


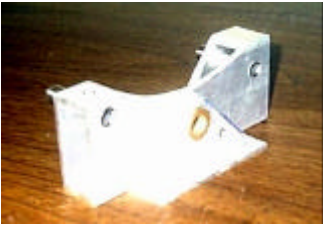






Date	Category Descriptions	Partner Manual Reference	Hours
12/09/01	Empennage Reamed Horizontal Stabilizer Bushings	IV-3	1.50
<p>I reamed seven bushing locations to .4375 where elevator attaches to horizontal stabilizer. The proximity of the locations to structural tubing made it difficult to position the reamer for turning. I modified the reamer by threading the end (3/8") and attaching an allthread rod and 'T' handle. This provided the reach needed.</p>			
12/16/01	Empennage Prepared for rib mounting	IV-7	1.00
<p>I finished reaming the 3/16" holes in the horizontal stabilizer, elevator, and fuselage attach points. I then marked the horizontal stabilizer and elevator for installation of the plywood ribs.</p>			
12/18/01	Empennage Glued ribs to elevator	IV-8	2.50
<p>I fitted and attached ribs to elevator and horizontal stabilizer. Elevator is complete. Outboard ribs in stabilizer are complete. Inboard ribs require additional preparation to fit around structural tubing. The adhesive used was Hysol structural adhesive (epoxy) with cotton floc as a filler. Cure time is three days at 77 degrees.</p>			
12/19/01	Empennage Glued Horizontal Stabilizer Ribs	IV-13	3.00
<p>Several of the ribs required notching to fit around structural tubes. Plywood stiffeners were glued to ribs 305, 307, and 309 on each side.</p>			
12/24/01	Empennage Varnish Ribs	IV-13a	0.75
<p>The plywood ribs were each given two coats of epoxy varnish.</p>			

Date	Category Descriptions	Partner Manual Reference	Hours
12/26/01	Empennage Access Panel Frame	IV-22	3.00
I fabricated and installed two access panel frames on the horizontal stabilizer. These panels provide access to the brace attach points.			
			
1/02/02	Empennage Attached foam to tips	IV-23	1.00
The elevator and horizontal stabilizer tips each get foam attached which will be sanded into a smooth countour. The foam was atatched with Hysol epoxy.			
			
1/03/02	Empennage Shaped Tips	IV-24	0.75
The foam on the elevator and horizontal stabilizer was rounded and shaped with a sandpaper file. A thin coat of Hysol epoxy was placed over the foam tips with a flexible plastic spatula.			
1/03/02	Empennage Pressed Bearings	IV-26	0.50
Bronze bearings were pressed into seven loacations on the horizontal stabilizer. The bearings were treated with Loctite #640 sleeve retainer for installation. The bushings which will be placed into these bearings were reamed to .1875 inside diameter.			
1/04/02	Empennage Attached empennage to fuselage	IV-33	4.00
The horizontal stabilizer was attached to the fuselage. Slider blocks were fabricated for guiding the stabilizer when trim changes. I broke one of the AN-535-440-R12 screws which hold the slider blocks in place.			
Bushings for the elevator attach hinges were all ground to size and pressed into place.			
			
			

Date	Category Descriptions	Partner Manual Reference	Hours
1/06/02	Empennage Attached Elevator Elevator is attached to stabilizer. Attachment made at six hinge positions. The hinge tabs on the elevator seem to pinch the bushings on the stabilizer. This makes the elevator movement very stiff.	IV-35	1.00
			
1/07/02	Empennage Fabricate Access Panels Aluminum sheet was cut, shaped, and formed into two access panels for the horizontal stabilizer brace attach points. Panels were match drilled with installed frame. The panels were then installed with screws and nut plates.	IV-41	1.50
			
1/08/02	Empennage Adjust Elevator Hinge Fit After consulting with Skystar technical support, I decided that the elevator hinges were providing too tight a fit. I removed the hinge pins and filed excess powder coat off the tabs and bushings. The tabs were then spread and the elevator reinstalled.	IV-35a	1.25
1/09/02	Empennage Mounted Trim Motor The electric trim motor was attached to the fuselage and the horizontal stabilizer. The rod end fit on top is very tight with washers sandwiched in.	IV-44	1.50
			
