



PHOENIX MODEL®

Instruction Manual



SONIC

H I G H W I N G

Specification:

Wingspan: 133 cm (52.3 inches)

Length : 104 cm (40.9 inches)

Weight : 1830gr

Engine : 25 - 32 two stroke

Radio : 4 channel - 4 servo



KIT CONTENTS: We have organized the parts as they come out of the box for better identification during assembly. We recommend that you regroup the parts in the same manner. This will ensure you have all of parts required before you begin assembly.

KIT CONTENTS

AIR FRAME ASSEMBLIES

- (2) Wing halves with ailerons
- (1) Fuselage with motor mount
- (1) Horizontal stabilizer with elevator halves
- (1) Vertical stabilizer with rudder

MAIN GEAR ASSEMBLY

- (2) Main gear
- (2) 50mm diameter wheels
- (4) Wheel collars
- (4) 3mm x 6mm set screws
- (2) Nylon strap
- (4) 3mm x 12mm sheet metal screw

NOSE GEAR

- (1) Nose gear
- (1) Steering arm
- (1) 50mm diameter wheel
- (2) Wheel collars
- (2) 3mm x 6mm set screws
- (1) Metal connector
- (1) 4mm x 4mm machine screw
- (1) 1,3mm x 500mm wire
- (1) 3,5mm x 350mm nylon pushrod

ELEVATOR CONTROL SYSTEM

- (1) Nylon clevis
- (1) Silicone tube
- (1) Nylon snap keeper
- (1) Nylon control horn w/plate
- (2) 2mm x 12mm sheet metal screw

RUDDER CONTROL SYSTEM

- (1) Nylon clevis
- (1) Silicone tube
- (1) Nylon snap keeper
- (1) Nylon control horn w/plate
- (2) 2mm x 12mm sheet metal screw

AILERON CONTROL SYSTEM

- (2) 2mm x 180mm threaded wires
- (2) Nylon clevis
- (2) Silicone tube
- (2) Nylon snap keeper
- (2) Nylon thread connector
- (1) Plywood
- (2) 8mm x 9mm x 45mm light wood

MOTOR MOUNT ASSEMBLY

- (4) 3mm x 25mm machine screws
- (4) 4mm x 25mm wood screws

THROTTLE CONTROL SYSTEM

- (1) 1,3mm x 500mm wire
- (1) 3,5mm x 350mm nylon pushrod housing
- (1) Metal connector
- (1) 4mm x 4mm machine screw

FUEL TANK

- (1) Nylon fuel tank
- (1) Metal clunk
- (1) Silicone tube / 80mm
- (1) Pre - assembled stopper w / 2 tube
- (1) 165mm x 250mm foam rubber

MISCELLANEOUS ITEMS

- (1) Plywood dihedral brace
- (2) 15mm x 15mm x 8mm blok of wood
- (2) 15mm wood triangle stock
- (1) 25mm x 600mm trim tape
- (2) 115mm wood dowels
- (12) Ruber bands
- (1) Set of two pushrods
- (2) Plywood

ADDITIONAL ITEMS REQUIRED

- 25 - 32 two stroke engine
- 4 channel radio with 4 servo
- Glow plug to suit engine
- Propeller to suit engine
- Protective foam rubber
- Silicone fuel line
- Stick on weight for balance
- Spinner: 2" (52mm)

TOOLS AND SUPPLIES NEEDED

- Medium thick C/A glue.
- 30 minute epoxy
- 6 minute epoxy
- Hand or electric drill
- Assorted drill bits
- Modeling knife
- Straight edge ruler
- Pliers large and small
- Wire cutters
- Masking tape
- Thread lock
- Paper towels
- Rubbing alcohol

SUGGESTION:

To avoid scratching your new airplane, do not unwrap the pieces until they are needed for assembly. Cover your workbench with an old towel or brown paper, both to protect the aircraft and to protect the table. Keep a couple of jars or bowls handy to hold the small parts after you open the bag.

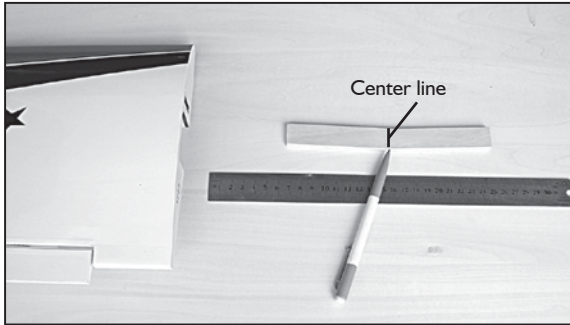
NOTE:

Please trial fit all the parts. Make sure you have the correct parts and that they fit and are aligned properly before gluing! This will assure proper assembly. The SONIC ARF is hand made from natural materials, every plane is unique and minor adjustments may have to be made. However, you should find the fit superior and assembly simple. The painted and plastic parts used in this kit are fuel proof. However, they are not tolerant of many harsh chemicals including the following: paint thinner, C/A glue accelerator, C/A glue debonder and acetone. Do not let these chemicals come in contact with the colors on the covering and the plastic parts.

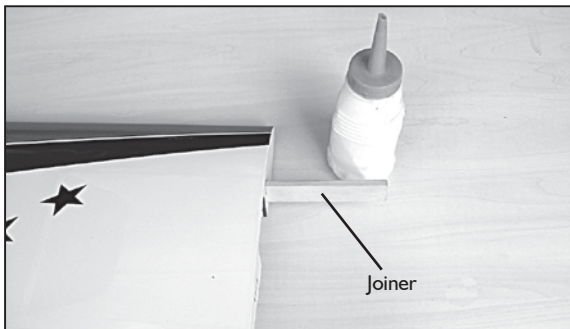
SAFETY PRECAUTION:

- This is not a toy
- Be sure that no other flyers are using your radio frequency.
- Do not smoke near fuel
- Store fuel in a cool, dry place, away from children and pets.
- Wear safety glasses.
- The glow plug clip must be securely attached to the glow plug.
- Do not flip the propeller with your fingers.
- Keep loose clothing and wires away from the propeller.
- Do not start the engine if people are near. Do not stand in line with the side of the propeller.
- Make engine adjustments from behind the propeller only. Do not reach around the spinning propeller.

