

Fokker D7 Instructions

Rev 1

Overview

Building the D7 is rather straight forward but there are some areas that will need some special attention. If you have built some of our other Fokker kits then this kit is a refresher. Although, if you're new to our Fokker series then the best advice would be to take your time and ensure you understand how the parts assemble. The kit consists of several main components - two wings, fuselage and the tail area. Our building techniques are not absolute but they do work well. We couple field/flying experience to the building process as we believe this D7 should be flown. If you are just building a static version then you might review what the goal in that area and make any adjustments as needed, such as, servo installation, you might just not use the parts supplied. The recommended building sequence could be the bottom wing, top wing, rudder, stabilizer, elevator, sub-wing and then fuselage, although you can build in a sequence that works for you. Some components will require other parts be completed, such as, the top wing needs to be completed so the cabane struts can be mounted. The photos will help you visually understand how the parts go together and how the plane is built. The photos coupled with the instructions below should ensure you understand how the parts go together. This kit will require that you have some building experience and be familiar with some aircraft terms such as, port, CG and incidence. If you have questions contact us.

Glues

Some glues you might consider using -

- Titebond - plywoods
- ZAP CA (Thick, thin) - balsa wood
- Duco - spruce, balsa wood
- JB-Weld - music wire / struts

Bottom Wing

The bottom wing can be built in halves (left, right) then joined or built in one piece. These instructions discuss the two halve method. If you have a large enough space then you can build the wing in one piece. The main issue is to take your time and keep the wing flat and warped-free. Note that each rib has a bottom tab that will be removed prior to adding the rib capping. The spar webbing is pre-cut and numbered for you, so, the wing will go together like a puzzle. Don't be concerned if the spar webbing numbers are visible or not when positioned; but just ensure the arrow is pointed towards the ceiling. The spar webbing is design to be flush with the top and bottom of the rib, making the spar/webbing the full vertical length of the rib. As you put the pieces together remember this as it will help you ensure that the parts are positioned correctly, straight and snug.

Some other things to remember -

1. The plywood spar webbing is exactly cut to the proper size.
2. The spruce/balsa spars seat all the way down into the rib.
3. The rib capping will go over the spars.
4. Work from the inner wing (root) towards the wing tip.
5. The rib bottom tab will be removed before rib capping is added.
6. Point all spar webbing arrows toward the ceiling.
7. Double check spar webbing before gluing.
8. Saw-tooth plywood is added second to last.
9. Keep the wing flat and straight as you build.

The spar consists of two pieces. The top of the spar is balsa #38 and underneath that is spruce #54. The bottom spar is identical to the top. The balsa spar #38 will be added after all the spar webbing is in place. The top of the rear spar and maybe some of the top front spar might need some sanding as the contour of the rib slopes downward towards to trailing edge. Locate all ribs BR1-11, spar webbing Y1-20, Z1-20 and spars #38, 54. You need to build a left and right wing panel, start with either. Roughly position the ribs and spar webbing on the plans. You will start building with ribs BR1-2 and then rib BR3 continuing towards the wing tip inserting the front spar webbing as you go. Note that the spar #54 should extend pass rib BR1 so, when the wing halves are joined the two spars connect, reference plans. You do not need to splice the spar as the spar webbing will keep all parts together quite well, so, you can butt joint spars together. Keep the top of the spar webbing level with the top of the rib and keep the ribs seated down on the table. You want the wing flat. Make sure the spruce spars are seated all the way down into the rib. The spars passing the last rib BR11 will be trimmed off later. You will

notice an "arrow" on all spar webbing; this indicates that this end is up. Ensure you have all the "arrows" pointing to the ceiling as you glue the webbing into place. Keep the spar webbing flush against the ribs and try to keep them level with the top of the ribs. Note that the spar webbing is cut rather exact, although the balsa ribs might not be an exact 1/8 inch thick. So, you might see your ribs slightly off from the plans as the tolerance of the balsa ribs could create this. Not to worry as all of this is relative when you are putting the wing together. Take your time and continue adding the ribs and spar webbing working your way toward the wing tip. You should have the ribs, front spar webbing and the spruce spars glued in place now. Add nose ribs BR6a in position per the plans. To support the screws #122 for the n-strut fittings add some scrap wood in-between the spruce spars #54. Position and glue the wing fitting blocks #46 in place now too. You can use screws #103 to help align these blocks. Add the remaining rear spar webbing. Locate four n-strut fittings #123. These fittings are installed on the topside of the bottom wing. Test fit the n-strut fittings #123. Reference the plans; notice they should be roughly 7/8" from the inside of rib BR10. Use a 1/16" drill and drill four holes for screws #122. Install the n-strut fittings #123 with screws #122. Note that once the covering is in place, you will not have access to these screws unless you cut the covering; which is not the end of the world. Add the balsa spars #38 now. Do not cover the n-strut screws #122. Add the stringers #30 to the wing. Trim all stringers and spars that go beyond outer rib BR11. The trailing edge is laminated to ensure stiffness and to help prevent warps. Glue to two trailing edges #52 and #52C together. The trailing edge pieces have lines marked on them to help locate the center of each rib. With the wing flat, add and glue the trailing edge #52 in position. The plywood wing tips #22 go into position next. The wing tips follow the center line of rib BR11. Use a pencil to mark the centerline. I found gluing the wing tip a little at a time working from the rear towards the leading edge helps bend the plywood wing tip into position. Start with the rear of the wingtip, glue to rib BR11 as you work towards the leading edge. To add some thickness to the wingtip, position and glue balsa wingtip parts #24T/B to the top and bottom of the wing tip #22. Slightly, sand a contour to the wing tip. With the one wing panel semi-built, build the other wing panel as you did above. Notice on the plans where the two wing panels join. Adjust the spars #54 if needed to join the wing halves together. Add and glue the center spar webbing #C1-4. Remove the bottom tabs from the bottom of the ribs. The wing should be straight and flat. If not, you can probably fix some minor mistakes with the covering and the N-struts. The bottom wing is fitted to the fuselage using fittings #305. On the plans you will notice short lines indicating the outside edge of the bottom longerons. When you build the fuselage, the bottom longerons #405 will stop at the red line, so, your fitting #305 should start there, making a snug fit when mounted to the fuselage. You will add fittings #305 when you mount the bottom wing to the fuselage. Using a T-type sanding bar, sand the balsa

