



Decathlon 107"

USER MANUAL

WINGSPAN: 2700mm

LENGTH: 1890mm



Introduction

Thank you for purchasing our Deacthlon plane. we strive to achieve a good quality quick build ARF aircraft .

It requires the least amount of assembly of any ARF kit to obtain the maximum performance.

Both the design and manufacturing have been undertaken to the highest standards, using best quality hardware, covering, wood & glue during factory construction stage.

By optimal weight and balance along with reliable construction, you will find this plane can do all the tricks while still being stable, forgiving and even relaxing...

We hope that every effort and service we offer will, in turn, give you confidence using PILOT Models.

Have a wonderful time flying your aircraft in a suitable safe space!

Warrant

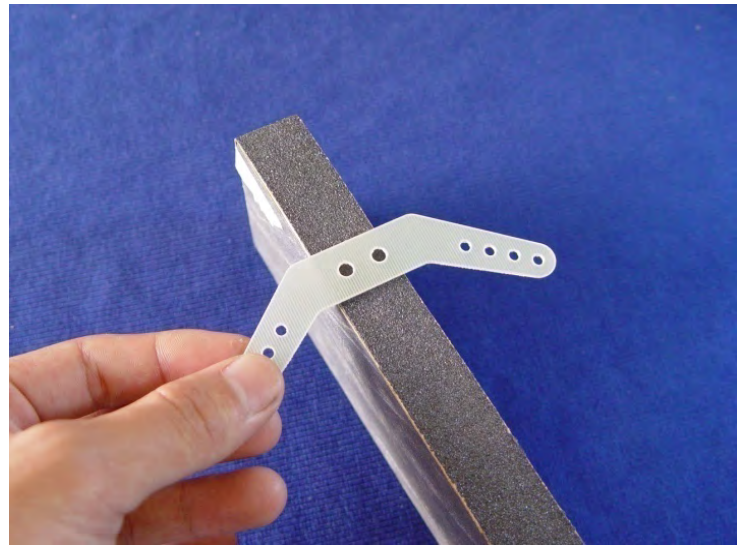
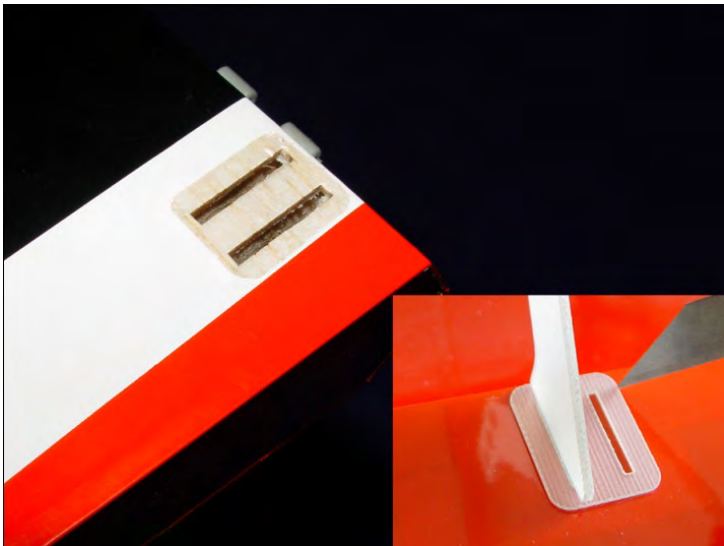
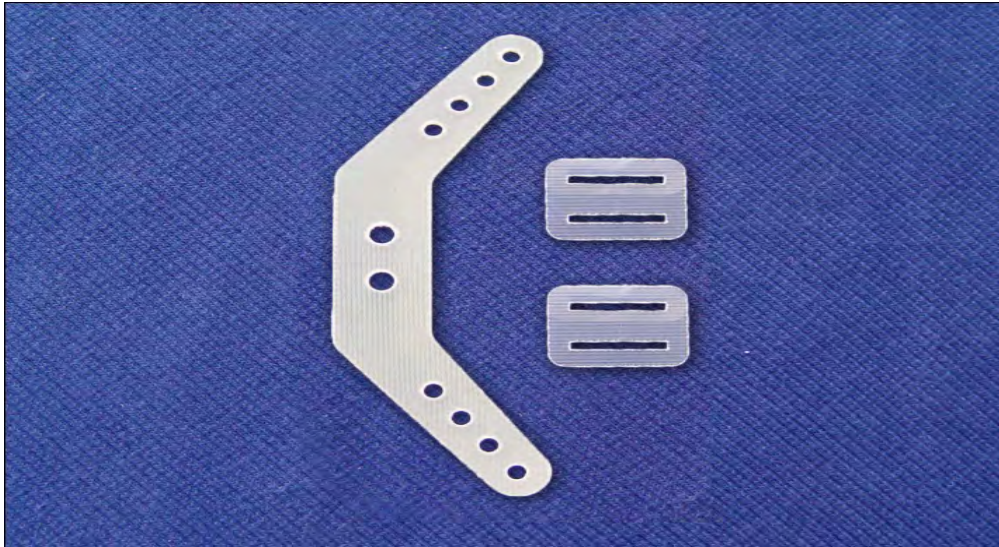
- All Pilot-RC products are guaranteed against defects for 30 days of receiving your airplane. This warranty is limited to construction or production defects in both material and workmanship , it does not cover any component parts damaged through use or modification .
- The manufacture cannot supervise the assembly, operation or maintenance, and is not responsible for radio malfunctions. Please ensure your radio system is in good condition. **We are not responsible for any accident or damage while using this product.** It is impossible to determine for certain whether crash damage was the result of improper installation of our products, a radio system failure, or pilot error. Model airplane owners use our products at their own risk.
- Pilot-RC will not be liable for any costs, unless agreed and proved beyond doubt the failure was due to faulty materials or fabrication. Any agreed cost will not exceed the cost of the airframe and not include engine, radio equipment or third party claims.
- Should you wish to return a product or receive replacement parts, all shipping cost must be paid by the customer.

Attention

- 1. **Do not regard this plane as a toy!**
 - 2. To ensure safety, please read the instruction manual thoroughly before assembly.
 - 3. Building and operating an RC Plane of this nature requires previous experience and competence to an experienced level. This plane is not for a beginner!
 - 4. If you are in doubt have an experienced pilot at hand. Diligent practicing and correct guidance is essential, accidents can cause bodily harm and property damage.
 - 5. Seek assistance from an experienced person or airplane model clubs in assembly, operation and maintenance to ensure successful training.
 - 6. **Fly only in a registered RC model club airfield** that is approved by your local Academy of Model Aeronautics (AMA).
- Pilot-RC has the right to revise the plane, the instructions and the limited warranty without notice. If you have any problems and questions please contact Pilot –RC:
Email: pilot-rc@139.com , info@pilot-rc.com
Phone:+86 760 88781293
FAX: +86 760 88780293
Address: No.34, Chengnan Er Road , Zhongshan city, 528400, Guangdong Province, China

Rudder Assembly

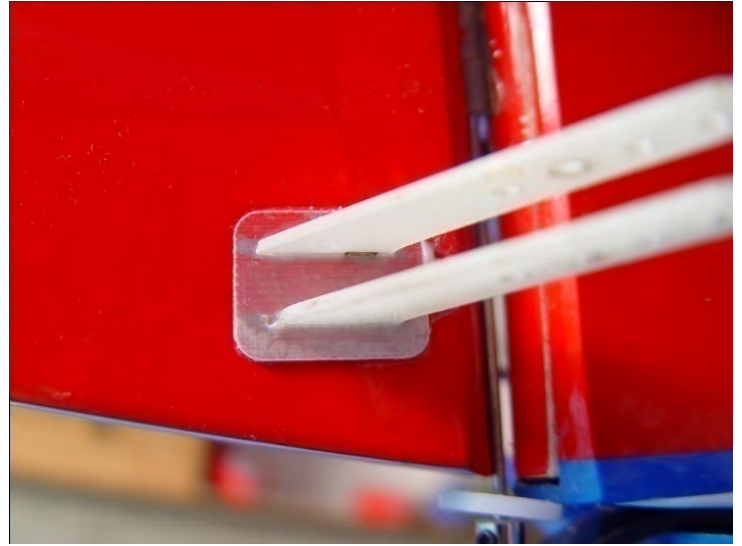
Rudder Horn



Slice covering over factory installed slots. Press control horn into position. Trace around the locking plate with a knife and remove the covering.

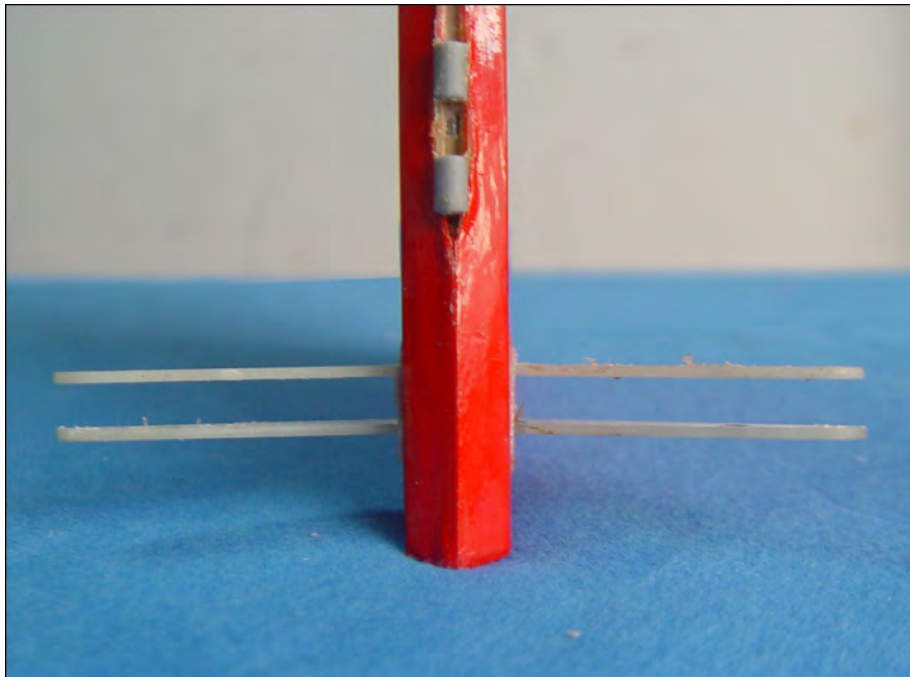
Scuff the middle of horns with a piece of sand paper for good glue bond. Wipe off sanding dust prior to gluing.

Rudder Assembly



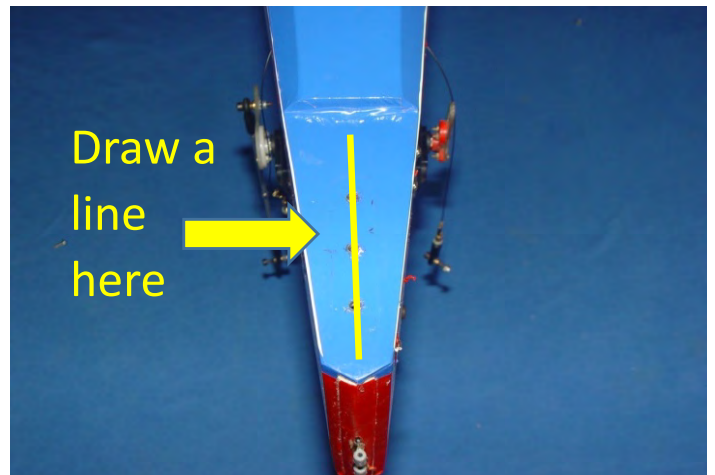
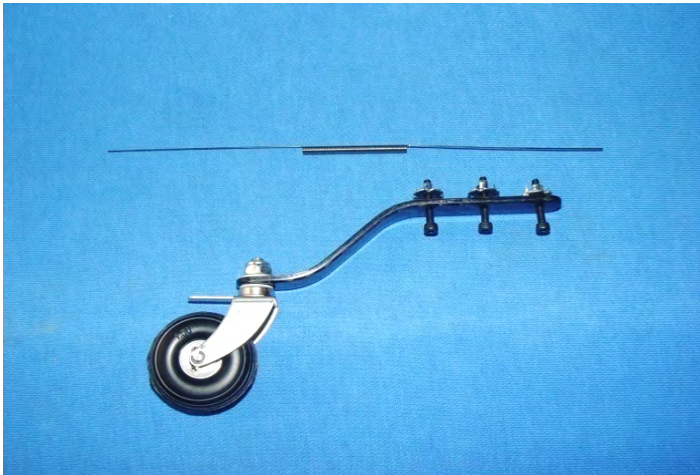
Apply the 30 minutes epoxy inside the pre-cut slot, and coat the horn with epoxy as shown.

Slide the horn into slots with locking mount plates. Wipe away excess glue with rubbing alcohol.



Make sure the horn is perpendicular to the rudder.

Tail Wheel Assembly

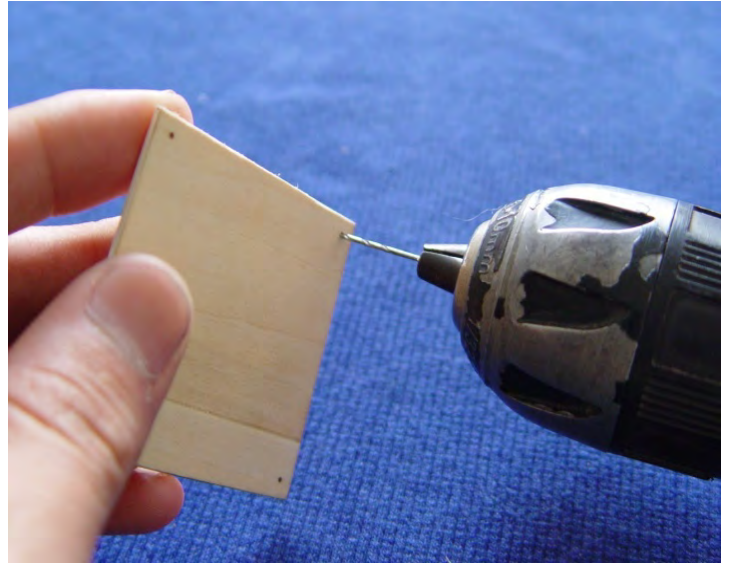
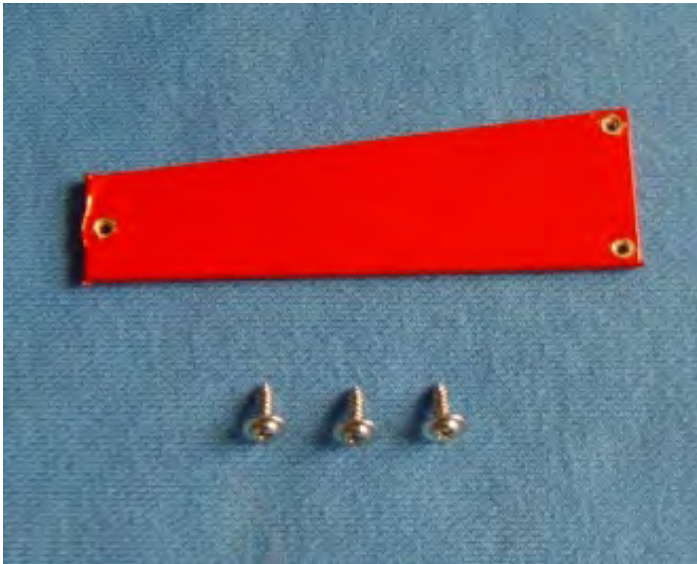


Draw a center line with a fine line marker as shown.

