" wide tip to tip; marked for glassing; Peel ply for aileron; LE sanded for smooth transition; TE shimmed straight; Dremel router trim	4
12/27	Final Dremel router trim, Clean up; Dress jigs & table; Photo	5
12/28	Glassed top surface, left wing, Knife trim, Hanger 80° (6 hours wait to knife trim time) (Gerard Labrecque)	5
12/29	Clean up; photo	
12/31	Bondo level board onto wing top surface	1
1996	Total 1492 hours to here (143); 629 days of building (55)	
Jan 1,'96	Routed out 0.7" deep inboard rib, forward half of wing	2
1/5	Routed edges 0.7" deep, rear half inboard rib, for glass bond	2
1/8	Sanded contours, rear half rib & bolt access	2
1/10	Ditto	2
1/20	1/8" LWA7 cut, rounded, anodized	1
Feb 10,'96	Wing mounted tail down, on floor	1
2/12	Pour in place to fill voids	1
2/14	Saw & Dremel router trim	1
2/20	Ditto	1
Mar 1,'96	Forward half rib, BID; UNI strips over hard points & wing surface	3
3/9	Rear half rib, BID w UNI reinforcements over hard point (inside)	3
Jun 30,'96	Cut upper bolt access, cleaned out foam & grey tape; floc in slight delamination aileron TE	2
Jul 1,'96	Cut lower bolt access hole, removed foam & grey tape	1
7/4	Cut out aileron. Holding my breath!; Removed foam from each end for aileron wing ribs; Cut glass; Dress wing	4
7/6	Layup glass for aileron spar and end ribs; peel ply	4

Signed: _____.

7/7	Sand forward side straight; Cut 0.2" indentations for hinges	1
7/8	Cut hinges, sanded smooth ends	2
7/9	Ditto	1
7/10	Trim one leg on hinges to 0.85"; sand forward side cutout, and sides; cut and cleaned counterweights	2
7/11	Removed foam from aileron LE, 5 min counterweights in place; wet, then dry micro behind counterweights	1
7/12	Cut A10 torque tube, anodized; cut foam to seat A2 & A5 embed plates (had to bend 2 of them to the proper 65° angle) and A10 tube	4
7/15	Pour in Place to fix voids & dings in aileron forward surface, also on top of micro, to bring foam level up behind counterweight; trim	2
7/16	Clean up, dress aileron; cut glass	1
7/17	Install A4, A5, A10 pieces w wet micro, dry micro at edges; 1 ply BID on aileron LE; Peel ply; wait 4 hours, remove grey tape; knife trim ends	3
7/18	Remove Peel ply, weigh aileron - weighs about 4 ½ pounds w/o hinges, etc.	1
7/23	Removed 0.45" foam for ribs on ends of aileron w Dremel router; sanded glass white for join; micro; 2 ply BID each end	2
7/24	Syringe injected epoxy (or very wet micro) into any voids found	1
7/29	Hinges placed in cutouts & aligned; #30 holes drilled, #12 holes drilled	1
8/3/96	Holes drilled in hinges, countersunk & K-1000-3 nutplates riveted on	2
8/8	Hinges Bonded to aileron. It took 3 attempts. Leave set overnight!	1
8/10	Drilled holes for rivets w template	1
8/12	Removed hinges; removed Bondo; some rivets are too close to edges - drilled new holes	2
8/14	Floxed hinges to ailerons; added rivets	1
8/15	hung from hinges - it is slightly tail heavy - just like the other one. It weighs about 4 ½ pounds, like the other one	1
8/20	Constructed balance from bearing & wood beam & short level; hung from ceiling; hung each aileron, from an end. Put 13.5 oz Pb on new one; New one is about one ounce heavier than the first. Sanded top of new aileron	3
M		
8/21	Sanded bottom of new aileron	1
8/23	Sanded forward face, aileron. New one is about ¾ oz. Lighter than first; Aileron cut for additional Pb weight, exactly as for right aileron, embedded in wet micro	3
8/25	Pour in Place foam added to fill the counterweight holes; Trimmed	1
8/26	Foam sanded flush; More foam added to completely fill voids; Trimmed; sanded flush, set in sun 20 min to encourage end of foaming; Read up on the control system	2
8/27	Foam sanded flush again; 1 ply BID over counterweight cutouts, 1" on sides & at least 1.5" top & bottom	1
8/28	CS151 cut 28.6", ends sanded smooth; drilled to connect to MS20271B10 Universal Joint and drilled A10 tube to connect	3
8/29	BID glass "patches" sanded smooth; Fitted aileron on wing. Interference with Universal and bolt on forward & lower side; Removed, sanded "tunnel", fitted again (5 times +); Added Pour-in-Place to some over sanded areas (used balloon wrapped in cellophane to maintain "tunnel")	4
8/30	Sanded inside "tunnel", fitted aileron & CS151 - No Interference - ± 25° or more. Removed from wing. Fitted W111-1 Imbed Anchor 1/8" into wing spar per plans, ground Upper side, TE to fit	4
8/31	Bolted W111-1, Imbed Anchor; W111-3, Bearing Retainer; W111-7, Bearing together; Drilled CS151 for W111-5 shaft, & bolted together; Fitted aileron and connecting shaft to wing, fitted to bearing, adjusted position slightly; Disassembled; Chromate paint on rear face W111-1 & W111-7	4
Sept 1, '96	Chromate paint, outer face W111-1 & W111-7; Dry microed W111-1 Imbed Plate into inboard rib	2

