Cessna 182 Instruction Manual

Specifications:

- Wingspan: 42 in.
- Fuselage Length: 29 in.
- Flying Weight: 680 - 720 grams

Recommended Power and Radio System:

- Brushless Motor BL2215/1050 KV or 2 – Stroke Engine .15 cu in
- ESC 30 A
- Propeller 9050
- Spinner 40 mm.
- Battery 11.1 V 2200 mAh (20C)
- 4 Channel Radio system
- 4 mini servos (2 for Aileron)

Kit Features:

- Steerable Nose wheel
- Complete hardware pack
- CAD-CAM design and CNC cut parts
- Balsa/Plywood construction
- Wooden wheel pant
- Photo illustrated Instruction Manual

Open the Box

Cessna 182 Kit contents as follow;

- Scale 1:1 Auto Cad Plan sheet and CNC cut drawing
- Instruction Manual
- Fuselage and wing contents pack
- 3-6 mm. Balsa and 5.5 mm. hard wood content pack
- Epoxy adhesive Set in 30 minutes and cure in 6-8 Hours
- Hardware content pack i.e., pushrod wire, wheel collars, landing gear set etc.
- Decal set, clear windshield and windows

Before Assemble

Thank you for Purchasing the Chin Model AirCraft Cessna 182. Cessna 182 is the second model in an R/C scale airplane kits from Chin Model AirCraft

Since this is a scale model taken outline from the original Cessna 182 and have fully details, it will takes time in assembling until ready to fly approximately 30 Hours, but it isn't more difficult to build than the Cessna 208B, Piper Cherokee and PC-6 Porter. If you are already experienced R/C pilot, you should be able to fly the Cessna 208B without difficulty.

Take your time to studied this instructions manual before you starting to build, this will show you step-by step how to built your Cessna 182 straight and true from the beginning until covering and installing accessories. The CAD-CAM designed and CNC cutting, interlocking parts allow you to build fast and accurate. Moreover, all hardware are fully comes with the package, which will help you to decrease the time in the preparation and procure the equipment.

Hope you enjoy building and flying our products. Should you have any questions about building your Cessna 182, please do not hesitate to e-mail us at chinnathon@thaiscalemodel.com

Thank you for purchasing copyright product that invents and produces by Thai,

Chinnathon Akaraphat

Building tools and Accessories

This is the list of tools and accessories required to finish your Cessna 182

Building and Finishing Tools

1. Cutter
2. Sanding tools
3. Small File set
4. Razor saw
5. Ruler, Pen, small set square
6. Metal ruler
7. Scissor
8. Masking tape
9. Hand drill with 1, 2, and 2.5 mm. drill bits
10. Screwdriver , Pliers with wire cutter, pins
11. CA glue, UHU HART (Wood glue)
12. Epoxy glue
13. UHU ALL PLASTE (Plastic glue)
14. Balsa filler
15. Paintbrush , Black enamel paint , Thinner
16. Monotoke and sealing iron

Power and Radio system

1. 4 Channel Radio system
2. 4 mini servos
3. 5 Pushrod connectors
4. Y-Harnesses
5. 1050 Kv Brushless motor
6. Propeller 8040-9070
7. 40 mm. Spinner
8. Electronic Speed Control
9. Li-Po Battery 11.1V 1500-2000Mha
10. Battery charger

Kit Contents

Hardware for Cessna 182 includes;

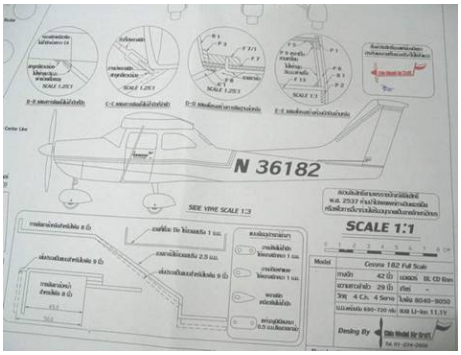
1.	Nose gear set	1 Set
2.	40 mm. Foam wheel	3 Wheel
3.	Nose wheel pushrod with metal clevis	1 Set
4.	2.5 mm. Main landing gear wire	1 Set
5.	Main landing gear strap with sheet metal screws	1 Set
6.	Plastic tabs for wing struts with sheet metal screws	1 Set
7.	Nylon clevis for wing struts	2 Pieces
8.	Wing strut straps with sheet metal screws	1 Set
9.	Plastic tabs for battery hatch	1 Set
10.	Sheet metal screws for motor cover	4 Pieces
11.	CD ROM motor straps with sheet metal screws	1 Set
12.	Rudder – Elevator control horn	1 Set
13.	Ailerons control horn	1 Set
14.	Antenna tube	1 Piece
15.	Wing bolt with washer	1 Set
16.	Wheel pant washer	6 Pieces
17.	Wheel pant straps with sheet metal screws	3 Set
18.	2:1 Epoxy adhesive Set in 30 minutes and cure in 6-8 Hours	1 Set
19.	CA hinges	13 Pieces
20.	0.9 mm. Elevator joiner wire	1 Piece
21.	0.8 mm. Pushrod wire	1 Piece

Decals set

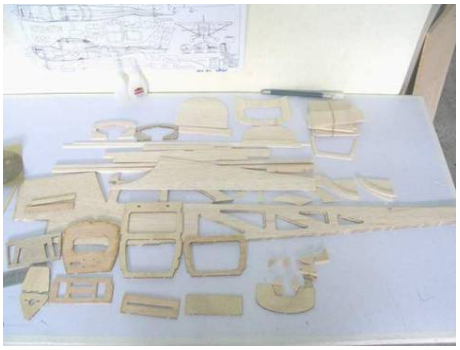
Decal sheet for Cessna 182 includes:

1.	Celluloid sheet for windshield and windows	1 Piece
2.	Silver stripe tape	1 Roll
3.	Chin Model Air Craft logo	1 Set
4.	CESSNA decal	1 Piece
5.	N36182 decal	3 Pieces

Build the Fuselage



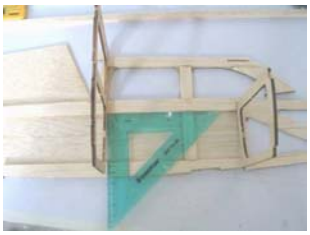
Prepare the plan sheet (Genuine product must have the owner stamp and authentic sign)



Prepare fuselage parts

Glue P1- P6 in position on B1 with UHU hart

Be sure to make a left and right side

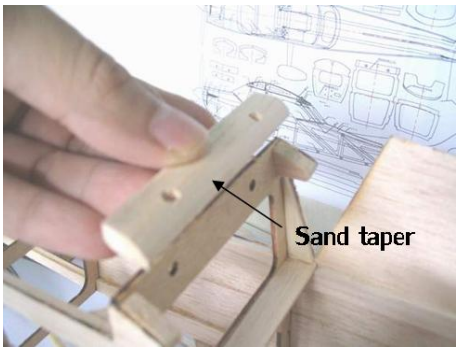


Install former F3-F4 to the fuselage side, use square to hold it perpendicular to the fuse side. Apply a few drops of CA to hold former in place.

Join the right fuselage side to the left. Apply a few drops of CA to hold former in place.

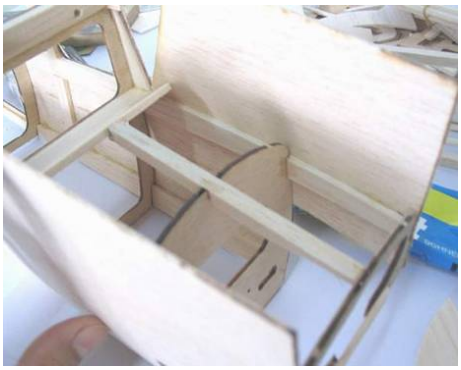
Place F2 to the B1, gently bends the fuse sides together and keeps F2 in alignment, and then apply a few drops of CA

Position F12 and P7 in place



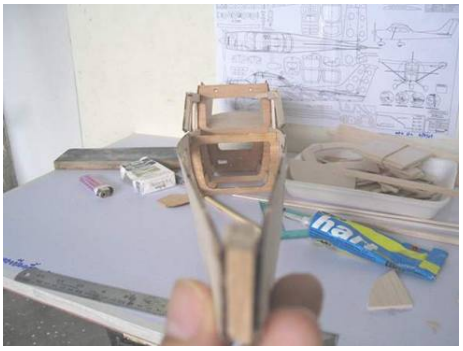
Sand F16 to the shape as shown in the photo and then glue it in place

Place F1 in position (Temporarily install balsa stick inside to prevent F1 broken during holding the fuselage)



