



Odyssey 2.7M & Odyssey-RES 2.7M Odyssey-ECL 2.7M & Odyssey-EL 2.7M

Kit Contents

- Fuselage pod with canopy - GF composite with CF reinforcements (1)
- Tapered tail boom - CF/GF composite (1)
- Wing 4-segments - pre-sheated, finish sanded with internally hinged Ailerons and Flaps (1)
- Carbon joining rods for Wing tip panels (4)
- Wing screws M4 (1-metal, 1-nylon)
- Vertical stabilizer with hinged Rudder (1)
- Horizontal stabilizer with hinged Elevator (1)
- CF mount for Horizontal stabilizer (1)
- M2 brass retainer with M2 screw and nylon screw retainer for horizontal stabilizer (2)
- Control horn for Horizontal stabilizer (1)
- Control horn for Rudder (1)
- Control Horns for the Ailerons and Flaps(4)
- Push-rod wire for Ailerons and Flaps (4)
- Push-rod set for Elevator and Rudder (2)
- Board for mountin Push-rod tubes (1)
- Servo Tail for tail servos (1)
- Fiberglass cloth
- Glider name sticker
- Glider drawing

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Always put safety first when using this product.

Check the Items Needed, Tools and Supplies, and Contents sections. Verify the contents of the kit and your supplies before continuing. If you have any other problems or questions, please contact customer service in Poland.

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Recommended Radio & Drive Components

Glider & Electro-glider:

7-ch.+ Radio system:

- Flash 7/8, Aurora-9X Hitec or similar

7-ch.+ Receiver

- Optima-6/7/9 Hitec (#H28414, H28425)

Servos:

- Ailerons/spoilerons

- HS-65MG analog (#H32065)
- HS-5065MG digital (#H35065)

- Flaps

- HS-70MG analog (#H32070)
- HS-5070MH digital (#H35070)

- Elevator:

- HS-65HB, HS-65MG analog (#H33065, #H32065)
- HS-5065MG digital (#H35065)

Rudder:

- HS-65HB (#H33065)

- V-tail:

- HS-65HB (#H33065)

- Servo wire extensions:

- 2 x 36" (#H00X36) - Ailerons
- 2 x 24" (#H00X24) - Flaps

or ~100 Inches of Servo Wire to make your own extensions

- Universal wing servo covers 1-set (#A0031)

- Flap servo covers 1-set (#A0032)

Glider:

- Tow hook (glider #A0050)

Electro-glider:

- ART-1300 outrunner motor - Art Hobby (#M01300)

- 35mm Low-Drag spinner - Art Hobby (#A035S4)

- 12x6.5 CAM - Aeronaut (#A01265)

- Talon-25 ESC - Castle Creations (#M70250)

- Battery 850 - 1050 mAh, 3S, 30C LiPo - Tattu (#B085075, #B105075)

Tools & Supplies

- Hobby Knife (blade #11)

- 5 Minute Epoxy (#A0201).

(use for joining the wing panels and tail)

- 20 Minute Finishing Epoxy (#A0209)

(use for fiber glassing joints)

- CA adhesive (#A0101).

- Masking tape

- Flat Nose Pliers

- Drill

- Drill Bits: 1mm, 2mm, 4mm

- Soldering Iron

- 1 meter ruler

- Flexible metal ruler

(Approximately 250mm long will be easiest to use)

- Clear finishing lacquer with filler (#A0095)

Brush-On lacquer sealer for base coat

- 2" Flat paint brush

- Spray can of lacquer (Satin) for finishing coats or similar paint products

- 320, 400 and 600 grit sand paper

Note:

Please test fit all parts before beginning assembly. The Odyssey has a complete 3 view assembly drawing separate to this manual. Please refer to this drawing during assembly. This drawing is the latest information about the Odyssey and should be the primary source for measurement and placement questions.

Finishing the Wood Surfaces

To prevent the wood from pre-mature aging and moisture damage, we recommend sealing all wood surfaces using lacquer manufactured by DEFT (available from ACE Hardware stores or Lowe's). The best would be a "Satin" type of finish. (Prior to using lacquer, any white foam surface should be sealed with epoxy). The black poplar veneer wing skins (~0.4mm thick) are sealed under surface, then laminated with epoxy to the wing foam cores. This process is making a barrier preventing harsh lacquer thinner penetration inside. We recommend to apply lacquer in a few very light coats, this way lacquer thinner evaporates very fast and does not have time to cause any harm to the wing.

To achieve best finish and aerodynamic efficiency:

Wing surfaces: using flat brush (~50mm wide) apply two light coats of DEFT sanding sealer,

Tail surfaces: using flat brush (~50mm wide) apply one coat of DEFT sanding sealer.

Use as little as possible to keep the weight down.

Let dry really good (2-3 days) then sand all surfaces with 600 grit sand paper.

Car wax can be applied to fill the finest grain on the surface.

All surfaces need to be finished as smooth as possible, but not shiny. Smooth finish surfaces are critical to glider performance - especially for competition."

Coloring Option: After wing is completely finished with lacquer (before waxing surface) you can mask it and spray color stripes, especially to the bottom side of the wing. This will give the glider some accent and provide you with better visibility during flight, especially high altitude thermal gliding.

Recommended Building Steps

Attention: The ailerons and flaps should remain uncut from the wing as long as possible. Meaning after wing is finished and painted it should be put aside for a few days to cure.

The paint curing process and reacting with the wood usually takes 2-3 days even in a warm environment. During this time all surface should remain uncut.

(many times modelers are impatient and cut the ailerons/flaps as soon as the wing is dry to the touch)

If the control surfaces are cut from wing shortly after it's painted then more likely will be distorted during paint curing

It is best to start building the glider from the wing,

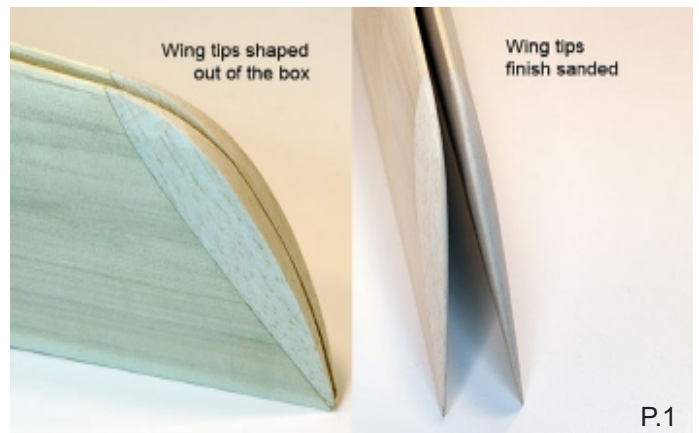
1. finish both wing tips
2. glue together wing center panels and laminate the joint.
3. paint the wing (including personal touches) to its final stage and put the wing aside to cure the paint (longer time is better)
4. assemble and paint the glider tail
5. assemble fuselage with tail, install pushrods, radio gear and electric drive components in the fuselage.
(those steps usually take 2-3 evenings sometimes longer - this is also valuable time needed to cure painted wing)
6. cut wing servo bays and prepare them for servo installation.
7. now separate the ailerons from the wing, finish them and hinge to the wing as soon as possible.
8. separate the flaps from the wing, finish them and hinge to the wing as soon as possible.
(do not leave control surfaces unattached to the wing for a longer period of time)
9. install aileron and flap control horns
10. Prepare wing servo wiring and install wing servos.

Notes about the finished surfaces:

The fuselage is painted (in the mold). The white paint will be damaged by thinners. The wood surfaces can be finished with a proper clear varnish. Remember that the wing has a foam core and some paints may attack the foam internally.

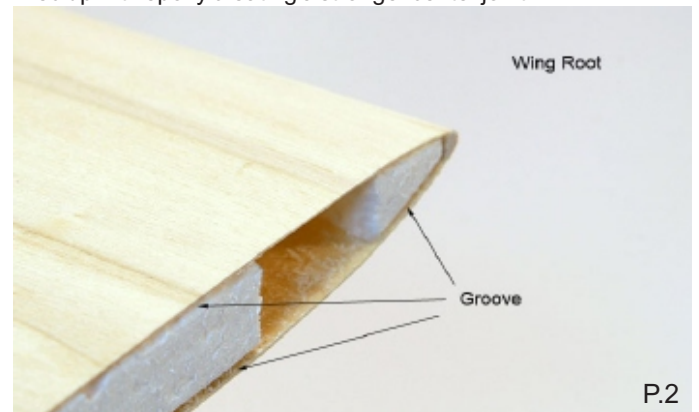
Wing Assembly

1. Remove the wing segments from their protective foam.
2. Sand the balsa wing tips to shape. Only round the top. Leave the bottom of the tip the shape of the wing foil. Try to make the tips match as closely as possible. PHOTO 1



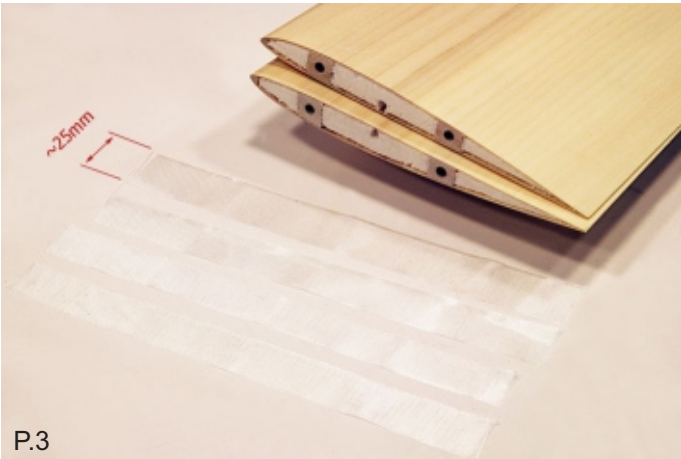
3. Use hobby knife with sharp blade #11 and cut out a narrow groove in the foam under wing skin around both wing roots. PHOTO 2

After two middle segments are glued together the groove will be filled up with epoxy creating a stronger center joint.



