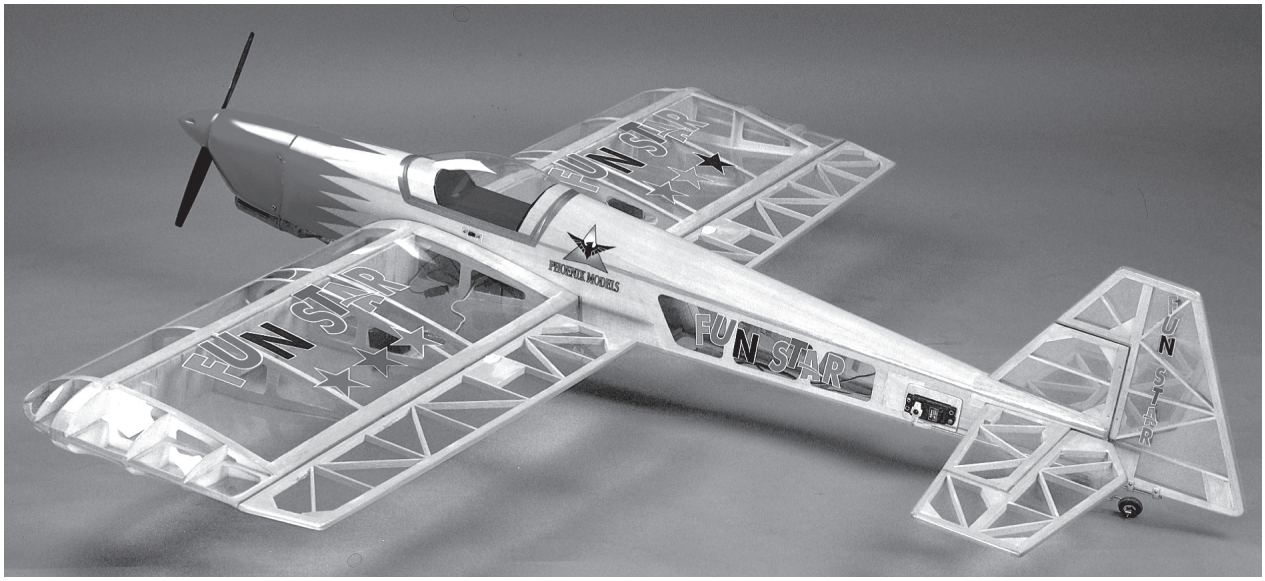
PHOENIX AIRCRAFT MODELS

ALMOST READY-TO-FLY

FUN STAR

Instruction Manual



ARF
ALMOST - READY - TO - FLY

SPECIFICATION

Wingspan	1340 mm	(52.7 inches)
Length	1310 mm	(51.5 inches)
Engine	40~.46	two stroke
	48~.53	four stroke
Radio	4channel Servos 5 standard	

Items required to complete and fly the Funstar
.40~.46 Two Stroke 48~.53 Four Stroke Model Engine and Propeller
4 Channel Proportional Radio Control System with five servos
Model Engine Fuel, Model Engine Starter and Glow Plug Battery
Hand Tools and Adhesives

Made in Vietnam

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

AIRFRAME ASSEMBLIES

- (1) Assembled wing with ailerons
- (1) Fuselage with canopy and motor mount
- (1) Horizontal stabilizer with elevator halves
- (1) Vertical stabilizer with rudder
- (1) Fiberglass cowling
- (1) Belly Pan

MAIN GEAR ASSEMBLY

- (1) Main gear
- (2) 60mm diameter wheels
- (8) 3mm x 12mm wood screws
- (4) Metal strap
- (4) Wheel collars
- (4) 3mm x 6mm set screws

TAIL WHEEL ASSEMBLY

- (1) Tail wheel bracket w/ wire
- (1) 25mm diameter wheel
- (1) 2mm wheel collar
- (1) 4mm set screw
- (2) Nylon control clasp
- (2) 3mm x 12mm wood screw
- (2) 2mm x 10mm wood screw