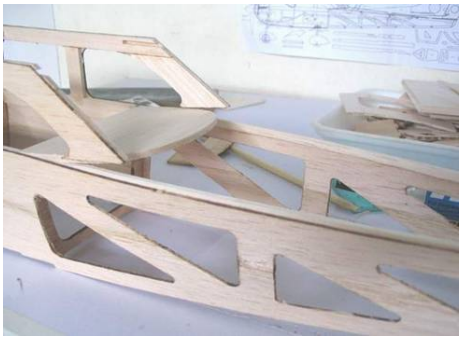
Place P 9/1 and F11 in position as shown on the plan

Glue P9 to the tail in position where the rear of the fuselage sides met

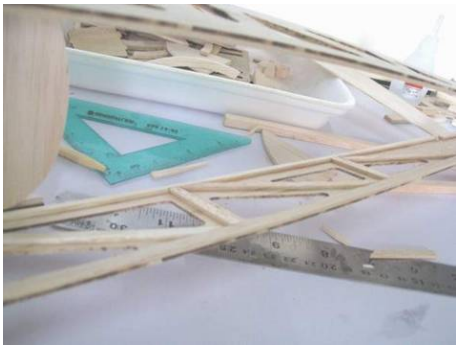


While gluing P9 in position visually center the tail to the centerline of the fuselage

Position F13 in position as shown on the plan (Don't glue F13 to B1 yet)

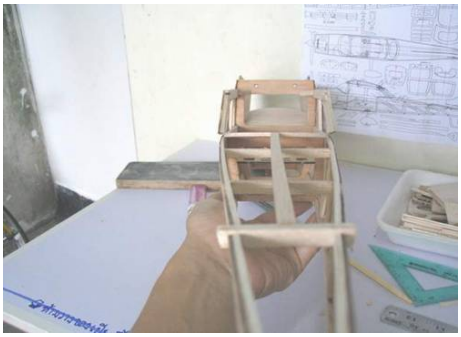


Position P8 and F6 to the fuselage frame

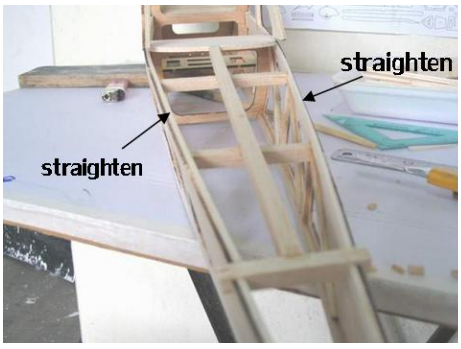


Glue P8 in position

Place P9/2 in position as shown in the photo



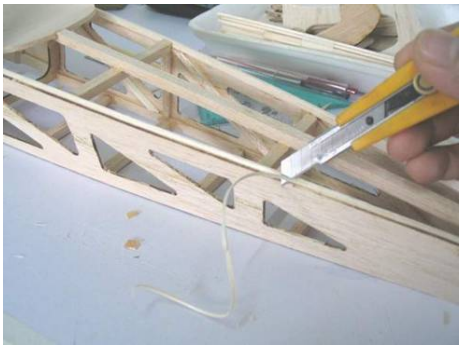
Visually center P9 to the centerline of the fuselage



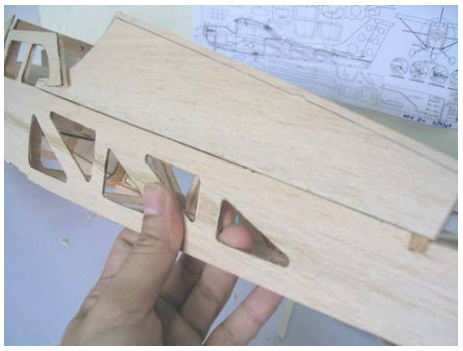
Make sure that you straighten out any twists

Glue P9 in position as shown on the plan

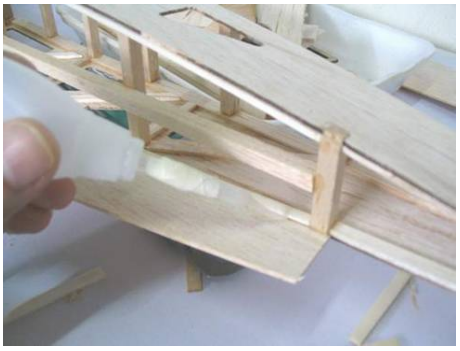
Cut a notch on P9 to fit against F15



Slightly beveled P8 to fit against F15

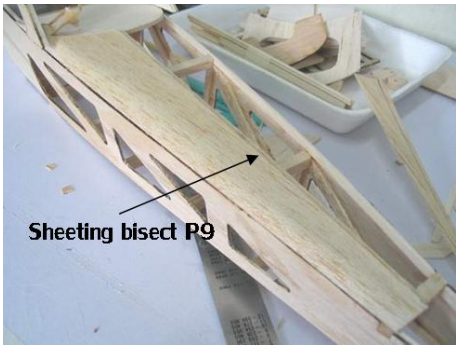


Place F15 in position



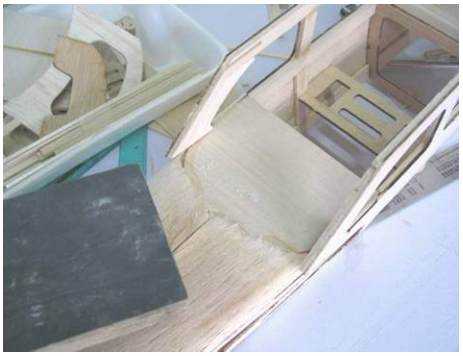
Glue it in place with CA

Wet outside of F15 with water

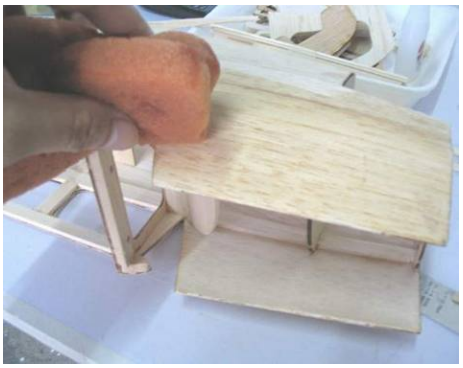


Carefully pull the sheet to the stringer and glue inside the sheet with CA, and then mark where the sheet crosses the centerline of the stringer. Cut the sheet at the line you marked.

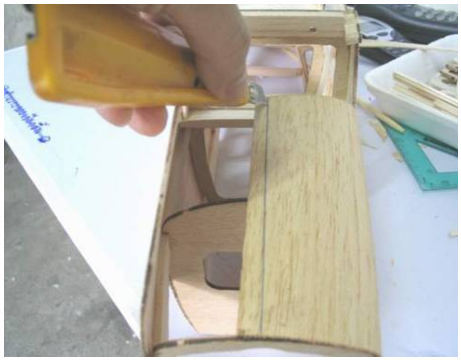
Trim off the excess wood and apply the other sheet in the same manner



Lightly sand the outside



Wet outside of the nose sheet with water



Cut the sheet at the centerline of the stringer

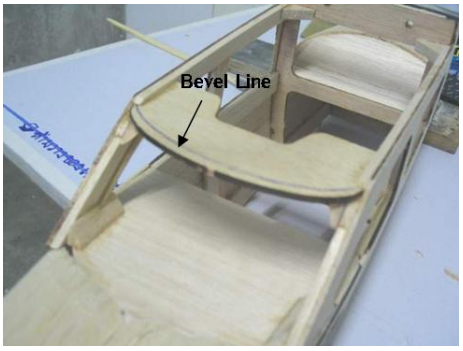
Apply the other nose sheet in the same manner