Find the light fiberglass cloth and cut four ~25mm wide strips from it. PHOTO 3

4. Lightly sand the meeting surfaces of the wing center panels and outboard panels then using masking tape mask all veneer surfaces top and bottom to the edges.



P.3

5. Apply the 25mm wide glass cloth strip to each panel face. Use 20 Minute Finishing Epoxy to adhere the glass cloth strips to the panel face. PHOTO 4

Do NOT use polyester resin as the resin will attack the foam core.



P.4

6. After epoxy has cured cut off excess cloth and sand finish using 400-grid sandpaper, than cut through it to expose the holes for the Carbon fiber rods and the cable canals.

7. Glue the four ~90mm long carbon fiber rods in the outboard wing panels, with the exposed ends projecting out 45mm. PHOTO 5

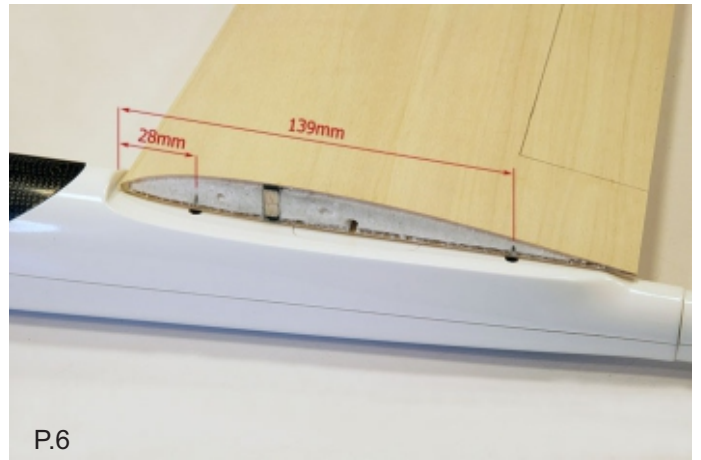


P.5

Joining the Wing Center Panels

To achieve a proper dihedral angle the root of each wing center panels is sanded at a slight angle to fit.

1. Hold the wing center panels together with masking tape. Mark the bottom side root of the wing 28mm and 139mm back from the leading edge. Also mark the position of the wing servo wire canals on the bottom side of the wing root. PHOTO 6



P.6

2. Find the two hardwood blocks.

Place the blocks on the wing root foam surface.

Center each block on the marks you made.

3. Mark the block width on the wing root foam and draw the wing contour line on the block.

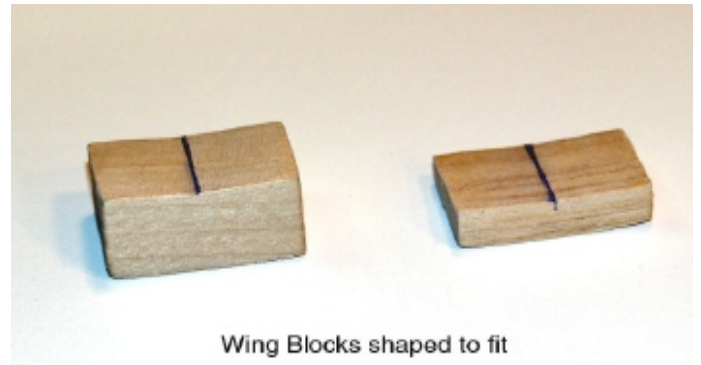
The blocks will carry the wing mounting screws.

4. Use hobby knife with sharp blade #11 and cut out cavities for the blocks in both wing roots PHOTO 8

5. Shape the blocks before installation and test fit.

Use sandpaper and/or a knife and/or a rotary tool to completely fit the blocks to the wing's contour.

PHOTO 7 & 8



P.7



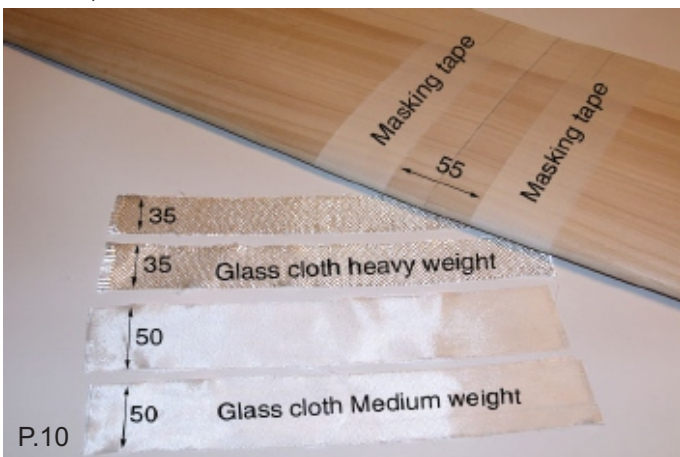
P.8

6. Using masking tape mask each panel surface around the joint.
 7. Trial fit the blocks once again. Adjustments to the blocks may be necessary.
 8. Lay one of the wing center panels flat on the table. Take other wing center panel and join with its wing tip panel.
 9. Once satisfied with the fit glue both blocks in place and wing center panels together using 5 minute epoxy or slower cure epoxy if you wish. Hold down both center panels together at the roots
 Make sure that both wing panels are aligned perfectly.
 PHOTO 9
 Then raise one panel ~76mm from the table surface.
 10. Wipe away all excess epoxy. Allow the epoxy to cure (at least 30 minutes) then remove the masking tape.

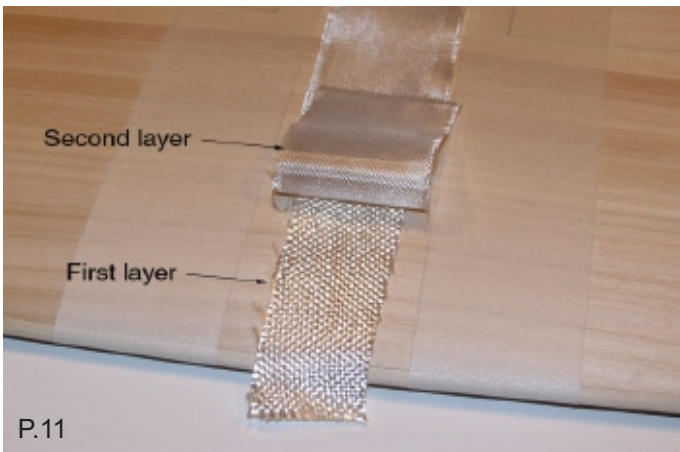


P.9

11. Cut two strips 35mm wide from heavy weight glass cloth, and two strips 50mm wide from medium weight glass cloth (supplied in the kit). PHOTO 10



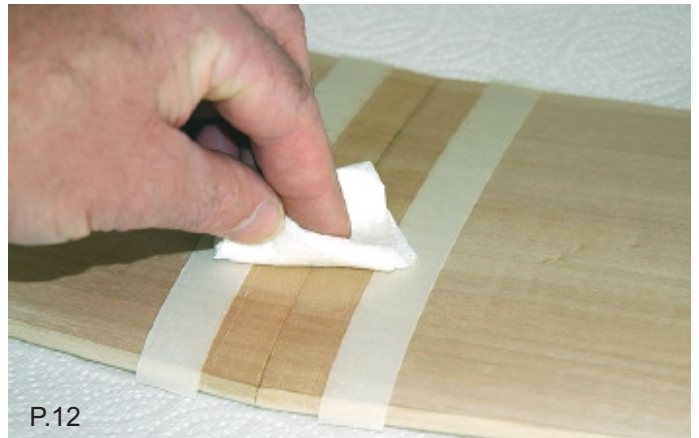
P.10



P.11

The cloth will reinforce the wing, TOP and BOTTOM, around the wing joint at the root.

12. To keep the resin from spreading too far, apply masking tape to the wing ~2mm away from the cloth's edge. PHOTO 10
 13. Mix a moderate portion of 20min. epoxy and using a small paint brush or spreader stick apply the epoxy to the bottom of the joint.
 14. Lay prepared strips of glass cloth over the joint. First lay the heavy cloth then the medium wider strip over PHOTO 11
 15. Use small piece of paper towel, fold a few times together and dab the glass cloth. PHOTO 12



P.12

Dabbing will allow the epoxy to completely saturate the cloth and adhere to the wood wing surface, it will also remove excess epoxy and smooth the joint. (change new piece of the towel if needed)
 16. Repeat steps 13-15 and apply reinforcing cloth to the top of the joint.
 17. Once the epoxy has set, remove the masking tape. Apply fresh masking tape 2mm past the end of epoxy.
 18. Use 400 grit sand paper and sand the joint smooth if needed.
DO NOT sand away the wing sheeting where the glass ends. This will weaken the wing and could cause failure.