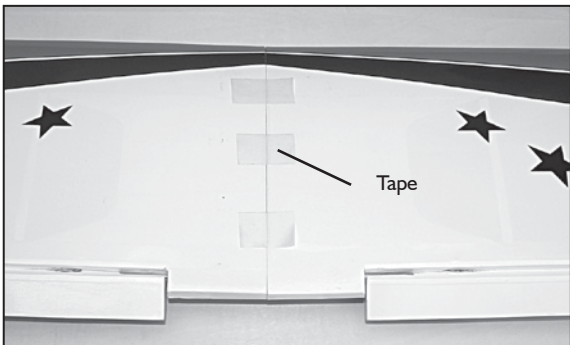
WING ASSEMBLY



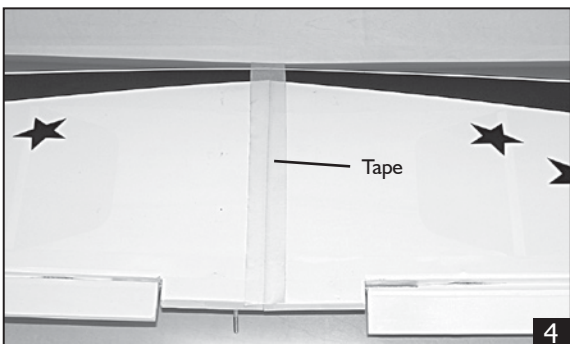
- Draw a center line on the wing joiner.



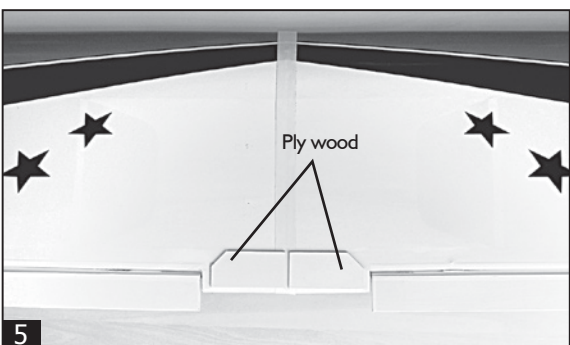
- Glue wing joiner in wing halves with 30 minute epoxy. Put epoxy on wing joiner and in wing joiner pocket. Wipe off excess epoxy with a paper towel and alcohol.



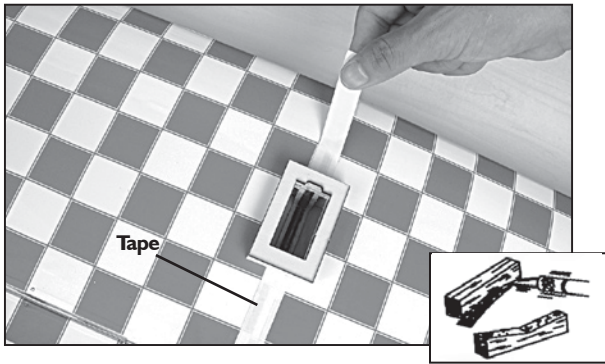
- Hold wing halves together with tape while epoxy cures.



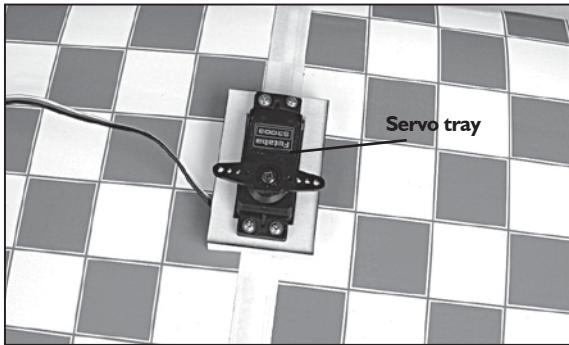
- Cover wing joint with self adhesive trim strip.



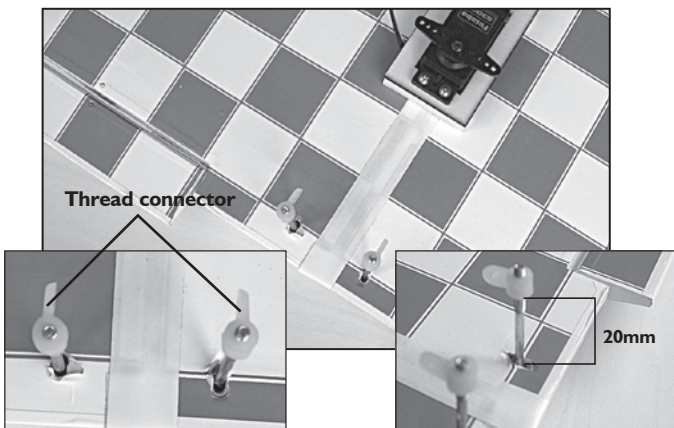
- Glue 2 pieces of plywood onto the wing with CA glue.



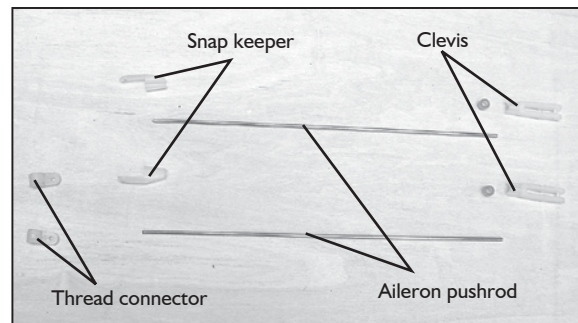
- Locate aileron servo mounting tray. Trim covering from bottom of wing for aileron servo and tray. 6 minute epoxy the tray in place centered over the aileron servo opening using the supplied spacer blocks (trim to fit as needed).