1/12/02	Empennage Fabricate Scissor Links The trim tab actuator motor has a scissor link to counter torque movement. Three steel links were fabricated to assemble the unit.	IV-45	1.00
1/14/02	Hardware Fabricate Fittings Several aluminum fittings were fabricated. These include the trim indicator bracket, control column attach brackets, and spacer. The Dremel tool was useful for the interior cuts in the aluminum extrusions. Major cuts were done with the bandsaw.	IV-47	3.50

Date	Category Descriptions	Partner Manual Reference	Hours
1/16/02	Hardware Completed Control Stick Bracket This bracket was fabricated with a rectangular aluminum extrusion, a flat plate, and an aluminum angle.	V-9	2.00
			
1/22/02	Flight Controls Assemble Control Column The bearings were pressed and the pivot arms installed for the control column. Bushings for the control movement limit stops were tapped. Mount bushing was fit. Control sticks were fit.		4.50
 			
1/26/02	Flight Controls Control Column Link Rod Installed The left and right pivots on the control column were interconnected using a rod. Attachment to the right pivot was very difficult due to the tight working space. Washers needed to be sandwiched onto both sides of the rod end and the whole assembly placed into the jaws of the pivot arm. When I finally got this done, I found that the pivot arm jaws were binding onto the rod end. I removed everything, ground the jaws with a Dremel tool, and reassembled. The left side was much easier. Once the interconnect rod was attached, I added the control sticks.		3.00
  			

1/26/02	Fuselage Prime Parts All metal fabrications built to date were primed with two part epoxy primer. Several drill holes and bushing points in the fuselage weldment were reamed in preparation for mounting the flight controls.		1.75
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Date	Category Descriptions	Partner Manual Reference	Hours
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1/27/02	Empennage Sanded Stabilizer Tips		1.25
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1/28/02	Empennage Installed Scissor Link		0.50
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The scissor link used to limit torque at the trim motor connection was installed. This hardware will also supply the attach point for the trim position indicator cable.



1/28/02	Flight Controls Mounted Control Column to Cockpit		2.00
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The completed control columns were mounted into the cockpit. The right bracket is the main attach point.




2/02/02	Flight Controls Flight Controls		5.00
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Several of the flight controls were installed. The aileron idler bellcrank was attached to the control column. The elevator bellcrank was attached to the control column. The flap mixer control was assembled. The flap handle was installed.

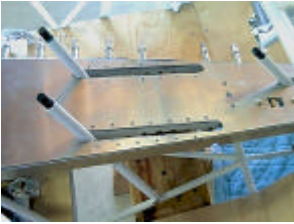






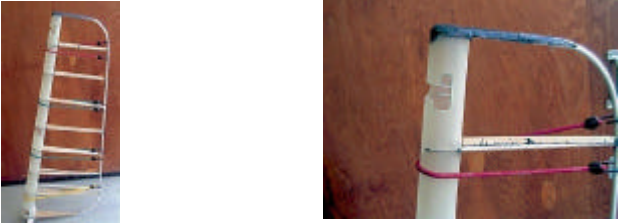
Date	Category Descriptions	Partner Manual Reference	Hours
2/03/02	Flight Controls Flaperon Mixer I mounted the flaperon mixer assembly to the airframe. The assembly was then connected to the control column and flap handle with push rods.		2.50
			
2/04/02	Fuselage Primed Elevator Push Rod Elevator push rod has been primed with epoxy primer.		1.50
2/11/02	Flight Controls Attached Elevator Push/Pull Rod The elevator push/pull rod was assembled and attached to the control column idler and the elevator bellcrank. Rod ends were constructed using structural adhesive and rivets. The guide bushing housing about half way along the rod required moderate filing and sanding to fit the plastic bushing. I also drilled center holes (1/16") in the rudder adjust and flap handle detent pins to allow insertion of a tiny roll pin. My earlier efforts at this were fruitless and resulted in three broken drill bits. I was able to get the holes drilled by using a cobalt bit and making a jig out of oak to align the pin and the drill bit.		3.25
			