Lightly sand the front of F1 smooth and then glue F0 in position with UHU Hart

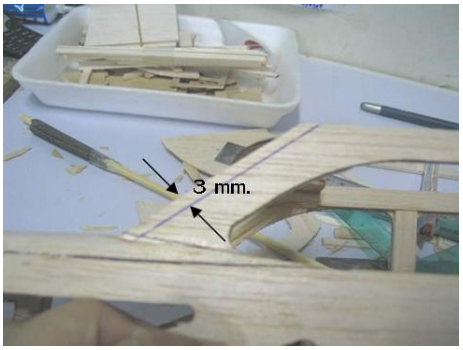
Glue B1 to F13

Place F15 between the fuselages sides (B1), and keep the fuselage in alignment

Glue P10 and P9 in place as shown in the photo

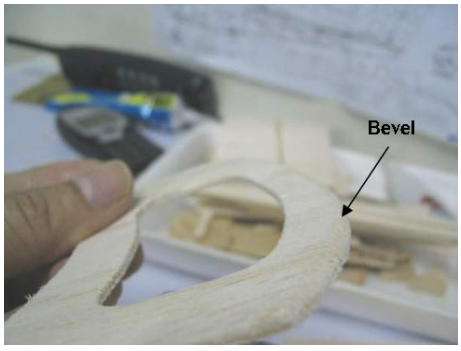


Indicated by the arrow, trim the edge of F5 to fit with F15

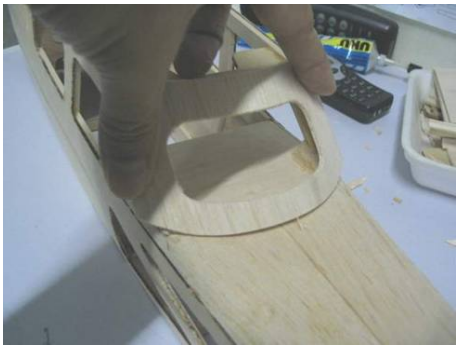


Draw a 3 mm. line parallel to the edge as shown in the photo

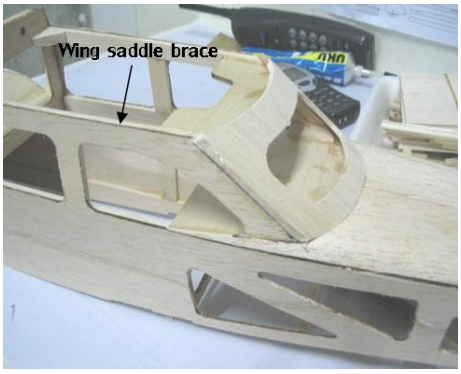
Use a cutter followed by a bar sander slightly beveled to a guideline as shown in the photo



Indicated by the arrow, slightly beveled F14 to fit against F15



Align and glue F14 into position

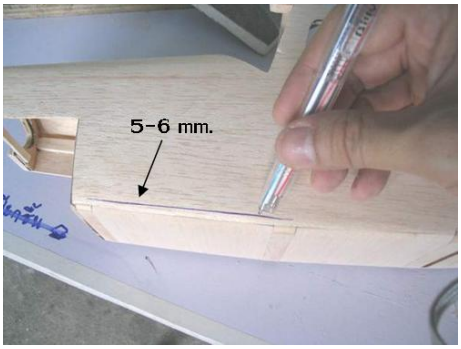


Lightly sand top of F14 to flush with wing saddle brace

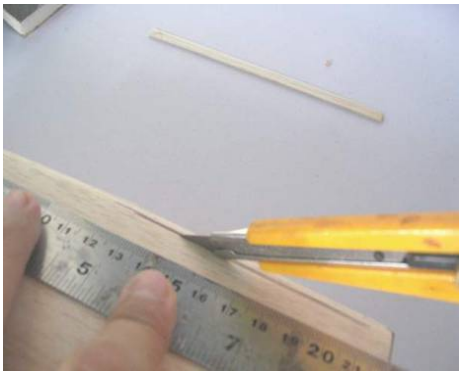
Position F7-F10 and BP2-BP4 in place. In the package, BP2-BP4 are cut lightening holes to reduce weight (BP2 smaller hole is in the front and don't glue to F9-F10 yet)

Trim flush with the fuselage

Round the corners by sanding

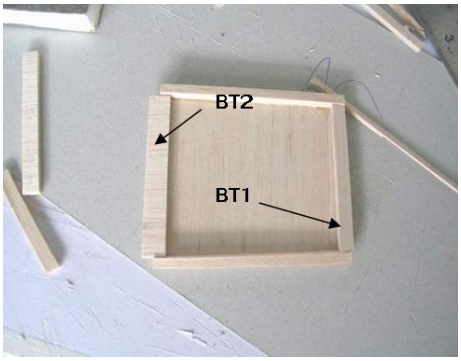


Draw a line as shown for making battery hatch

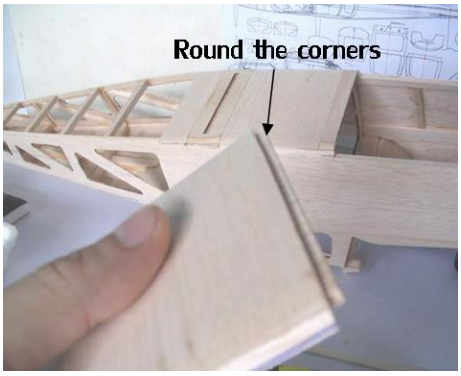


Use a straightedge and a cutter to score along the line

Remove battery hatch from the fuselage



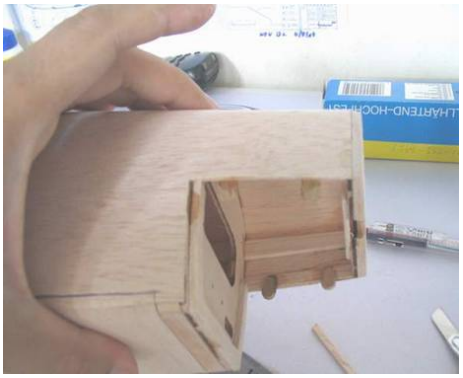
Assemble BT1-BT2 to battery hatch



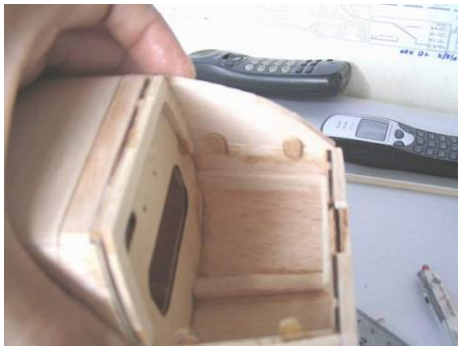
BT2 should extend about 2-3 mm. for the hatch locking and round the corner (indicated by arrow)

Glue B6 in position

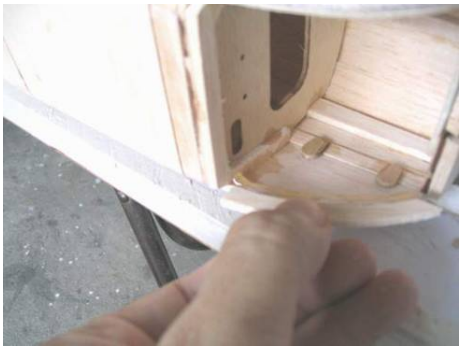
Place B4 in position, use only a spot of CA to hold it in position



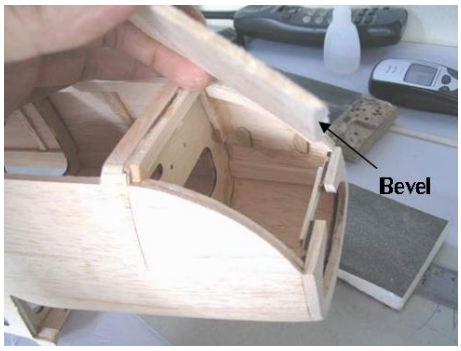
Glue B5 in position



Carefully glue B2 to B4 with a drop of CA (don't glue B2 to F2 and B1)

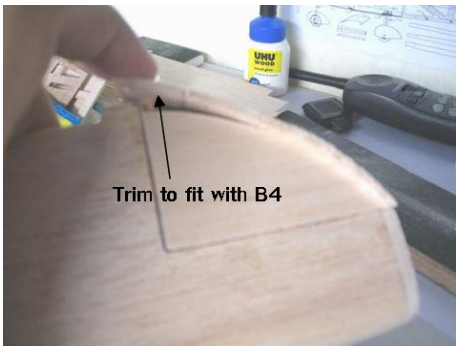


Glue B3 in position



Bevel the front of BP1 to meet F0

Align BP1 with F0 (do not glue the front of BP1 to F0)



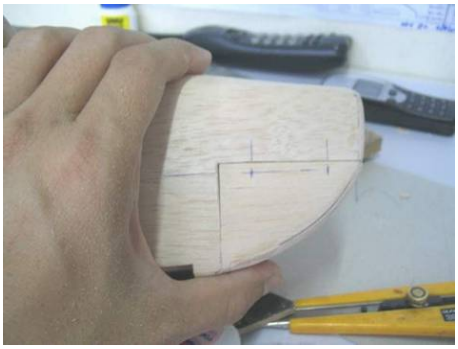
If the B1 is difficult to bend, wet the sheet with water before bending, cut to fit with B4 then apply CA glue inside

Apply CA glue inside

Trim BP1 flush with B2

Round the corners by sanding

Use cutter to carefully lift out of the frame. You didn't glue it in B4 and F2?