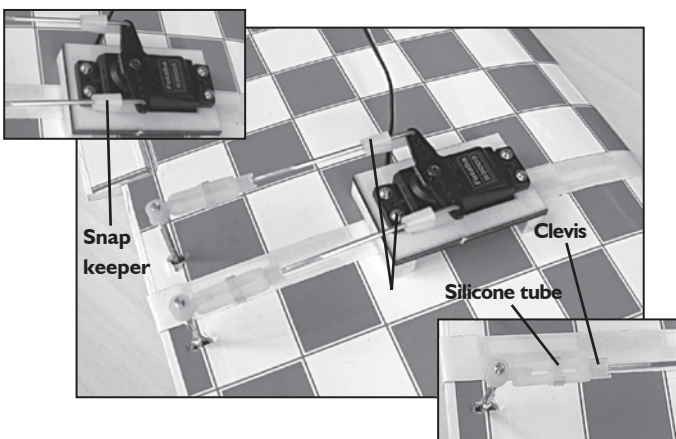
- Install aileron servo using hardware supplied with radio gear.



- Install the threaded connectors onto the aileron torque rods.

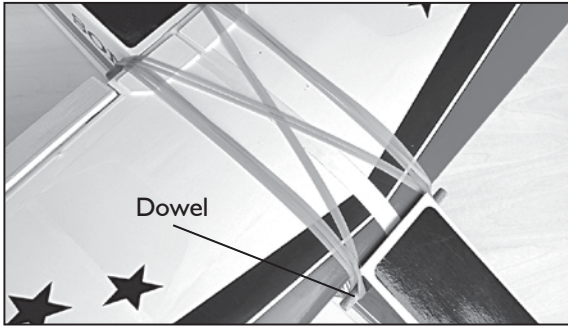


- Thread one nylon clevis at least 6mm onto one of the 2mm x 180mm threaded wires. Install a silicone tube on the clevis. Attach the clevis to the hole in the threaded connector. Locate one nylon servo arm and using a wire cutter remove all but two of the arms. Using a 2mm drill bit, enlarge the third hole out from the center to accommodate the aileron pushrod wire. Plug the aileron servo into receiver and center the servo. Install the servo arm onto the servo. The servo arm should be perpendicular to the servo. Center the aileron and hold it in place using a masking tape.



With the aileron and aileron servo centered, carefully place a mark on the aileron pushrod wire where it crosses the hole in the servo arm. Using pliers, carefully make a 90 degree bend down at the mark made. Cut off the excess wire, leaving about 4mm beyond the bend. Insert the 90 degree bend down through the hole in the servo arm. Install one nylon snap keeper over the wire to secure it to the arm. Install the servo arm retaining and remove the masking tape from the aileron. Repeat for the second aileron linkage.

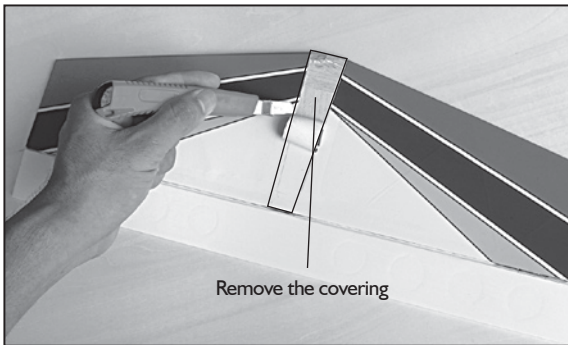
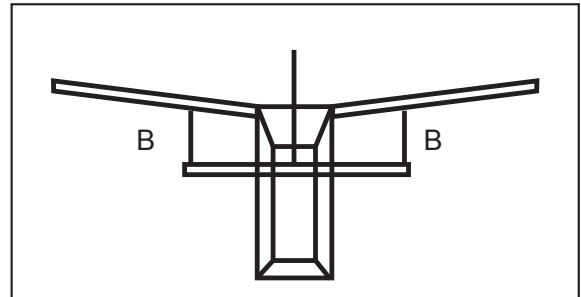
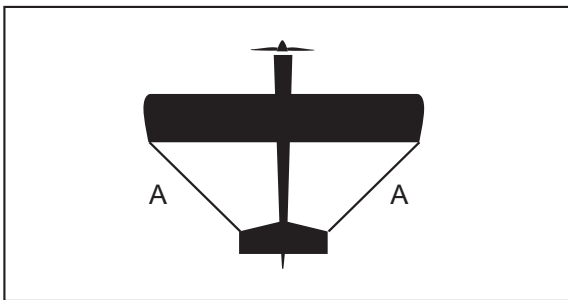
HORIZONTAL - VERTICAL INSTALLATION



- Cut the covering from the holes for the wing dowels in the fuselage. Glue the dowels in place with C.A
- Rubber band wing onto fuselage with supplied rubber bands. See photo.



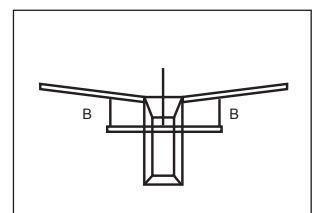
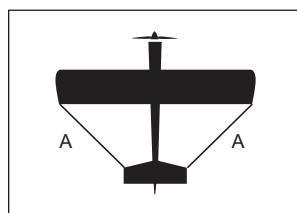
- Center the wing. Cut the covering from the slots in the fuselage for the horizontal stab and vertical fin. Put horizontal stab on fuselage and center like the wing, also level the stab to match up with the wing. Mark the horizontal stab where it will glue to the fuselage.