2/12/02	Hardware Fabricate Brackets The detent brackets for the rudder adjustment and flap levers were cut and filed.		3.00
			
2/13/02	Hardware Bracket Fabrication I continued work on the detent brackets for the flap handle and the rudder adjustment handles. All holes were drilled and the detents cut out. Brackets were edge filed to remove tooling marks.		2.00
2/17/02	Flight Controls Built Rudder Adjustment Handles The rudder adjustment handles were built and installed. The flap detent bracket was finished.		2.50
Total this Page:	14.75	Page 6	Total Hours Worked: 62.50

Date	Category Descriptions	Partner Manual Reference	Hours
2/18/02	Fuselage Cut Floorboards Templates were used to fit and cut the plywood floorboards. The first coat of varnish was applied.		2.50
2/19/02	Fuselage Floorboards The second coat of varnish was applied to the floorboards.		0.50
2/20/02	Fuselage Floorboards Installed The plywood floorboards were back drilled and installed in the cockpit. Boards attach to the fuselage with sheet metal screws.		1.50
			
2/21/02	Hardware Rudder Mount Brackets I fabricated the aluminum brackets for the rudder torque tube mounts and the brake master cylinder mounts. I also cut and drilled the links to connect the rudder cables. The rear rudder connect link holes were drilled off center, so I have to get new steel stock (4130 at .040 x .5) to try again. Skystar cost is \$1.81 for this item.		2.50
2/24/02	Flight Controls Rudder Horn Modification The horns on the torque tubes required modification to be used with the adjustable rudder pedals. The horns were cut and a 3/8" radius ground as per the templates.		2.00
2/25/02	Hardware Prep and Prime Parts All the various brackets and links which were recently fabricated were prepped and primed. Today's temperature was 0 F. The shop was plenty warm with the propane heaters.		2.50
2/25/02	Hardware Cable Pulley Guards Four rudder cable pulley guards were fabricated from stainless steel. These pulleys will attach to the torque tubes and are a part of the adjustable pedals. The bends were performed using the sheet metal bender from Grizzly.		0.50
2/26/02	Flight Controls Rudder Pedal Drilling I drilled the pilot holes for rivets that will attach the outboard rudder pedals to the torque tubes. Each pedal received 12 holes.		1.25











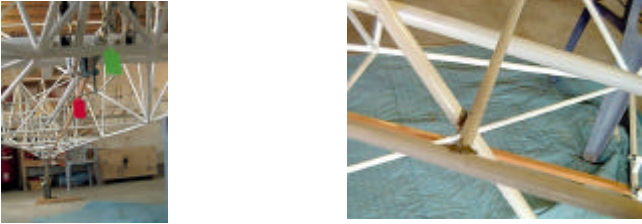
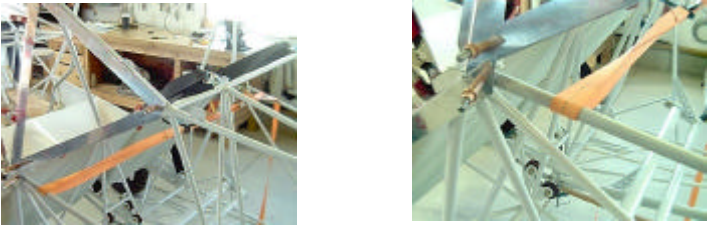
Date	Category Descriptions	Partner Manual Reference	Hours
2/27/02	Flight Controls Rudder Pedals		2.25
<p>The rudder pedal pivots were attached to the torque tubes with rivets. Cable pulley and guard were mounted on each horn. The rudder pedals were attached to the pivot tubes.</p>			
			