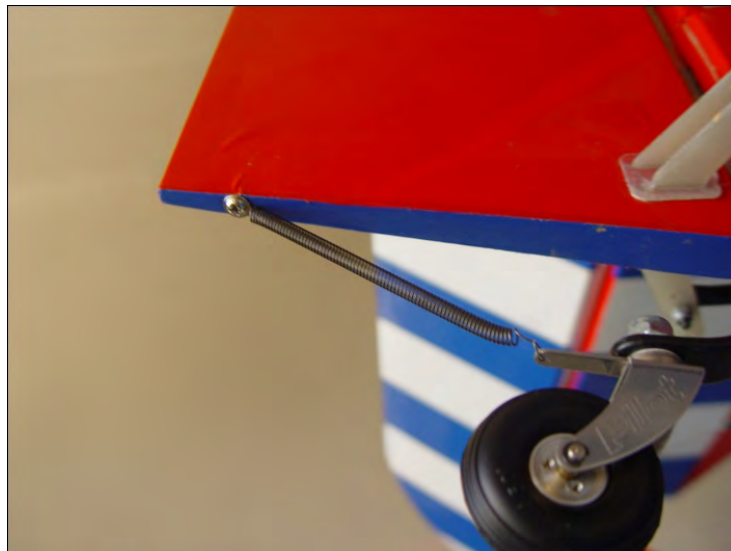
Locate and drill holes in the tail wheel mounting block.

Install the blind nuts through the opening in the rear of the fuselage. Mount the tail wheel assembly using blue Loctite on the threads screws.

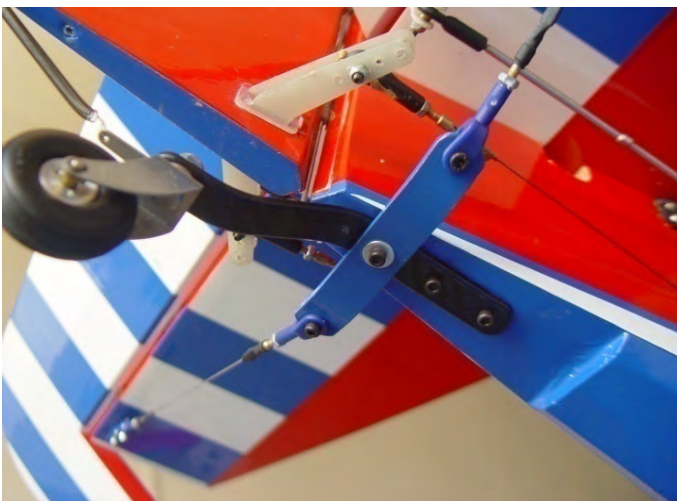
Tail Wheel Assembly



Install the hatch over the opening in the rear of fuse with 3 screws in accordance with the pre-drilled holes

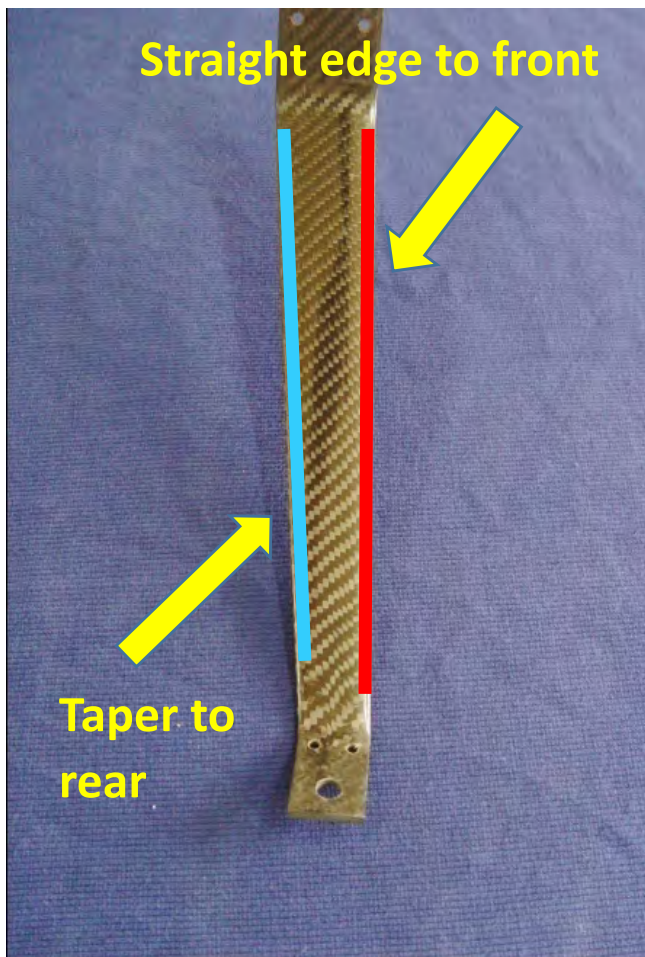


Drill a 1mm hole in the bottom of the rudder and mount steering spring with a wood screw as shown. Cut off excess wire from the spring.



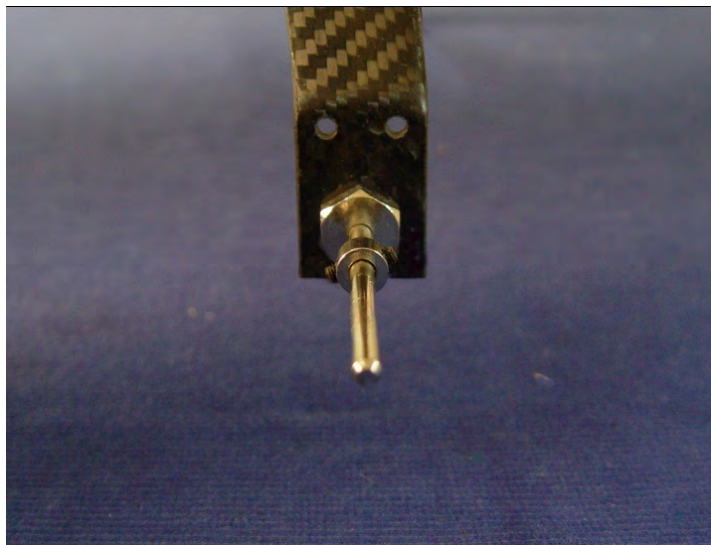
Ensure the spring is under slight tension.

Landing Gear Assembly



NOTE: The main landing mounting direction.

Landing Gear Assembly



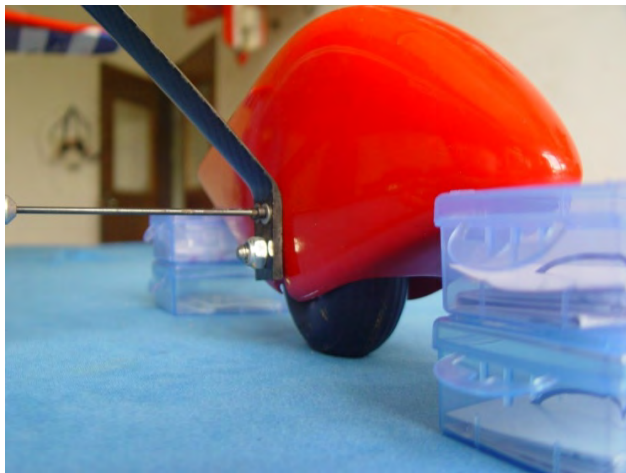
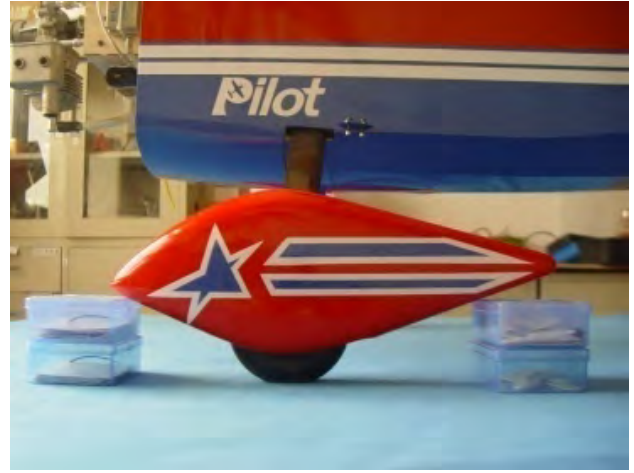
Install the landing gear with the bolts and locking nuts. Do not over tighten the hardware.

Install the landing gear axles with lock nut.

Tighten the lock nut against the landing gear strut making sure the flat sides of the axle bolt vertical with ground.

Install wheels and wheel collars using loctite on the set screws

Wheel Pants Assembly



Level the fuselage and place the wheel pants over the wheels. The cut out in the wheel pant is cut to fit the hex nut on the axle. Check for proper clearance over the wheels and that wheel pants are level with the fuselage.

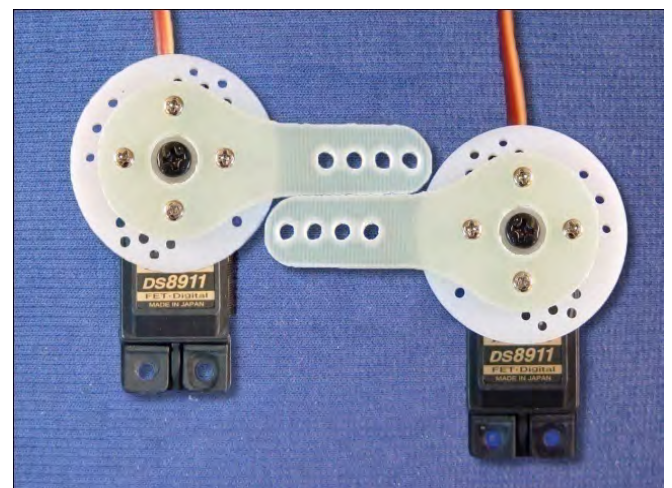
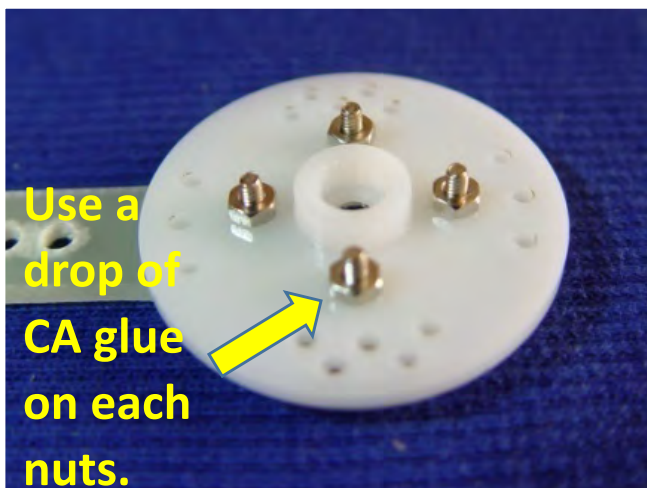
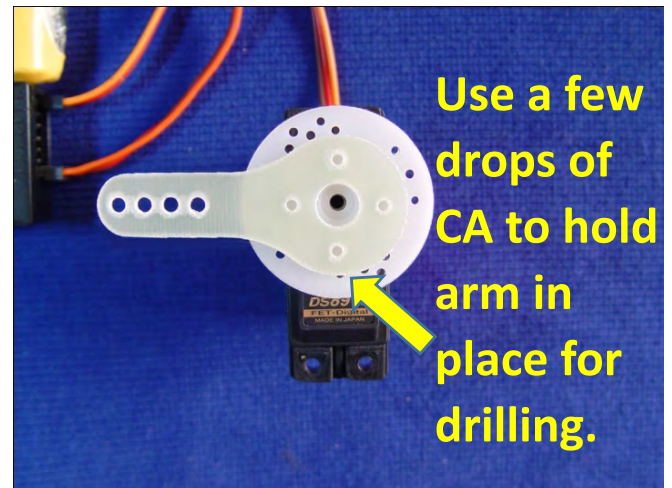
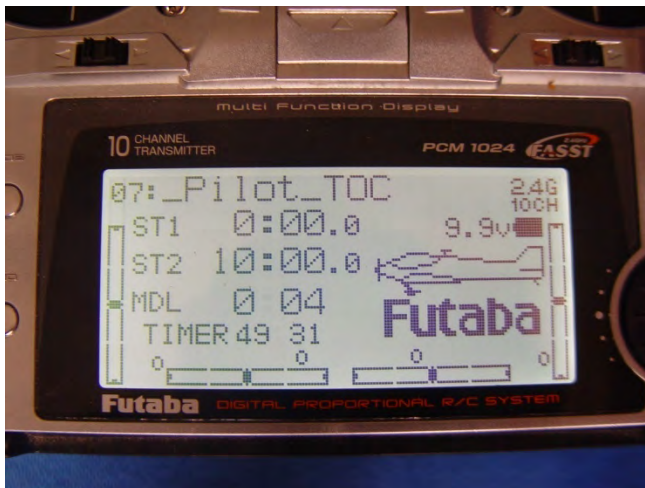
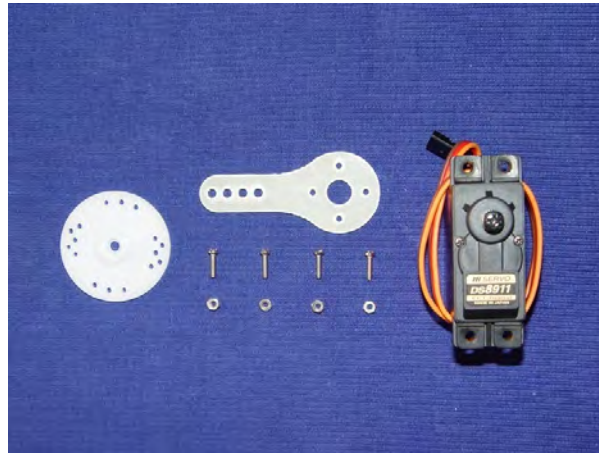
Drill the holes for the mounting bolts and install the blind nuts.