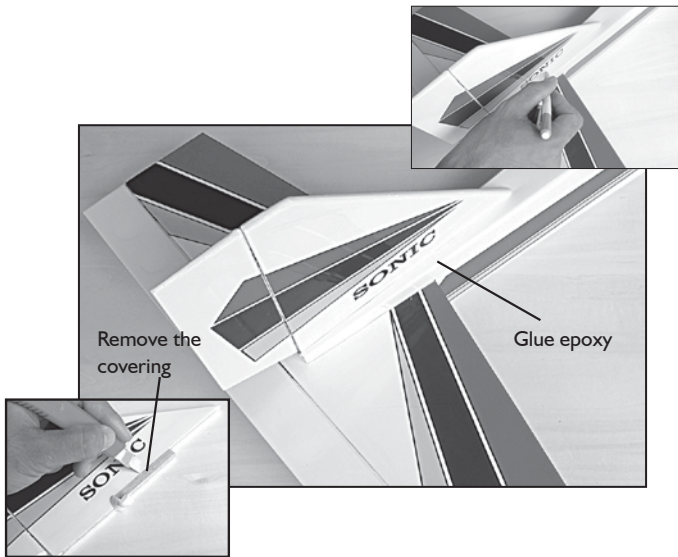


- Trim the covering from the stab where it will glue onto the fuselage. Cut only through the covering, do not cut into the balsa.



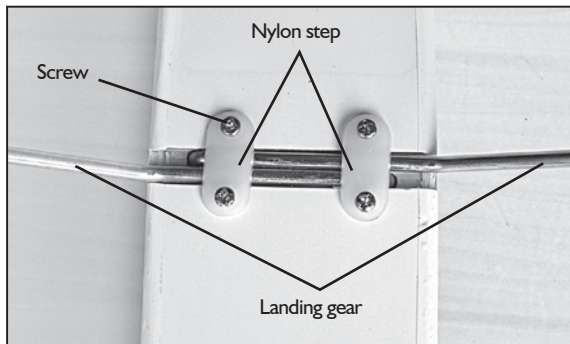
- Glue stab on with 30 minute epoxy and recheck alignment.



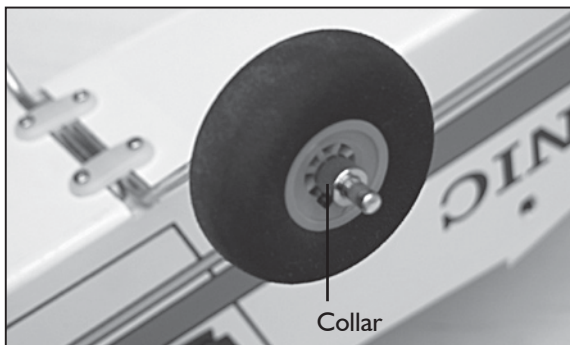


- Put vertical fin in fuselage slot, mark where covering needs to be trimmed. Carefully trim covering. Line up vertical fin and epoxy in place keeping the vertical fin perpendicular to the stab.

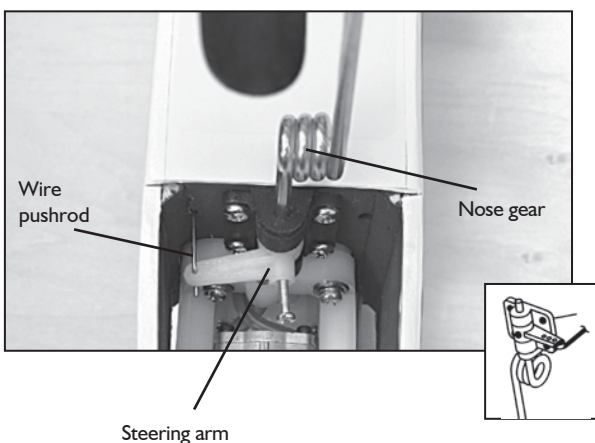
MAIN GEAR INSTALLATION



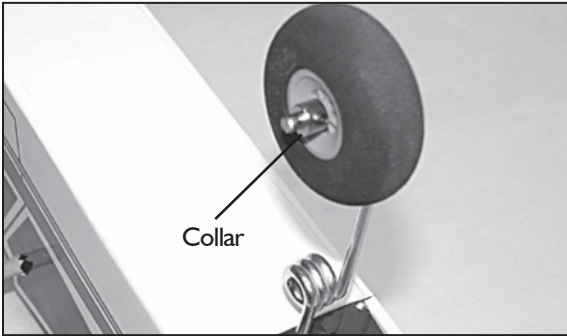
- Cut the covering the slot in the landing gear mount.
- Put landing gear wires in fuselage bottom and secure using screws and nylon straps.



- Put wheels on the gear and secure using the wheel collars.



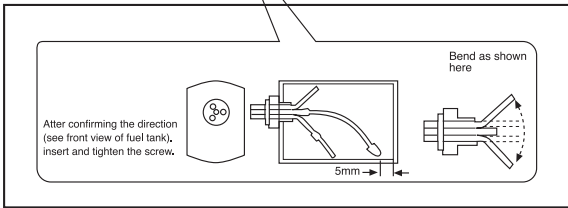
- Fit the nose leg steering arm onto the "Z" bend on the steering pushrod. Now slide the steering arm into the middle of the pre-fitted nylon nose gear bearing. Hold the nose gear steering arm in place then slide the nose wire into the nylon mount, passing through the steering arm. Note that the ground flat section of the leg should face forward. Now tighten the nose gear steering arm retaining screw onto the nose leg. This will ensure that the nose leg cannot turn in the steering arm.



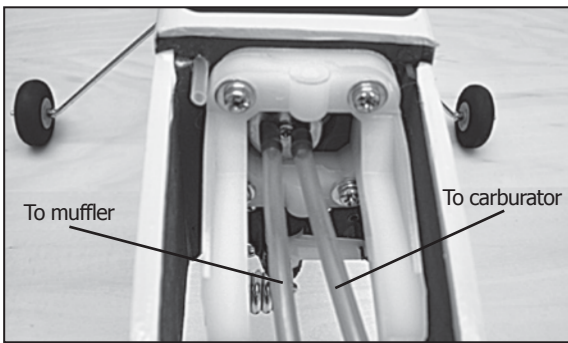
- Install nose wheel using supplied wheel collars.