spars #38 to the contour of the rib. Carefully, do not sand into the ribs. The rib capping is 1/8 inch thick which will help keep the fabric from sticking to the spars. Because of this thickness you will need to soak the rib caps once you cut them to length. The rib caps are quite visible so try to keep them straight and centered on each rib as the fabric rib tapes will follow the rib capping. Note that the rib capping for the root and tip ribs, BR11 and BR1, should be flush with the outside edge of the rib, see plans. Add rib capping #20 to both sides of the rib. Start on the bottom of the wing. The bottom rib caps will butt join up with the trailing edge continuing towards the leading edge. On the top of the wing the rib capping should be trimmed at the trailing edge and slightly sanded round. The wing tip has some balsa #164 supports with ply #163,165 covers. The balsa supports #164 should be a continuation of the spars. Position and glue the balsa supports #164 to the wing tips on the top and bottom side and then add the ply covering #163,165. The bottom wing has four footsteps so the pilot or mechanic can access the plane. You will add the base support #404 for the foot step and stop. The top support pieces #403 will be added after the saw tooth plywood goes into place. Cut, fit and glue the two base supports #404 against the spar webbing and right below the rib capping. You cut and test fit the top support #403 but don't glue in place. The top support should be above the rib capping as the fabric will be attached to these supports and the foot step plate will go on top of the fabric. Add the ribbon tape #51 now. You can start at the root rib and work your way out to the wing tip and back to the root. Notice on the plans where the ribbon tape should go. The ribbon tape goes up and under the ribs. The ribbon tape is a simple way of keeping the ribs from twisting. You can add a little glue at every other rib location if desired. The ribbon tape should be a little tight. The saw tooth plywood #63-1 thru #63-4 is added after the rib capping. The plywood has the word "TIP" and "ROOT" laser etched in one corner. That locates what end should be at the wing tip or root. Try not to get the plywood mis-oriented. Test fit into these pieces into position. The plywood should line up with the ribs. Remember the plywood is laser cut exactly. You might need to adjust the plywood slightly if the ribs are a wee-bit off or if the plywood gets tilted. You must "wet" the plywood before adding it. This will soften the wood so it can be wrapped around the leading edge without cracking. You can add a little ammonia into the warm water which will loosen the glue in the plywood to help. Soak the saw tooth plywood #63-1 thru #63-4 for 5 minutes in warm water. Do one panel at a time. Have the wing upside down where the bottom is facing the ceiling. Glue the saw tooth tips to the top spar. Take your time. Slow CA glue will help give you some time to align the plywood. Start to roll the wing to help wrap the plywood around the ribs. Glue as you go. Try to keep the plywood tight and aligned as you go. Once you wrapped the plywood around the ribs glue the saw tooth tips to the spar. Repeat for the other plywood wing panel. Note that the saw tooth plywood is attached to the spar which is below the fabric, this is correct.

So, when the fabric is added you should only see part of the saw tooth pattern. Mount the wing fittings #305 now. Using screws #103 and nuts #108 mount the wing fittings #305. These fittings will mount to the plywood triangular blocks in the cockpit area. So, you will find it rather difficult to gain access to the hex nut #108. You can use some JB-Weld #5 to secure this hex nut to the wing fitting #305. This completes the bottom wing.

Top Wing

The top wing was built in one piece for the prototype. Although, you can build the top wing such that the two outer panels plug into the center section using wing joiners. Determine what works best for you and proceed. Just like the bottom wing, the main issue is to take your time and keep the wing flat and warped-free. Note that each rib has a bottom tab that will be removed prior to adding the rib capping. The spar webbing is pre-cut and numbered for you, so, the wing will go together like a puzzle. Don't be concerned if the spar webbing numbers are visible or not when positioned; but just ensure the arrow is pointed towards the ceiling. The spar webbing is design to be flush with the top and bottom of the rib, making the spar/webbing the full vertical length of the rib. As you put the pieces together remember this as it will help you ensure that the parts are positioned correctly, straight and snug.

Some other things to remember -

1. The plywood spar webbing is exactly cut to the proper size.
2. The spruce/balsa spars seat all the way down into the rib.
3. The rib capping will go over the spars.
4. Work from the inner wing (root) towards the wing tip.
5. The rib bottom tab will be removed before rib capping is added.
6. Point all spar webbing arrows toward the ceiling.
7. Double check spar webbing before gluing.
8. The top of the wing is flat.
9. Saw-tooth plywood is added second to last.
10. Keep the wing flat and straight as you build.

The spar consists of two pieces. The top of the spar is balsa #38 and underneath that is spruce #54. The bottom spar is identical to the top. The balsa spar #38 will be added after all the spar webbing is in place. The top of the rear spar and maybe some of the top front spar might need some sanding as the contour of the rib slopes downward towards to trailing edge. Locate all ribs BR1-11, spar webbing X1-26, V1-26, L1-4 and spars #38, 54. You need to build a left and right wing panel, start with either. Roughly position the ribs and spar webbing on the plans. You will

start building with ribs TR1-2 and then rib TR3 continuing towards the wing tip inserting the front spar webbing as you go. Note that the spar #54 should extend past rib TR1 so, if the wing is joined the two spars connect, reference plans. You do not need to splice the spar as the spar webbing will keep all parts together quite well, so, you can butt joint spars together. Keep the top of the spar webbing level with the top of the rib and keep the ribs seated down on the table. You want the wing flat. Make sure the spruce spars are seated all the way down into the rib. The spars passing the last rib TR14 will be trimmed off later. You will notice an "arrow" on all spar webbing; this indicates that this end is up. Ensure you have all the "arrows" pointing to the ceiling as you glue the webbing into place. Keep the spar webbing flush against the ribs and try to keep them level with the top of the ribs. Note that the spar webbing is cut rather exact, although the balsa ribs might not be an exact 1/8 inch thick. So, you might see your ribs slightly off from the plans as the tolerance of the balsa ribs could create this. Not to worry as all of this is relative when you are putting the wing together. Take your time and continue adding the ribs and spar webbing working your way toward the wing tip. You should have the ribs, front spar webbing and the spruce spars glued in place now. Add nose ribs TR3a, TR9a in position per the plans. To support the screws #122 for the n-strut fittings add some scrap wood in-between the spruce spars #54. Position and glue the wing fitting blocks #28 in place now too. You can use screws #103 to help align these blocks. Add the remaining rear spar webbing. Locate four n-strut fittings #123. These fittings are installed on the bottom side of the top wing. Test fit the n-strut fittings #123. Reference the plans; notice where they should be installed. Use a 1/16" drill and drill four holes for screws #122. Install the n-strut fittings #123 with screws #122. Note that once the covering is in place, you will not have access to these screws unless you cut the covering; which is not the end of the world. Add the balsa spars #38 now. Do not cover the n-strut screws #122. Add the stringers #21, 30 to the wing. Trim all stringers and spars that go beyond outer rib TR14. The trailing edge is laminated to ensure stiffness and to help prevent warps. Glue to two trailing edges #7 and #7T together. The trailing edge pieces have lines marked on them to help locate the center of each rib. With the wing flat, add and glue the trailing edge #7 in position. Install the trailing edge #31 for the ailerons. Try to keep the ribs straight and centered on this trailing edge #31. The plywood wing tips #16 go into position next. The wing tips follow the center line of rib TR14. Use a pencil to mark the centerline. I found gluing the wing tip a little at a time working from the rear towards the leading edge helps bend the plywood wing tip into position. Start with the rear of the wingtip, glue to rib TR14 as you work towards the leading edge. To add some thickness to the wingtip, position and glue balsa wingtip parts #15T/B to the top and bottom of the wing tip #16. Slightly, sand a contour to the wing tip. With the one wing panel semi-built, build the other wing panel as you did above. If you made your top