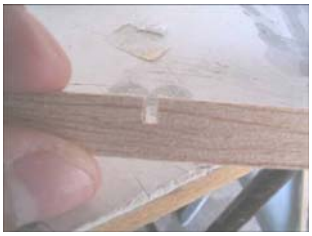


Attaching it to the fuselage and mount with sheet metal screw

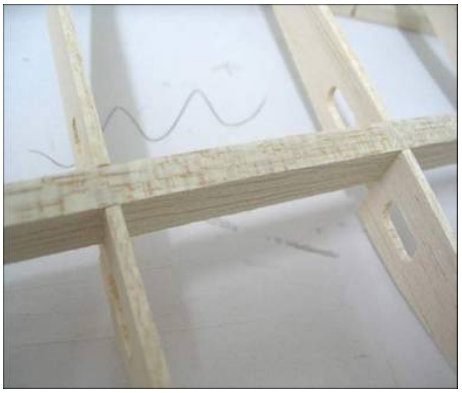
Build the Wing

Following illustration is the wings of Cessna 208B Grand Caravan which same assembles as Cessna 182, differently only some part and the figure only

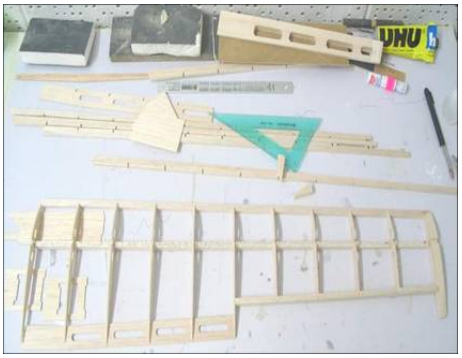
Prepare wing parts

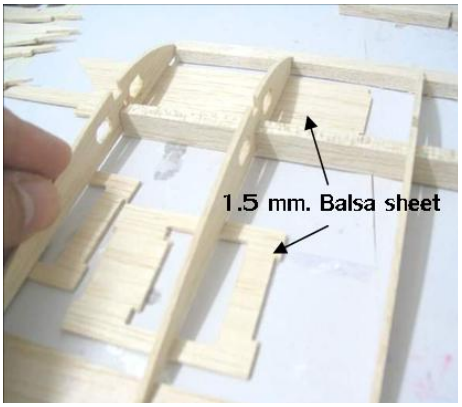
Use small flat file to file S2-S3 notches to allow the ribs fully seated on the spars



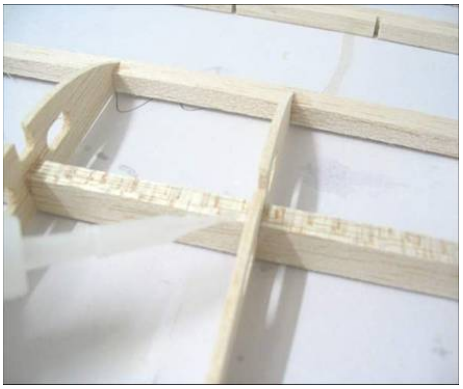
Test fit wing ribs onto Spar S2-S3 (except W0-W1). Make sure that S2-S3 are even with the top edge of the ribs



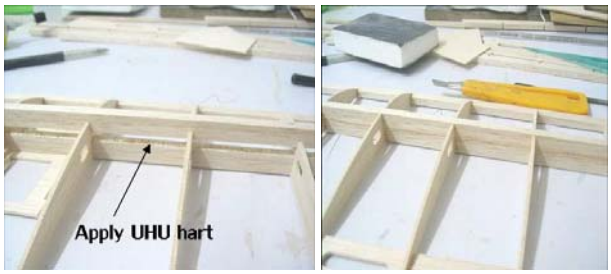
Place all ribs in position on S1-S3-S4-S5



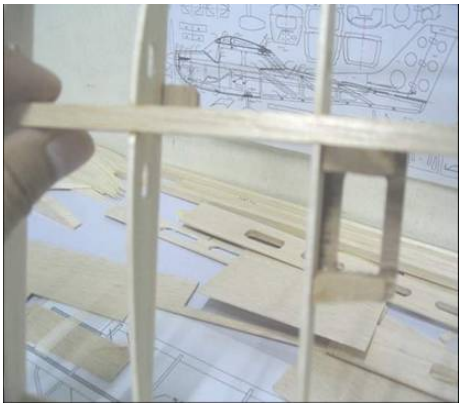
Temporarily place 1.5 mm. balsas under W0-W 1



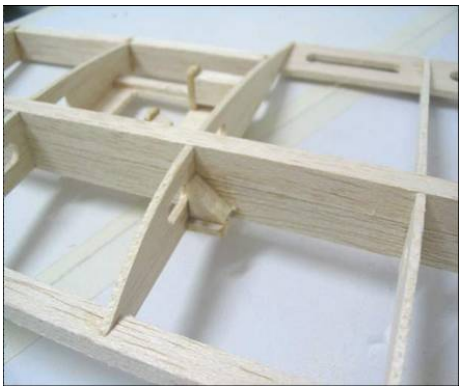
Apply a few drops of CA



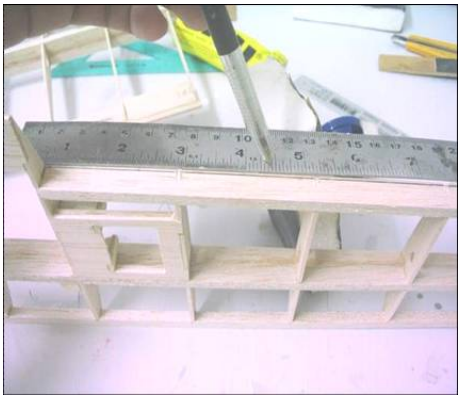
Join spar S2-S3 together using UHU Hart



Glue F20-F21 (aileron servo tray) in position

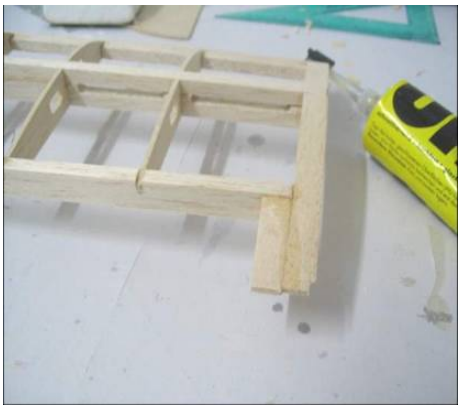


Glue S8- F19 in position as shown on the plan

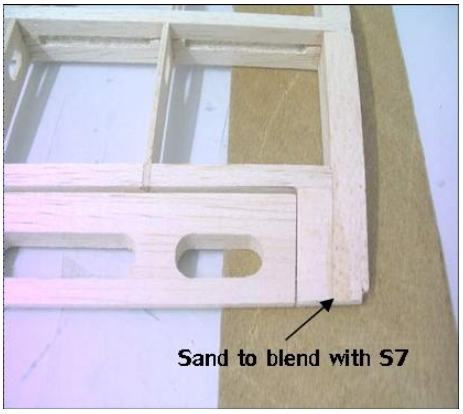


Place a straightedge against W2A and W7 and drawn a line on S5 all the way

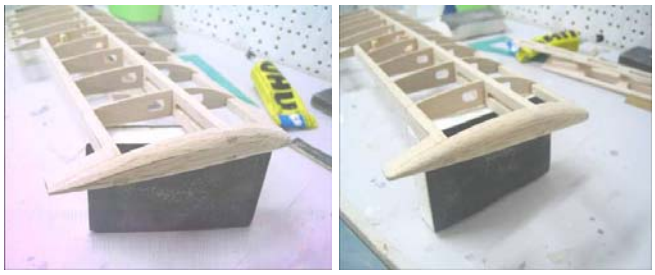
Cut S4/1 to its size and glue them into position with UHU hart



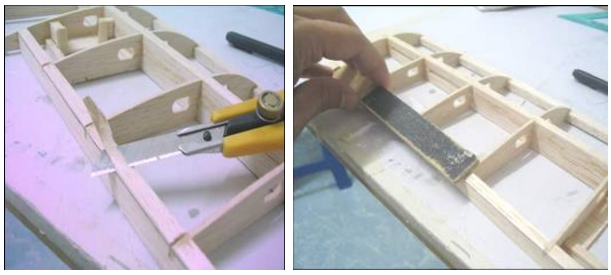
Glue W8 in position and sand flush with W7



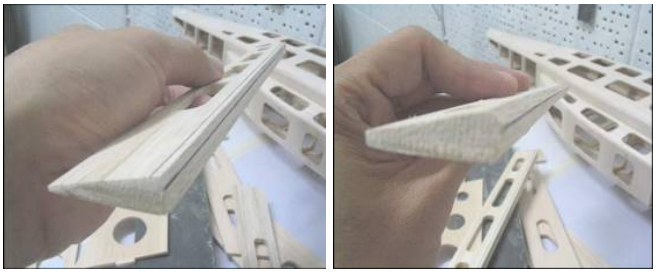
Temporarily attach the aileron (W9) to the wing, draw a line on W8 and sand to blend with W9