ELEVATOR CONTROL SYSTEM

- (1) Nylon clevises
- (1) Silicone tube
- (1) Nylon snap keeper
- (1) Nylon control horn w/ plate
- (2) 2mm x 12mm wood screw

RUDDER CONTROL SYSTEM

- (1) Nylon clevises
- (1) Silicone tube
- (1) Nylon snap keeper
- (1) Nylon control horn w/ plate
- (2) 2mm x 12mm wood screw

AILERON CONTROL SYSTEM

- (2) 2mm x 180mm threaded wires
- (2) Nylon clevises
- (2) Silicone tube
- (2) Nylon snap keeper
- (2) Nylon control horn w/ plate
- (4) 2mm x 12mm wood screw

MOTOR MOUNT ASSEMBLY

- (4) 4mm x 25mm machine screws
- (8) 4mm nut
- (4) Lock washer
- (2) 8mm metal plate

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/ 70mm
- (1) Pre - assembled stopper w/ 3 tube
- (1) 165mm x 250mm foam rubber

MISCELLANEOUS ITEMS

- (2) 4mm x 25mm x 98mm light wood
- (4) 15mm light wood triangle stock
- (4) 6mm x 45mm nylon screws
- (4) 3mm x 12mm wood screws
- (1) Decal sheet
- (1) Set of wire pushrod
- (1) Servo tray
- (2) 6mm x 6mm x 44mm light wood

ADDITIONAL ITEMS REQUIRED

- .46 two stroke Engine
- .53 four stroke Engine
- 4 channel Radio with 5 servos
- Glow plug to suit Engine
- Propeller to suit Engine
- Protective foam Rubber
- Silicone fuel line
- Stick on weight for balance
- Spinner: 2 - 1/4" (58mm)

TOOLS AND SUPPLIES NEEDED.

- Thick C/A glue
- 30 minute Epoxy
- 6 minute Epoxy
- Hand or Electric drill
- Assorted drill bits
- Modeling knife
- Straight edge ruler
- Bending plier
- 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 FUN STAR 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.

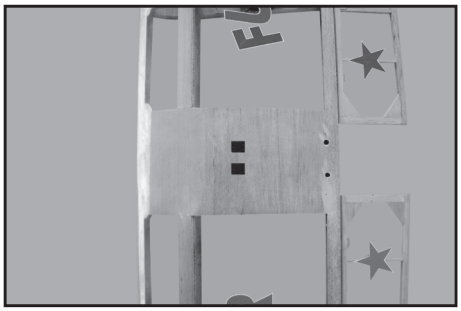
The paint and plastic parts used in this kit are fuel proof. However, they are not tolerant of many harsh chemicals including the following: paint thinner, C/A glue accelerator, C/A glue debonder and acetone. Do not let these chemicals come in contact with the colors on the covering and the plastic parts.

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 wires and clothing away from the propeller
- Do not start the engine if people are near
- Do not stand on the side of the propeller
- Make engine adjustments from behind the propeller only
- Do not reach around the spinning propeller