wing in multiple pieces, notice on the plans where the two wing panels join in-between ribs TR1. Keep the wing halves flat and straight. Join the wing panels. Adjust the spars #54 if needed to join the wing halves together. Add and glue the center spar webbing #L1-4. The wing should be straight and flat. If not, you can probably fix some minor mistakes with the covering and the N-struts. Remove the bottom tabs from the ribs now. Sand any leftover tab as the rib cap needs to sit flat onto the rib. The top wing is fitted to the fuselage using fittings #204. You will add fittings #204 when you mount the top wing to the fuselage. Using a T-type sanding bar, sand the balsa spars #38 to the contour of the rib. Carefully, do not sand into the ribs. The rib capping is 1/8 inch thick which will help keep the fabric from sticking to the spars. Because of this thickness you will need to soak the rib caps once you cut them to length. The rib caps are quite visible so try to keep them straight and centered on each rib as the fabric rib tapes will follow the rib capping. Note that the rib capping for the root and tip rib TR14, should be flush with the outside edge of the rib, see plans. Add rib capping #20 to both sides of the rib. Start on the bottom of the wing. The bottom rib caps will butt join up with the trailing edge continuing towards the leading edge. On the top of the wing the rib capping should be trimmed at the trailing edge and slightly sanded round. The wing tip has some balsa #167 supports with ply #166,168 covers. The balsa supports #167 should be a continuation of the spars. Position and glue the balsa supports #167 to the wing tips on the top and bottom side and then add the ply covering #166,168. The top wing has four doors on the bottom side. Two doors by the servos and the other two doors by the rear strut fittings. Add the base support #404 for the inner and outer door frames. The door frames should be level with the rib capping. The fabric will attach to these frames as the door will be above the fabric. These are functioning doors meaning they can open if needed. The saw tooth plywood #140 thru #144 is added after the rib capping. The plywood has the word "TOP" laser etched in one corner. That locates what side should be on the top of the wing. Try not to get the plywood mis-oriented. Test fit into these pieces into position. The plywood should line up with the ribs as well as the nose ribs TR3A and TR9A. Remember the plywood is laser cut exactly. You might need to adjust the plywood slightly if the ribs are a wee-bit off or if the plywood gets tilted. You must "wet" the plywood before adding it. This will soften the wood so it can be wrapped around the leading edge without cracking. You can add a little ammonia into the warm water which will loosen the glue in the plywood to help. Soak the saw tooth plywood #140 thru #144 for 5 minutes in warm water. Do one panel at a time. Have the wing upside down where the bottom is facing the ceiling. Glue the saw tooth tips to the top spar. Take your time. Slow CA glue will help give you some time to align the plywood. Start to roll the wing to help wrap the plywood around the ribs. Glue as you go. Try to keep the plywood tight and aligned as you go. Once you wrapped the plywood around the ribs glue the saw tooth tips to the spar. Repeat

for the other plywood wing panel. Note that the saw tooth plywood is attaches to the spar which is below the fabric, this is correct. So, when the fabric is added you should only see part of the saw tooth pattern. The center cut-out is laminated balsa #29 to plywood #26 then is sanded to shape. Glue the plywood #26 to the ribs TR1 and TR2. Then glue one at a time the balsa #29 to the plywood #26. Using a pencil draw a center line down the balsa #29. This will help you evenly sand the balsa. At this time sand the balsa to shape, reference the plans. The cut-out edges should blend into the trailing edge. To add some support where the ribs meet the leading edge #31 use the ply cut-outs #10. Identify the ply cut-outs #10 gluing them into position per the plans. They go on the top and bottom in this area. Mount the wing fittings #204 now. Using screws #103 and nuts #108 mount the wing fittings #204. Remember once the wing is covered you will not have access to these screw/nuts. It's recommended to use a glue or loctite on the screw threads to permanently secure these screw/nuts. You can add you servos if you want now, the proto-type had one servo per aileron. A servo tray #169,170 is supplied with the kit. If you decide to use them, ensure you make a left and right servo tray. The servo is mounted into the tray where two wires create a letter "X" going to the control horn. So, this is a pull-pull system. Determine your servo setup and install the servos. The prototype servo cable exited the wing at the rear right wing fitting #204 and then down along that strut into the fuselage. Twist ties were used to secure the servo wire to the strut. The wing is now ready for the ailerons. This completes the top wing.

Ailerons

The ailerons are straight forward. Start with either the right or left aileron, repeat process for the other side. Assemble the control horns #298,299 together. Carefully, sand the control horns so an airfoil shape is obtained. You might consider carefully adding a straight V-edge below the control horn ears simulating the ears are welded to the streamline body. The ailerons use hinges #318 which are slightly longer than the other hinges #302. The aileron ribs are laminated balsa and plywood. At this time glue the ribs together and sand the square-ness away from the rib edges. The trailing edge is also laminate plywood and balsa. At this time glue the trailing edge #8, 8T together. With the aileron being so large a carbon fiber strip is added. Cut the carbon strip #236 to length gluing it to the top of the trailing edge. Add the control horn, hinge assemblies, ribs and trailing edge onto the plans to test fit. Realize that the aileron is on an angle; rising from the wing to the wing tip. You might consider gluing the aileron together while it is mounted to the wing to help ensure you have the right angle. At this time mount the hinges and leading edge tube with the control horn (not glued yet) to the wing. Leave a gap large enough between the wing and aileron rib #133, glue rib #133

in place. Glue the remaining ribs in place. You can use a straight edge to keep the ribs aligned. Glue the trailing edge in place, where the carbon strip glues to the bottom of the ribs. Once you have the main part of aileron built you can glue the control horn in place. Keep the control horn straight and at the correct angle when you have the aileron in the neutral position. CA glue works fast and secures the control horn. Just don't get any CA glue in the hinge bushings. Glue the bamboo support #130 in position. That support should be centered on the aileron ribs. Adding the aluminum tip is rather simple. Glue the aluminium tip to the trailing edge. You might consider wrapping a small patch of fibreglass to secure the aluminum to the trailing edge. With the aileron secured in position, glue the rib #131 to the carbon tube #75 keeping aligned to the wing tip when the aileron is in the neutral position. With rib #131 glued in position, now glue the other end of the aluminum tip #66 to this rib. The brass extension #235 needs one side slightly crushed and then filed to fit to the aluminum tube #66. Crush the brass extension about 1 inch on one end. You should be crushing it, not flat, but to the same thickness as the aluminum tube 5/32 inch. File the flatten brass end so it snugly fits onto the aluminum tube. Once you achieve that, glue the brass extension to the carbon tube #75 and the aluminum tube #66. The aileron should move freely. You will need to notch the trailing edge #31 so the control horn has plenty of movement. Typically, the aileron should move +/- 5/8 inch or 15mm of throw. Not much more will be needed. The hinges should be position such that they press against the trailing edge #31. Once you are happy with the hinges and aileron movement you can now secure the hinge brass collars #320 in place. It is IMPORTANT that you do not get any glue in the brass bushing #319. You can either CA the collars in place and/or pin them with #109 or both. At this time secure the collars in place. Like the rudder and elevator the hinges need to have a fabric blocks #501 added. These blocks are needed to help secure the fabric around the hinges. File the front of the fabric block so it mates to the brass collars #320. Carefully, glue these three fabric blocks in place. Remove the aileron for covering and repeat for the other aileron.