Finish the wheel pant mounting with the bolts and use Blue Loctite on the threads.

Servo Arm/Horn Assembly

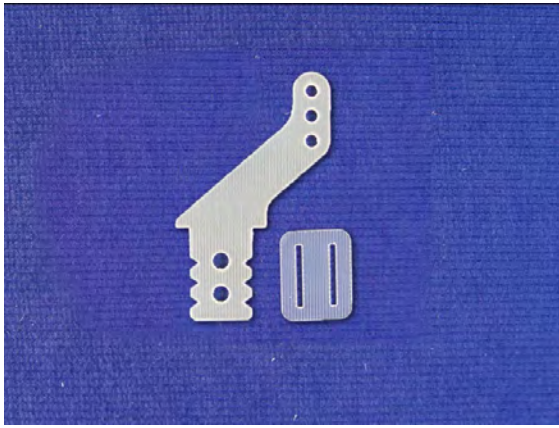
Servo Arm Installation

Minimum servo specs: 180 in. Oz / Metal Gear / Digital



Turn on your transmitter and make sure servos are centered before putting on servo arms.
Locate and drill 2mm holes into nylon servo arm to attach the included fiberglass servo arms.
Mount the screws and nuts.

Servo Arm/Horn Assembly



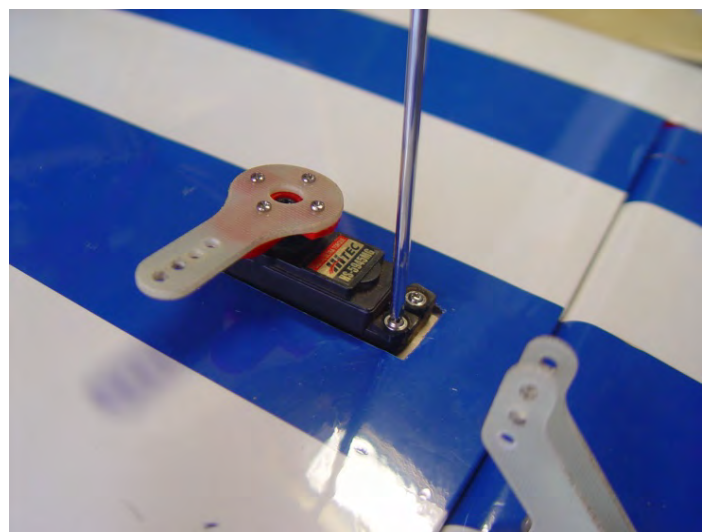
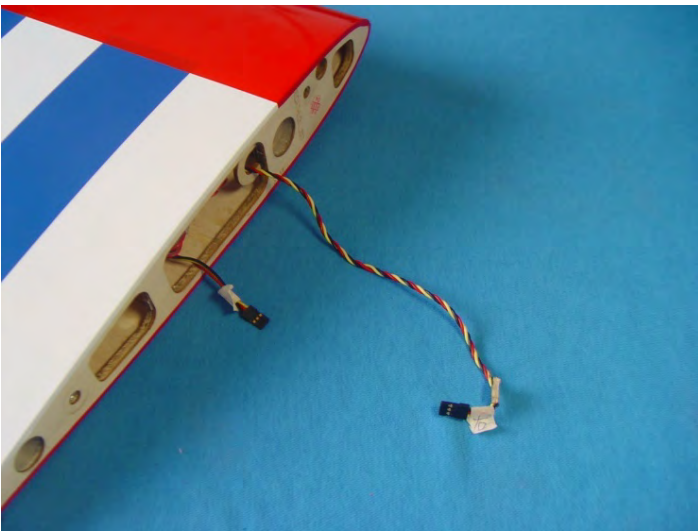
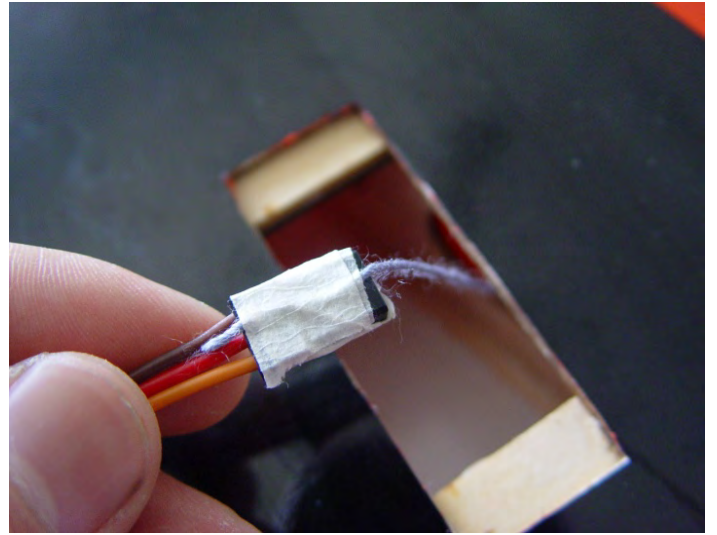
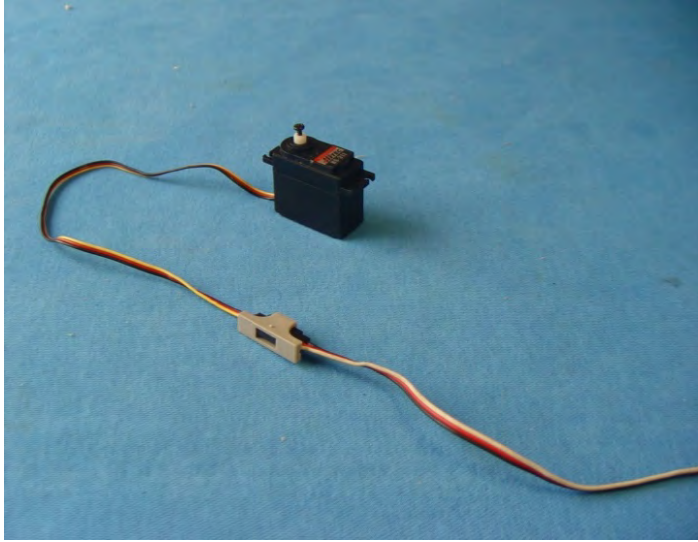
Slide covering over factory installed slots. Press control horn into position. Trace around the locking plate with a knife and remove the covering.

Scuff the horns with a piece of sand paper for good glue bond. Wipe off sanding dust prior to gluing.

Apply the 30 minute epoxy inside the pre-cut slot for horn and coat the horn with epoxy as shown

Slide the horn with locking plate into place. Wipe away excess epoxy with rubbing alcohol. Note: Some trimming of the horn might be required for the horn to fit flush.

Aileron/Flaps Servo Installation



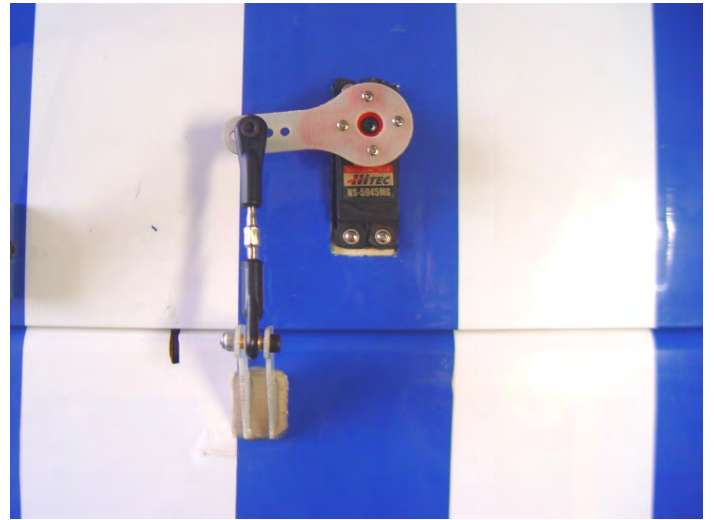
Add a servo extension to each aileron servo. Install connector safety clip to as shown to connection.

Locate servo cut outs and remove the covering with a knife. Tape the servo lead securely to the pull-string

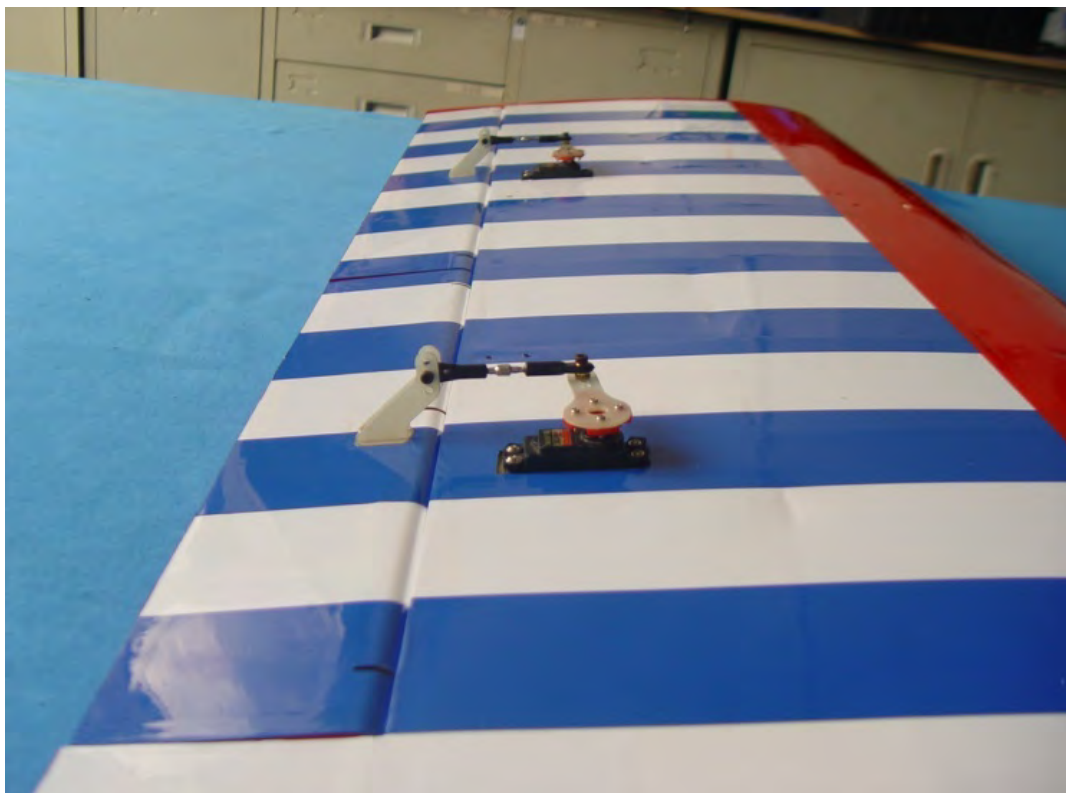
Pull the extension lead through to the root of the wing.

Use a 1mm drill bit to drill for the servo mounting screws. Install servo with output shaft toward the leading edge of the wing.

Aileron/Flaps Servo Installation

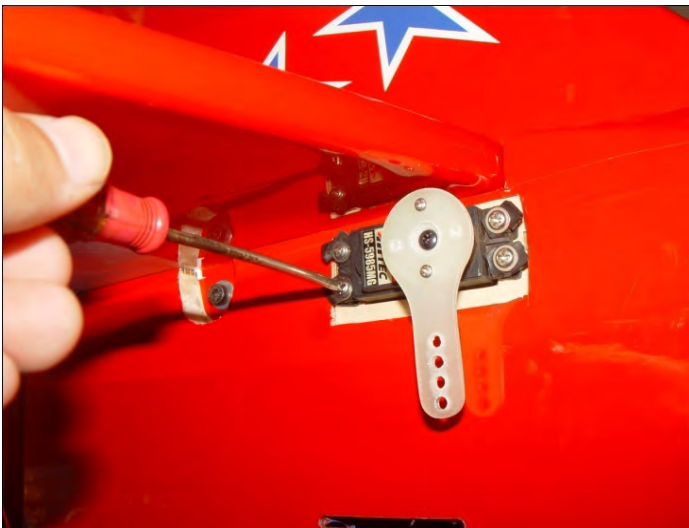
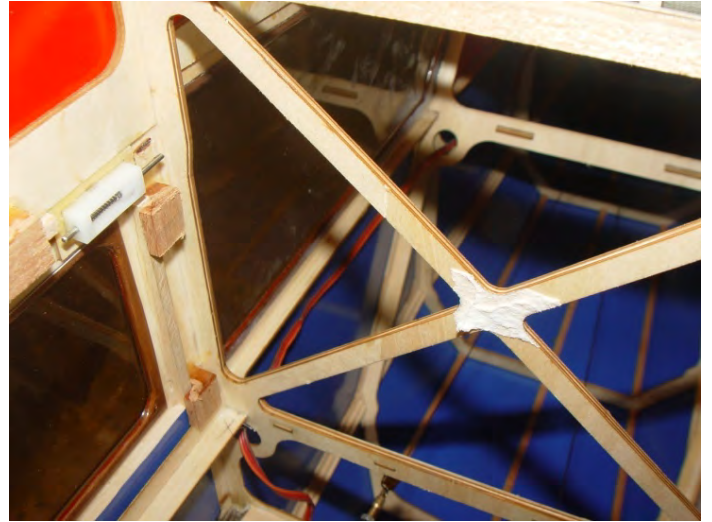
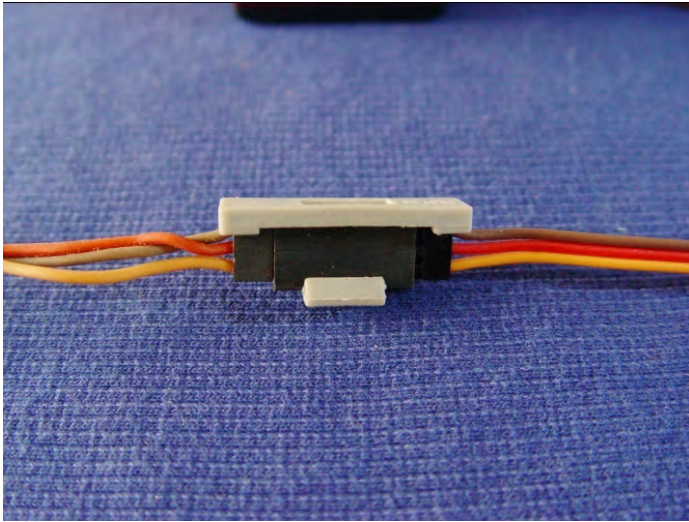


Install the servo arm facing outboard toward the wing tip. Adjust pushrod length so the servo arm is at 90 degrees and aileron panel in neutral position.