Ailerons and Flaps

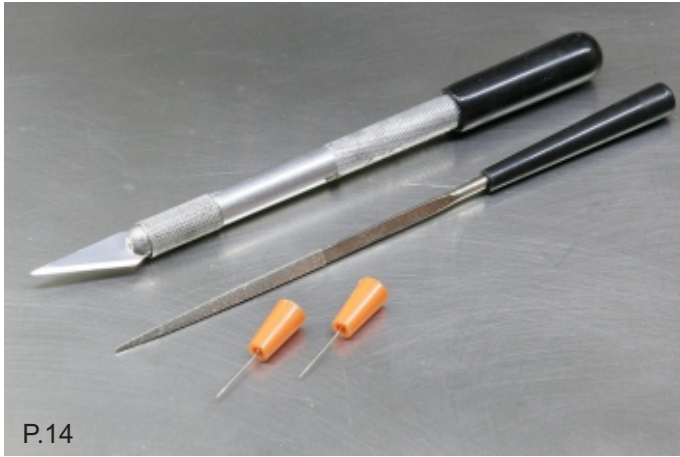
Refer to glider drawing and check ailerons and flaps pencil marked on the wing. There is a thin EREMITE hinge tape molded under wing upper skins where the aileron are. and under bottom wing skin where the flaps are. Meaning after aileron and flaps cuts are made ailerons and flaps will be already hinged.

To cut aileron and flaps you will need:

- **Balsa saw #A0530** (or saw blade #A0539) for making short precision cuts on both sides of the ailerons and flaps. PHOTO 13
- **Hobby knife with blade #11** (blade tip should be sanded round ~1mm radius and dulled). PHOTO 14
 This will be used to make long cuts (top and bottom) over the aileron and flap hinge. Rounded tip blade will cut veneer and balsa strip molded inside the wing but will prevent from cutting embedded hinge tape.
- **Triangle shaped Needle File** (diamond) for finishing surfaces after cuts. PHOTO 14
- **Two pins.** will be used to project aileron and flaps inner corners/outlines to the wing bottom sheeting. PHOTO 15 & 16



P.13



P.14



P.15

1. Cutting ailerons place wing panel bottom side up and draw a line connecting both pins. PHOTO 16



P.16

2. Remove pins, use metal ruler as a guide and hobby knife with Odyssey v.03

sharp #11 blade. First make few straight light strokes cutting the bottom veneer sheeting only.
3. Next using rounded tip blade make straight deep cut into embedded hinge tape. As soon as the knife tip reaches the tape it will start sliding over. PHOTO 17



4. Now position metal ruler 3mm from the first cut (in direction of trailing edge) and using fresh sharp blade #11 make second straight cut to the bottom veneer sheeting only.
5. Using rounded tip blade make **deep angle cut** to embedded hinge tape. PHOTO 18



6. Remove cutout (wedge shape material) then take the triangle shaped needle file and using pull motion smooth the edges inside. cut. PHOTO 19



7. Place wing panel top side UP. Use metal ruler as a guide and hobby knife with rounded tip blade make few straight light strokes cutting top veneer sheeting. As soon as the knife tip reaches tape under veneer will start sliding over. PHOTO 20
8. Using triangle shaped needle file to clean the groove slightly making it wider. PHOTO 21



P.20



P.21

Small groove in the top veneer sheeting over the hinge line will allow aileron to deflect UP. PHOTO 22
 The wedge shape gap made under hinge in the aileron bottom side allows aileron to deflect DOWN. PHOTO 23



P.22



P.23

Cutting Flaps: There is a thin ARAMID hinge tape **molded under bottom wing skin where the flaps are.**

9. First use balsa saw and make short cuts on both sides of each flap.

10. Pin each flap inner corners/outlines to project it to the wing bottom sheeting then place wing panel bottom side Up and draw a line connecting both pins. PHOTO 16

11. Remove pins and place the wing panel TOP side UP.

12. Use metal ruler as a guide and hobby knife with sharp #11 blade First make few straight light strokes cutting the top veneer sheeting only.

13. Next using rounded tip blade make straight deep cut into embedded in the bottom hinge tape. As soon as the knife tip reaches the tape it will start sliding over. PHOTO 24

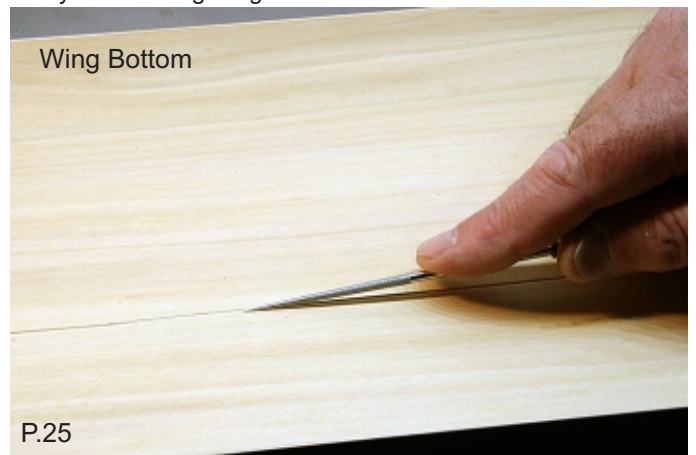


P.24

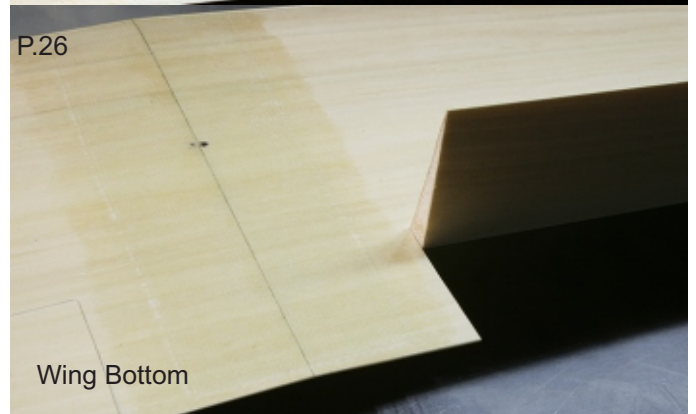
14. Place the wing panel Bottom side UP. Use metal ruler as a guide and hobby knife with rounded tip blade make few straight light strokes cutting bottom veneer sheeting only. As soon as the knife tip reaches hinge tape under veneer will start sliding over. PHOTO 20

15. Using triangle or round shaped needle file clean the groove making it slightly wider. PHOTO 25

Narrow groove in the veneer over the hinge line will allow Flap to freely deflect at high angle PHOTO 26



P.25



P.26

Wing Bottom

Aileron Servo Bays

Refer to glider drawing and check the marking of the aileron servo bays on the wing. The aileron servo bays need to be cut in size to accommodate the servos you will be using.

1. Using Hobby knife with blade #11 cut veneer sheeting to create openings for the servo bays PHOTO 27



P.27

2. Use small flat blade screwdriver to peel off cut out veneer. PHOTO 28



P.28

2. Now using new sharp blade cut foam around servo bay openings and using small flat blade screwdriver remove foam from the bays . PHOTO 29



P.29

3. Cut four 16mm wide strips from some thin scrap balsa board, then use the strips to cut 8-walls to make servo boxes that will fit into servo bays.

4. From included fiberglass cut two small rectangular pieces to fit inside servo boxes. PHOTO 30

5. Test fit boxes into servo bays and mark on the box wall locations of the servo wire canals. The boxes should be slightly taller-projecting above wing surface)



P.30

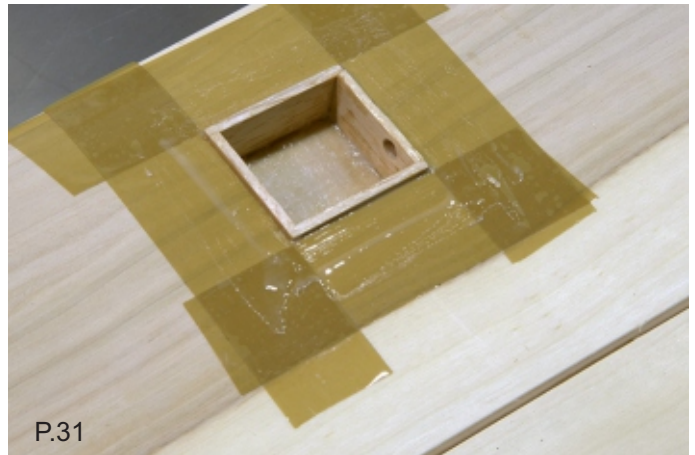
6. Remove boxes then in marked position cut small round opening for the servo wires.

7. Mask the wing around the edge of the servo bays then using 5 min. epoxy glue servo boxes into servo bays.

8. Now use 20min. epoxy and laminate bottoms of the servo bays with prepared fiberglass cloth. PHOTO 31

9. After epoxy cures remove masking tape.

10. Using sanding block with 400 grid sand paper sand servo boxes flush with the wing surface. PHOTO 32



P.31



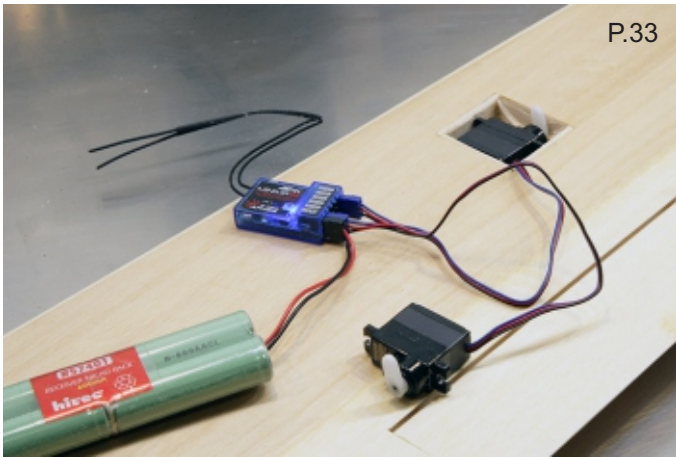
P.32

Aileron Servo Installation

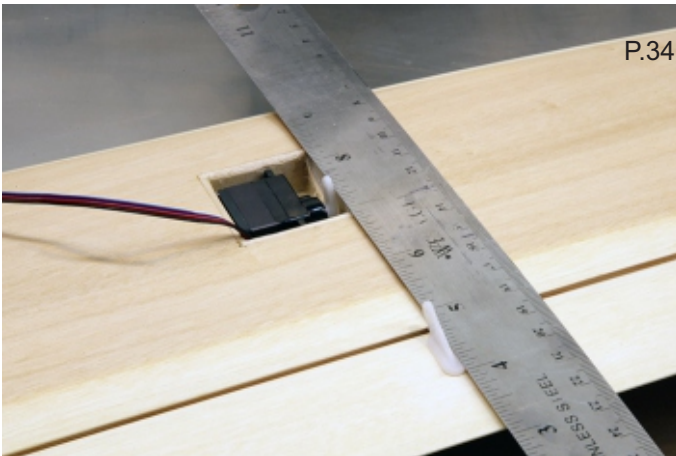
Each wing tip plugs into the wing center section using two carbon rods, tips are removable for transportation and for storage purposes. Because of that we suggest to use servo wire connectors (#A1303) mounted into face of wing panels.