① FINISHING THE WINGS

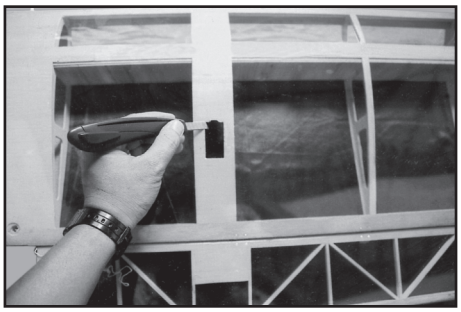
PICTURE 01



MAKE TWO HOLES

1.1 Make two holes on the top of the wing for the aileron servo wires.

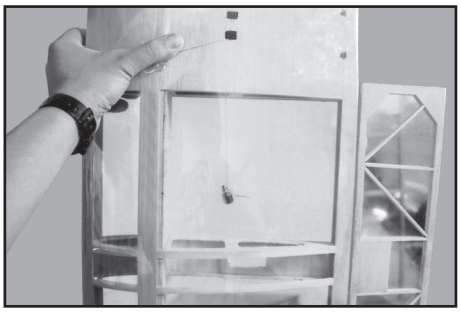
PICTURE 02



CUT AWAY THE COVERING

1.2 Cut away the covering from servo aileron mounting trays.

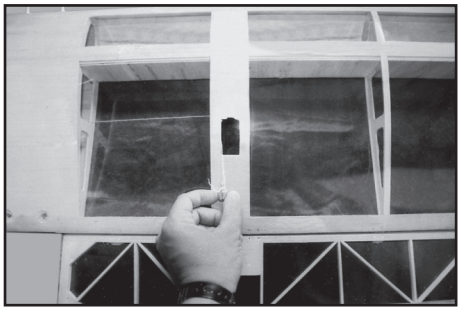
PICTURE 03



USE A SMALL WEIGHT...

1.3 Use a small weight (weighted fuel pick-up) and thread to feed the servo wire through the wing as indicated.

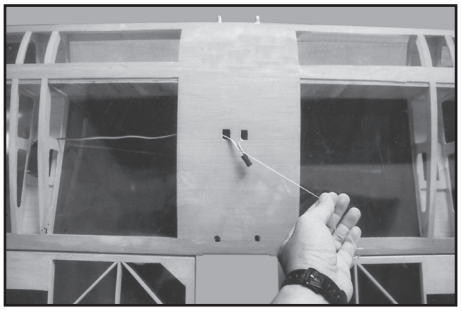
PICTURE 04



PULL THE STRING

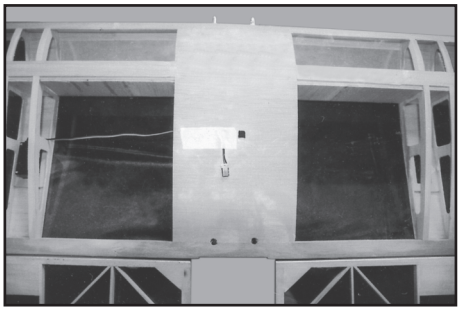
1.4 Attach the string to one end of servo lead and carefully thread it though the wing. Once you have threaded the lead through the wing, remove the string.

PICTURE 05



PULL THE STRING

PICTURE 06

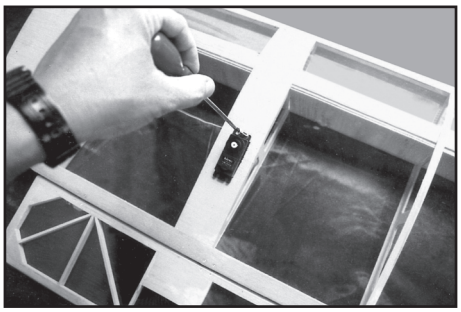


USE A PICE OF TAPE...

1.5 Use a piece of tape to keep the aileron servo connector from going back into the wing.

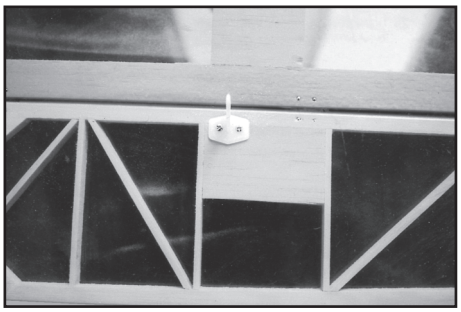
1.6 Fit the rubber servo mounting grommets and brass eyelets supplied with your radio equipment in accordance with their instructions. Install the servo in its mounting tray and drill four pilot holes for the wood screws supplied with your servo. Now, screw the servo in position orientated as shown.