Signed: _____.

9/2	Sanded inboard rib for BID overlay, ground away some of rib for clearance on & on pushrod; Sanded glass at inboard aileron rib; Glassed 2 ply BID over W111-1, plus 1 more ply to repair inboard rib; glassed inside Torque Tube hole at inboard aileron rib	6
9/3	School starts.	
9/4	Painted (epoxy primer) two CS129 pushrods; two CS 128's ; four Rod end bearings; and four CS 127 brackets	2
9/6	Second coat above; anodized & dyed alum. Rod ends	2
9/8	Inserted Aluminum rod ends in CS129's and drilled 2 rivet holes (@90 degrees) in each end	2
9/10	Riveted the rod ends into the push rods	1
9/11	Drilled sight holes in rod ends; installed rod end bearings; greased bearings	2
	Placed CS127 steel brackets and drilled holes four places in forward face of rib, right wing	1
9/15	Ditto, left wing	1
Oct. 4, '96	Made new water bath for heater for epoxy safe	1
10/10	Repaired hanger roof AGAIN. When tree fell this summer, a branch must have hit the roof and created several small holes - IN THE SAME PLACE as previous repairs	1
10/11	Installed fan at front top vent to help keep the wood dry this winter	
10/21	Again, at front edge - wind was blowing rain under roof & soaking wood	
10/26	Cut two new W111-5 tubes per cp58, 3 1/2" long. Original was too short to properly support the new, larger CS- 132L. Outer portion to fit through W111-7 bearing, turned down 0.002" by sanding.	5
10/29	Inner portion W111-5 tubes painted w epoxy primer	1
10/30	Entire W111-5 tubes given coat of paint (two layers, inner part)	1
10/31	Drip edge, upper 10'; new roof material to cover area of persistent leaks	
Nov 1, '96	Drilled W111-5 shafts to mate with CS-151's; paint scratched	2
11/9	Drilled W111-5 shafts to mate with CS-132Ls; assembled both aileron control systems on wings; disassembled both control systems; anodized left wing CS-151 tube 111-3 bearing retainer	10
11/11	Photos of ailerons; control systems, left wing; bagged parts for aileron controls, with all necessary hardware; Wings done.	2
MM		
11/28	Cleanup shop. Move workbench to center of room, on diagonal. Move everything else out of the way. Place Centersection Spar on bench	3
11/29	Level & plumb the Centersection Spar. Prepare for setup.	2
11/30	Moved table forward 18"(wings would not fit); re-leveled table; level & plumb spar (top & rear face); bondoed to table top, 2'x4'x 6" support under each end, two 2' slant brace against rear face, bondoed to table. Determined true centerline of spar and reference spot in corner of hanger, in front of spar; drilled six 1/4" holes in forward spar face per plans; drilled six #10 holes in aft spar face for wing attach bolts. NEXT TIME lift spar up on 2"x 4" blocks first, for easier access. Gerry Labrecque.	10
Dec 1, '96	Spar still level & plumb. Wings butted against spar, leveled with spar (width), and absolutely (fore - aft). Sweep checked - 3/4" difference (3" allowable) Incidence checked and checked. Each held to spar with two 1" web ratchet tie downs. Wings also bondoed to spar. Drilled 1/4" holes for wing attach. All are within spec. (1 hour for drilling) Incredibly nervous, but it was anticlimactic. Began drilling 5/8" holes for wing attach, 3 done, 3 more partially done (3 hours so far). (sore arm, but happy)	5
M		
12/2	Two more 5/8" holes finished, and the last one about half done	2
12/3	Last hole completed, 35 min. Vacuum, cleanup, try at photos, but bad film.	1
12/4	Photos. Chiseled away Bondo between wings and centersection spar	1
12/5	Released web ratchet tie downs, separated wings from centersection spar. Measured & measured & re-measured twelve 5/8" bolt holes. Eight LWA9's	2