1. Connect the servos to the receiver.

2. Turn on the radio and center the servos. Check for proper servo movement. Use the servo reversing in the transmitter if the servo moves in the wrong direction. PHOTO 33



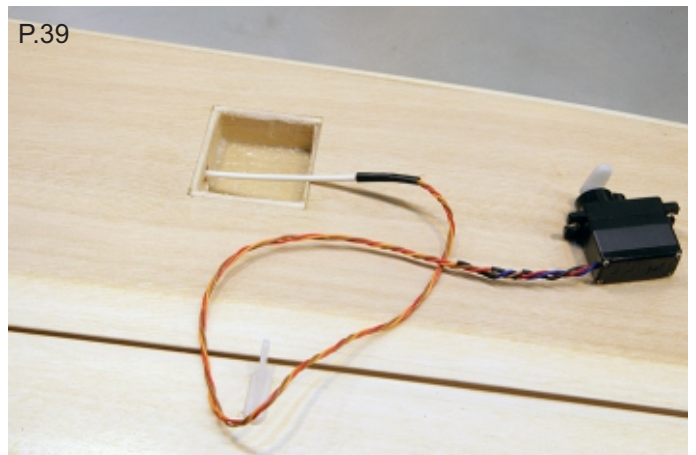
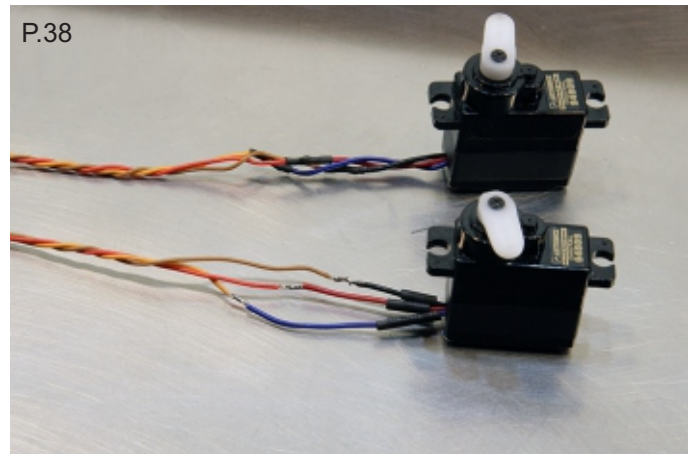
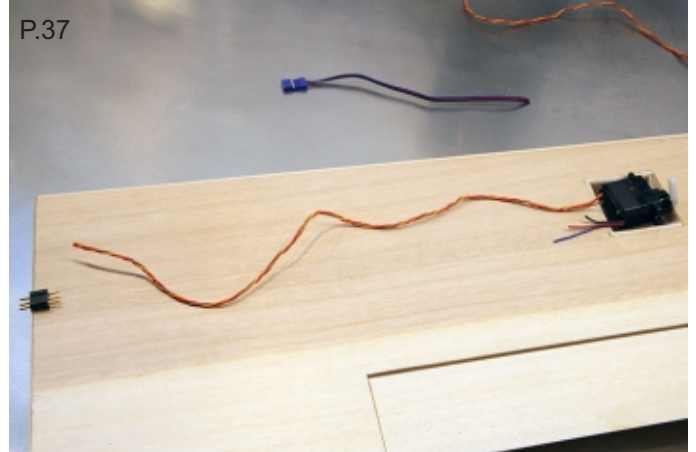
3. Install control horns on the ailerons and flaps directly back from the servo arm. The horns should be positioned with the servo arm holes forward and aligned over the hinge line.
 4. Drill holes (appropriately) then insert control horn pins into holes and secure it with back plate pushed over the horn pins on the back side of the control surface. PHOTO 34



5. Use a small dab of epoxy or CA to permanently secure the horns in position. PHOTO 35



6. After control horns and their back plates are secured the nylon posts should be trimmed so they project out about 1mm above back plate, then melted flat using soldering iron. PHOTO 36
 7. Measure and cut extension wire needed for the aileron servo to be Hardwired with the 3-pin connector. PHOTO 37
 8. Hardwire the servo wire extension to the servo. There is simply no room for the servo plug. Be very careful to keep the polarity correct and each wire insulated. PHOTO 38
 9. In center of each wing panel face next to the bottom wing sheeting cut small rectangular opening to accommodate 3-pin connector. Run servo wire through the wing panel (Push-rod tube can be used to help pull the wire through) PHOTO 39



10. Solder the 3 pin connector (male) to the servo wire, be very careful to keep the polarity correct and each wire insulated. PHOTO 40

11. Use epoxy and glue the 3 pin connector into face. PHOTO 41



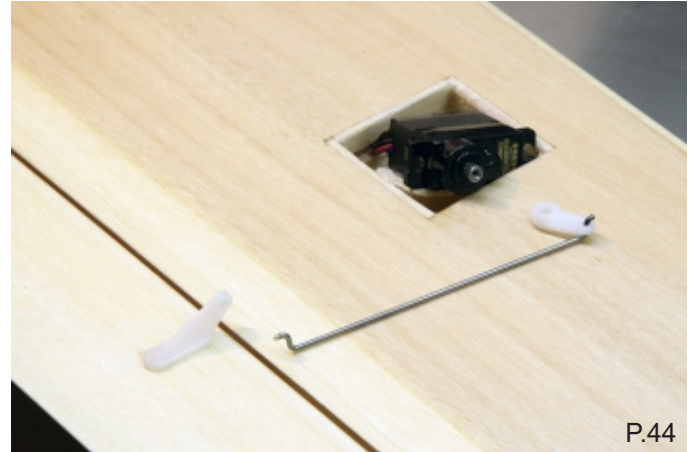
P.40



P.43



P.41



P.44

12. Run aileron servo wire through the wing center panel. Solder the 4 pin connector (female) to the servo wire, be very careful to keep the polarity correct and each wire insulated. PHOTO 42



P.42

13. Use 5 min. epoxy and glue connector into wing middle panel face. PHOTO 43

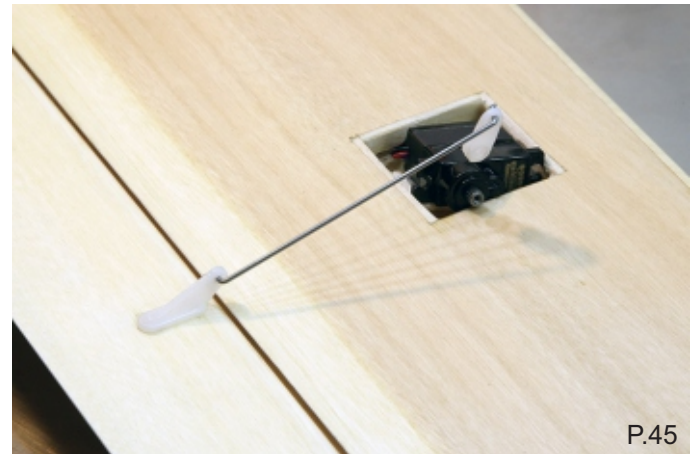
14. Plug in panels together to test fit.

15. Place the servos in the center of servo bays, lock the ailerons in a neutral position securing both ends of each control surface to the wing's trailing edge with a piece of tape.

16. Now measure distances between servos control arms and aileron control horns, according to these measurements make two short push-rods from the supplied wire. We suggest making "Z" bend on both ends. PHOTO 44

17. Connect the push-rods first to the aileron horns, then to the servo arms. PHOTO 45

18. Mount servo arms on the servo shafts and secure with screws then install both servos in their bays with a small amount of silicone sealer. PHOTO 46



P.45



P.46

19. To cover the servos you can use Art Hobby's universal wing servo covers (#A0031). PHOTO 47



P.47

Polyhedral Wing

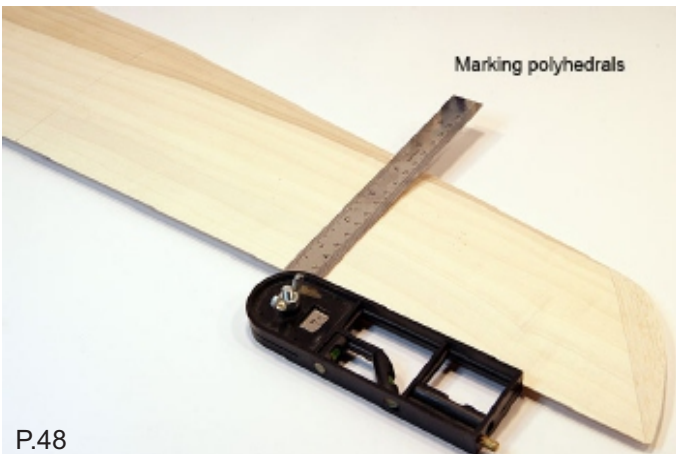
Note: This section is for the Polyhedral Wing version only. You will need to make the cut on the top sheeting for polyhedral break location. ONLY cut the top sheeting and the leading edge, the bottom sheeting is not to be cut.