PICTURE 07



INSTALL THE SERVO AILERON

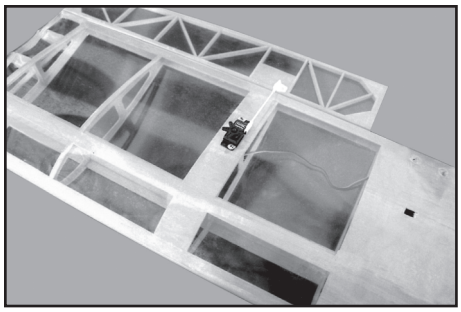
PICTURE 08



INSTALL THE AILERON CONTROL HORN

1.7 Install the aileron control horn as shown using two 2mm x 12mm wood screws

PICTURE 09



INSTALL THE AILERON PUSHROD

PICTURE 10

MAKE TWO HOLES

1.8 Locate the two short threaded pushrods, nylon clevises, silicone tubes and snap keepers. Screw a clevis 12 full turns onto a pushrod wire. Connect the clevises to the control horn on the aileron. Hold the aileron in the natural position using pieces of masking tape.

Connect the servo to your radio system and centre the servo with the aileron trim lever centered on the transmitter. With the aileron and the servo arm in the neutral position, mark where the aileron pushrod passes the outer hole in the servo arm.

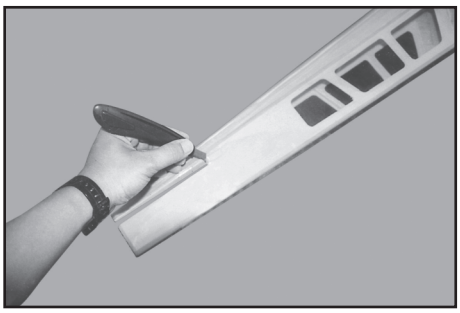
Using pliers, bend the wire in an L shape and connect it to the servo arm. Install the snap keeper to secure the wire to the servo arm. Using wire cutters, cut off the excess wire. When fitting any of the clevises to the pushrod ensure that the threaded end of the pushrod is screwed into the clevis by at lease 6mm (1/4).