Signed: _____

	must be shortened to 0.73" and four LWA9's to 0.54".	
12/7	Replaced power cord, resistor & capacitor for hot wire saw	1
12/21	Installed LWA9's; snugged up wings; measured to order the ½" bolts	2
12/23	Kau Leo Lani, my friend, died today. No work.	
12/29	Cleanup; Separated wings and C/S spar, moved workbench to side; Moved fuselage to center of hanger; Installed Centersection spar and trial fitted wings. Marked spar and firewall for sanding.	3

1997	Total 1642 hours to here (150); 690days of building (61)	
Jan 1, '97	Sanded spar for flox and BID tapes; sanded firewall and fuselage	3
1/4	Mounted wings to Centersection Spar on floor w 3 bolts, each side; lifted assembly into place on fuselage. Very awkward and VERY DIFFICULT for two people. G. Labrecque assisted. Then relaxed with "Flying is VariEze"	2
1/8	Rough cut 4 WA16 spruce wedges, used to align aluminum engine supports	1
1/10	Emptied, disassembled and cleaned Epoxy Ratio Pump. Filled w EZ-Poxy. Made sample layups: 1. Blue foam w micro & 2 ply UNI a ± 30 degrees; 2. Blue foam w 3 ply BID a ± 45 degrees; 3. 5 ply BID a ± 45 degrees; EZ-Poxy seems to wet out easier than Saf-T-Poxy, and seems more yellow	3
1/14	Tried to separate layers of BID - fabric tore rather than split. Fabric delamination from blue foam seems to be the same as for Saf-T-Poxy; Cut 4 W16 spruce wedges, used to align engine mounts	1
1/16	Sanded W16's to size, and smoothness; cut two spruce wedges to mount centersection spar to fuselage, at proper incidence	1
1/17	Cut four EM12, Aluminum angle 1"x 1" x 1/8", 8' long (slightly oversize)	1
1/18 M	AIKANE came home this morning, 14 weeks old, 18 pounds	
1/18	Sanded EM12's to size and square; buffed off corrosion	2
1/19	Cut two Aluminum plates, 1.6" x 2" x 1/8" to mate to upper EM12's for engine attachment; buffed clean; Sample layups seem very strong, fabric rips rather than delaminates.	2
1/20	Cut two 1/8" Alum angles as backup plates for the EM12 upper engine attachments; buffed clean; cut BID strips for spar attachment	2
1/25	Moved wing/centersection spar unit so that it has the proper sweep, incidence and dihedral, leveled fuselage - 3 iterations (2 hours); Used brush to wet joining surfaces with epoxy; Used syringe to add wet flox to spaces between centersection spar and fuselage sides (Only forward portion of spar, so firewall is still removable); Added 2 ply BID tapes forward side exterior spar, and forward portion top & bottom spar; Added 2 ply BID forward side spar, inside fuselage; Peel ply. Ted Taupier; Ken helped with moving wing into position	5
Feb 2, '97	Glassed outside fuselage - spar joint; wet flox squirted into joint like frosting from a bag; glassed top, inside and forward inside joints.	4
2/9	Removed props from rear of spar and trial fitted firewall. Problem! The CenterLines on the firewall and the Spar do not match. Spar is approx. 0.5" to right. Let's think about this.	
2/14	Gerry came over. He agrees. Remove the spar. Yuck. Unbolted the wings and placed against the front wall	1
Mar 1, '97	Used Dremel flex shaft and wide cutting disk to cut through fiberglass at joint on top of spar, inside and out, right side. Began cutting through with a hand-held 24 tooth/inch hacksaw blade. Careful to avoid cutting spar. Hard on fingers and back of hands.	2
3/2	Completed top right. Ditto top left joint. Dremel cut bottom left	3
3/8	Hacksaw cut bottom left, Dremel cut bottom right.	2
3/9	Hacksaw cut bottom right. Dremel cut and Hacksaw cut forward joint, right and left side	4
3/15	Cut last remnants of connection to rear seat & walls. Removed spar. Some, but very little damage from saw blades.	2