By leaving the bottom veneer intact, the overall wing will be stronger and easier to keep aligned.

BUILDING STEPS:

- Finish sand both wing tips.
- Make polyhedral bends in each wing panel.
- Join wing halves together.

1. The polyhedral breaks are located 735mm and 1180mm out from the center, measured at the trailing edge (please refer to drawing). After marking dihedral breaks use a square to draw the line. PHOTO 48



P.48

2. Using balsa saw make light pressure cuts through the top sheeting and the leading edge only. PHOTO 49



P.49

3. To achieve the proper dihedral angle, it will be necessary to widen the cut in the upper veneer.

Since the wing is thicker in the middle than at the leading and trailing edges, widen the cut in the middle but not at the edges. The easiest way is to bend the already cut polyhedral so that both edges of the upper skin touches and make a second light pressure cut using balsa saw. PHOTO 50



It will be necessary to make one or two more cuts to achieve the appropriate angel of the polyhedral bend.

4. Lay down wax paper to protect your work bench. Place the wing panel flat on the table and mask the wing veneer on both sides of the polyhedral cut.

5. Apply 5 Minute Epoxy to the interior of the first dihedral joint.

6. Raise the tip up 50mm. Make a wood support or use books to hold the tip at its proper dihedral angle. Wipe away any excess epoxy. PHOTO 51



Before epoxy hardens completely peel off the masking tape.

7. Allow the epoxy to cure (at least 30 minutes.), remove the wing panel from the table.

8. Repeat steps for the other wing panel. Use the first wing tip panel as a polyhedral guide.

It is most important that the tips have the same amount of polyhedral.

9. Refer to dimensions on the glider drawing and repeat steps for making second polyhedral.

10. Find the fiberglass cloth in the kit. Cut the glass lengthwise into four 30mm wide strips.

The glass cloth will be used to reinforce each polyhedral joint at the top.

11. To keep the epoxy from spreading too far, apply masking tape to the joint 2-3mm away from the cloth's edge. PHOTO 52

12. Mix a moderate portion of 20min. epoxy and using a small paint brush or spreader stick apply the epoxy to the top of the polyhedral joint.

13. Lay prepared strip of glass cloth over the joint.

Use small piece of paper towel, fold a few times together and dab the glass cloth. PHOTO 53



P.52



P.53

14. Dabbing will allow the epoxy to completely saturate the cloth and adhere to the wood wing surface, it will also remove excess epoxy and smooth the joint (change to a new piece of towel if needed)

15. Repeat steps 12-14 and apply reinforcing cloth to the other polyhedral joint.

16. Once the epoxy has set, remove the masking tape.

Apply fresh masking tape 2mm past the end of epoxy.

17. Use 400 - 600 grid sand paper and sand the joint smooth if needed.

18. Dabbing will allow the epoxy to completely saturate the cloth and adhere to the wood wing surface, it will also remove excess epoxy and smooth the joint.(change to a new piece of the towel if needed)

19. Repeat steps 16-17 and apply reinforcing cloth to the other polyhedral joint.

20. Once the epoxy has set, remove the masking tape.

Apply fresh masking tape 2mm past the end of epoxy.

21. Use 400 grid sand paper and sand the joint smooth if needed.

Do NOT sand away the wing sheeting where the glass ends. This will weaken the wing and could cause failure.

Mounting the Wing

1. Place the wing on the fuselage wing saddle, then use a sharp pointed pencil to mark the wing's trailing edge on the fuselage.

2. Remove the wing, then measure the distance between the marked line and the center of the two threaded holes in the wing saddle.

3. Place the wing upside down and transfer both measured distances onto the center of the wing joint, they should match previously made markings.

4. Using 4mm drill bit, drill the hole in the marked position.

Remember that the hole has to be drilled in an angle to match the angle of the wing bolt screwed into the fuselage.

5. Find the M4 wing bolts and screw them to the wing saddle to check the angle.

6. From the top side of the wing open the holes properly to fit in the wing screws.

Odyssey v.03

Tail Push-rods Preparation

Tail push-rod will be attached to thin wedge shaped balsa board (supplied with the glider) After inserting board into the boom friction will hold it in place.

2. Place push-rod tubes on the board spaced few mm apart one tube projecting ~60mm second ~180mm back from board end then using thin CA adhesive glue tubes to the board.

Photo 54



P.54

Gradually spread tubes apart moving forward to wider end of the board gluing them to the board with CA adhesive.

3. As final step use sewing thread and wrap board with tubes securing them together and make a few extra windings on both ends of the board. Photo 55



P.55

Tail Installation

Horizontal stabilizer is removable and is attached to carbon composite mount with two M2 screws and nylon retainers.

1. Locate all horizontal stabilizer/mount components. Photo 56



P.56

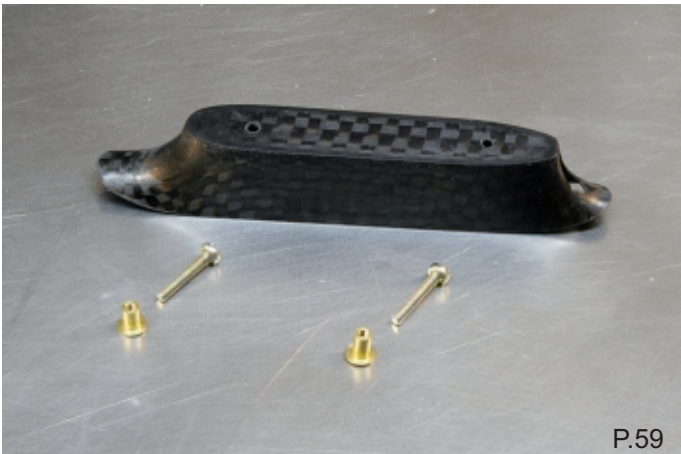
2. In marked position on the mount saddle drill two 2mm holes
PHOTO 57



3. Next using drill and needle files make narrow 2 mm wide vertical opening in mounts vertical trailing edge. PHOTO 58



4. Locate the horizontal stabilizer M2 mounting screws and M2 threaded brass retainers. PHOTO 59

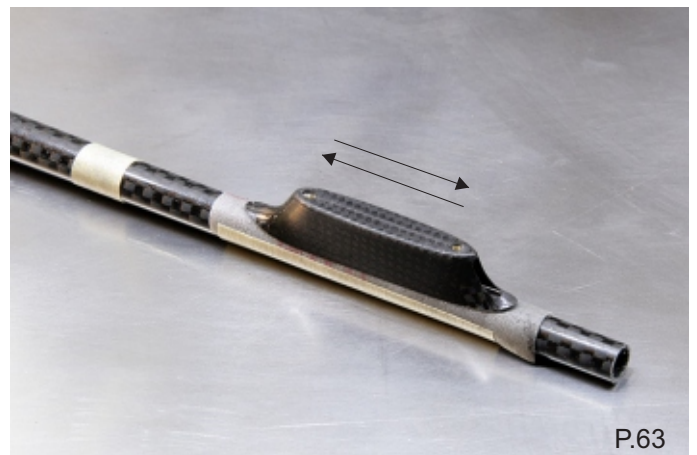


5. Take the brass retainers and using M2 screws screw them to the bottom side mount saddle to hold them aligned in proper position. PHOTO 60 & 61

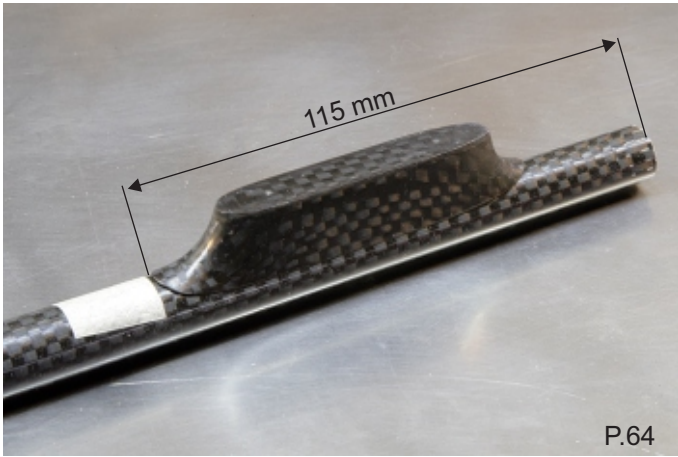
6. Place mount bottom side UP and using 5 min. epoxy glue brass retainers in place . PHOTO 62

7. The bottom of the carbon mount has a round shape to fit the boom.

To insure a perfect fit to the boom wrap tail part of the boom with 320-400 grit sandpaper. Then place mount on the paper and pressing it gently down, make a few strokes back and forth. PHOTO 63