Draw a line on W7 as shown on the plan as a guide to shape the wing tip



Trim and sand S5 to match angle of the ribs



Shape the leading edge of the aileron to a “V” shape

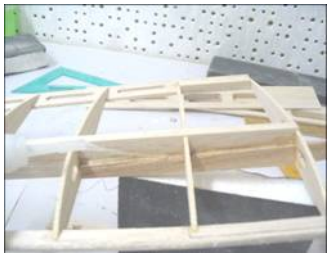

Draw a reference line along the S1. Trim and sand to round the leading edge along the line

Repeat steps for the other wing panel

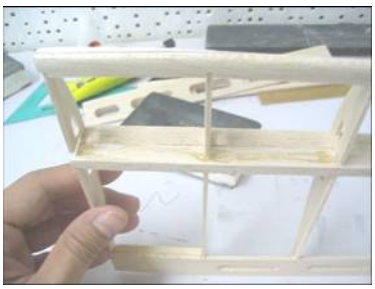
JOIN THE WINGS

Apply UHU Hart to the S6

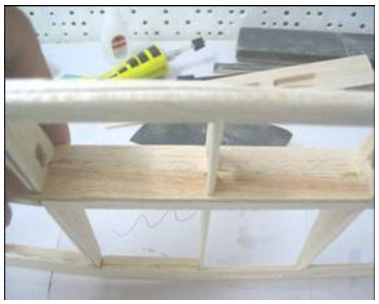
Place S6 in position. Makes sure the bottom edge of S6 even with S3



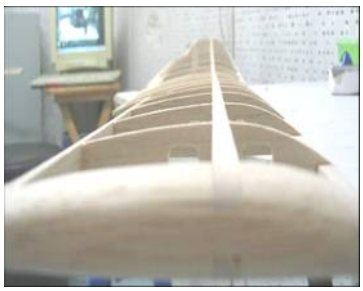
Apply a few drops of CA to hold it in place



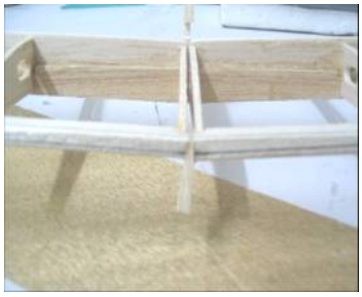
Apply UHU hart to the other wing panel main spar



Place S6 in position. Makes sure the bottom edge of S6 even with S3



Double check that the S2 isn't twisted

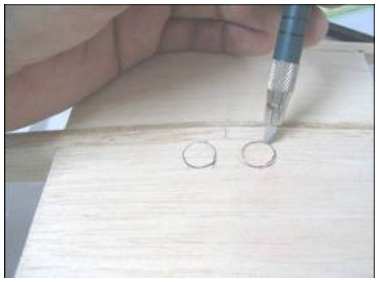


Fill the gap between leading edge and trailing edge with a scrap piece of balsa

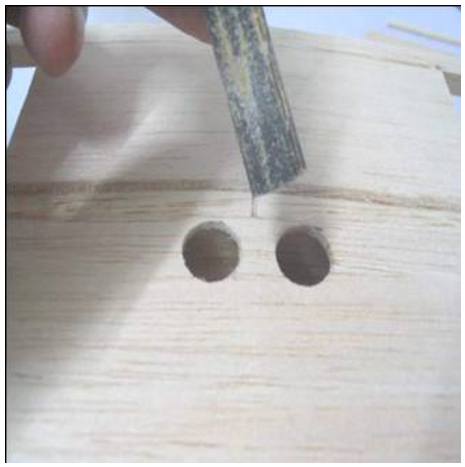
Use CA to glue trailing edge of S4 together

Glue the rear center skin WP1 in position, sand the TE even with S4

Glue the front center skin WP1 in position sand the LE to even with S1

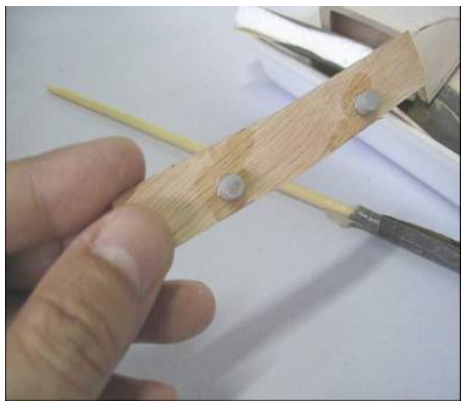


Glue the bottom center skin WP1 in position and drill a holes for Y-connector exit



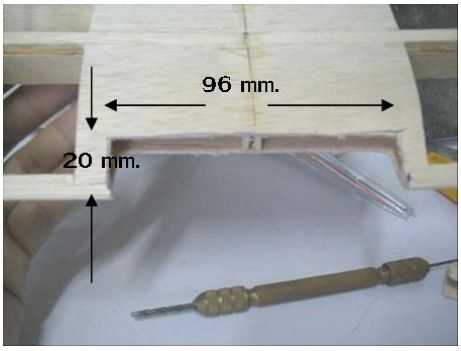
Cut two holes out of the top center sheeting and sand

Mount the wing to the fuselage



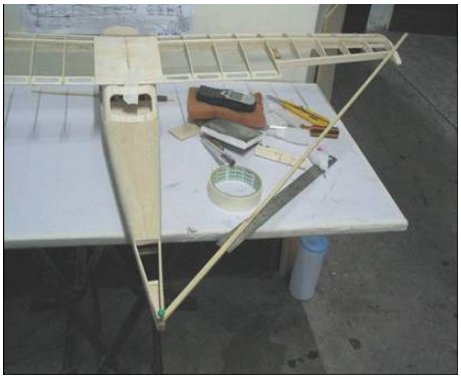
Insert the wing dowels (S7) into the wing dowel plate and protrude 7 mm. out of the wing dowel plate. Use CA to glue the wing dowels.

Use round file to enlarge the holes in the F3 to assure the wing dowel fits. Assemble wing dowel plate to F3

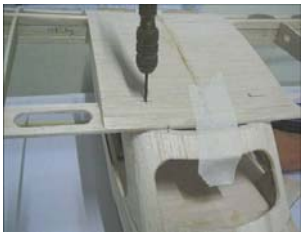


Measure center of the wing 20 mm. x 96 mm. as shown

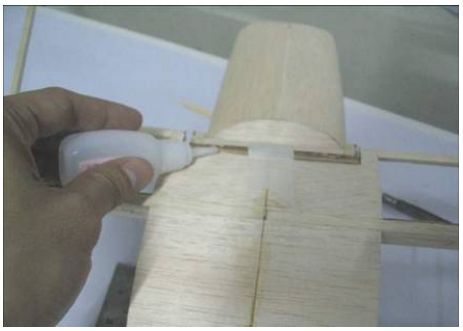
Position the wing in the wing saddle and align it with the fuselage.



Measure the distance from the aileron bay to center of the tail, adjust the wing until both distance are equal



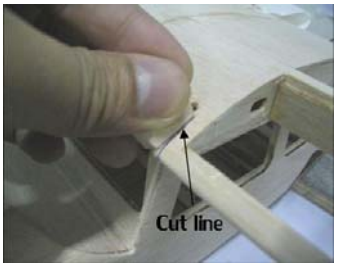
When the wing is perfectly align, temporarily secure with screw



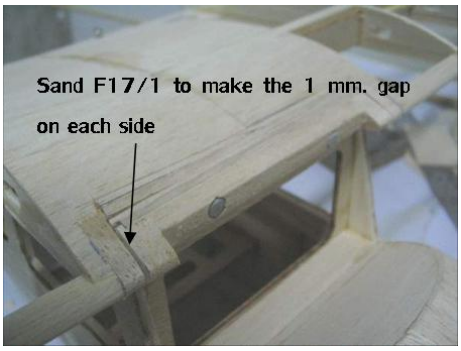
Apply a few drops of CA to the leading edge and the wing dowel plate

Remove the wing from the wing saddle; fill any small gaps with a scrap piece of balsa

Trim and sand wing dowel plate flush with wing center section



Temporary position the wing in the wing saddle, use F17/1 to mark position for the shims on each side



Install shims (F17/1) to reduce the gap to 1 mm. on each side

Mark position of wing TE over the top rear window as shown in the photo

From 2.5-3 mm. balsa sheet, cut pieces to make the top rear window sheeting

Trim and sand to flush with rear window

Trial fit the wing TE against the top rear window

Attach the Stab and Fin

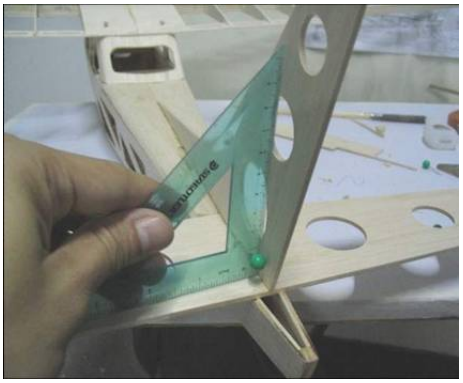
Round the LE of Stab and Fin, also sand a radius around the forward edge of the Stab and Fin Tip before attach the Stab and Fin

Center the stabilizer on the stab saddle

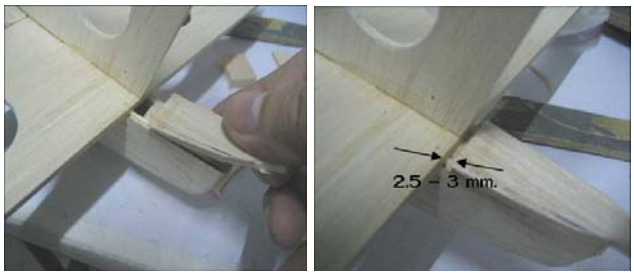
Measure the distance from the tip of the stab to the tip of the centerline of the fuselage. Measure the same point on the left side of the fuselage. Adjust the stab until both sides measure the same.