Hinges

To ensure you create hinges properly, it is recommended that you read these instructions completely before attempting to make a hinge. The hinges are true scale and quite ingenious. With that said, you will find the hinge installation will provide smooth movement and no slop. Note that there are three different hinges used on this plane - #300, 302 and 318. They are basically the same except the lengths vary. You need to take your time and understand what you are trying to accomplish so you can successfully create the hinges. First, you need to assembly a hinge bender using parts #6 plywood and some scrap dowel #405 or just some 5/16" diameter dowel you might have. The top part of the plywood #6

has a slot in it. Cut and glue two pieces of dowel #405 so it goes covers the top of plywood #6 except for the slot. Place the plywood #6 in a vice so you can now bend a hinge around the dowels #405. Center one hinge over the dowels and bend down both sides. Remember that a screw will go thru the hinge hole so try to bend the hinge evenly. You now have the hinge in a "U" shape pattern. Ensure the holes line up, make any adjustments as needed. Center the hinge over the slot on the plywood. The center hinge part needs to bend down into the slot in the plywood #6 part. You can use a thin screw driver if you want. You might consider rounding the screw driver head so as you push this strap down you will get a curved scrap. Keep the screw driver centered on the hinge and slowly press down a little. Then stop and see how the hinge is bending. If you notice that the hinge center strap is not bending equally; then adjust how you push down on the center strap and apply down pressure on the other side so the hinge center strap bends evenly. You will see where the center strap bends over itself. You can make any adjustments you need with another set of pliers. You can remove the hinge and test fit the steel rod #4 into the hinge. So, you should have the center strap on one side and the rest of the hinge on the other. The hinge will wrap around the brass bushing #319; where the bushing will be inserted into this new curved strap you just made. This center curved strap is a reverse bend. You need to keep this reverse bend round so the bushing is held in place without the bushing being bent or altered. A nice snug fit is desired. Reference the photos. It is possible; just take your time pushing down on the center hinge strap. It might take you a little bit to form up a nice hinge. The good news is that the metal hinge is easy to form. Once you have a hinge formed go ahead and form the remaining hinges using parts #300, 302 and #318. The hinge needs to be secured to the bushing #319. You should carefully do this by soldering the reverse center strap to the brass hinge. DO NOT get any solder on the inside of the brass bushing #319. Test fit the hinge/bushing on carbon tube #205 or #229. It should fit just fine and rotate freely. Go ahead and secure the hinges to the brass bushing #319; keep the hinge centered on the brass bushing. To mount the hinge in place on the carbon tube, the hinge will be surrounded on both sides with brass collar #320; you will secure those collars in place with the metal pin #109. When you are ready to mount a hinge in place, put two collars #320 one on each side of the bushing #319. You want a slight gap between the bushing and collar so you won't have metal to metal rubbing. You can put masking tape on the collars keeping everything in place. Using drill bit #53 carefully center drill the collars and insert a pin #109. CAREFULLY, glue the outside of the collar (away from the bushing) to the carbon tube or dowel. Trim the brass nail and file the end. Repeat for the other collar ensuring that the hinge can move freely. If desire, you could add a little oil after you have completed the plane. This completes the hinge assembly.

Rudder

The rudder is fun to build and there is a sequence in building the rudder. You will laminate the rudder outline; create the control horn and hinges and then assemble these parts as well as the rudder ribs. Place the two cardboard outlines #93 together using some masking tape; be careful as the cardboard edges are sharp. The rudder outline is a mix of plywood and balsa parts. These parts #42 and 43 laminated in a order. The balsa #42 stringers are on the outside and the center of the lamination. The plywood #43 will be sandwiched in-between the balsa. Soak these wood parts in warm water for 5 minutes. This will help the wood bend around the cardboard outline. You can join these wood parts on top of some wax paper so when the wood is held in place against the cardboard outline it won't glue to the cardboard outline. Using wood glue laminate all the pieces together. Place one of the balsa parts #42 on a flat surface; brush some wood glue on the top of that. Now add two of the plywood #43 parts (12 and 24 inch long) on top of the balsa #42. Add another balsa #42 layer, add another plywood #43 layer and finally add the last balsa #42 layer. Make sure the lamination is straight and aligned and now insert one end of the lamination in the front slot of the cardboard and wrap the lamination around the cardboard outline. Use masking tape to secure the lamination against the cardboard. Ensure the lamination is flat, aligned, and smooth against the cardboard. Set aside to dry. Locate two FR4 parts #296 and #297. These parts are a little messy since they have been laser cut. One thing to notice here, the center hole is offset a wee-bit, creating a thinner wall on one side of the center hole. So, when you place the control horn on the rudder post (carbon tube) ensure that the thinner wall points forward toward the pilot. This will keep the control horn n-sync with the hinges. Now join these parts having the two inner #296 part in the center and the two outer parts #297 on the outside. Use slow CA glue which will give you some time to align the center hole and ear tabs. Once you have these parts joined and glued you, use a 1 inch belt sander or something similar and twirl / twist the control horn against the sanding belt to get the airfoil shape desired. Use a file or carefully sand under the tabs creating a straight line. This is where the original was welded, so, you are trying to recreate that feature. The rudder ribs #19, 41, 44 and 45 are laminated together like the rudder outline. The balsa parts on the outside and the plywood part on the center. Align and glue the rudder ribs together. Slightly sand the ribs giving them an airfoil outline. The three hinges #302 and one hinge #300 need to be created before you final assemble the rudder. Use the hinge instructions to form the hinges. The rudder post is a combination of the brass tube #235 and the carbon tube #229. Insert carbon tube into the brass tube DO NOT glue yet. Locate the related hinge parts #109, 319 and 320. You need to add the top three hinges first and the bottom hinge will be added when you mount the rudder to the fuselage.

Make sure you place hinge #300 is below the top hinge #302. Secure the hinges in place by two collars #320. This keeps the hinge from sliding up or down the rudder post. The collars #320 are pinned and carefully glued in place. It is CRITICAL that you do NOT get any glue under the bushing as it will just about weld it to the rudder post (carbon tube). You will have to scrap your work. You should have a slight gap between the collars and the bushing which prevents any rubbing between these parts. The collar placement should allow the hinge to move freely. Once you are happy with the hinge and collar locations carefully use slow CA glue to the outside edges of the collar #319. Using #53; drill one hole in each collar for the brass pin #109. Add a little CA glue to the pin #109 and insert that into the collar. The hinge should move very freely add a little oil (WD-40) under the bushing if desired. Lay the balsa outline and ribs on the plans. Make a notch in the laminated outline for the rudder ribs. This will help secure the ribs to the outline. Just notch the first layer of balsa. Place the ribs on the rudder post (carbon tube) and glue them in position. Glue the rudder ribs to the outline; make sure the rudder is warp free and not twisted. Add the control horn into position. Ensure you have the control horn oriented properly, perpendicular to the rudder and the thinner side of the center hole pointing forward, glue the control horn in place with some CA glue. Slightly crush the brass tube where it connects to the rudder outline making it the same thickness the rudder outline. Now glue the brass tube to the carbon tube and rudder outline. At the base of the rudder add gusset #55 in place, gluing that part to the outline and rudder post. You can add the three fabric blocks #501 now. This completes the rudder for now as you will add the bottom hinge when you locate the rudder on the fuselage. Plus you can sand the rudder outline to shape giving it a little airfoil shape.