FUEL TANK INSTALLATION

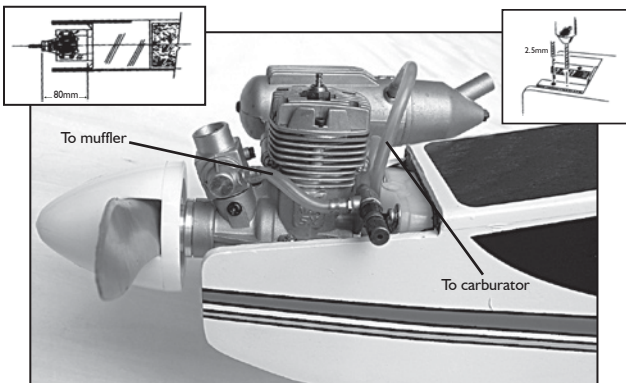


- Assemble the fuel tank.

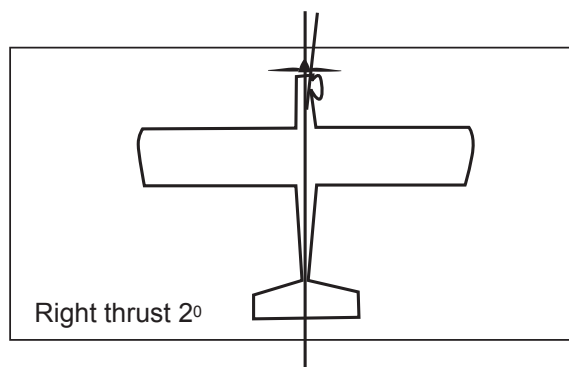
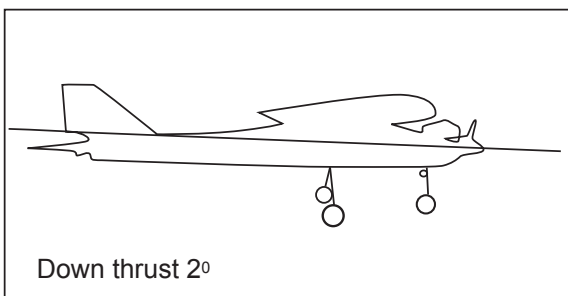


- Put the fuel tank in the fuselage using foam rubber to cushion the tank, and route the fuel lines out the hole in the firewall.

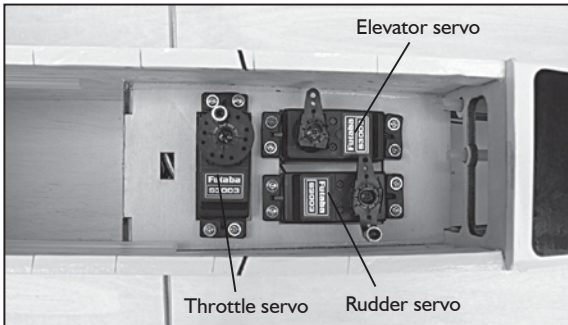
ENGINE INSTALLATION



- Insert the Z - bend of the throttle pushrod into the throttle arm of the engine. See the "high throttle" photo on page 9.
- Install the engine of your choice using the Philip head screws. Make sure the engine is pointing straight ahead or pointing a little to the right, i. e. with right thrust. Mark the locations of the screws and drill mounting holes with a drill bit that is slightly smaller than the screw threads. Test to get the right size drill bit before drilling holes in the engine mount.

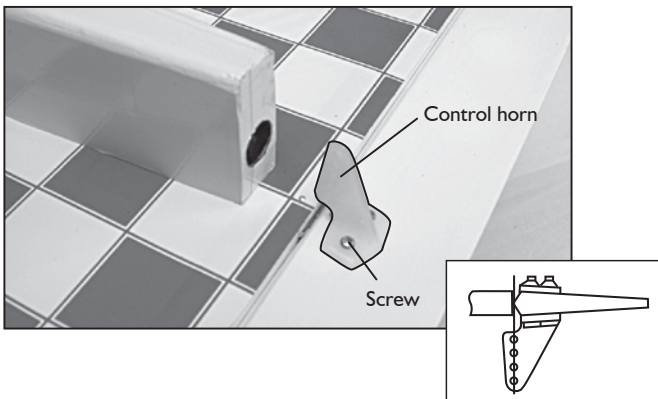
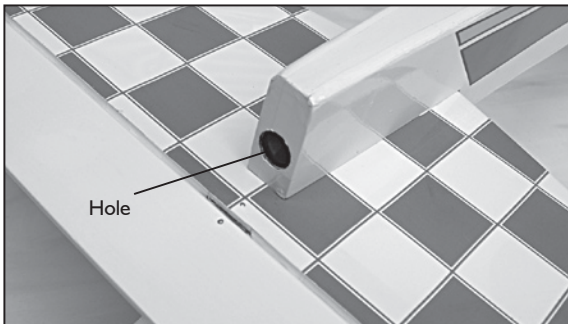


SERVO INSTALLATION

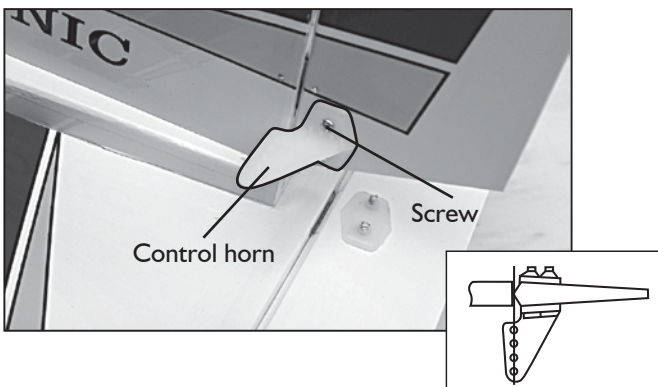


- Install the rubber grommets and brass eyelets into the elevator, rudder and throttle servos. Test fit the servos into the servo tray.
- Mount the servos to the tray using the mounting screws provided with your radio system.