Rudder servo installation

Elevator Servo Installation



Connect the servo extension to the servo and install safety clip.

Snake the elevator servo leads into the fuselage using the factory installed pull string. (same process as ailerons)

Use 1mm bit to drill the mounting holes. Install the servos with the output shaft facing forward.

Cut the covering on the pre-drilled hole for stab mounting. Insert carbon spars and slide horizontal stab into position.

Elevator Servo Installation

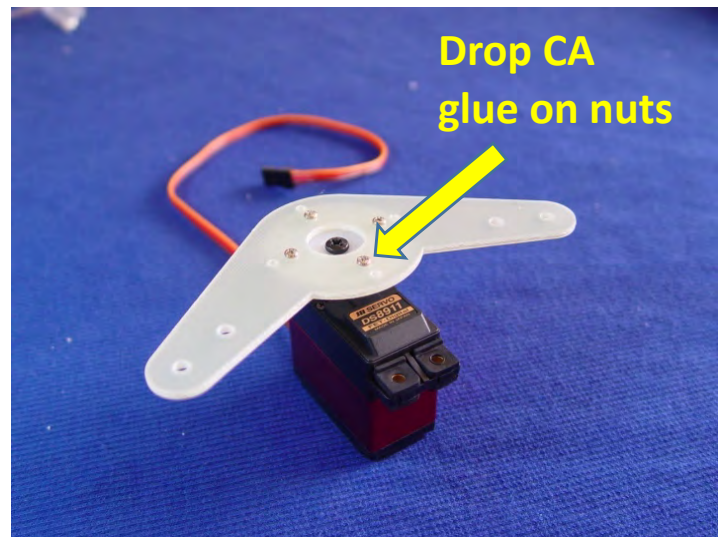
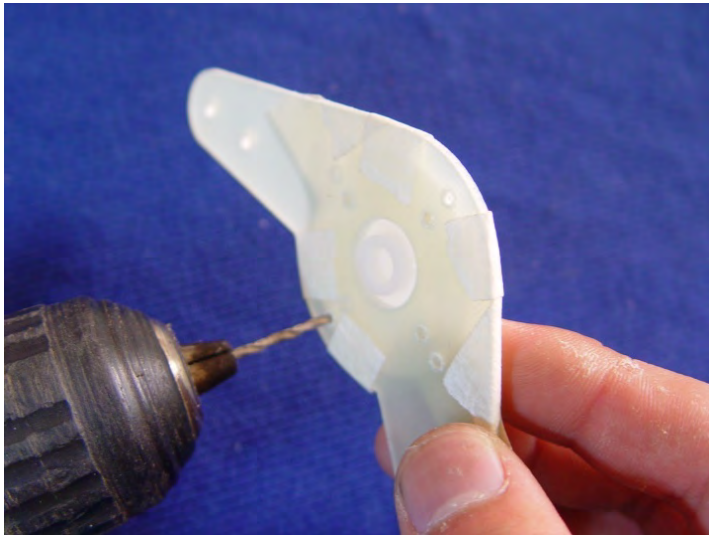
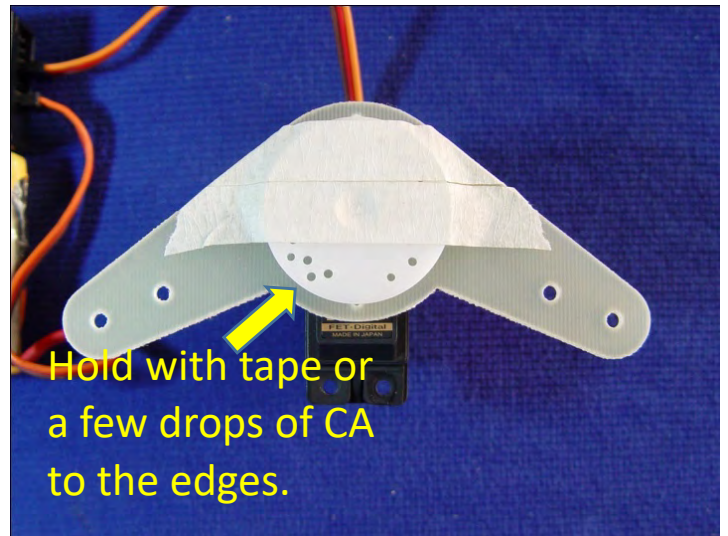
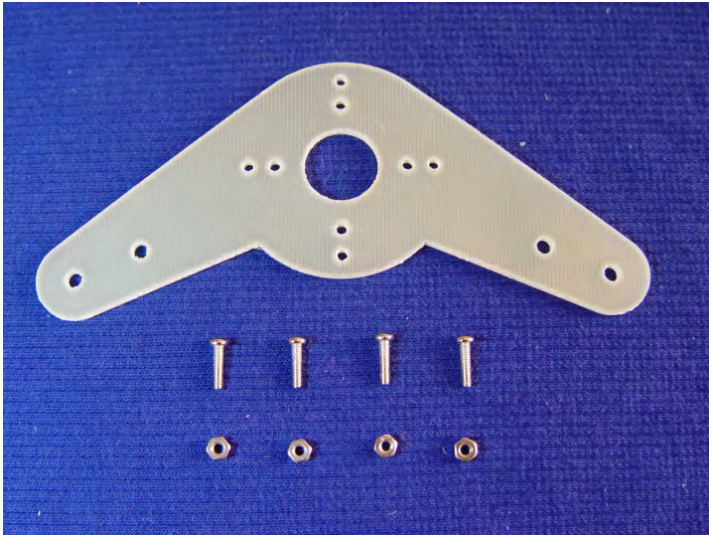


Install the stab with mounting bolts and washers. Apply Loctite to threads before installation.

Install the servo arm facing down. Adjust pushrod length so the elevator is neutral and the servo horn is at 90 degrees.

Repeat steps for the other elevator servo.

Rudder Servo Arm Installation

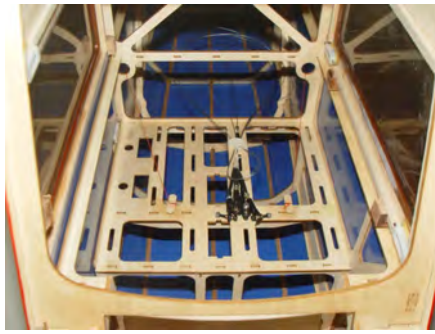


Turn on your transmitter and make sure servos are centered before installing the rudder servo arm.

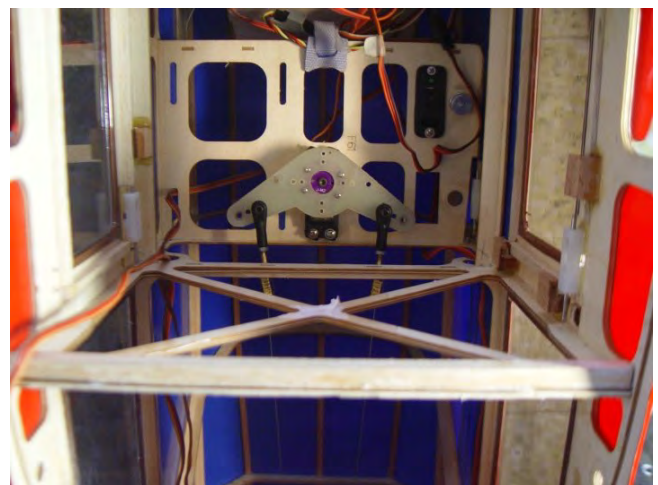
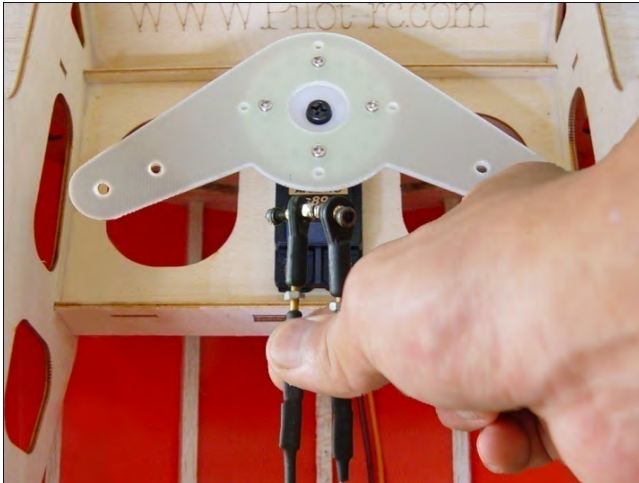
Drill holes with a 2mm bit for hardware.

Mount the screws and nuts.

Rudder Servo Installation (1)



The rudder cables and couplers come factory installed as shown.



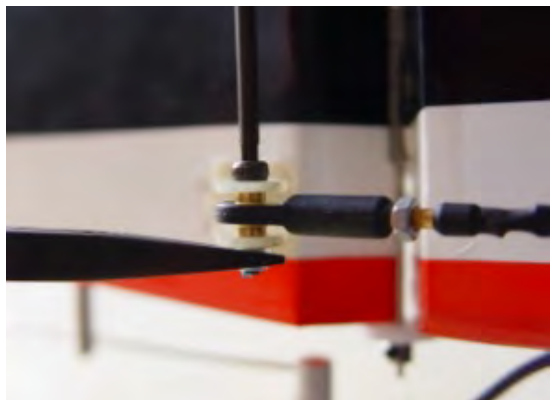
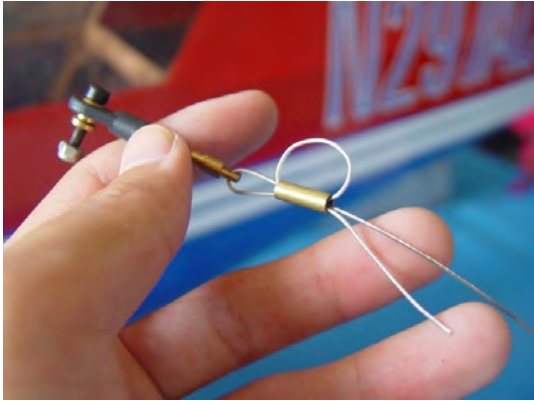
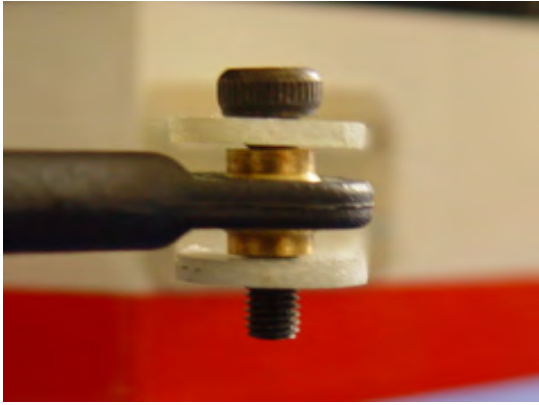
Drill 1mm holes and mount the rudder servo with the output shaft facing forward.

Install the rudder servo arm with cable attach points aft.

Tape the rudder to the vertical fin in the neutral position to help with the rigging.

Mount the cables with the pre-installed ball link cable ends to the rudder servo arm. Cut the covering in the tail to expose cable exit slots. Run the cables out the slots. Make sure the cables cross in the middle.

Rudder Servo Installation (1)



The flat surface of the ball link gets screwed against the servo arm. Install ball link to rudder control horn temporarily.

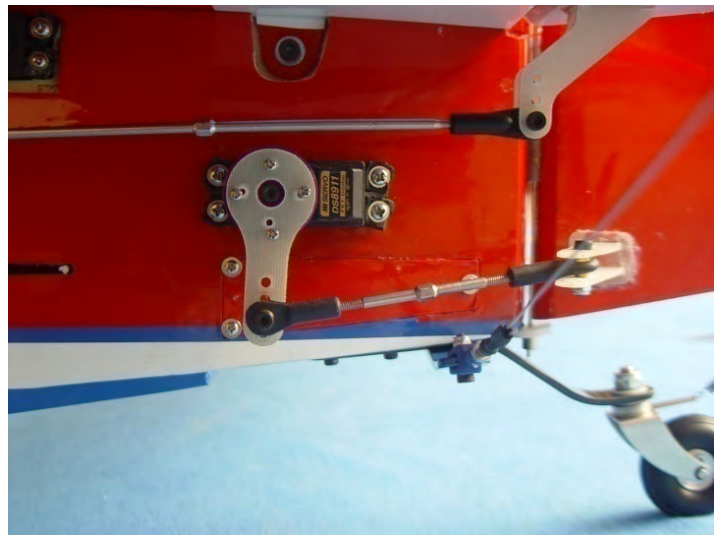
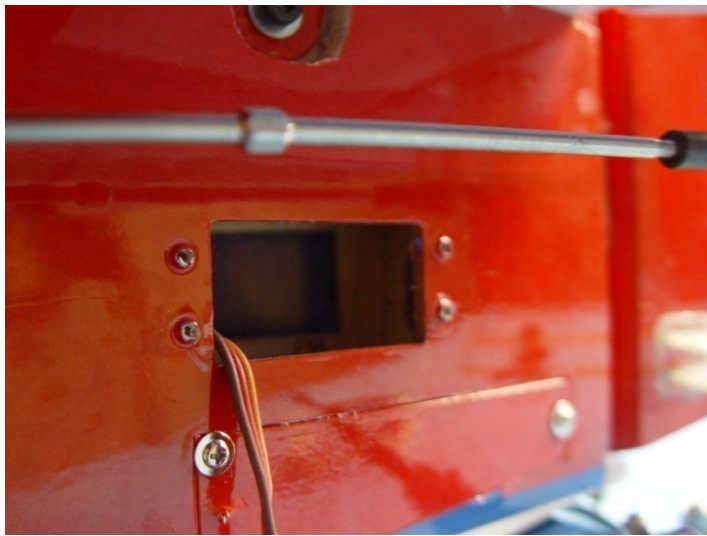
Prior to connecting rudder cable to the ball link, slide a section of heat shrink tubing and copper tubing. Run cable as shown looping around tubing. Remove excess slack from cable and crimp with diagonal pliers.