Stabilizer

The stabilizer should be built on a flat surface and over the plans. No real magic to building the stabilizer but ensure you have good glue joints. Follow the plans and assemble the stabilizer. The ribs go together like the rudder ribs, in that, the plywood is laminated between two balsa pieces. Glue the stabilizer ribs together. Slightly sand a curve on each side of the ribs removing the square edges. Place and cut the trailing edge dowel #75 to length. Position the ribs on the trailing edge and glue in place. Keep the ribs vertically straight, level and flat. Add the inner and forward dowel support #75 through the ribs securing it to those ribs and the trailing edge. Shape part #67 to match plans. This part allows you to adjust the vertical fin. Glue part #67 in position. You might consider waiting until the fuselage is framed up before you add forward ribs #25 and outer dowel #77. The reason is you can adjust the distance between these ribs and the fuselage longerons. Make that the gap between these parts large enough to accommodate the fabric thickness.

If desired, add the ribs #25 and the outer dowel #77 to the stabilizer gluing them into position. This completes the stabilizer for now. The stabilizer will need to be fitted to the fuselage and at that time you will finish the stabilizer by locating the drill holes securing the stabilizer in position as well as add #67 for the fin. This completes the stabilizer for now.

Elevator

The elevator should be built on a flat surface and over the plans. The stabilizer should be built before the elevator so you can "fit" the elevator to the stabilizer. Like the rudder the elevator outlines are laminated. Soak the balsa and plywood parts #59 and 79 in some warm water. Using wood glue laminate these parts (like the rudder); the lamination goes, balsa-plywood-balsa-plywood-balsa. Once you have the parts glued, wrap the lamination around the cardboard outline #94 using masking tape to hold the lamination in place. Create both elevator outlines. Once they are dry, remove the laminations from the cardboard and carefully sand the outside edges to get a slight curve. The ribs are just like the stabilizer and rudder, in that, plywood is laminated between two balsa parts. Keeping the ribs aligned, glue the elevator ribs together. Slightly, sand the rib edges giving the ribs a little curve getting rid of the square edges. The control horns are the same as the rudder #296 and 297. Create two control horns as you did in the rudder. Sand and shape the control horns. Remember that the thinner side of the center hole will face forward towards the pilot. Three hinges are used on the elevator. Follow the hinge instructions and bend three hinges #302 to shape. Place the carbon tube #237 on the plans. Remember you are using scale hinges, which means there is a sequence to assembly. The hinges and control horn need to be secured and located prior to adding the elevator ribs. Position the hinge #302, related hinge parts #320 and control horns on the carbon tube #237. Make sure you have the control horns oriented correctly in regards to the thin center hole wall side. Test fit this assembly to the stabilizer. Once you are happy with the hinge locations; carefully position collars #320 next to hinge and add a small amount of slow CA glue to the outside collar edges. Using #722 drill and secure the hinge collars to the carbon tube using brass pin #109. Make sure the hinges move freely. The control horns will be glued in position after the ribs are positioned and glued. Use two 3-3/4 inch pieces of brass tube #235 and insert one in each end of the carbon tube. DO NOT glue in place yet. Test fit the laminated outline and ribs onto the carbon tube. Notch the balsa in the laminated outline like you did on the rudder for the elevator ribs. Position and glue the elevator ribs to the carbon tube and outline. Before you glue the forward rib #71, test fit that rib in place while the elevator is temporarily positioned to the stabilizer. This

way you can ensure you have the correct gap and rib angle. Once your satisfied with that glue rib #71 in place. Go ahead and notch the outline where the brass tube #235 will be positioned. Crush the ends of the brass tube to the same height of the elevator outline. Glue the brass tube to the carbon tube and the laminated outline. The control horns can now be glued into position. Test mount the elevator to the stabilizer. Put the elevator in a neutral position. Secure the elevator so it won't move; tape works fine for that. Use a triangle to ensure the control horns are perpendicular to the stab. Using a metal rod (3/32 diam) run that thru the ears of each control horn. This will align the control horns to each other. Once you're happy with the control horn position and angle use some CA glue and secure them in place. Cut two small notches in the stabilizer trailing edge dowel for the control horns. Mark three hinge hole locations on the stabilizer trailing edge. Drill three 7/64 inch holes for the hinge screws at these mark locations. Assemble the elevator onto the stabilizer. Ensure the elevator moves freely. Make any needed adjustments. You can add the two fabric blocks #501 to each hinge location now. This completes the elevator.

Fuselage

The fuselage is rather straight forward and goes together relatively easy. You will need to decide on your engine eventually, as the firewall can slide forwards or backwards. One note that the radiator is quite scale and it could require some modifications, such as, carving the aluminium grill a little. Look that area over and understand what your engine will require. This area is rather large which helps with engine selection. Also, realize the dummy engine goes from the top of the crankcase up. Undoubtedly, you will need to adjust the dummy engine for your engine. The prototype used a gas engine, Quadra-100; which is more than you need. I happened to have one in my shop. One comment is the strut locations need to stay where they are as a lot of sheet metal is depending on that. Ok, back to the fuselage. As you build the fuselage try to keep any twists or warps out of the fuselage; if you do get a twist you might be able to un-twist it when you add the fabric or rigging wire. The glue used on the prototype was wood glue such as, Tite-bond and epoxy at certain locations. Seems like CA type glues do not work well with spruce. If desired you can add gussets throughout the fuselage to ensure the vertical or horizontal members are well connected to the longerons. The prototype did not do that; it's more of a personal preference. Try making all joints square and keep the fuselage flat. The plans show that the vertical members are slightly notched into the longerons. I found this very helpful. You might consider doing that. Note if you are building with dowels the process is the same as if you were going to use square sticks. The fuselage uses 5/16 diameter dowels. You would need a 5/16 drill bit to cup the dowel ends.