Signed: _____.

3/16	Sanded forward face to remove flox and BID. One minor sand-thru outer UNI and a few partial sand-thrus of outer UNI, few saw cuts of outer UNI near seat top	2
3/17	Sanded bottom of spar to remove flox and BID. One minor sand-thru of outer UNI	2
3/18	Sanded top of spar to remove flox & BID	2
3/19	Hand sanded top and forward faces to prep for repair of minor cuts & sand thru's	1.5
3/20	Final sanding top, bottom & rear ; cut glass; repaired all sand-thrus per plans (1 small spot thru 2 plies, the rest only 1) and 1 ply BID over entire top, bottom and rear surface to replace any strength removed in the sanding; peel ply all 3 surfaces; 90 degrees	3.5
3/22	Turned over, final sanding forward face; cut glass; repaired all sand-thru's per plans (1 spot 2plys, the rest only 1) and 1 ply BID over entire forward face for strength replacement and for appearance	2
3/23	Replaced all 16 nuts holding Aluminum landing gear brackets (some corrosion on them), and replaced AN6-80a bolts for landing gear attachment, also due to light corrosion. Had to carve indentations out of rear seat back to get at forward nuts.	4
3/27	1 ply BID over new indentations in rear seat, peel ply	2
3/28	Removed peel ply; Dressed area around Aluminum landing gear attachments w plastic & grey tape; Painted ends of landing gear attach bolts, nuts and Aluminum angles w yellow epoxy primer	4
April 3,'97	Second coat yellow paint primer, remove grey tape dressing from area	2
4/6	Wings attached to box spar. Spar set on fuselage. Fuselage level fore & aft as well as sideways. Wing LE 17.4" waterlines are level; Reference boards bonded to wing tops are level and the Sweep is the same R & L $\pm 0.75"$ (for a total difference of 1.5"). Bonded braces in place to hold it. Gerry Labrecque, Rich O' Donnell, Rex Mark and Don Freeman. Began filling gaps with wet micro - top & bottom, grey tape protects spar and fuselage - inside & out	4
M		
4/12	Wet micro & foam to fill gaps at forward face of spar - fuselage. Grey tape to protect spar and fuselage - inside & out; made drawing of new wing tie-down anchors for outer wing bolts per Central States Newsletter (4/17)	2
4/13	Wet micro & foam to fill gaps at forward face of spar and rear seat. Grey tape underneath, for support	1
4/17	Received new S/S wing tie down anchor points (CCHS, R. Fleury); fitted to wing; cleanup	1
4/18	Posterior edges, top & bottom at spar caps protected w grey tape; filled w wet micro; all three edges completed, right & left side	1
4/20	Two AN525 screws replaced on landing brake, torques checked on all screws; grey tape on fiberglass; screw heads and nuts sprayed w yellow primer; removed mechanism to move landing brake; Preliminary sanding done for glassing spar to fuselage	3
4/21	Completed sanding around & on spar. Cleanup. Checked wing 17.4 waterlines, incidence and sweep - no change; Began installing glass tapes above landing gear attachments, inside fuselage. Cut 2" glass tapes; cut two triangular foam blocks to smooth transition from spar to seat back at R & L ends, bottom side; microed blocks in; bead of dry micro in corners, wet out 2-ply tapes on saran wrap & placed on interior, bottom fuselage-spar joints above landing gear attachments and bottom rear seat-spar joint	5
M		
4/23	Cut glass tapes for left side fuselage, external and installed.	2
4/24	Cut glass tapes for right side fuselage, external and installed	2
4/26	Cut glass tapes for interior cabin sides, seat back and spar, and installed; air pump for respirator stopped - vanes binding.	3
4/27	Disassembled air pump and put back together. It works. Removed braces and	3