This is what a completed cable should look like. Cut off excess cable after crimping. Repeat process for opposite rudder cable.

Shrink the heat shrinking tube over the crimp for a clean appearance.

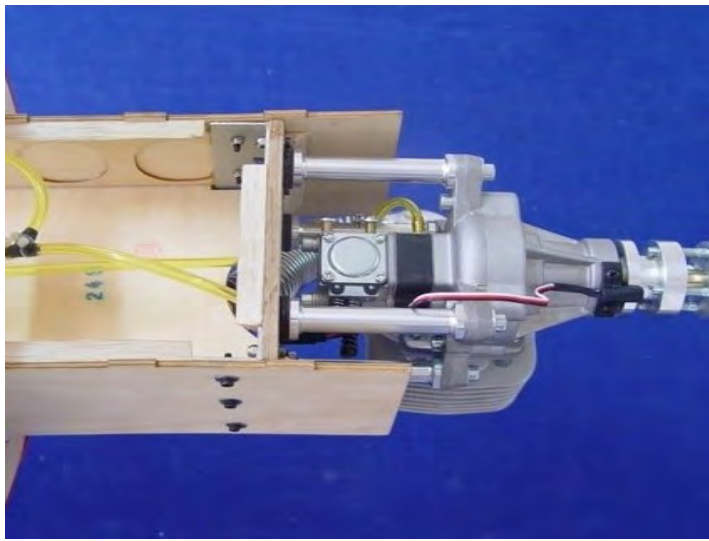
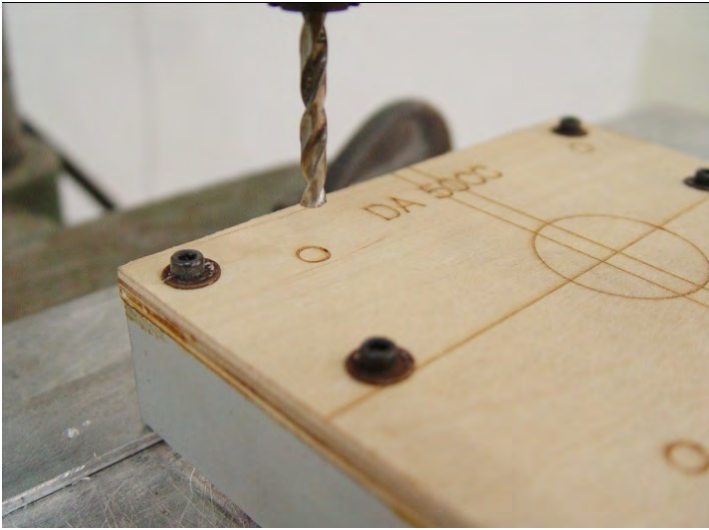
Adjust the rudder cable threaded fair leads to obtain appropriate cable tensions. Remove tape that was holding rudder straight. Tighten jam nut to lock ball link in position and permanently install ball link to rudder horn.

Rudder Servo Installation (2)



The process for the rudder servo installation is the same process as for the ailerons.

Engine Installation



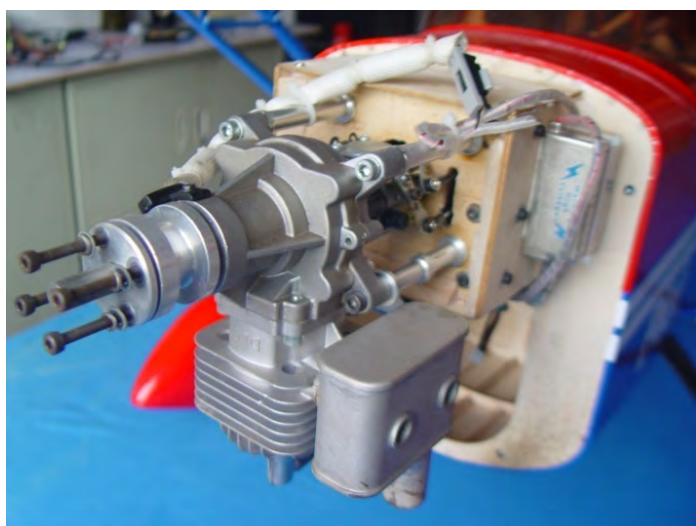
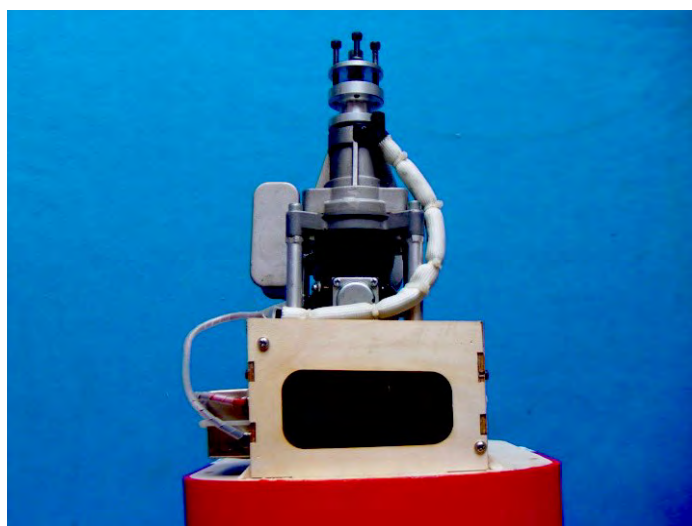
Using a template, locate, drill, and install the engine centered to the firewall.

Fit the firewall with the attached engine into the motor box (without glue). Install the engine cowl over the engine. Install the spinner bulkhead onto the engine and center the spinner bulkhead with the cowl.

Remove cowl and mount fire wall at present location. Drill 3mm mounting holes for hardware through the motor box into aluminum angle brackets.

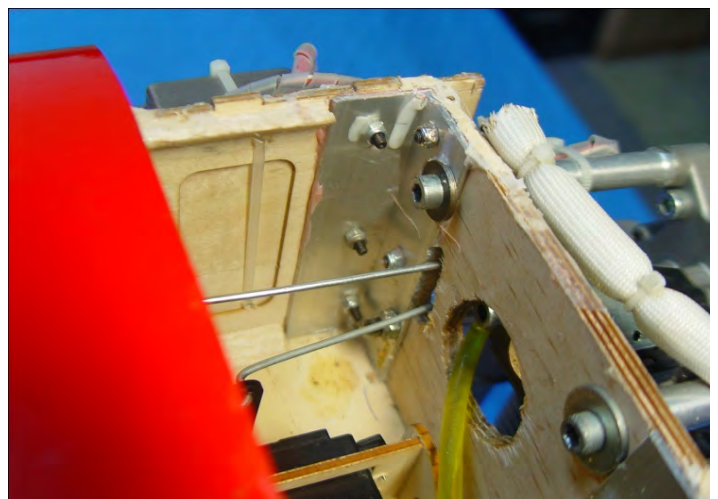
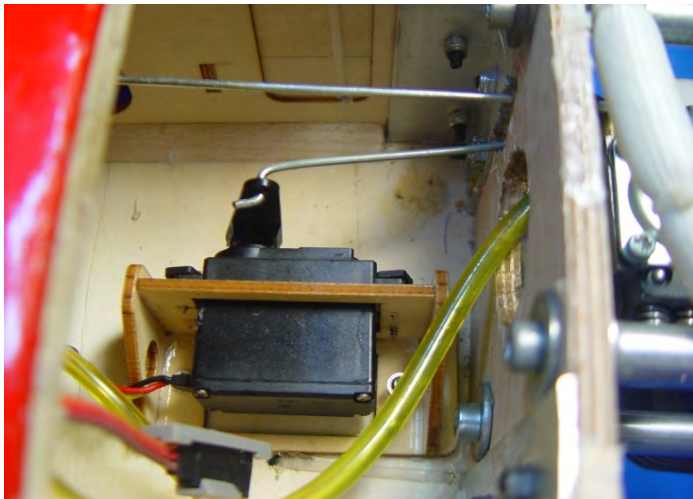
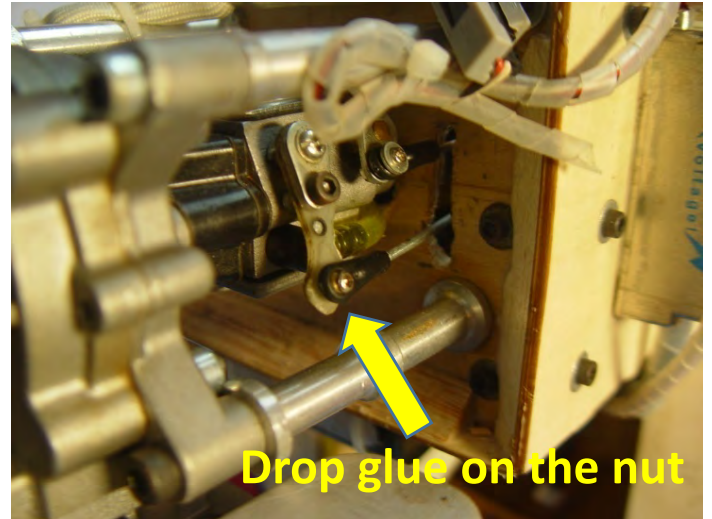
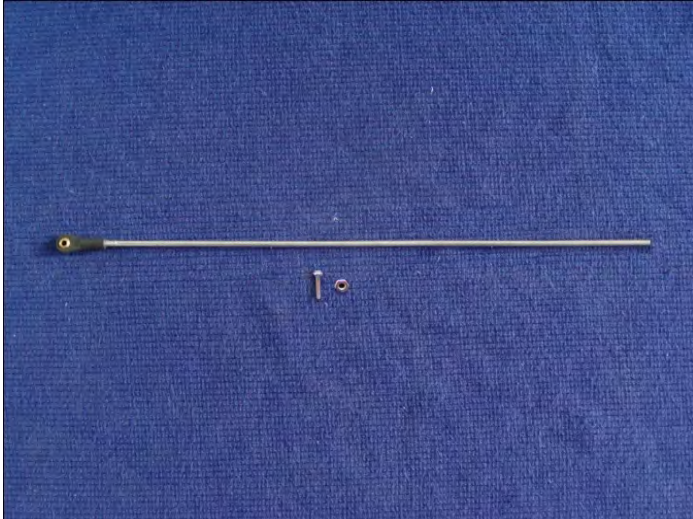
Glue the firewall at that location with 30 minute epoxy. Triangle stock is included to reinforce firewall.

Engine Installation



Note: Use Blue Loctite on final installation of engine mounting screws.

Throttle Servo Installation

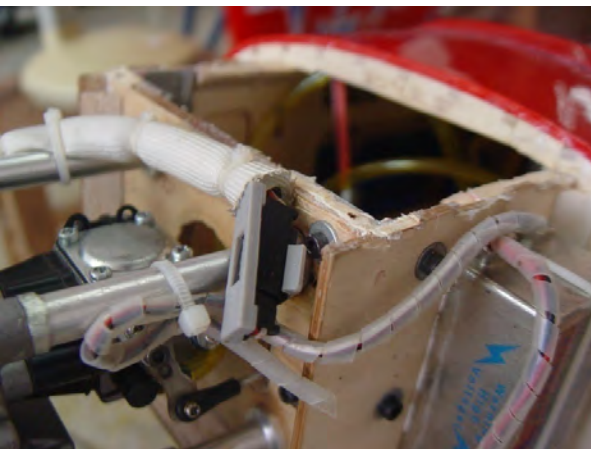
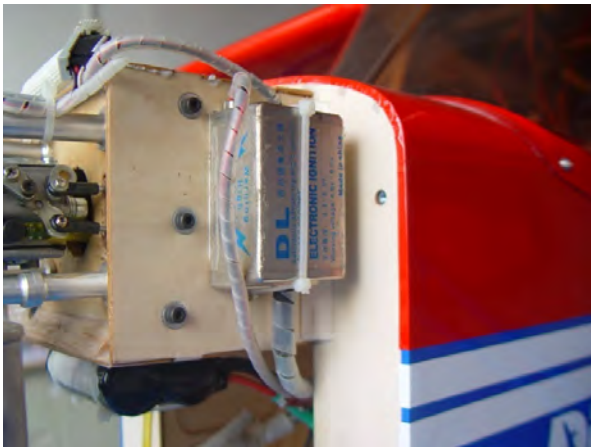
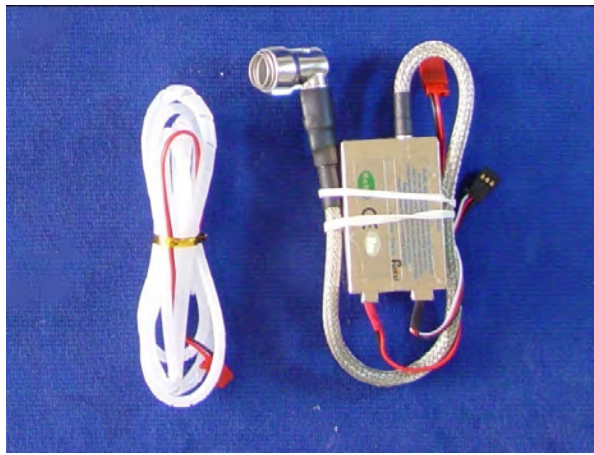


Install the throttle servo in the included mounting tray. Mount the tray in the engine box behind the fire wall. Make pushrod path is in a straight line for a precise throttle linkage connection. Epoxy and screw the tray in place.

Make a hole for push rod path with a Dremel tool. Measure and bend to a sharp "Z" bend as shown. Cut off extra length wire. Mount the throttle pushrod ball end to the throttle arm and "Z" bend to the servo arm.

Finish the servo installation with two additional mounting screws.