Then you will drill a 1/16 diameter hole in the dowels to pin them together using wood glue and a 1/16 carbon rod about 1 inch (25mm) long. At the front of the fuselage you will notice a large plywood piece. These are designed to hold the landing gear, metal panels and doors as well as support your engine. You will make a right and left fuselage first and then join them working your way back to the tail. First glue the two plywood pieces #91,91A together using a good wood glue such as Tite-bond. You will notice there is some pre-drilled holes for you to help align and secure these large plywood pieces together. Glue these two plywood pieces together where the thinner plywood will end up on the outside and the thicker plywood will be contacting the firewall. So, you will need a right and left set of these plywood pieces. Glue them now. Using the same process; glue rear plywood pieces #92,92A together. It is suggested that you secure these two pieces over the plans using scrap wood blocks screwed into your building table. Reference the photos. You will need to join the top longerons first. You should make the scarf joint between the pilot seat and rudder. You will notice that the top longeron follows the curve of the plywood #91. You will need to bend the longeron and secure it as it dries. At this time, position and glue the longerons into position securing them to your building board. Starting from the front and working your way aft; start gluing the vertical supports in place. You want solid joints with minimum gaps. Take your time. Use a triangle as you go. Once you have the two sides made. Turn the sides vertical so the bottom faces the ceiling. Note that the top strut support will need to be notched a little to help clear the dummy engine. You can do that now or wait to see how you're dummy engine affect this area. The two landing gear supports #98, 99 are pre-positioned for you. So, you can align the top strut support #50 onto the plans; aligning the fuselage with triangles as well as position landing gear supports #98, 99. Once you're happy with the alignment; glue these three parts in place. Notice on the plans that the fuselage is square up to the pilot seat and then it starts curving back toward the tail. With that in mind go ahead and add the first horizontal support #405 that goes in front of the ammo box. The forward horizontal support in the cockpit is a 3/8 diameter dowel #74. Cut this part to length, gluing it into position. The rear wing struts #316 secures to the horizontal support #50. You will notice a hole right above the bottom longeron notch. Referencing the plans, glue support #50 such that it is right below the hole as the music wire #338 will secure to it. Again look at the side view plans. From this point, you can work your way back to the rudder. You can flip the fuselage over where the top now faces the ceiling. Take your time and keep everything straight. When you get to the tail area, you will have to cut the last vertical member #405 in half, so, when you join the tail together the overall width will be 5/16 diameter. Add dowel #47 in the cockpit port (left) side; reference plan sheet 1. With the rudder complete, you need to locate the two hinge holes to secure it. Using a 7/64 drill bit, create the two holes needed. The tail skid post #322 goes in-between the two longerons. You will have

to drill this area carefully to insert the 1/2" dowel #322. Mark the location for the tail skid post and use a 1/2" drill bit and create the two holes that are needed. See photos and plans. Add the two cockpit arches #58 to the front of the cockpit. You should sand them slightly but don't get too happy as a Fokker fastener will need to be attached to these arches. The arch should start at the outside edge of the longeron and onto the front cockpit support dowel #74. Now you can add the front turtle deck arch #82. This arch should be right over the horizontal support #405 which is right behind the pilot seat. Make sure this arch is secure as it will hold the turtle deck in place until you cover the fuselage. Go ahead and add the tabs #2 and #3 into position. Reference the plans. Use the turtle deck to help you locate the two #2 parts. You can assemble the tail skid now. You need to cut and sand the tail skid first. Pay attention to not sand too much around the area that the fitting #343 goes as you rather not have a loose fit. The tail skid should be stained or painted at this time. The tail skid is protected with a polyurethane paint. Note that some tail skids were wrapped in fabric so if a bullet hit the tail skid it would not shatter. You can wrap your tail skid if desired. Once stained or wrapped position the tail skid fitting #343 around the tail skid securing it with the screw/nut #107 and #108. The top of the tail skid needs two holes for the copper wire to attach which the bungee chord uses. At this time follow the photos and install the copper loop. The tail skid post has a brass tube #203 at the bottom to ensure the tail skid post does not split. You will need to sand the tail skid post slightly to slide the brass tube on and CA in place. The front of the tail skid post will need to be bevelled so the tail skid can function properly. Install the plywood bungee support #325, reference plans. Once you have done that locate the hole for the tail skid fitting and drill a 7/64 hole thru the brass tube and the tail skid post. Mount the tail skid in position and secure the bungee #702 to support #325. Ensure that the tail skid functions properly and make any needed adjustments as required. Before the turtle deck can go into position you will need to run the rigging cable #304. The rigging cable will help make the fuselage rigid as well as help eliminate any fuselage twist that might be present. No real magic installing the cable, just that you will drill a 1/16 hole and thread the cable thru the supports. You will pull the cable a little tight and glue it to the support. Don't get too happy and pull it too tight creating a warp. So, at the end of day the cable should be snug and secure. You can add just the top cabling now and install the turtle deck over it. You can do the sides at a later time or in conjunction with the electronics (server, cabling, etc.). Like the original the turtle deck plywood is not long enough. You will need to "scarf" join the two pieces. To "scarf" join plywood you would sand the bottom of one and the top of another. Just don't get happy sanding. Sand the edges about 1/4 inch (6mm) and glue the pieces together keeping the edges straight. The front of the turtle deck is supported with plywood ring underneath. At this time glue this ring into position. Temporarily, mount the front turtle deck to the front arch #82. Overlay, the rear turtle

deck piece aligning with the rear tab #2. Mark where the two turtle deck plywood pieces overlap; remove them from the fuselage. Sand a scarf joint and glue the two pieces together. The underside of the turtle deck had supporting stringers. Per the plans use wood #54 cutting them to length then gluing them into position. Use hardware #111,113 to install the turtle deck now. You will notice the turtle deck needs support to keep it straight. Using some scrap dowel; cut them to length gluing them in position to support the turtle deck. These dowels go on top of the fuselage horizontal supports. Use a long steel ruler to help you keep the turtle deck straight. Note that the fabric will go over these screws. The two front tabs #2 help hold the turtle deck edges down. Make sure you have them aligned and installed correctly. The other remaining parts glued to the fuselage will be installed when you do some of the sheet metal work; as their locations might vary slightly depending on how you did the sheet metal. For now the fuselage is done.

Subwing

The subwing is straight forward and the incidence (zero) is taken care of for you. Glue the two plywood ribs #32 together, keep the holes aligned. The struts will mount to the inside of these as well as the cross bracing cable fitting #309. The box spar parts #34, #35 snap together. Glue the box spar #34, #35 together. Cut the axle to length for the wheels you plan on using. If you are using Dubro wheels 9-3/8" with Dubro wheel collars the axle will be 27-5/8" to 27-3/4" long. Cut the axle to length for the wheels you plan on using. Dry assembly the ribs #23, 32 onto the spar box; then add the dowel #47 thru the ribs. Once satisfied with their location glue them in place. Trim nails #33 to length and epoxied into position on the rib #32, these nails support the bungee cords. The bungee cord #702 system is functional and is required for landings. Once the subwing is built access to the bungee cord will be limited; although, you can create two access doors on the bottom if desired. You need two nine inch pieces of the bungee cord. The aluminum tubes #711 are used to crimp the bungee cord into place. Using the tubes and bungee cord, wrap the bungee cords around the nails and crimp with the tubes #711. The bungee cords should be tight enough for some shock effect with the axle, don't over tighten them. Test fit the struts #307, 308 in position. You might have to adjust the struts to get them to fit. Use screws #116 to hold them in place. You need to cut slots in the upper plywood covering #39. The trick I found was to use a pencil and mark the inside of the rib #32 where the struts exit the rib. So, when the plywood covering #39 is in place you will know where to cut the slots for the struts. Mark the locations of the struts on the inside of rib #32. The struts should be test fitted to the belly of the fuselage. You might need to bend the struts a little to get them properly positioned. Once satisfied with the angle of the struts, it's time to install the music wire #310. Insert some cotton into each landing gear strut. This will prevent the JB Weld from running down the strut. Follow the instructions on the JB Weld and mix up a batch and add it into the strut ends. Add the music wire #310 where the shorter end goes into the end of the strut. Wrap the ends of the strut and music wire with some masking tape. While the JB Weld is setting test fit the struts to the fuselage. This should align the music wire to the right angle. Let the JB Weld set over night. Remove the struts, you might want to paint them now before they are permanently set into the subwing. Position and glue the top plywood covering #39 in place. Start in the rear and work your way forward, keep the plywood centered on the subwing. The outside rib #106 will be added later. Cut the slots in the plywood for the struts, don't make them too large. The landing struts at this time should have the music wire added and they