Signed: _____.

	bondo from wing and fuselage; Sanded firewall, fitted to fuselage	
May 3,'97	Sanded firewall; cut BID tapes to connect it to the fuselage; Fitted and then bonded firewall to fuselage w wet flox	3
5/4	Final sanding spar, fuselage and firewall; Filled gaps w wet flox, covered fuselage-firewall, spar-firewall, interior and exterior w 1 ply BID tapes, peel ply	6
5/5 M	Knife trim firewall, remove grey tape; Done.	1
5/8	Disassembled landing brake mechanism, cleaned light corrosion on one rod end bearing, removed paint from torque tube (NO Paint stripper)	2
5/15	Removed more paint from torque tube, buffed off some light rust from edges of steel parts; cleaned all metal parts for painting, light coat of grease on bearings to protect from spray	3
5/23	Airbrushed yellow epoxy primer on metal parts of LB; cleanup	2
5/24	Same, on the other side	2
5/25	Second coat, side one; after 2 hour wait, second coat on the other side; cleanup	3
5/31	Lubricated all bearings. Assembled LB on fuselage. Waiting for help to reattach the S/S cables	3
June 2,'97	No help yet. Removed landing light assembly, disassembled and cleaned.	1
6/19	School closed. Put new Paasche paint booth together. \$\$\$ Added vent line from clothes dryer. Lined booth with paper to keep clean. Cleanup hanger. Filters available at Home Depot - Air Purifier.	2
6/20	1 st coat primer on landing light assembly; then cleanup. Booth vented through window. Left paint on the screen. Air Brush MUST be completely disassembled and washed EVERY time it is used. Just spraying solvent through it is not enough!	2
6/23	Cut hole in wall, installed vent cap and Al tube for duct. Sealed & insulated; cleanup landing light parts	3
6/24	1 st coat primer on landing light parts; reinstalled Landing brake mechanism	2
6/25	2 nd coat primer on landing light parts; 1 st on Nosegear tiedown	1
6/26	Reinstalled Landing light; removed (again) the S/S cables for landing brake - they were not swaged good enough; cut two new cables and installed on LB 1,2,3; HOT today	4
6/30	Swaged the S/S cables to the LB 13. Technique written into plans; 1 st coat primer on brake pedals	3
July 2,'97	Masked fuselage with tape & newspapers and primer-painted seat belt anchors, outside step and LB spring anchor - placed paint booth near to suck in mist; cleanup	3
7/14	Tried to find the Weld Tech way to drill the holes in the engine mount. TO FIND top center spot: Clamp to steel bar, per Weld Tech plans; Measure distance from end of tube; Mark; Place long metal bar stock across top, both tubes; Place piece Correct-Type tape between bar and tube, pull tape sideways to mark tube. Measure distance from end of tube. Mark. Tap w center punch.	2
7/16	Twist drill press table to one side, so the engine mount tubes can be drilled. Clamp steel bar to table, clamp engine mount to bar. Much work to get it square and solid. Drilled 1 st hole in engine mount, vertical plane. Went 3/32" to 15/64" in 4 steps, reamed out to 1/4". It is square.	3
7/17	Drilled next 3 holes, vertical plane, same as 7/16/97	4
7/22	Began horizontal holes. 4 Al plates (1/4" each), ground sufficient off each so the total thickness is 0.97". 5 min Epoxied, clamped together. Final measurement and sanding to get the 0.97" block. Drilled first hole, per Weld Tech plans	4
7/23	Drilled & reamed next two horizontal holes.	4
7/24	Drilled & reamed last hole	1
7/27	Finally figured out the aluminum extrusions! They SHOULD have included a top view as well as the side and the end views	1