Ignition Module Installation

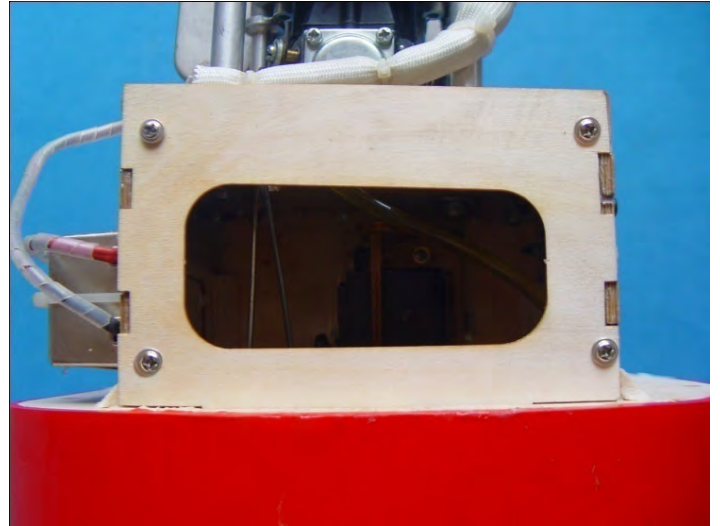
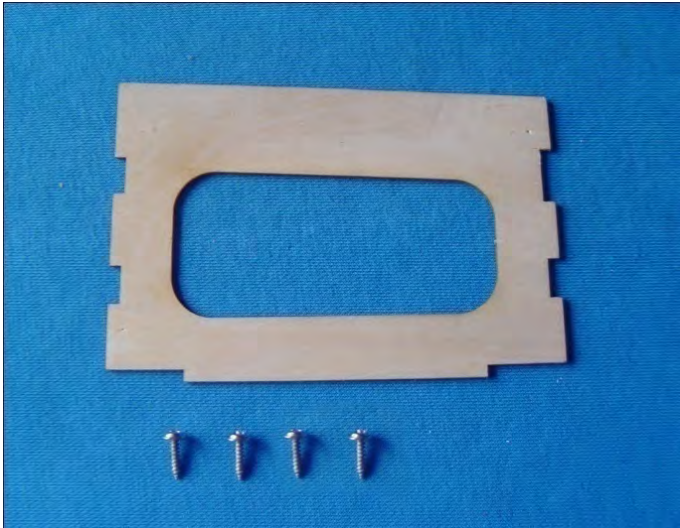


Attach foam rubber to the bottom of ignition with double sided tape and install spiral wrap cover to ignition lead.

Stick the ignition to the outside of the engine box with double sided tape. Allow room for spark plug leads and wire connections. Drill holes in motor box for zip ties and secure module with ties.

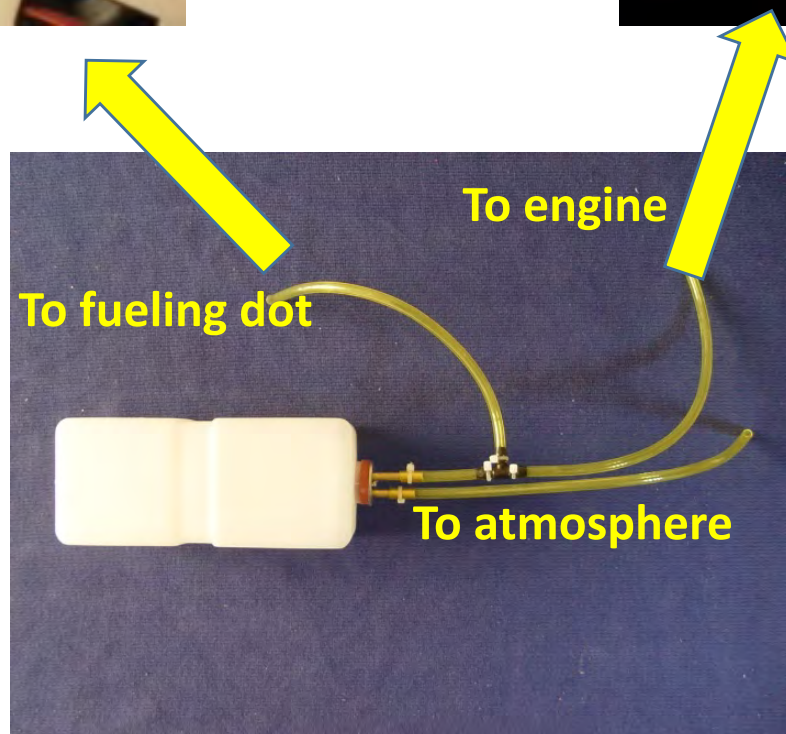
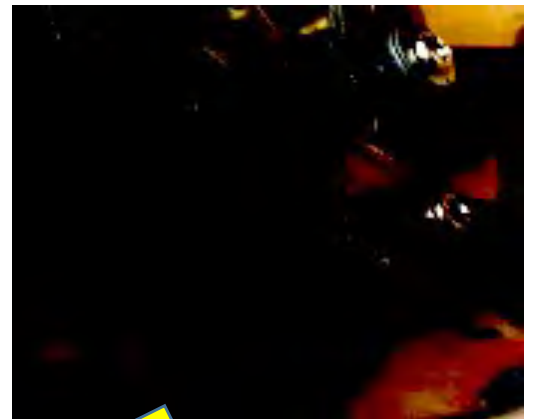
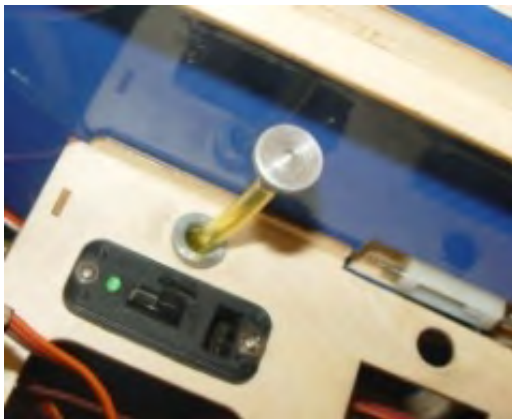
The ignition battery installs the same manor except under the engine box. Lock the connectors with the provided safety clip to prevent vibration from loosening connections.

Engine Box Hatch



Epoxy the hatch in place and install self-tapping screws

Fuel Tank Installation



Fuel Tank Installation



Mount the fuel tank with Velcro straps. There is a factory laser cut hole for the fueling dot aft of the engine cowl on the left hand side of the fuselage. Secure all fuel lines connections with zip ties.

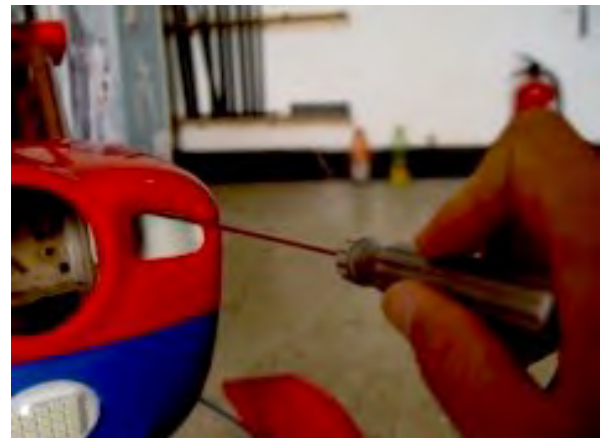
Cowl Installation



Note:
Avoid sharp corners to prevent stress cracking from vibration.



Note: An extended Allen wrench is needed to reach the hardware to remove and install the cowl

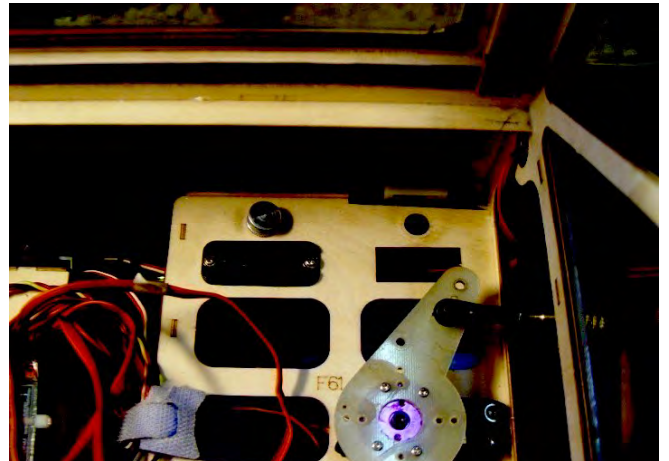
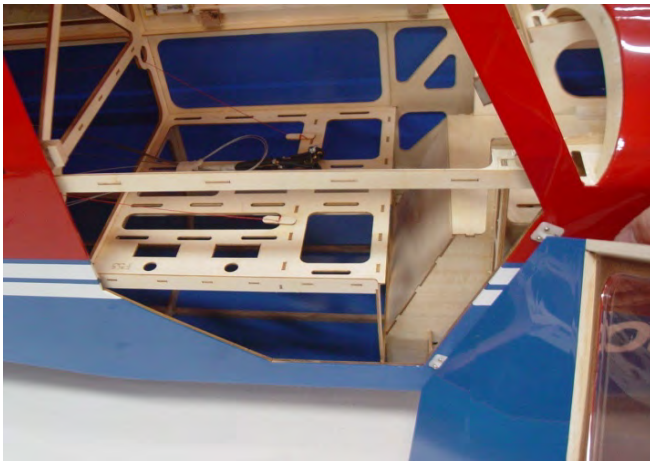


Use a Dremel cutting tool to rough cut the cowl for clearance for the exhaust system and for additional cooling. The air exit hole must be larger in diameter than the air inlet for sufficient cooling. Remove any rough edges with sandpaper.

Install the plastic cooling air deflector(only offer for 107-122" decathlon) to the inside of the cowl. Secure with thick CA or silicone. Some trimming might be necessary for clearance with the engine.

Extend a ball driver tool by cutting standard ball driver in half and adding a section of copper tubing a small heat shrink tubing.

Switch Installation

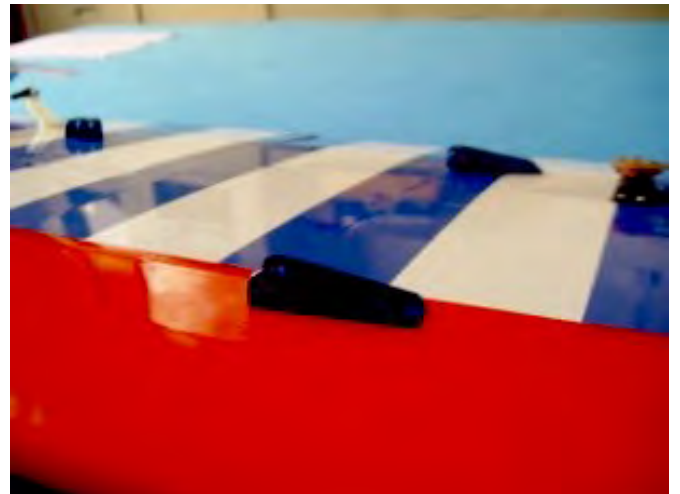
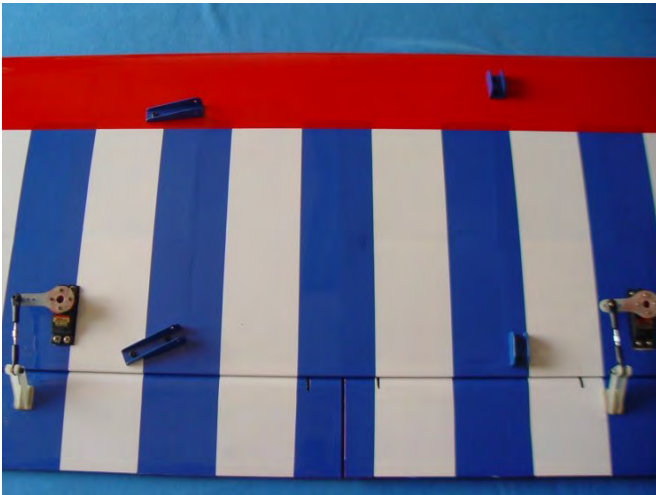
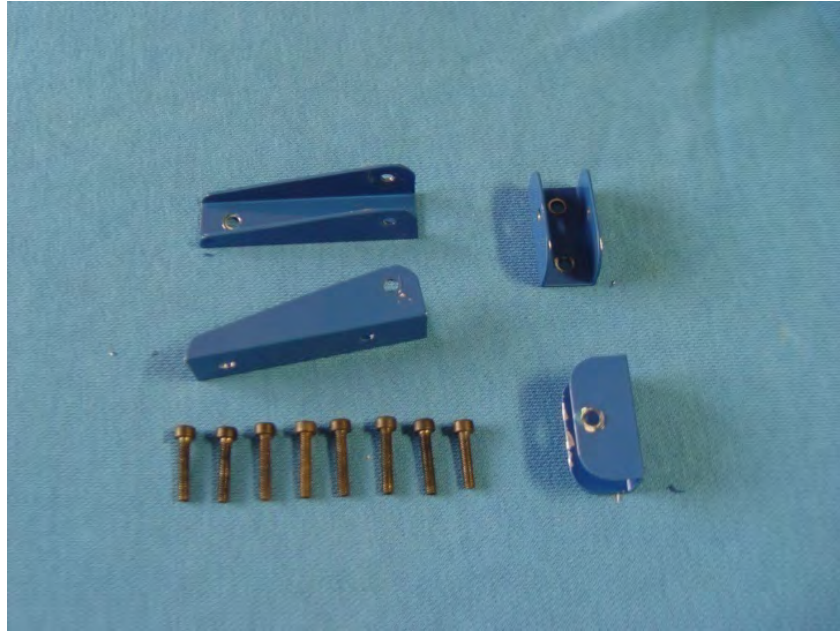


Opening the cabin door exposes two additional pre cut switch locations in the servo mounting plate.

Finish the mounting the switch with screws and nuts.