have been test fitted to the fuselage belly. The struts are intended to be mounted to the double ribs #32 semi-permanently, in that, you should not need to remove them unless you have a mishap. So, use a Loc-tite to secure the screw/nuts holding the struts in place. Position the fitting #309 on the inside of the front struts #307. Using screws #116 and nuts #108 secure the struts in place. Add the outside rib #106 in place. Glue the bottom plywood #36 in position. The subwing is covered and the struts are installed. You can paint the subwing the olive green color now. I finalize the paint with a coat of gloss polyurethane. Before you add the turnbuckles and cable to subwing the fuselage should all but be covered. As the landing gear struts should be mounted with the j-bolts, the bottom belly shroud should be in place, and the struts #315 should be in position. Add the turnbuckles #709 to fitting #309 using screw #40. You should use loctite to keep the nut #108 from coming loose. You should twist the turnbuckle so it extends out a decent amount. This way when you twist the turnbuckle tight it pulls the cable tight too. The cable #708 is functional and it is very important to keep them guitar tight. You should check the tension before each flight. The cable goes around the strut #315, so, when the cable gets tight it will pull the struts inward. Cut the cable to length and add the swage #720. Crimp the swage tight. Thread the other end of the cable thru another swage running the cable thru the turnbuckle and back thru the swage. Pull the cable tight and crimp. Adjust the turnbuckle #709 and secure the adjusted turnbuckle with the safety wire #80. The subwing is complete.

You can slightly pick one up and twist it a little bit to ensure you have a solid glue joint. You should work your way from the front to the back. Next you should glue the strut supports and firewall in position. This will square up the front and align the fuselage halves together. If desired you can not glue your firewall yet and just position it in the framework to help square the parts together. Use epoxy and glue in the three strut supports #50 and the landing supports #98,99. The framework should be square now. Working from the cockpit area towards the tail, position and glue the horizontal supports #405 in place. Remember to keep everything straight and no warps. You are sort-of building a oil derrick. Working toward the tail you start seeing the fuselage members being stressed a little as the curve back. This will be a good time to ensure everything is glued well and if you want to add gussets to your joints. . You will need to sand the fuselage sides at this area to get the proper size for the rudder post and joint. You should now have the fuselage framed up and without much warping. You can now start adding some support parts. Glue bungee support #325 in place; reference plans. Glue

the two triangle parts #27 and #81 in position if you have not already done so. Position and glue front hood support #58 and add turtle deck arch #82. Follow the pilot seat instructions and add the seat frame to the fuselage. Glue and position the tailskid post #322. You will probably have to sand the longerons a little to get this part in position. The goal here is to have a solid joint as this area will take some testing as you land your plane. Glue the turtle deck tab supports #3 to arch #82. You can use the turtle deck #65 to help locate the front two tabs #2. You should have all turtle deck tabs glued into position. You are at the point now to paint the fuselage. The prototype was painted green FS 34102 like the originals. If desired you can paint the frame now the green or even a polar grey would be fine. Back at the tail area you need to install the bolts that will hold the stabilizer in place. There are three. At this time position the stabilizer in place. Make sure it is centered and straight. You can measure from the front of the fuselage to the outer tips of the stabilizer to see that it is equal on both sides. Locate the back center hole needed for the screw #116 in rudder post. Drill a 1/8" hole at this position and install the #116 screw upside down meaning the threads should be pointing toward the ceiling when installed and when the fuselage is sitting upright. You should glue this screw in place after you are satisfied with it's location. The two front screws #116 should stick above the stabilizer about 3/16 inch. Remember you still need to cover the fuselage and stabilizer, that will add some thickness. Drill the two 1/8 inch holes for the screws #116. Remove the stabilizer and glue the rods into position. At this time install the tail skid, which is made out of ash like the original. You will have to sand and cut the tail skid to shape. Do not sand to much around the fitting area, let that stay sort-of flat, as you will want the tail skid fitting to be snug. Too much sanding in this area will prevent that. Locate fitting #343 and wrap the fitting around your tail skid. It needs to be a snug fit. Remove the tail skid fitting #343 and drill the two 1/8 inch holes near the top of the tail skid on 3/4 inch center about a 1/2 inch from the top. These holes are for part #207. At this point you should stain you tail skid a clear or a early American stain. You could use a polyurethane paint if desired. Cut a 3 inch piece of wire, remove the plastic covering and bend the wire around a round surface like a dowel. Insert the wire into the top two holes and bend the wire ends over like it is shown on the plans sheet 1. Trim any excess wire. The tail skid fitting should be painted the same color as the struts and fuselage. At this time paint the tail skid fitting. Add the fitting to the tail skid by using screw/nut #103, 108. The tail skid post #322 needs to be drilled for the tail skid fitting. Use a 1/8 inch drill and drill the hole needed for the tail skid fitting. Next mount the tail skid with nut/screw #103,108. Cut a six inch piece of bungee cord #702, tie a knot in one end, then run it thru plywood support #325, tailskid and back thru support #325. Keep it semi-tight and tie another knot. The tailskid should have spring action. You can test fit the rudder now. You will need to slot the rudder post for the control horn and drill two 1/8