Signed: _____.

Aug 1,'97	Replaced micrometer table with vise on drill press table and drilled up holes in longeron extensions	2
8/4	Countersunk holes in longeron extensions (et alia) - Microstop Countersink did not fit on angle aluminum, so all 6 holes had to be done a little bit at a time	4
8/20	Drilled vertical holes on drill press, in aluminum longeron extensions, with engine mount as guide (Gerry Labrecque)	2
8/23	Put the upper longeron extensions together w 4 AN509 screws and counter drilled the hole through the 1.6" Al plates; then mounted all four extensions on the steel engine mount w AN4 bolts & MS21042-4 nuts.	1
8/27	Back drilled Aluminum longeron extensions through the motor mount for the horizontal bolts	1
1998	Total hours to here 1810(168);days of building 761(71)	
8/1/98-		
8/30/98	Painted ALL installed metal parts with epoxy primer	40
2002	Total hours to here 1850(40);days of building 781(20)	
2/20/2002	Replaced Al extrusions and drilled for engine mount	5
9/15/02	Redrilled all spoiled holes in Al & engine mount up to 5/16" (5 out of 8)	4
9/17	Drilled the 4 cs 71 belcrank bracket holes to mount on firewall; drilled holes for cable guide cotter pins in cs 72 rudder pulley brackets	3
9/18	Drilled S/S firewall to mount on the wood, and cut holes for extrusions; cut fibrefrax to fit firewall	2
9/22	Anodized the 2 cs 71 brackets and the 2 cs 72 rudder pulley brackets	1
9/25	Mounted engine mount to Al extrusions fitted on centersection spar, the W16 spruce blocks need to be reshaped to fit. It is a VERY tight fit - vertically (over wood blocks but not over the sparcap) as well as horizontally. Removed extrusions and sanded spar for fiberglass. Sanded through 1.5 layers uni on right side top, over the wood block. About the size of a dime. Repaired 10/11.	3
9/26	Cleaned up. Anodized 4 EM12 Al extrusions & the top side extensions, & the cs 73 brake mount extrusions. Cut fiberglass	3
9/27	Purchased titanium tube to replace aileron push rods (expensive!)	
10/2	Assembled the engine mount extrusions. Silicon sealant in extrusion holes to prevent leakage.	1
10/11	Fibreglassed top engine mount attachment point. Installed W16 spruce wedge with wet flox. 2 ply BID, 2 " inside spar, over both W16 & longeron and 2" onto outside spar and forward 1" on longeron. 1 ply BID 1.5" inside, up and over W16 & longeron. This should repair the damaged plies from 9/25. Next 4 ply BID 2" x 6" over them to support the 1"x 1" EM 12 Al extrusion. Interspersed with them, over the spar cap only, place 1" x 3" BID (3 on left and 5 on right side). Removed silicon sealant from holes, installed EM12 extrusions, bolted on the engine mount and clamped in place with two ratcheting tie down straps. 80°F G. Labrecque.	6
10/12	Knife trim. Cleanup.	1
10/13	Drilled 8 AN4 bolt holes per plans through EM12 extrusions into spar and longerons. Countersunk holes on outside of longerons. Bolted to airframe. Used AN4-13A, with alum washer inside and steel washer under the nut. Very nerve-wracking. <u>All 8 holes checked and are in solid wood.</u> No breakouts. Removed engine mount. It slides back in place without any problem.	3

Signed:_____.