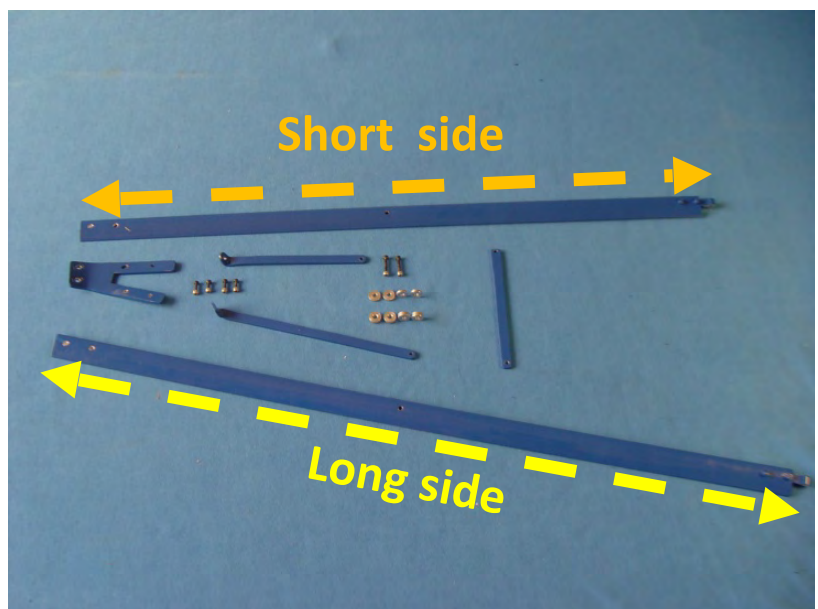
Wing Assembly

Wing
brackets

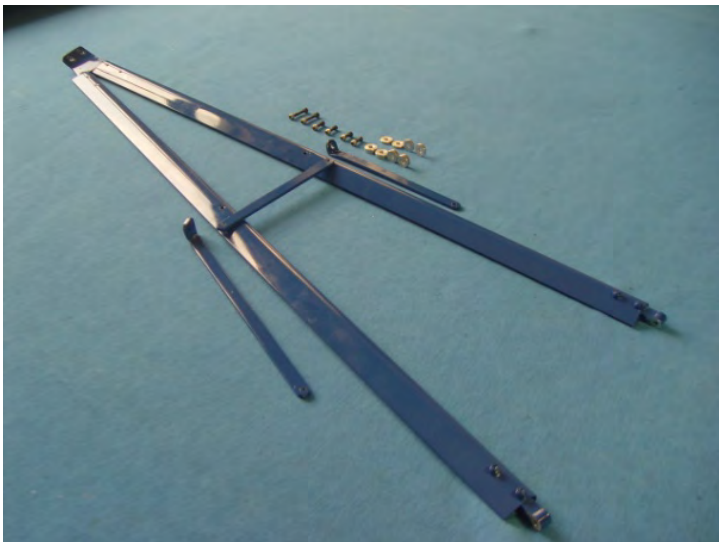
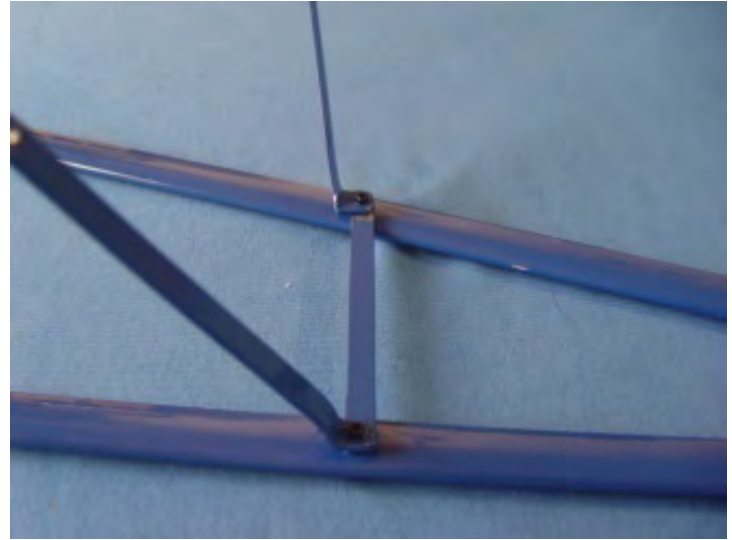
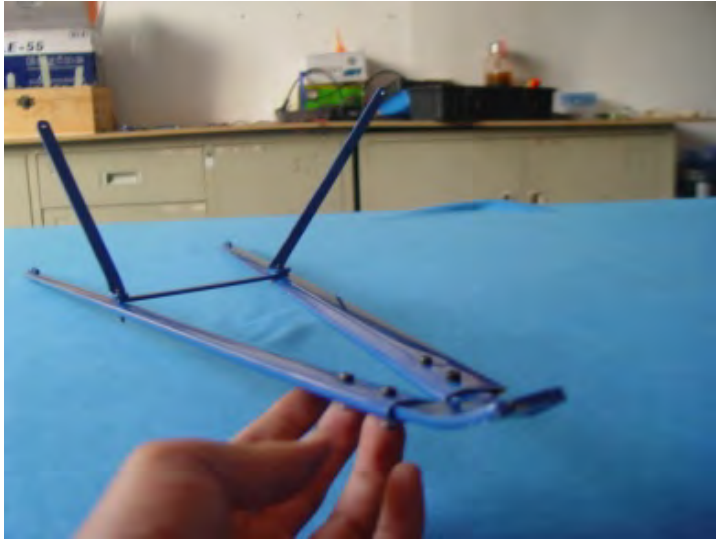


Install the brackets at mounting locations under side of wing. Use Loctite on threads.

Lift strut components



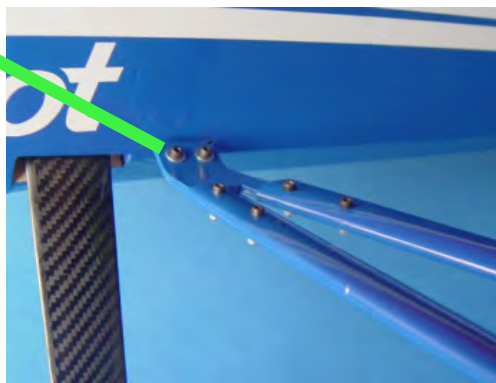
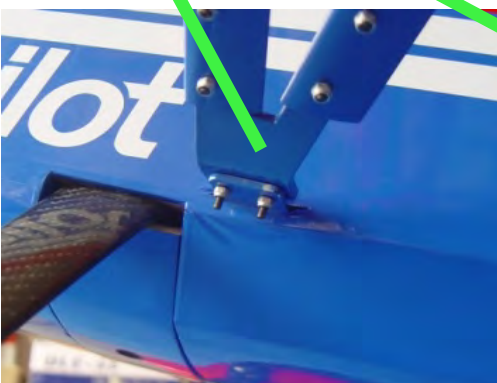
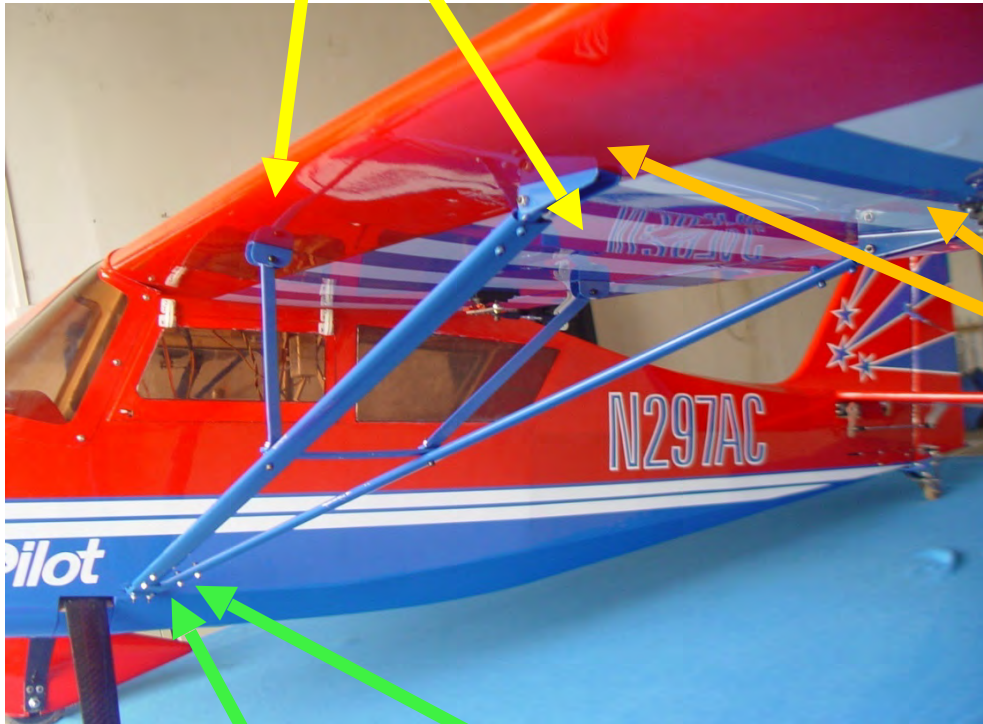
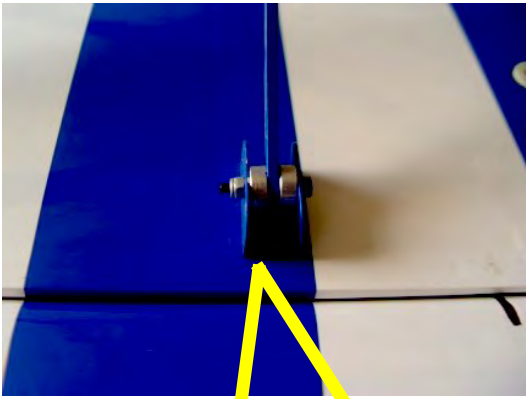
Wing Assembly



Layout, identify, and assemble lift strut components.

Do not fully tighten hardware at this time.

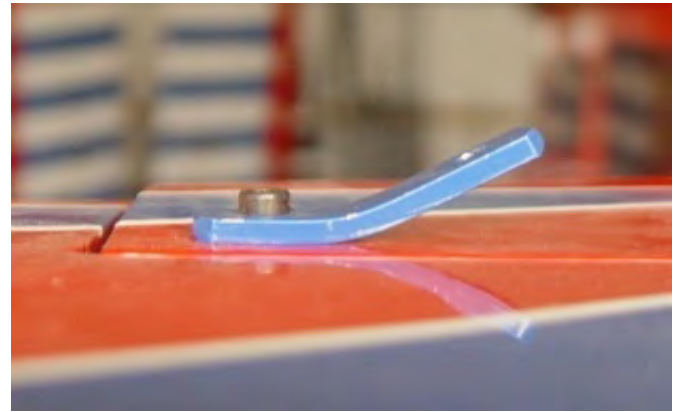
Wing Assembly



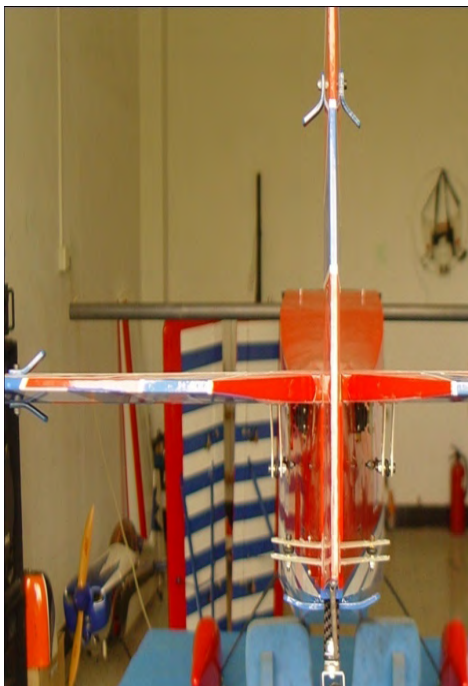
Use the included spacers and mount the lift struts to the wing. Thin spacers are for the out board brackets and thick spacers for the inboard brackets. Leave hardware loose. Install wings on fuselage and make sure every thing is aligned. Tighten all hardware.