Checking that the stabilizer is parallel with the wing

Fit the Fin1-Fin2 in place and cut a slot for Fin2



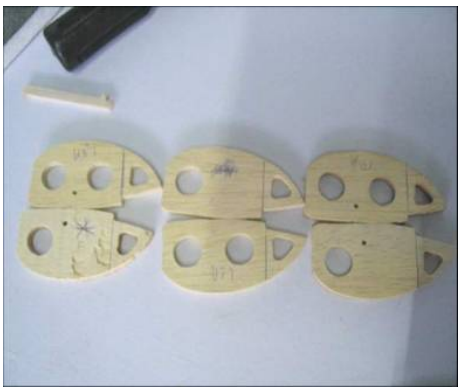
Check that it is perpendicular to the stab with a square. When satisfied with the alignment of the fin, glue it in place.



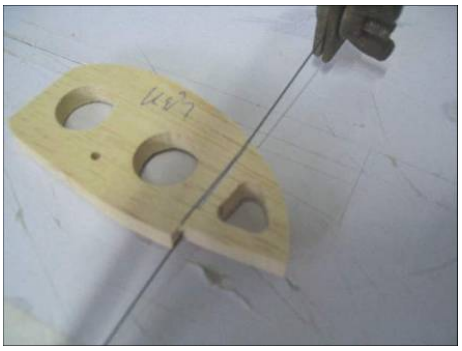
Add a 3 mm scrap balsa as shown, keep 2.5 mm spacing from stab for Elevator joiner wire

Sand the aft end with the shape of the fuselage

Wheel Pant and Landing Gear Fairing

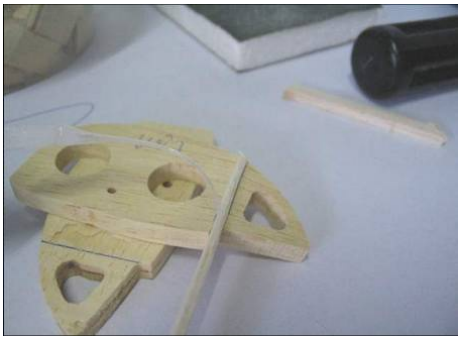


Prepare wheel pant parts (Note: A one hole in the wheel pant is the side that secure wheel pant to the landing gear wire)



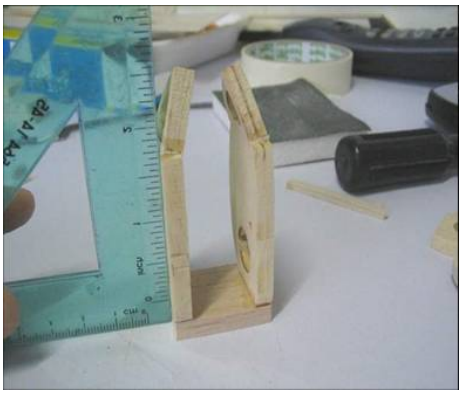
Score the wheel pant two thirds of the way through with a coping saw

Put over the other wheel pant (don't break away the wheel pant) as shown in the photo

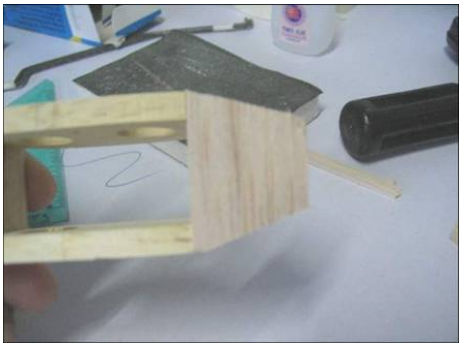


Fill the gap with shims made from balsa sheet as shown

Repeat steps for the other wheel pant (the side that secure wheel pant to the landing gear)



Use a square to hold it perpendicular while gluing to G4



Glue G5 in position


Trim and sand the excess shim as shown in the photo

Beveled the front edge of G5 to fit against G4

Glue G5 to G4, then wet the sheeting with water and bend over the wheel pant

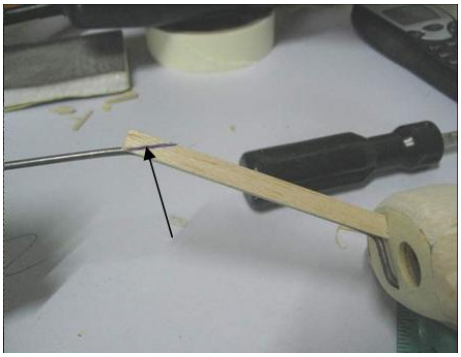



Round the edges of the wheel pants

Glue wheel pant washer in place

Repeat steps for the other wheel pant and test fit with landing gear wire

Temporarily position G1 to landing gear wire, mark and trim to the cut line to fit at the wheel pant

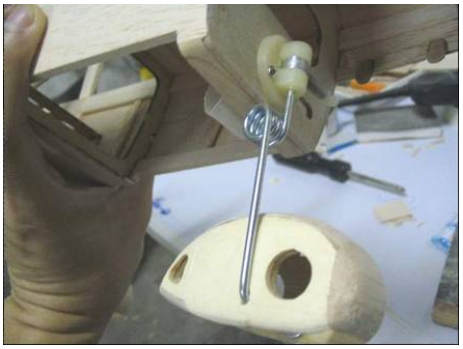


Mark and trim to the cut line to fit at the fuselage

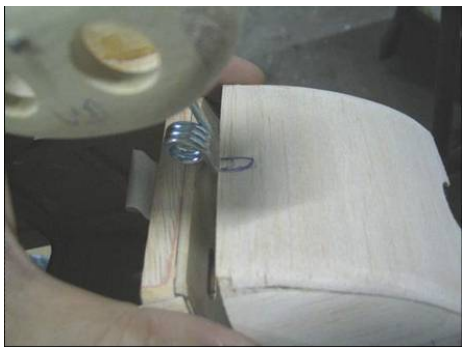
Trim and round the edge of G 1

Drill 2.2 mm. pilot holes through F7 for landing gear wire as shown in the photo

Position the main landing gear wire in place and then position the two landing gear straps over the main landing gear. Secure landing gear strap with sheet metal screws



Install nose gear in place through the holes



Mark the slot for Nose gear wire.

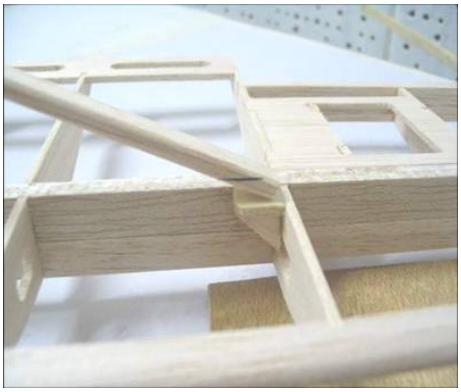
Carve a space for Nose Gear bearing and cut slots to allow the Nose gear wire to move freely. Make adjustments as necessary

Wing Struts

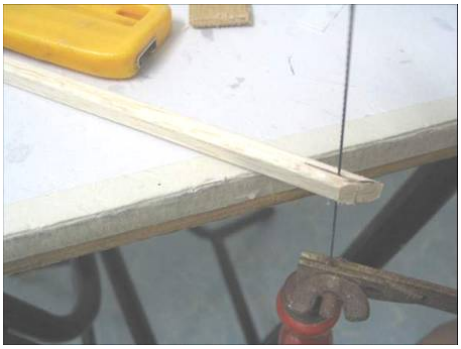

Round the edges of S9 and drill a 2 mm. hole for dowel and glue them together


Enlarge the hole in the nylon clevis with a 2mm. drill and glue

Attach wing strut to wing strut tap on the fuselage



Position the end of S9 at the wing and mark, cut the S8 off at the mark and check their fit



Score 8-9mm. deep in the end of S9 with a coping saw.