1.9 Complete the aileron linkage by slipping a 5mm length of silicone tubing over each clevis.

1.10 Cut away the covering as shown.

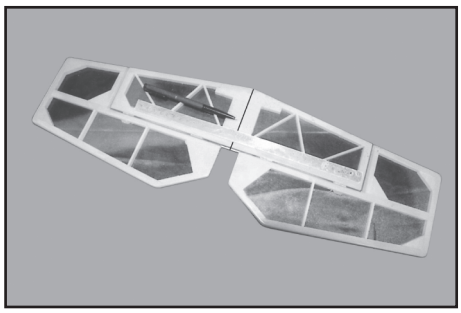
② FITTING THE TAILPLANE

PICTURE 11



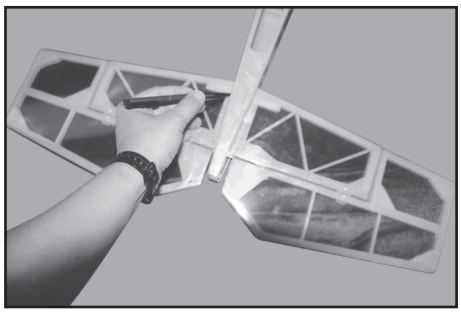
CUT AWAY THE COVERING

PICTURE 12



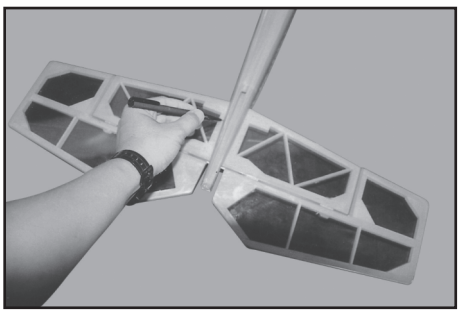
DRAW A CENTER LINE

PICTURE 13



MARK THE TAILPLANE

PICTURE 14



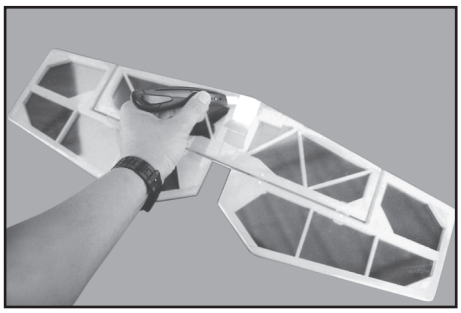
MARK THE TAILPLANE

2.1 Cut away the covering for the Horizontal stab and remove it.

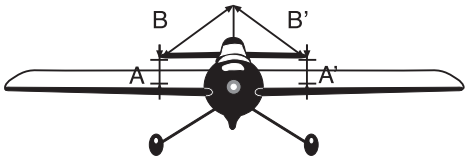
2.2 Check the fit of the horizontal stab in its slot. Make sure the tail is square and centered to the fuselage by taking measurements as shown in the diagram, but don't glue anything yet. Check that the horizontal stab is parallel to the wing.

2.3 With the tail correctly aligned, mark the shape of the fuselage on the top and bottom of the horizontal stab using a water soluble/non-permanent felt-tip pen as shown here. Cut away the covering from both sides of the stab just in side the lines. Be careful not to cut into the wood under the covering.

PICTURE 15

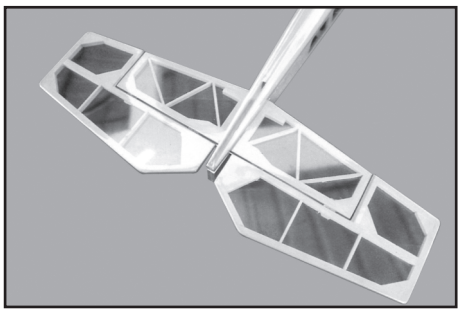


CAREFULLY CUT AWAY THE COVERING FROM BOTH SIDES, BE CAREFUL NOT TO CUT INTO THE WOOD

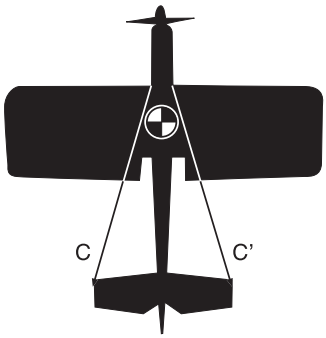


A=A' B=B' C=C'

PICTURE 16

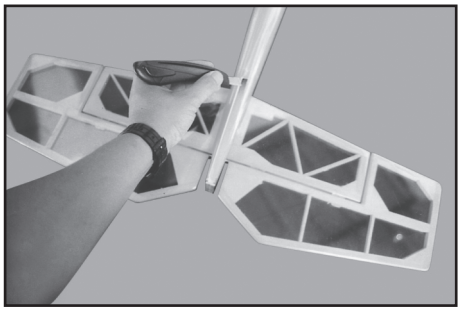


GLUE THE TAILPLANE



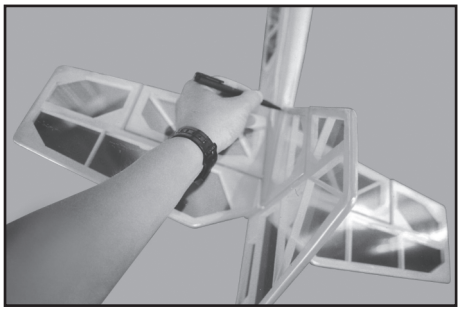
2.4 Use masking tape to protect the covering from glue before using 30 minute epoxy to glue the horizontal stab into place. Be sure that the horizontal stab is fitted accurately before the glue has cured and remove the masking tape as soon as satisfied with the fit. Once the glue has dried it will be very difficult to remove the tape cleanly.