inch holes for the hinges. Do that at this time. The rudder should move free with no binding. With the subwing done you should mount the fuselage to the subwing. The landing gear struts are held in place with two j-bolts #301 per strut. Position the landing gear struts into the grooved blocks #98,99. You want the j-bolts to hug the music wire #310. You can easily do that if you drill 1/8 inch holes almost touching the music wire when in position. The j-bolts should be about one inch apart. Remember not to get the j-bolt too close to the longeron as you will have to be able to put a wrench on the j-bolt nut and if it is too close to the longerons or vertical members you won't get a wrench on the nuts. Mark the hole locations for all eight j-bolt locations. Using a 1/8 inch drill bit, drill straight 1/8 inch holes. Mount the landing gear at this time. You should have the subwing centered. You might have to slightly bend some of the landing gear struts to get everything just right. Remember that the landing gear will use a cable which can help align things if needed. Place the stabilizer in position. You can add the stabilizer aluminum struts #713 now. These struts should be painted the same color as the tailskid fitting and the other struts. You will need to flatten the ends and drill a 1/8 inch hole on one end and a 3/32 inch hole for the fuselage screws #122. Use screws #318 to mount the struts into the bottom longerons and bottom of the stabilizer. You can fit the bottom wing to the fuselage now. Test fit the bottom wing in place. The wing fittings #305 should be painted the same color as the struts, you might want to paint them before permanently mounting them. Add the fittings #305 in place on the bottom wing and position the bottom wing in place. Measure the fuselage to the wing tip on both wing sides, measurements should be equal or real close to each other. Once satisfied, mark the four hole locations onto supports #27 and #81 plus mark the hole locations for the wing fittings #305. Use a 1/8 inch drill bit and drill all the locations. Remove the bottom wing and install fittings #305 using screws #103. You will have access to these screws when the wing is removed from the fuselage. Remount the bottom wing to the fuselage, this time adding screws #227 in the bottom wing fitting #305. Before you mount the top wing. All the struts involved should be painted the same color as the landing gear struts. You might want to paint these struts before you permanently mount them. Mounting the top wing is not all that hard but it will take some time to fit everything. Supporting the top wing above the fuselage is probably your biggest effort. The top wing uses zero degree incidence and is parallel to the longerons. A slight positive incidence should have a minor effect. The bottom of the top wing is about 7 inches above the top longerons. You should test fit all the struts and wing to get everything aligned and ready for permanent mounting. You will need to bend the strut tabs some to help get the struts in their correct position. Once you have the struts temporarily placed then you can mount them using the JB-Weld and finalize their position. You will need to drill a 9/64 inch hole in the rear wing struts once you have everything else aligned. Remember the wing is held in place using four 6-

32 screws. The main goal is to have the top wing mounted straight and centered. Reference where the top wing leading edge begins over the cowling. This does take some time and accuracy and patience are required. First, you need to drill two 3/16 inch holes into the fuselage for the rear wing strut #316. Notice on the plans where the strut #316 enters the fuselage. It is at the bottom right of the plywood support #97. Drill the two 3/16 inch holes needed for these strut. Use a scrap piece of wood to help support the top wing and maintain the proper height above the fuselage. Install the bottom tripod struts #315 and the rear wing struts #316 first. The bottom of strut #315 will join the front landing gear struts #307. The music wire #310 in the landing gear strut #307 will be used to hold the bottom tripod strut #315 in place. Reference plans. If you have the subwing mounted, unloosen the j-bolts and add strut #315. Make sure you have the strut oriented right in that the streamline section (widest) is pointing forward. Now use screw #228 and hold the strut #315 to the top wing. The music wire #336 should have the shorter end be inserted into the strut and the longer end into the fuselage. Insert a piece of cotton into the strut end #316 and then insert music wire #336. The music wire #336 mounts to the top of support #50, see plans. Also, note that this strut should bend out away from the fuselage a little because the fabric will be coming into this area as well as the side fairings. Position the strut ends into the top wing fittings #204 without drilling for now. Add the two remaining tripod struts #326,327. You will probably need to bend the tabs to locate the struts. You can add the music wire #335,338 to the struts seeing how they lay on top of strut support #50. Try to get the music wire centered on the strut support. If the music wire is at some angle that is ok too. The goal here is to be able to secure the struts to the fuselage. With all the struts temporarily in place, measure the wing tip to the fuselage and align the wing with the tail. The wing incidence should be zero when the wing and fuselage are level. Use a incidence meter for assistance. Once satisfied with all the alignment add JB-Weld to the inside of strut #316 and masking tape over that holding the JB-Weld and music wire #336 in position. Add JB-Weld to the tripod struts #326 and #327 with music wire #335 and #338. Use masking tape around the music wire end of the strut which will keep the JB-Weld inside the strut. Let dry overnight. Using a 9/64 inch drill bit, carefully drill thru the wing fittings #204 and the struts. Recall rear tripod strut #327 was not drilled nor was rear wing strut #316. Add strut straps #314 about a 1/2 inch from the outside longeron edge. This strap will hold struts #326, #327 and #316 in position. Re-check the wing alignment. Make any adjustments as needed. Glue turtle deck supports #82, #83 and #84 in position. Glue hood and cockpit supports #57 and #58 in position. Add the turtle deck #66 and the cockpit opening #90. The cockpit opening plywood rear edge should butt join the turtle deck over the center of #82. Once satisfied with their location, glue into position. You might consider adding your gas tank and radio gear now, as the next step you will add the side fairings.

Glue and position the two balsa support #187 to the back side of cowl support #48. Now add the two balsa supports #37, #56 in their respective positions, reference plans. Glue and position stringer #30 into supports #187, #37 and #56.

The side fairings are two pieces just like the original. The piece with the holes in it will go on the lower part of the fairing. The first hole is for strut #316 and the second is the carburetor intake found on the original plane. The first hole might need a little adjusting, depends where your struts ended up. Start with the top half of the fairing and position that such that the bottom fairing edge is centered on stringer #30; leaving room for the other half to be glued to #30. Once satisfied, glue the side fairings #66 in place, do both sides. The fuselage handles #207 are easy to add and it is recommended they be put in after the fabric is installed. You will drill four 3/32 inch holes for the handles into the longerons. The handles should be painted grey, after you strip the covering off the wire and they are cut to length. The same goes for the foot step #208. You can add it at the same time and drill two 3/32 inch holes. Notice that the step goes on one side (port) only. The belly door #60 and shroud #61 can be added now. Notice that the screws #318 hold the door in place. Add the door support #405 to the inside of the belly area, see plans. The door supports #405 will have the screws #318 screwed into it. Position and glue the shroud #61 in place and then add the door #60 using the screws #318. Position your machine guns next. Temporarily, position the top hood #69. You might need to notch the top hood #69 for the struts, do as needed. Position and glue the top hood #69 into place. Using spruce sticks #299, make the n-struts pieces. Note that the ends of the n-struts are slotted. Use a saw and slot the ends of the n-struts. Insert the plywood pieces #88, #87 and #89 into their respective places. The leading and trailing edges of the n-struts should be sanded round. Use wood glue and assembly the n-struts. Position the n-struts in-between the wings, align and drill a 1/8 inch hole into the n-struts and add screws #227. This completes the fuselage.

The Final Touch

The D6 was covered in lozenge fabric. The wings were usually 5-color as well as the fuselage. Although, some planes had a mix of 4-color fabric. Decide on your model and obtain the fabric or you can hand paint the polygons if desired. The CG is located on the plans, the plane should be a little nose heavy, meaning it should point down when holding it at the CG location. Flying the D6 is a pleasant experience. On take-off keep the tail up and use some right rudder and you'll see the plane lift off within fifty feet. You should not over correct the control throws, in that the plane reacts well to little movements, so, having dual rates active will help you. Landing is straight forward, this plane will not glide in as a Cub

would. You need to "drive" it in with some throttle. Land on the two front wheels then as it slows down lower the tail and roll to a stop. This plane was known as a "pilot's plane" because of all the nice features and flying characteristics. Enjoy your model and send us photos.