3/04/02	Flight Controls Mount Rudder Pedals in Cockpit		4.00
<p>The rudder pedal assemblies were mounted to the cockpit floor. Bolts through the brackets attach to the steel weldments. Return springs are installed/</p>			
			
3/04/02	Flight Controls Rudder Cable Guide Pulley		0.25
<p>The pulleys that will guide the rudder cables through the center of the fuselage were installed.</p>			
			
3/05/02	Empennage Hung Rudder		1.50
<p>Rudder has been (temporarily) mounted to vertical stabilizer. Three rod ends were placed into the stabilizer and adjusted to provide the required gap. The threads on the receiving side had to be tapped to remove the powder coating.</p>			



Date	Category Descriptions	Partner Manual Reference	Hours
3/06/02	Fuselage Center Console Panel		3.00
<p>The slots for the rudder adjustment handles were cut in the center console. A Unibit was used to make the end holes then the slots were cut with the sabre saw. The detent brackets for the rudder handles and flap handle were assembled and placed. Rivet holes were back drilled and the fit was adjusted.</p>			
			
3/09/02	Fuselage Installed Center Console		5.00
<p>The center console was deburred and countersunk for rivets. The microcounterstop worked well for this task. David did the rivet installation to attach the detent brackets to the top. The top was then attached to the console and the sides were cut, fit, and drilled. The rear attach points for the top were elevated with AN460-10 washers. Trimming the .016 sheet metal for the sides was best performed with the pneumatic shears. The pilot's rudder adjustment handle detents required tooling to get a smooth action. There was tightness and interference at the rear arc of travel.</p>			
<p>The first four airfoil ribs were attached to the vertical stabilizer using structural epoxy. Only minor sanding was needed for a tight fit.</p>			
			
3/10/02	Flight Controls Trim Position Cable Installed		4.00
<p>The cable used to provide trim adjustment location was fabricated and installed. A Nicopress sleeve was swaged to one end to form an eye.</p>			
			

Date	Category Descriptions	Partner Manual Reference	Hours
3/11/02	<p>Empennage Airfoil Ribs Installed in Rudder</p> <p>The plywood ribs that give the rudder an airfoil shape were installed. Previously installed ribs in the vertical stabilizer recieved stiffeners.</p>		3.25
			
3/12/02	<p>Empennage Reinforced Ribs</p> <p>Reinforcement strips were glued to the ribs in the rudder. Aluminum angle was cut, notched, and drilled to fabricate the tail access panel mounting plates.</p>		2.00
3/14/02	<p>Empennage Varnish Ribs</p> <p>The plywood ribs in the rudder and vertical stabilizer received their first coat of epoxy varnish.</p>		1.00
3/15/02	<p>Empennage Attach Angles for Cover</p> <p>The aluminum anlge pieces which will be used to attach a cover over the tail root were installed. The forward bulkhead for this area was also installed.</p>		1.50
			
3/17/02	<p>Empennage Rudder Leading Edge</p> <p>The rudder leading edge is made of fiberglass. The piece was fitted and slots cut to permit access to the rudder hinge bolts. The leading edge was bonded in place. The top of the rudder was formed by shaping foam blocks and sealing the foam with epoxy. The rudder stop tabs were filed to permit 25 degrees of rudder travel in each direction.</p>		3.00
			
4/02/02	<p>Empennage Vertical Stabilizer Trailing Edge</p> <p>The fiberglass trailing edge for the vertical stabilizer was cut and fitted. The leading edge for the rudder was sanded.</p>		1.50