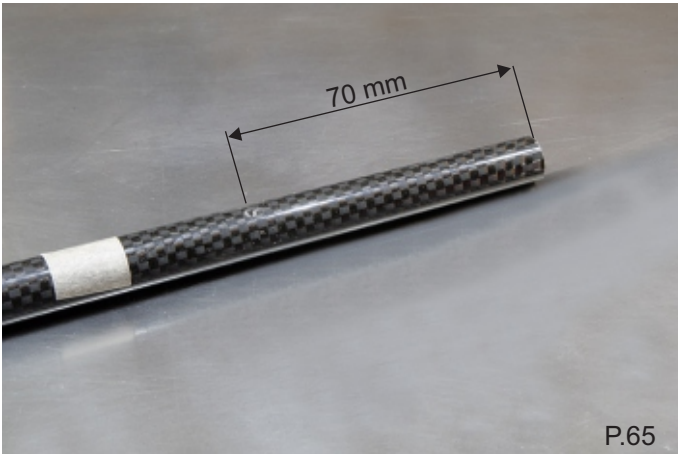


8. Trial fit the mount to the boom and using masking tape mark position of the mount front end 115 mm from the boom end. PHOTO 64



P.64

9. Also mark and drill 2mm hole 70mm from the boom end. PHOTO 65



P.65

10. Use round needle file to enlarge drilled hole in the boom. The hole needs to be enlarged at a steep angle and size to accommodate elevator push-rod tube. Easiest method to enlarge hole with such steep angle is to mount file in small electric drill and with file rotating slowly lean drill in booms tail end direction. During filing try fitting push-rod tube a few times until it fits snug into opening and flat as possible. PHOTO 66 & 67



P.66



P.67

11. When satisfied with fit insert push-rod wire into opening pushing it forward until wire comes out from the front end of the boom. Wire will be used to guide elevator push-rod tube to its opening in the back of the boom. PHOTO 68



P.68

12. Now take the board with push-rod tubes and insert longer tube into boom and slide shorter tube over projecting push-rod wire. PHOTO 69



P.69

13. Push board with tubes into boom until it stops and elevator tube comes out from its opening and rudder tube from the boom end. PHOTO 70



P.70

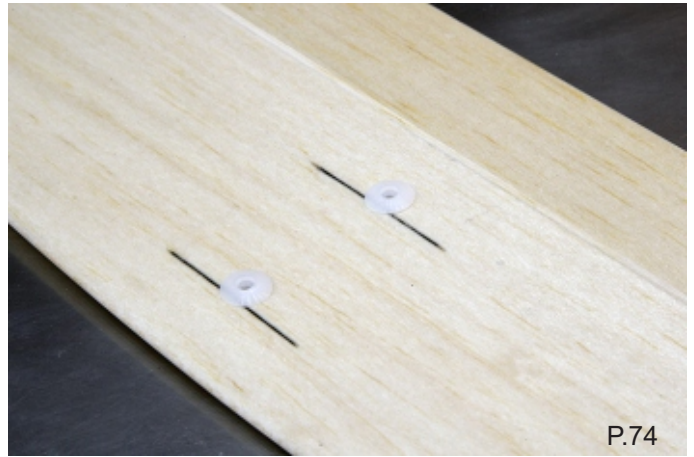
14. Pressing elevator tube to the boom wall use thin CA adhesive and glue tube into its opening in the boom. PHOTO 71

15. After CA sets, pull out elevator push-rod wire from the tube then using hobby knife trim elevator tube 1-2 mm above boom surface. Then put temporarily aside.

16. Take horizontal stabilizer mount and from inside screw M2 mounting screw until they project from top of the mount saddle.
17. Position mount on the stabilizer center line and using projecting screw check markings on the stabilizer for drilling. PHOTO 72



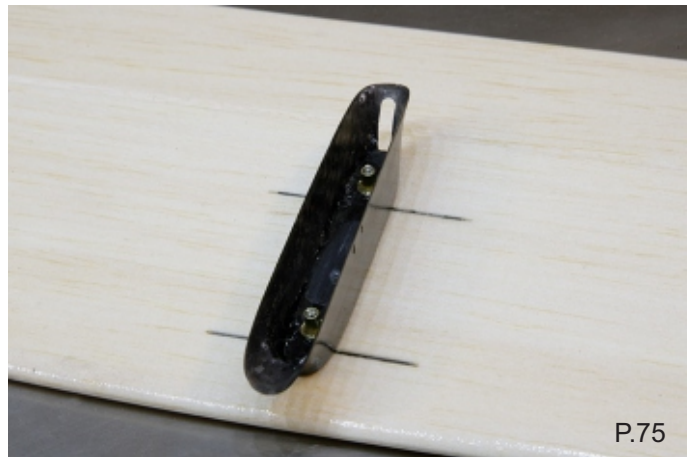
P.71



P.74



P.72

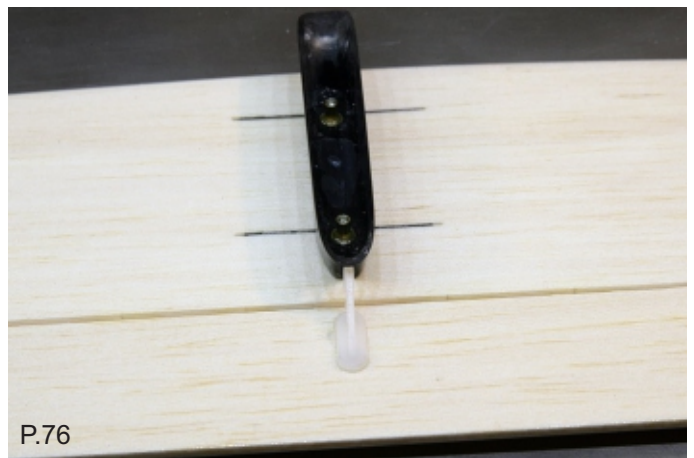


P.75

18. Use 3mm drill and drill two holes to fit nylon retainers. Then using round needle file enlarge holes for the nylon retainers to fit into holes. PHOTO 73



P.73



P.76

19. If satisfied with fit glue retainers in place using a few droplets of thin CA adhesive. PHOTO 74

20. In preparation to install elevator control horn use M2 screws and attach stabilizer mount to the horizontal stabilizer. Then place it upside down. PHOTO 75

21. Mark position and install elevator horn in the center behind elevator mount. When elevator moves down horn should freely retract into narrow slot in back of the mount. PHOTO 76 & 77



P.77

22. If all operates correctly, secure horn in place with back plate and 1-2 droplet of thin CA adhesive (#A0106).

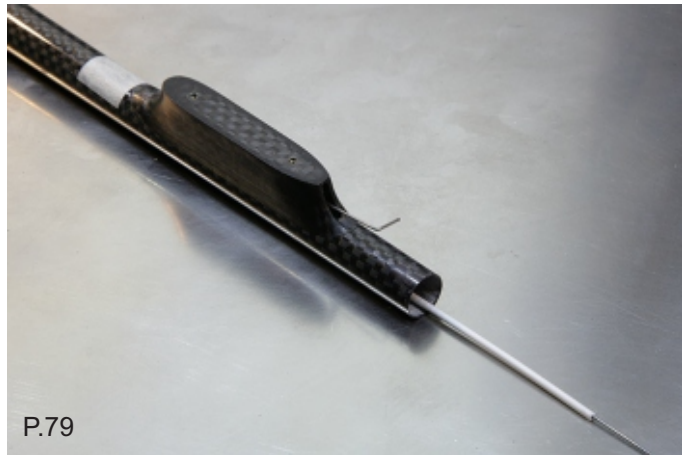
23. Trim off posts projection from the horn back plate. PHOTO 78



24. Using soldering iron (set to low heat) melt projecting post flat with the plate surface and sand melted surface smooth. PHOTO 78



25. Hold boom with elevator tube pointing UP then position stabilizer mount on the top with front of the mount aligned with masking tape edge and, using pencil outline its position. PHOTO 79



Put mount temporarily aside and clean the marked surface of the boom with sand paper. Also make small "L" bend (approx. 5mm long) on the end of the elevator push-rod wire.

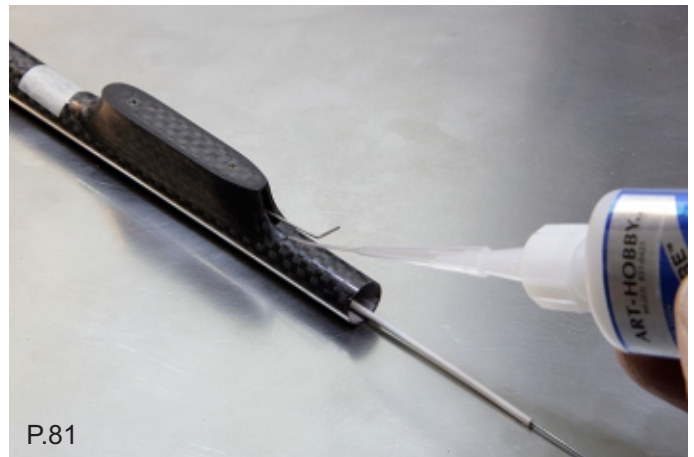
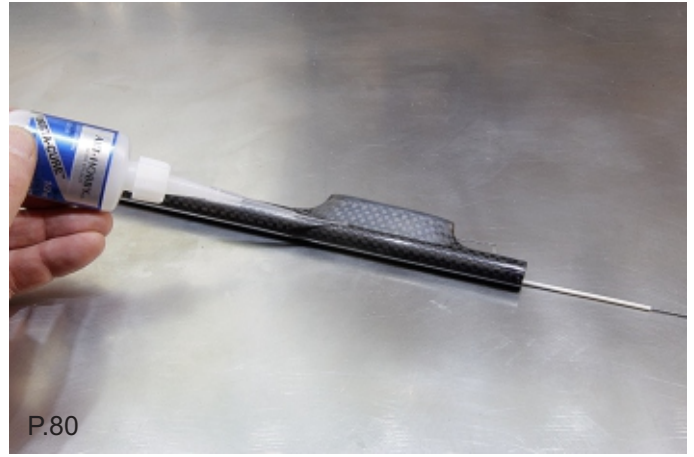
26. Now position mount on the boom and glue it in place with a few droplets of thin CA adhesive (#A0106). PHOTO 80 & 81

For this operation we recommend to use Fine applicator tips (#A0303). Fine tip will help in applying CA very precisely to the joint.