PICTURE 17



CUT AWAY THE COVERING

PICTURE 18



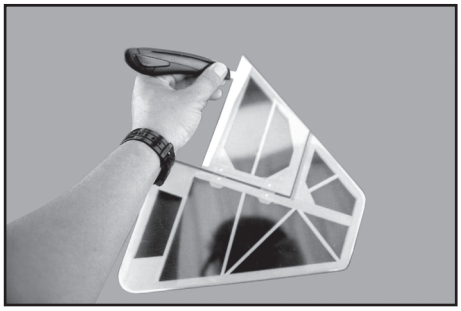
MARK BOTH SIDES OF THE FIN

2.5 Cut away the covering for the vertical stab and remove it.

2.6 Mark the shape of the fuselage on the left and right sides of the vertical stab using a felt-tip pen.

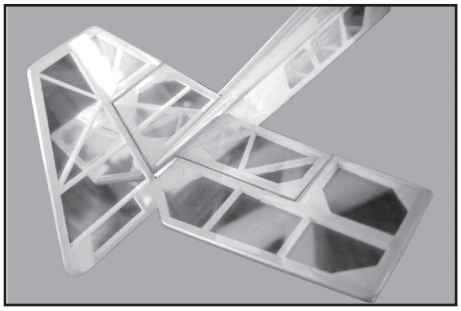
2.7 Now remove the vertical stab and using a sharp knife, carefully cut just in side the marked lines and remove the film on both sides of the vertical stab, just as you did with the horizontal stab, making sure you only press hard enough to cut the film, not the wood under the covering.

PICTURE 19



CUT AWAY THE COVERING FOR BOTH SIDES

PICTURE 20



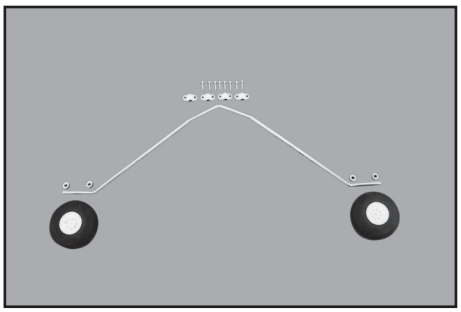
INSERT THE FIN INTO THE FUSELAGE

2.8 Now apply sufficient epoxy to both sides and the bottom of the vertical stab. Use 30 minute epoxy to ensure a strong bond and give yourself plenty of working time. Insert the vertical stab in its slot in the fuselage and re-check the alignment.

2.9 The vertical stab should be 90 degrees to the horizontal stab.

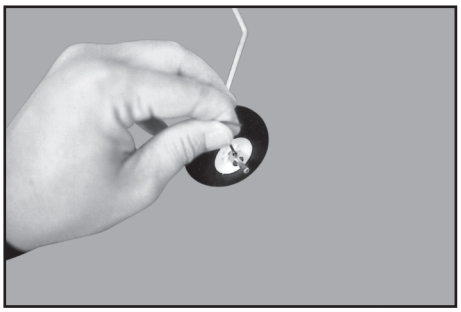
③ FITTING THE LANDING GEAR

PICTURE 21



ACCESSORIES FOR LANDING GEAR

PICTURE 22



THE WHEEL

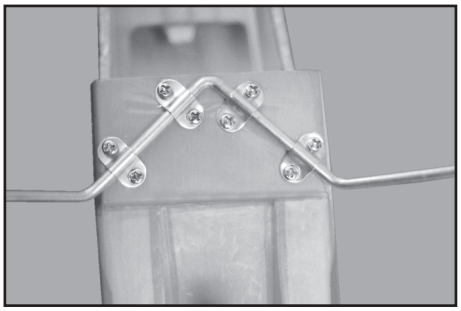
3.1 Prepare the accessories for landing gear.

3.2 Install the wheel as shown.

3.3 Install the landing gear onto the fuselage as shown.

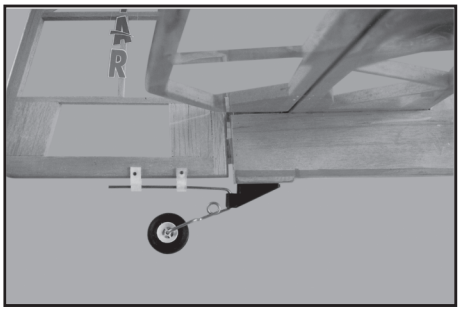
3.4 Install the tail wheel onto the fuselage as shown.