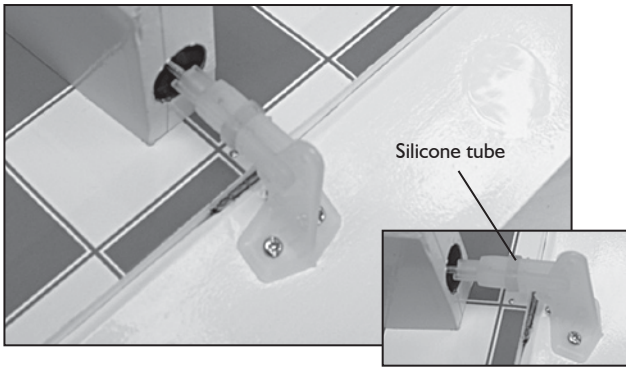
ELEVATOR - RUDDER LINKAGE



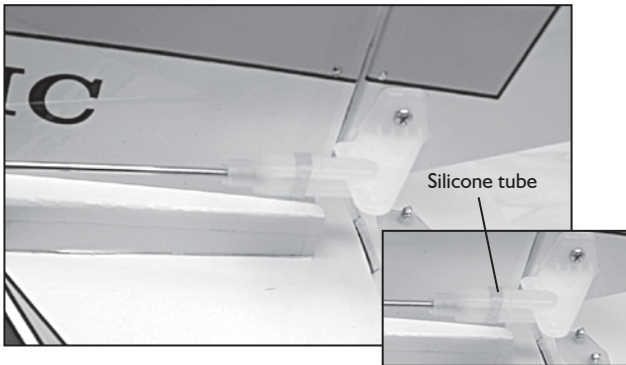
- Remove the covering from the hole as shown.
- The elevator control horn should be mounted on the bottom of the elevator at the leading edge, **IN LINE WITH THE ELEVATOR PUSHROD.**
- Cut the covering from the exit slot for the rudder pushrod on the top of the fuselage, on the left side of the vertical fin.



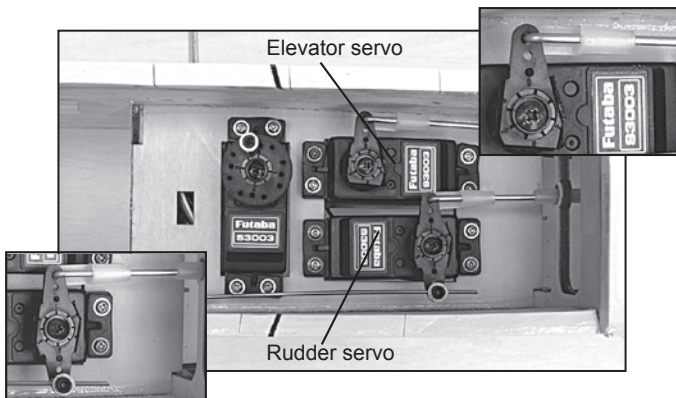
- The rudder control horn should be mounted on the left of the rudder at the leading edge, **IN LINE WITH THE RUDDER PUSHROD.**



- Install the elevator pushrod in fuselage. Thread a nylon clevis at least 6mm onto the pushrod. Route it to the elevator, attach clevis to horn and secure using small piece of silicone tubing.

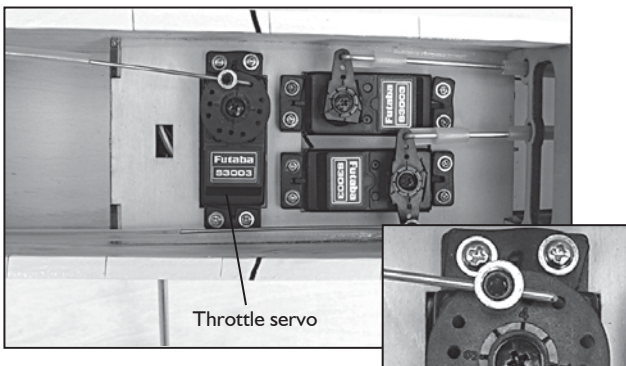


- Install the rudder pushrod in fuselage. Thread a nylon clevis at least 6 mm onto the pushrod. Route it to rudder, attach clevis to horn and secure using small piece of silicone tubing.

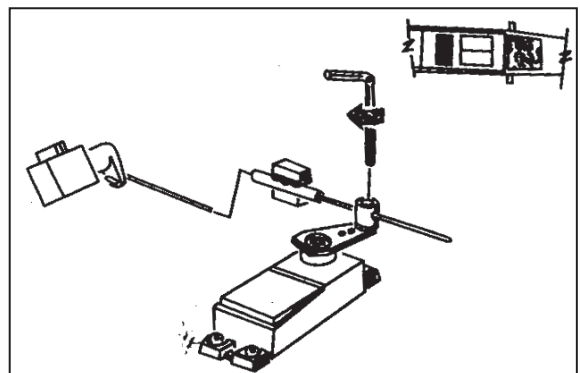


- Trim and attach the pushrod to the servos using fast loc connectors.
- Install a metal connector onto the rudder servo arm and connect the nose wheel steering pushrod to it.

THROTTLE LINKAGE



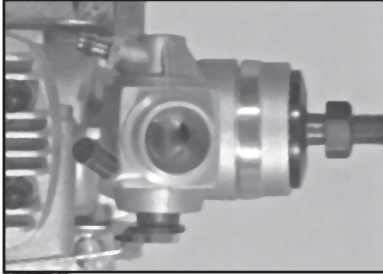
- Attach throttle pushrod to throttle servo arm using a metal connector. Use two wood blocks to hold the pushrod securely.



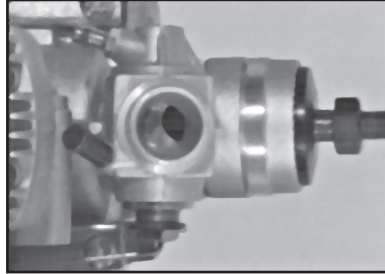
SETTING UP THE THROTTLE

This is a very important stage in the completion of the model. The throttle must open and close fully - without the linkage binding at either end of its travel. Work by setting the "mid throttle" position first, followed by the low and high. Once the linkage

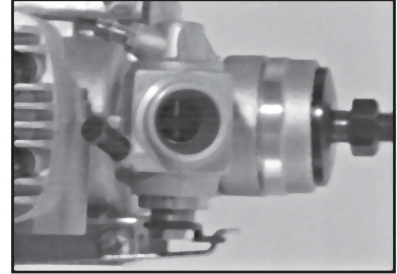
has been properly set-up it can be adjusted mechanically or by using the Travel Adjust, or ATV/EPA feature on most modern transmitters. Note: The final adjustment of the low throttle point can only be carried out with the engine running.