27. Use 2mm drill bit and drill two holes in boom end bottom Shown on PHOTO 92

Next drill exit hole for the rudder push-rod tube in left side of the stabilizer approx 40mm from the rudder hinge line. PHOTO 82

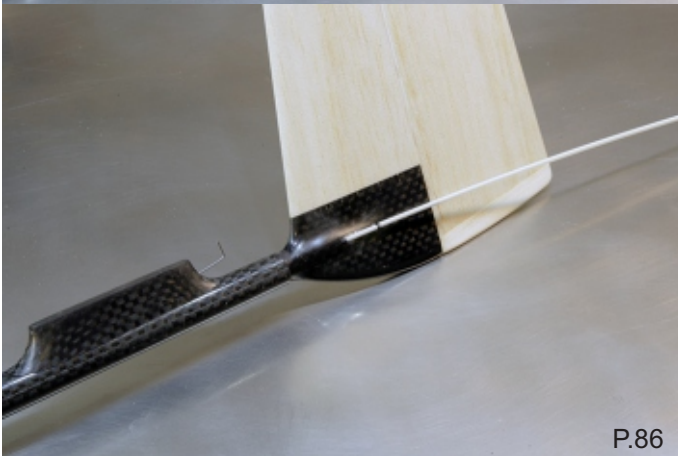
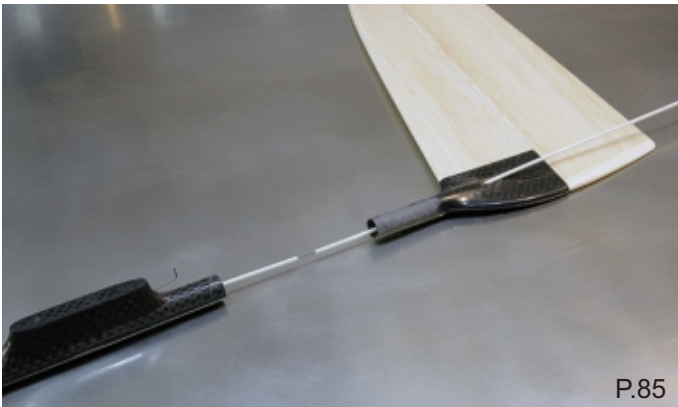
28. Use round needle file and drill to open the hole in slanted angle This will be exit for the rudder push-rod tube. PHOTO 83
Odyssey v.03



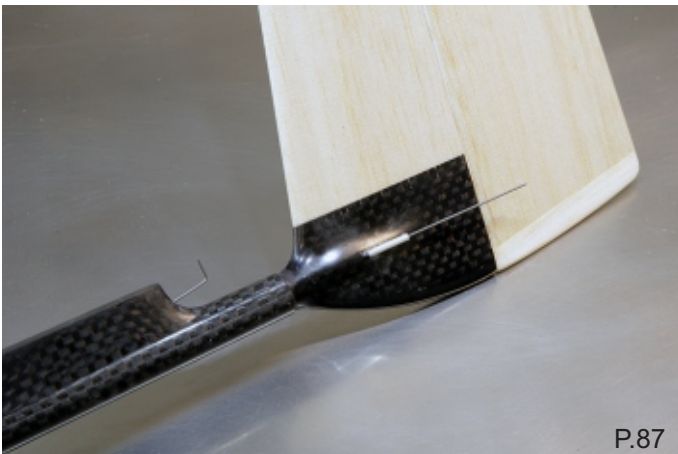
29. Take cutout elevator tube and push into opening in vertical stabilizer (tube should slide in freely, enlarge opening if necessary. This tube will be used to guide rudder push-rod tube into opening in the vertical stabilizer. PHOTO 84



30. Now holding rudder push-rod wire projecting from boom end insert it into tube projecting from stabilizer tip then push stabilizer until stabilizer tip fits inside the boom. PHOTO 85 & 86



31. Remove guide tube from the wire and using one or two drops of CA adhesive glue the push-rod tube inside exit hole in the vertical stabilizer. PHOTO 87



32. Aligning with push-rod wire mark position for the rudder control horn, drill two small holes in the rudder for the horn mounting posts. Then trial fit control horn and check alignment. PHOTO 88 & 89



33. Using flat nose pliers make small "Z" bend on the end of rudder push-rod wire. PHOTO 90



34. Take rudder control horn and connect to the "Z" bend. Then deflecting rudder to the right push control horn post into rudder holes. PHOTO 91 & 92

35. Secure rudder horn by pressing back plate over the post projecting from the other side of rudder then using one or two drops of thin CA adhesive secure plate in place. PHOTO 93

36. Trim posts about 1mm above back plate. PHOTO 94

37. Using soldering iron (set to low heat) melt projecting post flat with the plate surface then sand melted surface smooth.



P.91



P.95



P.92



P.96



P.93



P.94

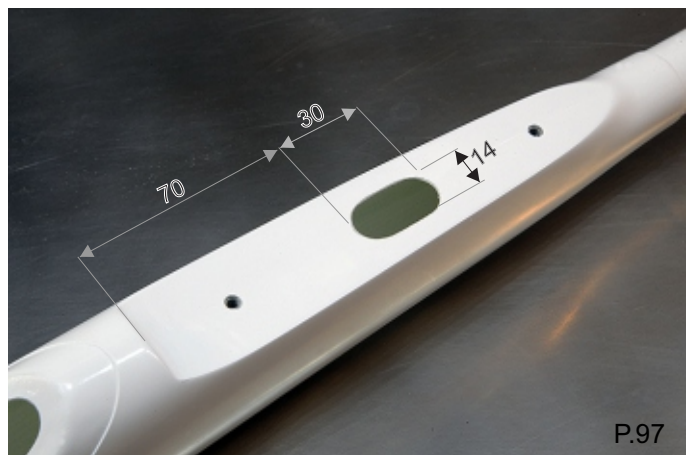
38. Insert "L" bend into elevator control horn and attach horizontal stabilizer to the mount securing in position with M2 screws. PHOTO 95

Odyssey v.03

38. Align horizontal stabilizer with vertical stabilizer exactly 90 degrees to each other. Then holding it upside down, horizontally, apply 2-3 droplets of thin CA (#A0101) into small holes drilled earlier in the bottom wall of the boom end. PHOTO 96

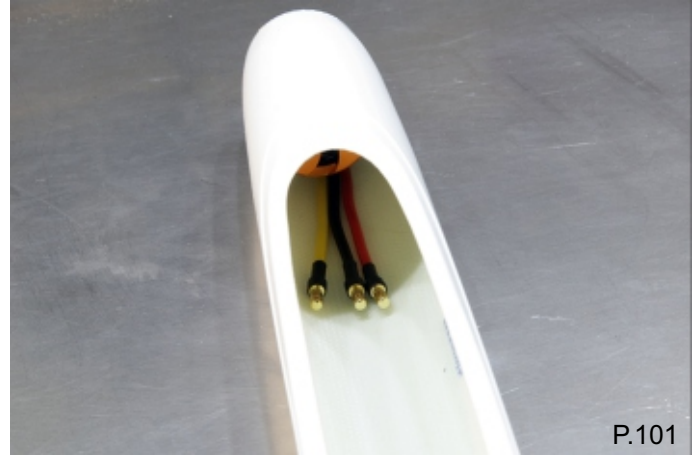
Pod Preparation

1. Cut oval shaped openings in the wing saddle. PHOTO 97



P.97

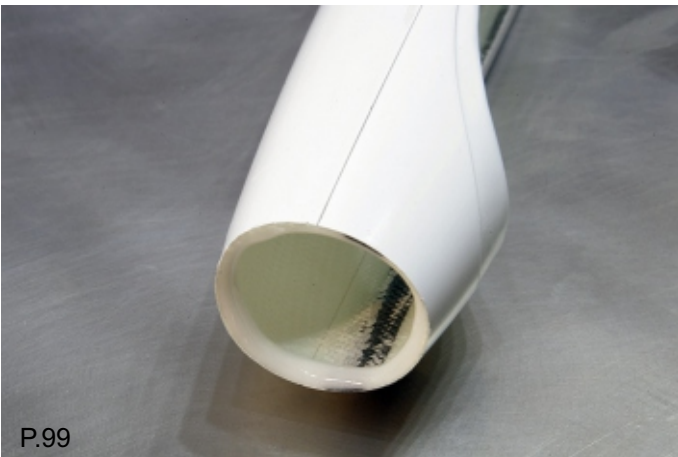
2. Cut openings in the shelf under canopy to accommodate rudder and elevator servos PHOTO 98



Motor Mount and Motor Installation

Note: Motor mount should be installed with mount marking pointing in upper nose wall.