Insert the strap in place and glue with CA

Attach strut to the wing with sheet metal screw

Finishing





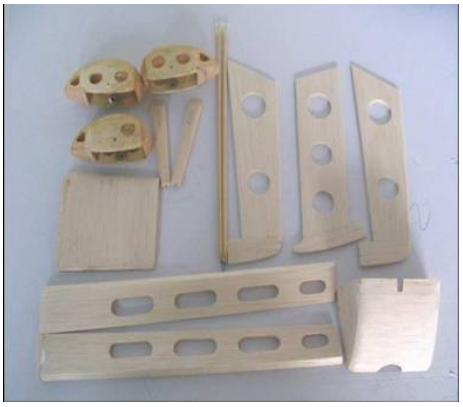
Fill all dents, seams, low spots, and notches with Balsa Filler. After the filler has dried, use finer grades of sandpaper to even all the edges and seams and smooth all surfaces.


Paints black enamel as shown in the photo






Brush Epoxy (provided in the package) on all joint as shown in the photo to add strength to the joint



Prepare all parts for covering

Covering

We recommend you get the trim schemes on full size Cessna 182 quite simple and should be easy to duplicate with MonoKote film.

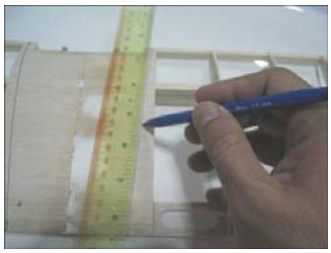
If you plan to compete with the trim scheme as the prototype, here are a few things to consider:

The full-size Cessna 182, N36182 that was modeled for this kit Use the following photo as a guideline for the covering sequence or use your own proven methods to finish your Cessna 182.

Covering Wing Panel

Use a hot sock to protect against scratching

Covering Sequence
1. Trailing edges of wing
2. Bottom right, followed by the left wing panel
3. Top right, followed by the left wing panel
4. Aileron LE, followed by the bottom and top
5. Wing struts





Locate straw in the wing as shown in the photo; use it to pull Y-connector through the wing










To shrink covering tight, lightly set the iron on the surface of the material and glide it back and forth over the entire area.


Covering Aileron LE, followed by the bottom and top

Fuselage and wheel Pant

Covering sequence

1. Fuselage bottom
2. Fin left side, followed by right side
3. Stab bottom, followed by top
4. Fuselage right side
5. Fuselage left side
6. Fuselage top
7. Battery hatch cover
8. Elevator bottoms, followed by the top
9. Rudder LE, right side followed by the left side
10. Landing gear fairing



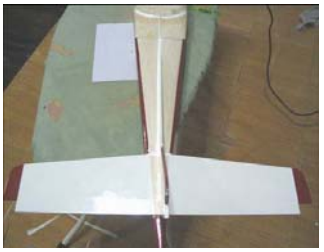
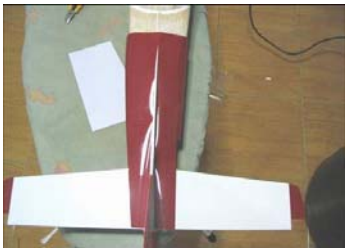


















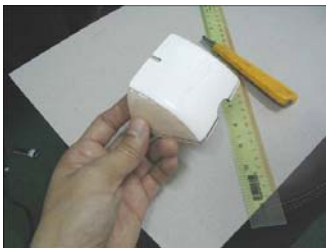




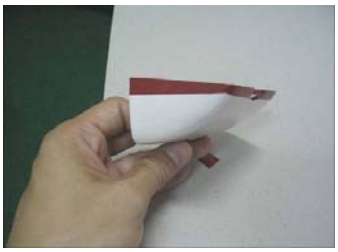




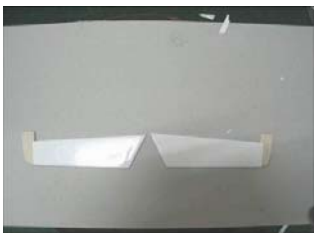
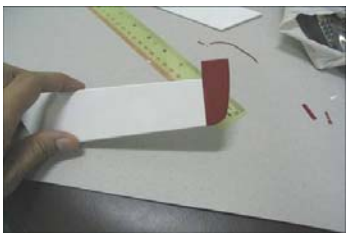




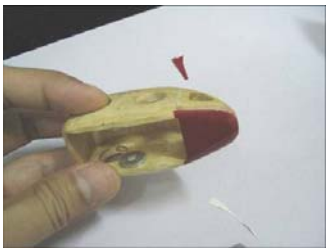


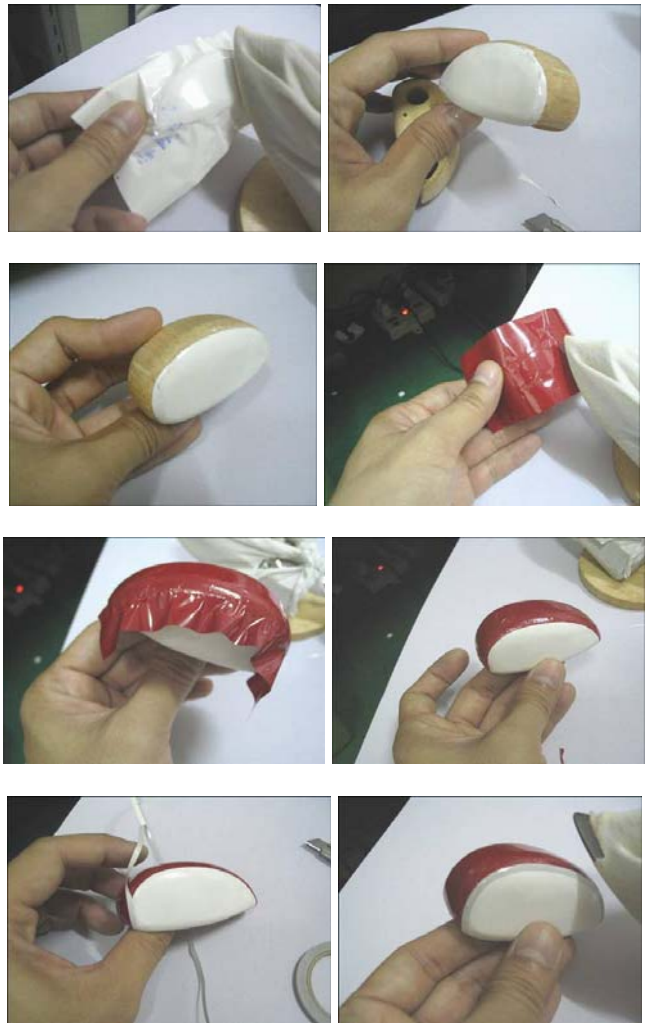





Covering Wheel Pant

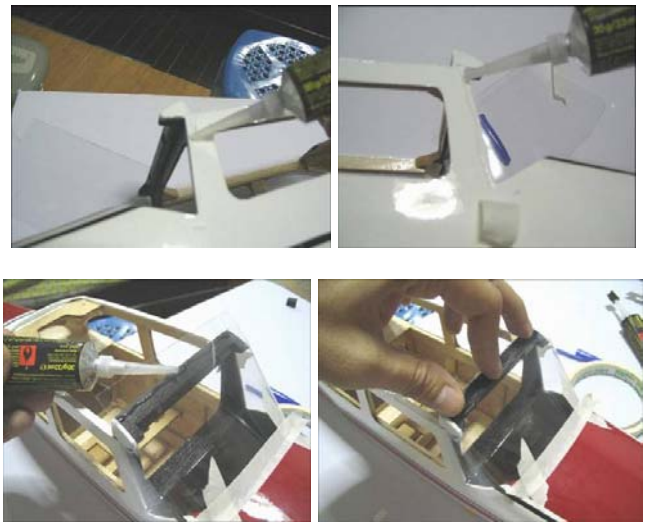


Apply silver strip tape as shown in the photo

Attach windshield and windows

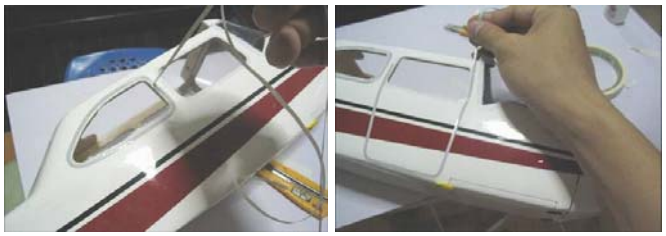
Use the template on the plan as a guide to cut the windshield and windows

Tape the windshield in position and make adjustments as needed



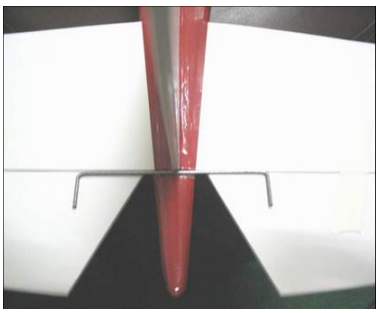
Glue it in position with UHU allplast glue

In a similar manner, glue the side and rear window in position



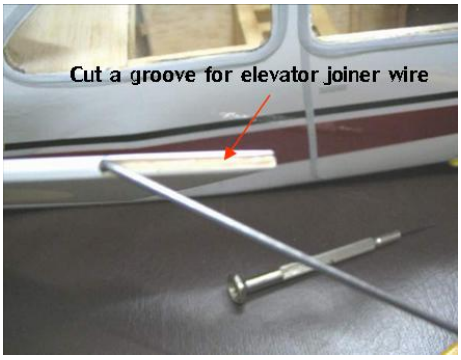
Apply silver strip tape as shown in the photo

Install joiner wire and Hinges



Hold the Elevator Joiner Wire up to the Elevator and mark the location of the Joiner Wire holes

Drill a hole in the elevators for the Joiner wire



Cut a groove inboard of the hole to allow the wire to be inset into the elevators, flush with the LE.