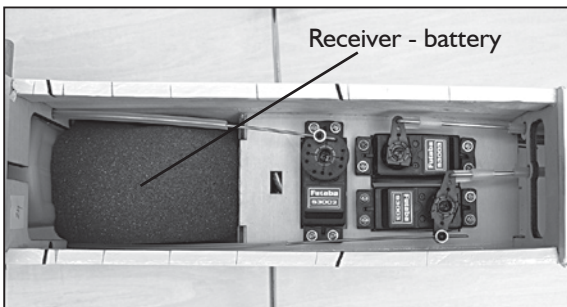
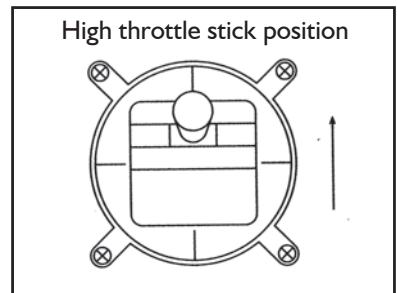
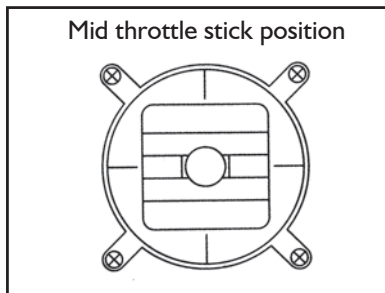
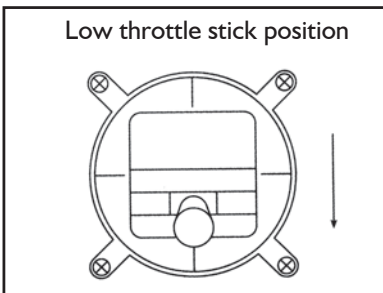
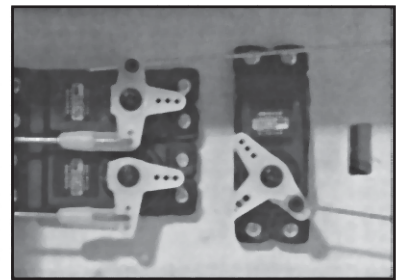
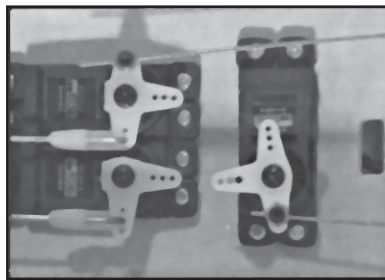
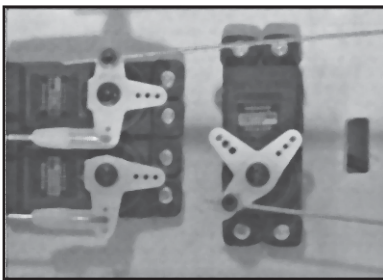
Low throttle



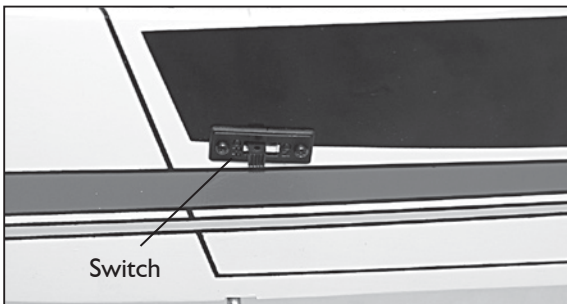
Mid throttle



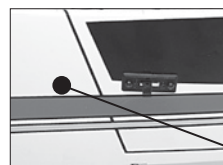
High throttle



- Wrap battery and receiver in protective foam padding.



- Install the switch.

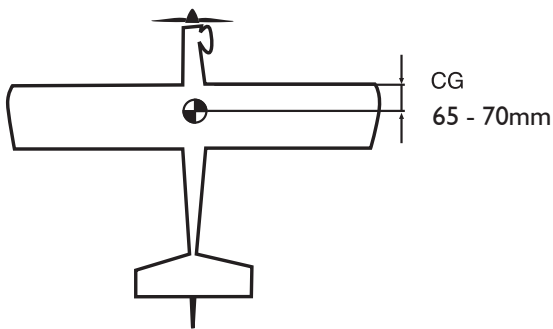


BALANCING

1. It is critical that your airplane be balanced correctly. Improper balance will cause your plane to lose control and crash.

Place receiver and battery in radio compartment and adjust their position to make the plane balance on the center of gravity (70mm from leading edge of wing). Make sure the center of gravity is located where it is indicated before flying. If additional tail or nose weight is needed, securely attach it at the nose or tail as needed.

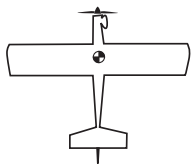
2. Wrap battery and receiver in protective foam padding. Route the receiver antenna out of the fuselage and to the rear of the airplane. Secure to the vertical fin or one side of the horizontal stab with a pin and small rubber band.



CONTROL THROWS

1. We highly recommend setting up a plane using the control throws listed. Adjust pushrod positions on control arms or horns to provide control surface throws as illustrated. Center all control surfaces.
2. The control throws should be measured at the widest point of each surface!