Date	Category Descriptions	Partner Manual Reference	Hours
4/03/02	Empennage Attached Vertical Stab Trailing Edge The vertical stabilizer trailing edge was attached using structural adhesive. Stabilizer tip was molded with foam and epoxy.		1.00
<div style="display: flex; justify-content: space-around;">    </div>			
4/08/02	Fuselage Installed Seat Pan The fiberglass seat pan was cut to shape. Notches were made where required. Slots for seat belts and cable ties were cut. The seat pan was attached to the structural tubing with nine nylon cable ties.		3.00
<div style="display: flex; justify-content: space-around;">  </div>			
4/09/02	Landing Gear Main Gear Roll Pins Four steel roll pins were pressed into the main gear.		0.50
4/09/02	Empennage Epoxy Varnish et al. I applied the second coat of epoxy varnish on the rudder and vertical stabilizer plywood parts. I drilled the holes for the shoulder harness attach points.		2.00
4/10/02	Landing Gear Main Gear The main gear was attached to the fuselage. Wheels and tires were assembled. Wheel bearings were packed with grease.		2.50
<div style="display: flex; justify-content: space-around;">   </div>			

Date	Category Descriptions	Partner Manual Reference	Hours
4/13/02	Landing Gear Main Geat and Tail Wheel The axles were attached to the main gear. Wheels were mounted on the axles. The brake assemblies were left off. Tail wheel srping and wheel were installed.		1.50
<div style="display: flex; justify-content: space-around;">    </div>			
4/14/02	Fuselage Prep Longerons Several tasks were accomplished today. <ol style="list-style-type: none"> 1. Aluminum tubes for longerons were primed. 2. Center console panel sidewalls were primed. 3. Seat belts were installed. 4. Side saddle brackets in fuselage were drilled to accept longerons. 		3.00
4/15/02	Empennage Sanding Sanded tips of vertical stabilizer, horizontal stabilizer, rudder, and elevators.		0.75
4/16/02	Fuselage Right Longeron Stringer Installed the right longeron stringer using epoxy and rivets.		1.50
<div style="display: flex; justify-content: space-around;">   </div>			
4/16/02	Flight Controls Rudder Cable Bushings The rudder cable bushings were cut and installed in 14 locations.		1.50
4/17/02	Fuselage Left Longeron Stringer Installed the left longeron stringer using epoxy and rivets.		1.00
<div style="display: flex; justify-content: space-around;">   </div>			

Date	Category Descriptions	Partner Manual Reference	Hours
4/22/02	<p>Systems Brake Master Cylinders Brake master cylinders were installed. Skystar provided Matco cylinders instead of Cleveland cylinders.</p>		1.50
			
4/22/02	<p>Fuselage Longeron and Stringers The wood longeron was installed on the belly of the fuselage. Three aluminum tube stringers were installed between the aluminum longerons. Attachment was accomplished with epoxy and safety wire.</p>		2.50
			
4/23/02	<p>Fuselage Door Construction I attached the door latch housings to the two door weldments. Each housing was attached with epoxy and eight rivets.</p>		2.00
4/29/02	<p>Fuselage Doors I fabricated the door handles. Then, I assembled and attached the door lock mechanism to each door. The most difficult part was attaching the tiny springs that hold the handle closed. The trim (angle aluminum) for the pilot's door and quarter window was cut and fitted.</p>		4.00
4/30/02	<p>Fuselage Pilot Door Trim I attached the aluminum angles that act as trim on the pilot's side. Angles were also attached around the quarter window. Attachment was performed using epoxy reinforced with rivets at each overlap.</p>		1.50
			
5/05/02	<p>Fuselage Door Trim I finished installing the door trim aluminum on the right side of the aircraft.</p>		2.50

Date	Category Descriptions	Partner Manual Reference	Hours
5/06/02	Flight Controls Rudder Cable Installation I installed the rudder cables on the pilot's pedals. I need to order extra cable (25' of 1/8, 7x9, SS) to complete the copilot side.		2.00
			
5/08/02	Door Strap The door handle strap was fabricated out of woven nylon and installed. The striker plates for the door latches were fabricated and temporarily installed with two-sided tape.		1.00
			
5/12/02	Wings Strut Attach Templates The templates that will be used to drill the strut attach brackets were prepared.		1.00
5/12/02	Flight Controls Rudder Cables The additional rudder cable that I required arrived from Skystar. This allowed me to install the copilot cables. These were then joined to the pilot cables with a Nicopress sleeve. The attachment at the rudder horn is only temporary as this connection must wait for fabric covering.		3.00