1. Trial fit motor mount into pod nose opening, make adjustments to the pod if necessary.
2. If satisfied with mount fit, mix small portion of 5 min. epoxy and using flat wooden stick spread epoxy inside nose opening (~10 mm wide) also apply thin layer of epoxy to mounts outer surface behind front edge. PHOTO 99



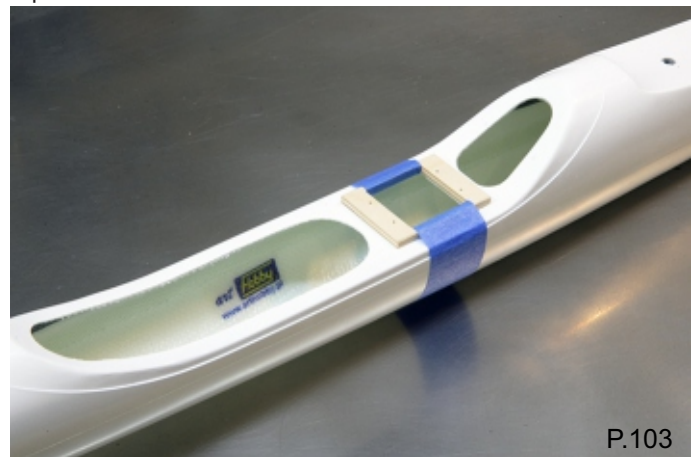
3. Quickly insert mount into nose opening, resting mount on building surface hold pod vertical lightly pressing pod down.
4. Before epoxy sets use paper towel moistened with alcohol and wipe off any epoxy that may have squeezed out. PHOTO 100



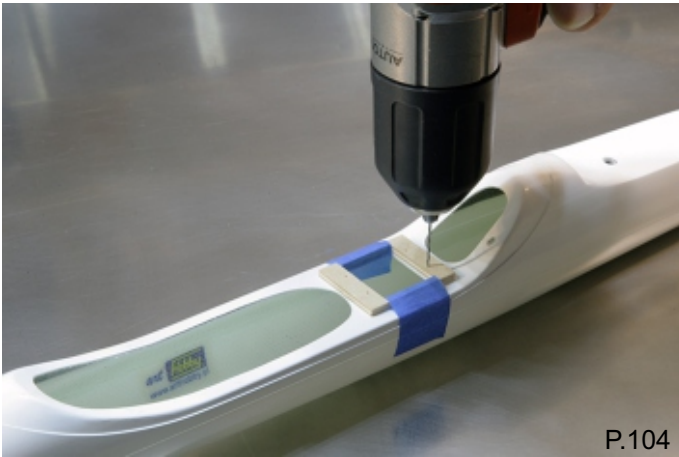
5. Using small long brush spread extra epoxy inside around mount. Extra epoxy around the mount will strengthen the joint.
6. Place motor inside the pod through opening under canopy Positioning motor with cables down and push it into nose. PHOTO 101

Tail Servos and Tail Boom Installation

1. Take plywood servo tray (supplied with the glider in accessory bag) and tape it over servo opening using masking tape. PHOTO 103



- 2 Using 1mm drill bit and holes in the tray as a template, drill servo mounting holes in deck of the fuselage pod. PHOTO 104



P.104

3. Mix small portion of 5 min. epoxy and glue the servo tray to under side of deck servo opening. Use servo screws to hold tray in position while epoxy sets. PHOTO 105 & 106



P.105



P.106

Wait 5 minutes before epoxy sets hard remove servo screws.
 3. Install elevator and rudder servos.
 4. Connect servos to the receiver turn ON transmitter and set both servos to neutral position.
 5. Temporarily attach servo arms and drill 2mm holes in back wall directly in line with servo arms. PHOTO 107
 6. Insert piece of push-rod tube into each drilled holes to check alignment with servo arms, you may need to use round needle file to angle and enlarge holes for the tubes to fit in horizontally pointing directly into servo arms. PHOTO 108
 7. If satisfied with fit remove tubing.
 8. Take tail boom and insert projecting from tail boom push-rods into tip opening in back of the pod, then guiding push-rod tubes into prepared holes pushing them through until tail boom is fully connected with the pod.
 9. Align both tubes with servo arms and holding them in this position secure in place with 1-2 small droplets CA. PHOTO 109



P.107

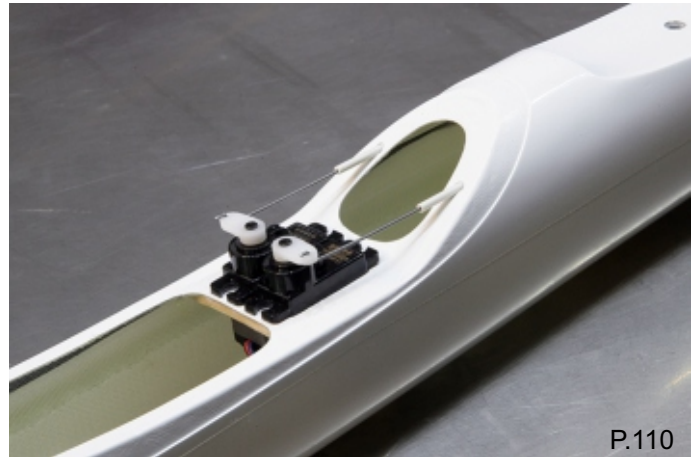


P.108



P.109

10. Use hobby knife to cut both tubes approx 15mm from the wall. Be sure that elevator and rudder are in neutral positions then mark both wires and make "Z" bends (cut any excess wire)
 11. Remove servo arms from servos and connect to "Z" bends then attach servo arms back to the servos and check alignment. PHOTO 110



P.110

12. Mount center wing segment on the pod and horizontal stabilizer on the boom.
13. Holding wing horizontally and look from the nose side on the Horizontal carefully rotating booms align stabilizer parallel to the wing trailing edge.
14. When satisfied with alignment remove wing very carefully. Turn pod with boom assembly bottom side up and holding horizontally apply 3-4 drops of thin CA adhesive into gluing holes drilled earlier in the bottom of the boom. PHOTO 111



P.111

Final Installation and Preparation

1. Finalize all radio and drive gear installation. Install receiver and ESC attaching the with velcro to inner sidewalls of the pod behind the rudder and elevator servos.
2. Install motor, attach blades to the spinner then mount spinner on the motor shaft and check if all fits well. PHOTO 112 & 113



P.112



P.113

Glider fuselage pod Preparation

1. Only difference in the pure glider fuselage pod preparation is that has shorter opening under the canopy to create extra room in flat shelf for small cut-out that will accommodate micro switch PHOTO 114 & 115



P.114



P.115

BALANCE POINT (C.G.):

The completely assembled glider must balance level when raised at the marked "C.G." point under the wing roots, a tolerance of 5mm back and forward of marked position is permissible. Balance the Odyssey ~78mm back from the leading edge of the wing at the center section.

2. Try some hand launches and straight glides over a grass field before high launching the glider. This will be a good time to adjust control throws and final balance.

NOTE: Control throws and glider C.G. are quite subjective to pilot's preferences and the flying conditions. These throws are simply a starting point. Experimentation is recommended to achieve a smooth flying plane you are comfortable flying.

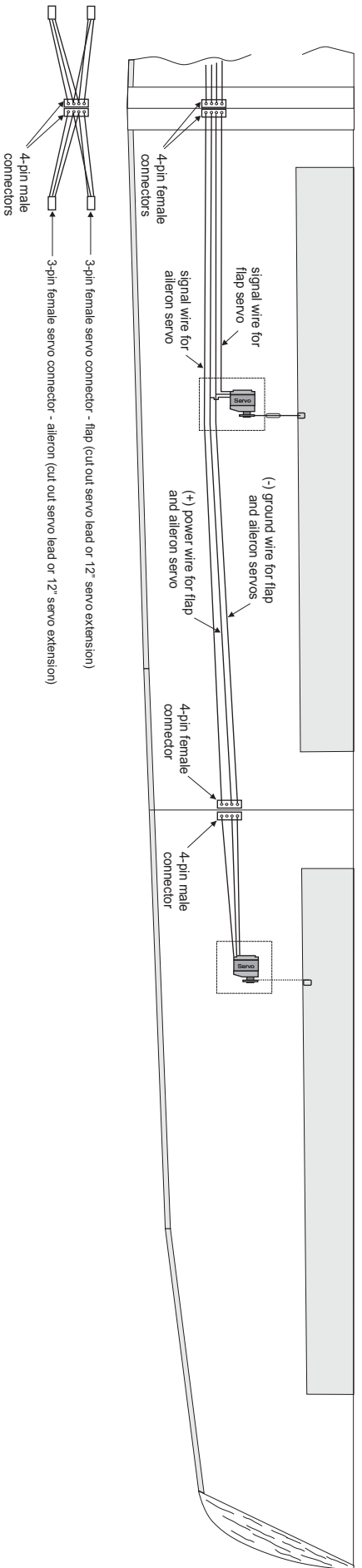
STARTING CONTROL THROWS:

- Ailerons:** 15mm UP, 10mm DOWN (dual rate 55%)
- Ailerons:** 17-26 mm Crow
- Spoilerons:** 26mm UP (break)
- Flaps:** 20-26 mm Crow
- Elevator :** 10mm in each direction
- Rudder:** 25mm in each direction
- Elevators :** 10mm in each direction (dual rate 76%)
- Rudders:** 9mm in each direction

Attaching Canopy

We recommend attaching canopy with two pieces of clear scotch tape adhered to both sides of canopy. To access the interior, simply peel off tape on one side (other side will act as a hinge). This is good for opening the canopy a few times, then tape has to be replaced. This is a simple and very dependable method. There is no danger for the canopy to be blown off during flight- because canopies of all our gliders are perfectly fitted to their fuselage pods.

3-segment wing with ailerons and flaps



3-segment wing with ailerons