Ailerons : 5mm up	5mm down
Elevator : 8mm up	8mm down
Rudder : 13mm right	13mm left



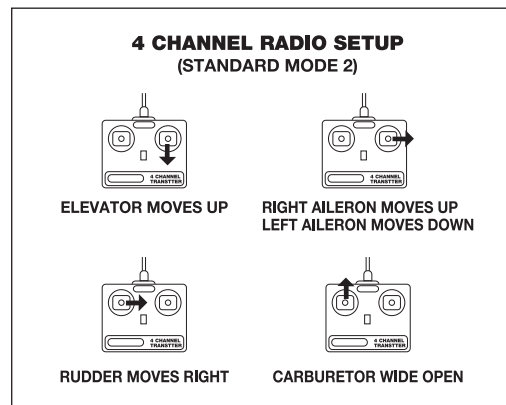
Aileron Control



Elevator Control



Rudder Control



FLIGHT PREPARATION

PRE FLIGHT CHECK

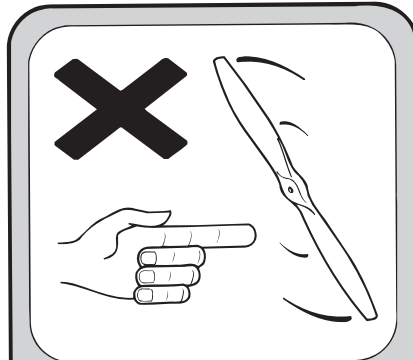
1. Completely charge your transmitter and receiver batteries before your first day of flying.
2. Check every bolt and every glue joint in your plane to ensure that everything is tight and well bonded.
3. Double check the balance of the airplane
4. Check the control surface
5. Check the receiver antenna . It should be fully extended and not coiled up inside the fuselage.
6. Properly balance the propeller.
7. Use at least 5 rubber bands per side to hold the wing onto the fuselage.

We wish you many enjoyable flights with your plane and once again thank you for your choosing a Phoenix Model's product.

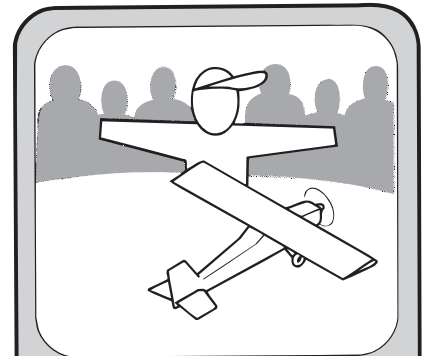
I/C FLIGHT WARNINGS



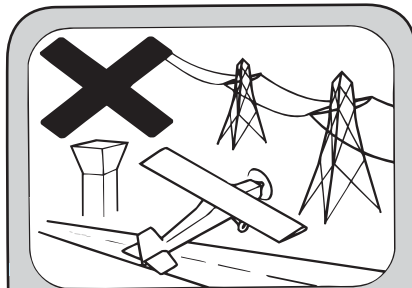
Always operate in open areas, away from factories, hospitals, schools, buildings and houses etc. **NEVER** fly your aircraft close to people or built up areas.



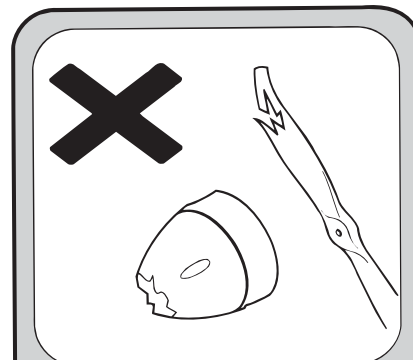
THE PROPELLER IS DANGEROUS
Keep fingers, clothing (ties, shirt sleeves, scarves) or any other loose objects that could be caught or drawn in, away from the propeller. Take care at **ALL** times.



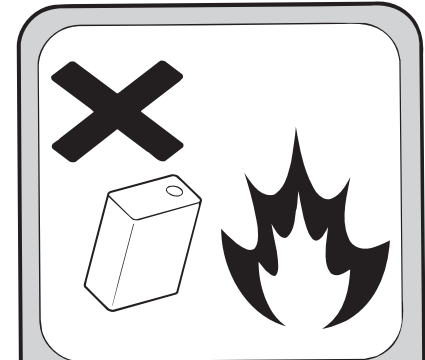
Keep all onlookers (especially small children and animals) well back from the area of operation. This is a flying aircraft, which will cause serious injury in case of impact with a person or animal.



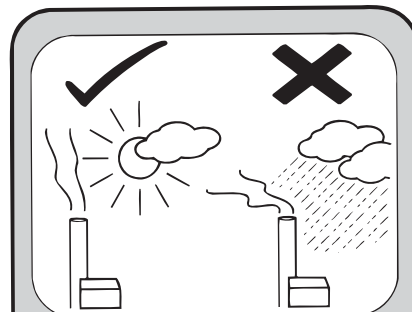
NEVER fly near power lines, aerials or other dangerous areas including airports, motorways etc.



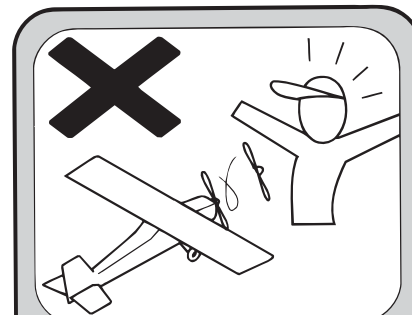
NEVER use damaged or deformed propellers or spinners.



DO NOT dispose of empty fuel containers on a fire, this can lead to an explosion.



NEVER fly in wet conditions or on windy or stormy days.



ALWAYS adjust the engine from behind the propeller, and do not allow any part of your body to be in line with the propeller.

Metric Conversions

Inches x 25.4 = mm (conversion factor)

1/64" = .4 mm	3/16" = 4.8 mm	1" = 25.4 mm	21" = 533.4 mm
1/32" = .8 mm	1/4" = 6.4 mm	2" = 50.8 mm	24" = 609.6 mm
1/16" = 1.6 mm	3/8" = 9.5 mm	3" = 76.2 mm	30" = 762.0 mm
3/32" = 2.4 mm	1/2" = 12.7 mm	6" = 152.4 mm	36" = 914.4 mm
1/8" = 3.2 mm	5/8" = 15.9 mm	12" = 304.8 mm	
5/32" = 4.0 mm	3/4" = 19.0 mm	18" = 457.2 mm	