Elevator Assembly

Brackets

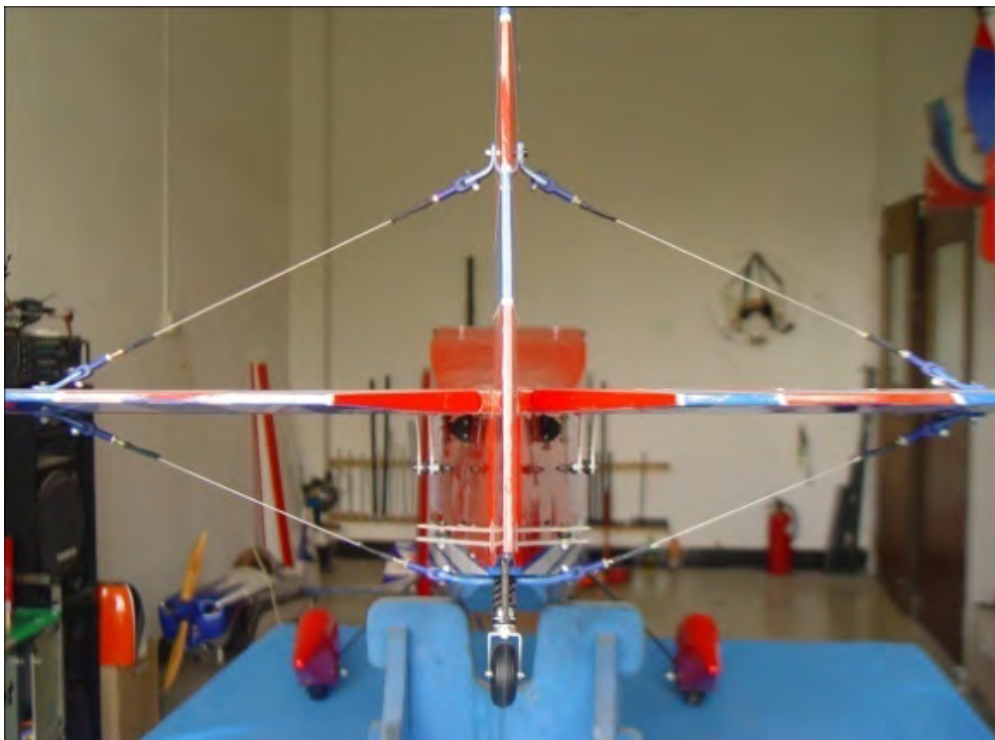
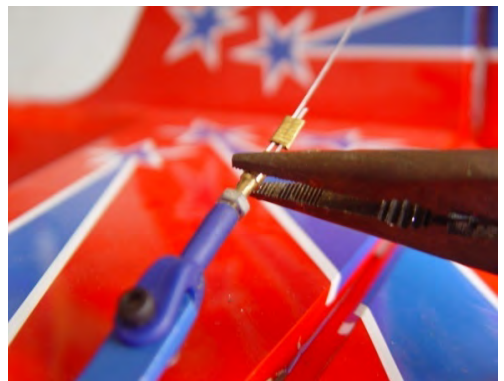
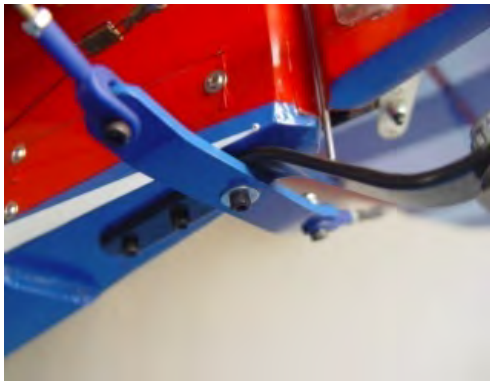
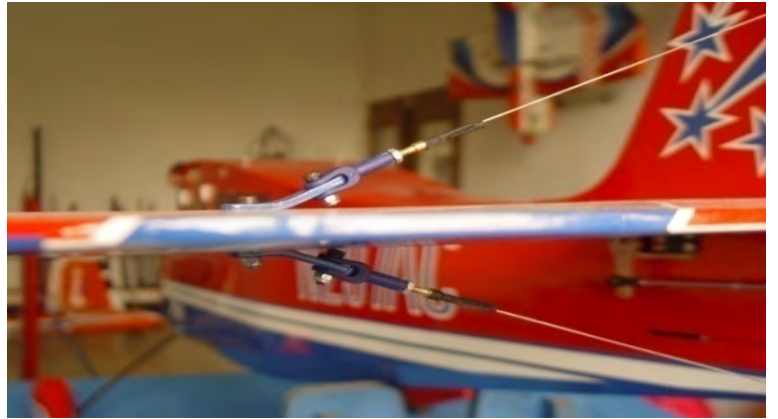
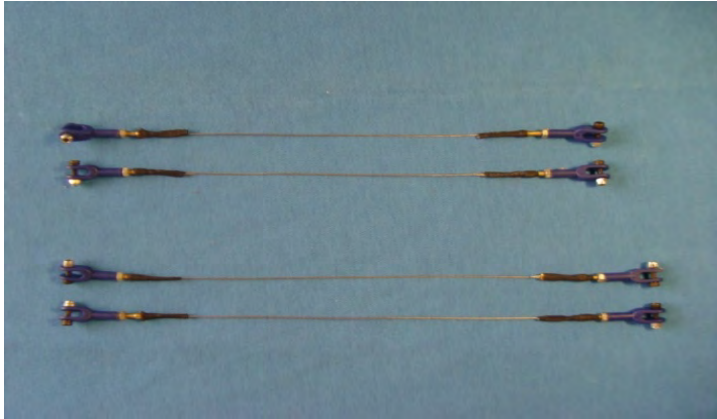
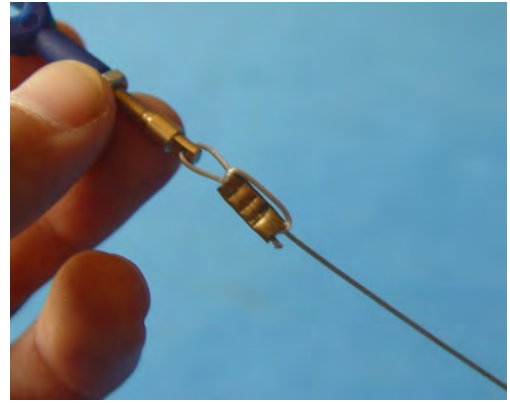
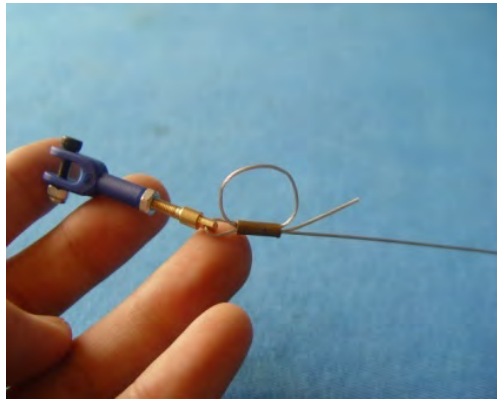
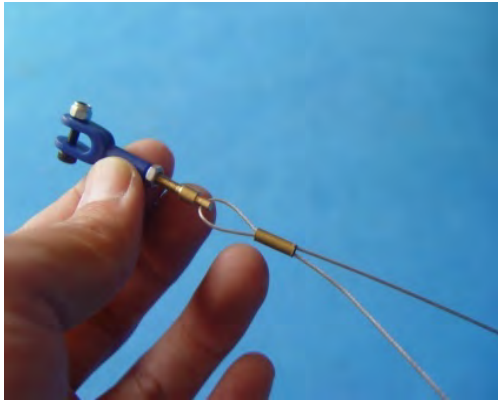


Install the aluminum brackets onto the tail for the wire bracing. There are a total of seven brackets for the tail assembly. There are four identical brackets that are for the horizontal stabilizer, two with steeper bands that are for the vertical stabilizer, and a double sided bracket that mounts on the aft screw of the tail wheel bracket under the fuselage.



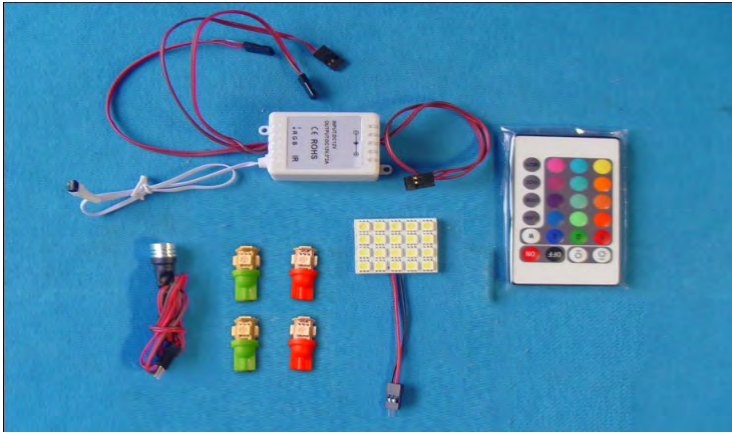
Attach the nylon clevises and threaded cable ends to the metal tail brackets. Install the included cables and crimp into position. Balance cable tensions.

Elevator Assembly

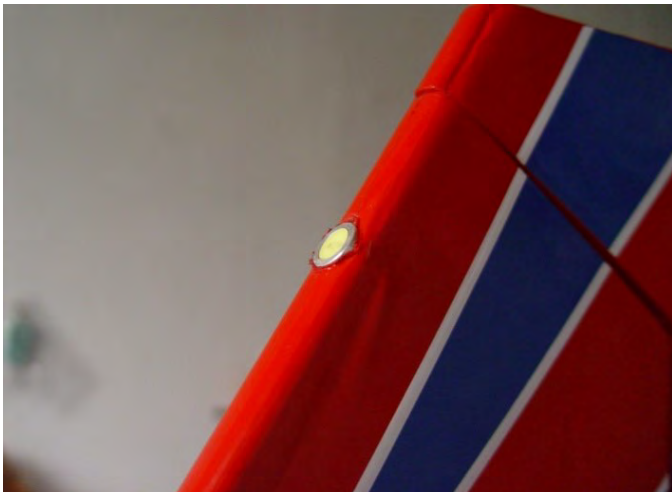
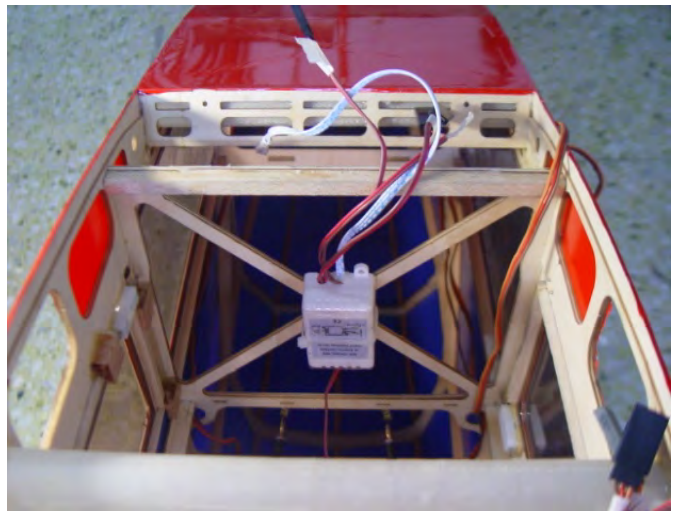
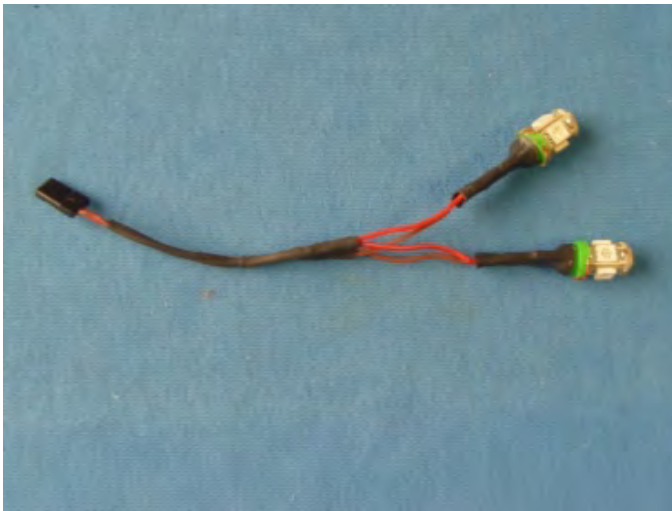


**Note: make sure
cable tensions
are balanced to
prevent warping.**

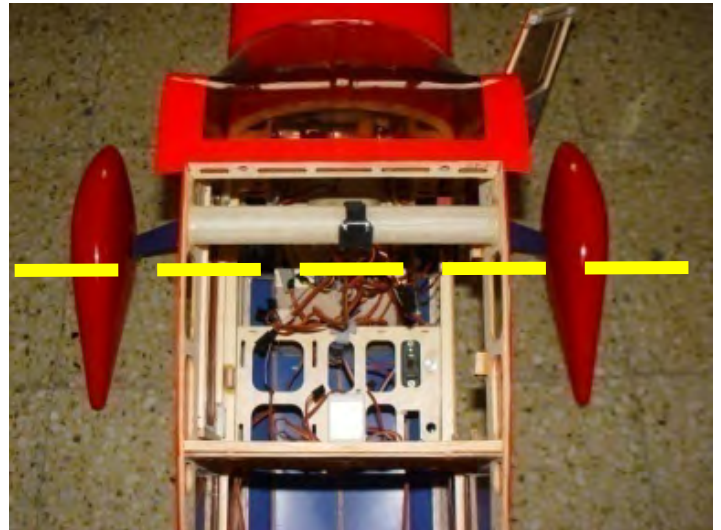
LED Lights Assembly (*Optional*)



Pilot-RC
LED lighting kit
(optional)



Centre of Gravity



The center of gravity is near to the wing tube .For more plane please refer to the CG list.



Avoid adding weight to your Decathlon for CG purposes. Position the batteries where required in order to correctly balance your model. Mount batteries on a bed of foam and secure with Nylon ties or Velcro straps.

Flying Settings

Throttle: Adjust idle –full

Elevator: 40 Degrees on High rate
12 Degrees on Low rate

Aileron: 30 Degrees on High rate
12 Degrees on Low rate

Rudder: 45 Degrees on High rate
40 Degrees on Low rate

- After you have a few flights under you belt you can change control deflections based on personal preference as well as adjust the CG back in 1/4" intervals.

- Set exponential up to approximately 40% on your elevator to make great landings on low rates and 70% exponential on High Rate.

Centre of Gravity List of PilotRC

Plane	CG(from the LE of the root of the wing)	Note	Plane	CG(from the LE of the root of the wing)	Note
YAK54-73	156mm		540-V3-67	96.5mm	
YAK54-87	183mm		540-V3-78	141mm	V1
YAK54-107	255mm		540-V3-78	133mm	V2
YAK54-121	266mm		540-V3-107	207mm	V1
YAK54-129	273mm		540-V3-107	172mm	V2
YAK54-148	314mm		540-V3-122	166mm	
YAK54-180	401mm				
			260-73	140mm	
YAKM55-73	165mm		260-87	170mm	
YAKM55-88	215mm		260-106	202mm	
YAKM55-107	265mm		260-122	248mm	
YAKM55-122	295mm				
			DECATHLON-107	129mm	
300-73	154mm		DECATHLON-122	146.5mm	
300-88	170mm		DECATHLON-150	182mm	
300-107	211mm		DECATHLON-180	217.5mm	
300-122	236mm				
			400-150	125mm	
330-60	101mm		400-128	157mm	
330-67	152mm				
330-73	154mm		Trainer-90	145mm	
330-78	162mm	V1	Sport-88	145mm	
330-78V2	152mm	V2	SKYWOLF-88	155mm	
330-88	170mm				
330-92	206mm	V1	DOLPHIN-71	224mm	V1
330-92V2	178mm	V2	DOLPHIN-71	204mm	V2
330-107	211mm		DOLPHIN-78	268mm	
330LX-107	211mm		DOLPHIN-86	268mm	
330-122	236mm		DOLPHIN-92	293.5mm	
342-73	145mm		G650-97	355mm	
342-87	173mm				
342-107	234mm		Predator-87	283mm	
342-122	269mm		Predator-70	223mm	
342-148	305mm		2.0m Viper	150-170m m	
540-73	106mm				
540-87	136mm				
540-107	141mm				
540-122	166mm				

Flight Preparation

- Make sure you have the right model programmed into your transmitter
- Check the direction of each surface not and also right before you take off .
- Remember nothing wrong on the ground ever improves in the air
- Check the air plane with the engine running and do a range check with your body between you and the plane at least 150 feet.
- Check your battery voltage after each flight, in case one servo is draining your battery
- Recheck all screws ,horns and linkages for slop after your maiden flight and check for damage if you made a bad landing you first time
- Have an experienced pilot fly it for you the first time if you have any doubts in your mind about the maiden flight
- Take a break after you first flight and let the adrenaline burned off by bragging to your fellow members how good it flies
- Fly low and at a medium speed on your first few flight
- Listen to your engine run and have an observer with you to remember what you talked about during the flight or if you get into trouble . Always balance your props, vibration is a killer.
- Remember nose heavy airplanes fly all the time, tail heavy airplanes fly only once. Be on the CG!
- Flying two mistakes: high in the beginning and not close to people, planes or runways. Being a center of the runway hog does not endear you to many modelers.

Double Check

Double check that all screws are installed, all components tightly secured, batteries and or fuel tank are full, all surfaces are working in the correct directions, balance is correct and range test passed before performing your maiden flight.

**WE WISH YOU A SUCCESSFUL MAIDEN AND MANY HAPPY FLIGHTS WITH YOUR
NEW MODEL**

Tony Tan, Pilot-RC



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