Glue the joiner wire into the Elevators

Cut hinge slots in the Elevators and Stab at the locations shown on the plans, and then glue the hinges in place using CA on both sides of each hinge.

Hinge the rudder and ailerons in the same manner

Cover the top of the ailerons with strip of MonoKote film by cutting a MonoKote approximately 3 cm. width and fit to aileron length. Work slowly from S4

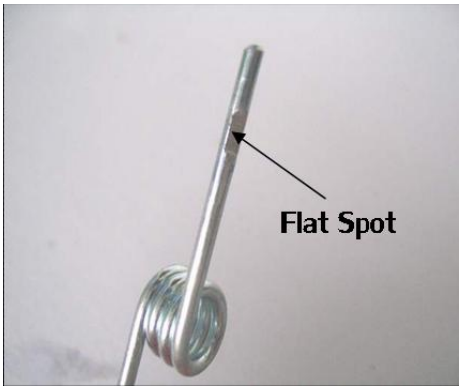
Glue the landing gear fairing to the landing gear wire with CA

Install wheel pant

Attach nose gear strap to the nose gear wire as shown in the photo

Insert the Nose Gear Wire into the axle hole. Center the wheel and tighten the wheel collar set screws. Screw nose gear wire onto the wheel pant with strap

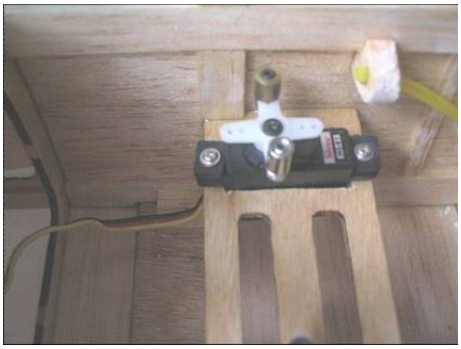
Secure the Nose Gear Steering Arm in position, angled approximately 15 degree forward



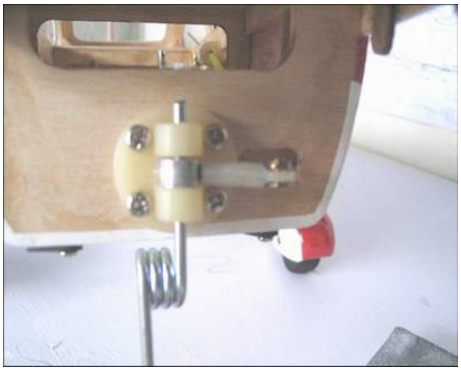
When the Nose Wheel Steering Arm is adjusted, remove the Nose Gear Wire. File a flat spot where the steering arm locking screw contacts the wire so the steering arm can be locked in position.

Install the Main Gear Wire in the same manner with Nose Gear

Thread pushrod tube through A1 as position on the plan and then glue A1 in position with CA



Adjust the height of A2 to align it evenly with the connector, and then glue A2 in position



Clip the Metal Clevis onto the Steering Arm

Install the rudder and elevator Horns as position shown on the plan. Make the pushrods from 1.0 mm. push rod wire and balsa push rod stick as shown on the plan. Mark one of them “rudder,” the other “elevator”.

Lay the pushrod on the fuselage. Determine the location of the pushrod exit slots and mark them with a pen. Drill a hole at the slot location. Then use a cutter to cut out the slot.

Install the elevator and rudder pushrods by inserting them through the opening and out the pushrod exits.

Connect rudder and elevator pushrod to the horn

Route the servo wires through to the opening

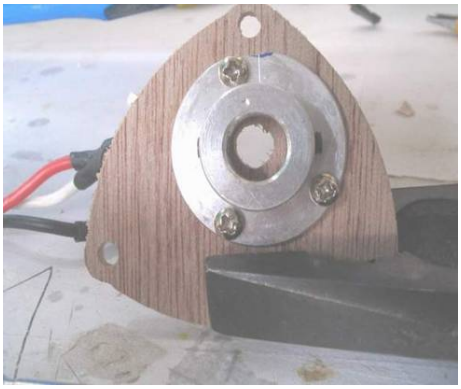
Install the ailerons Horn as position shown on the plan

Mount the aileron servo and connect aileron pushrod to the horn

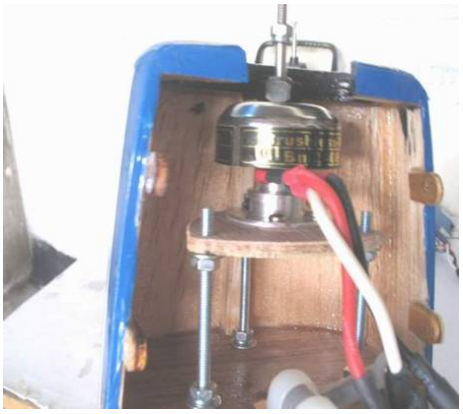
MOTOR MOUNT

Use the following photo as a guideline for mounting your motor

Thread the motor mount screw through F2



Attach motor mount to BM 1



Temporarily attach the motor mount to the firewall to set an angle for the right thrust and down thrust

When the motor mount plate is adjusted, remove the motor, and re-tighten the nuts

Reinstall the motor on the motor mount plate

Get ready to fly!

BUILD LOG

Cessna 182 at the Flying Site

Before first flight at flying field with 40 mm. spinner

Flying weight should not exceed 750 grams and thrust should be at least 500 grams

For the best performance we recommend Brushless Motor BL 2215 (1050 Kv)

Anyone who has mastered a trainer should be able to fly Cessna 182 without difficulty

Thank you and have fun flying your Cessna 182

Other Kits from Chinmodel

PRODUCTS LINE	For more information visit us at www.thaiscalemodel.com

Piper Arrow Cherokee 3 Turbo

- Wing span 42 in Fuselage length 29 in
- Brushless Motor BL2215/1050 Kv or
  2 – Stroke Engine .15 cu in
- Propeller 8x6
- Batt Li-Po 11.1V 2000 mAh
- Flying weight 660 - 720 grams
- Radio 4 C.h. 4 Servos (2 for Aileron)
- Steerable nose wheel

Cessna Caravan 208B (Grand Touring)

- Wing span 46 in Fuselage length 33 in
- Brushless Motor BL2215/1050 Kv or
  2 – Stroke Engine .15 cu in
- Propeller 9x5
- Batt Li-Po 11.1V 2000 mAh
- Flying weight 740 - 880 grams
- Radio 4-5 C.h. 4-5 Servos (2 for Aileron)
- 5th C.h. for cargo door
- Steerable nose wheel

Cessna 337 Skymaster

- Wingspan: 52 in. Overall Length: 39 in
- Steerable nose wheel
- Flying Weight: 1820 grams
- Wing Load: 22 oz./sq ft)
- Bolt-on wing mounting
- Building time 60-80 hours
- Brushless Motor BL2215/1050 KV X 2
- ESC 30 A X 2
- Battery Li-Poly 11.1V 2200 mAh (20C) X 2
- Propeller 9060-1060
- Pusher 9060-1060
- 5 Channel radio system driving 6 Servos
  (Aileron 2)(Ruder 2)(Elevator 1)(Nose Gear 1)

PC-6 PORTER (PILATUS)

Specifications

- Wing span 44 in
- Fuselage length 31 in
- Weight 680 - 780 grams
- Main landing gear and shock absorber like a full size airplane and realistic performance
- Steerable Tail wheel

Requires

- Brushless Motor BL2215/1050 Kv or 2 – Stroke Engine .15 cu in
- Propeller 9 x 5
- Battery Li-Polymer 11.1V 2000 mAh
- 4 Channel Radio, 4 mini Servos (2 for Ailerons)
- Monokote