PICTURE 23



INSTALL THE LANDING GEAR INTO THE FUSELAGE

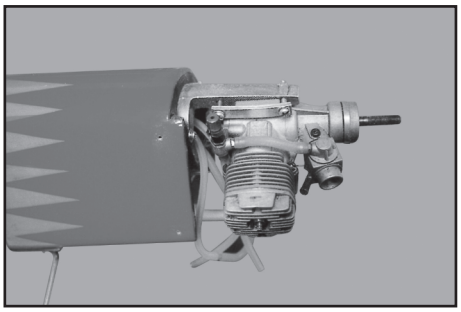
PICTURE 24



INSTALL THE TAIL WHEEL INTO THE FUSELAGE

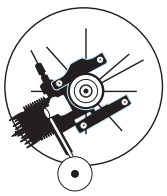
④ FITTING THE ENGINE

PICTURE 25

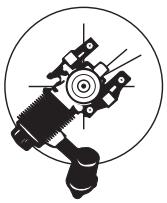


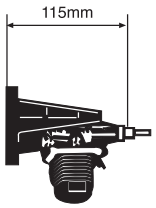
INSTALL THE ENGINE

TWO STROKE



FOUR STROKE

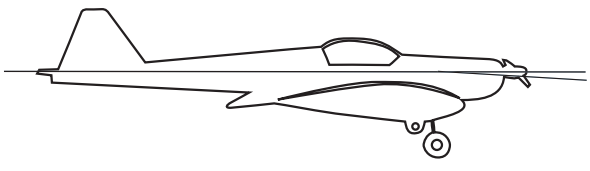




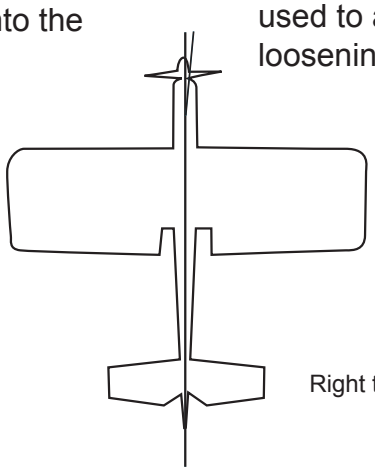
Fit the engine to the engine mount with the screws, lock washers, nuts and metal plates provided. Be sure the screws are tight, a thread lock compound may also be used to avoid vibration loosening the screws.

Locate the long piece of wire and plastic tube used for the throttle pushrod. One end of the wire has been pre-pent into a “Z” - bend at the factory.

This “Z” - bend should be inserted into the throttle arm of the engine as the engine is fitted onto the engine mount.



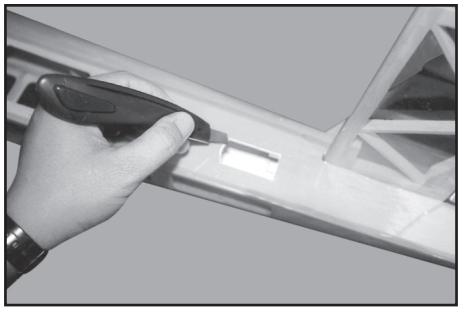
Down thrust 2^0



Right thrust 2^0

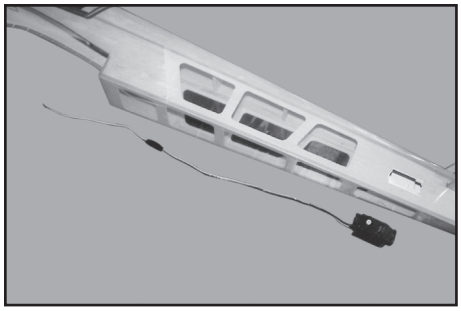
⑤ FITTING THE ELEVATOR HORN AND THE RUDDER HORN

PICTURE 26



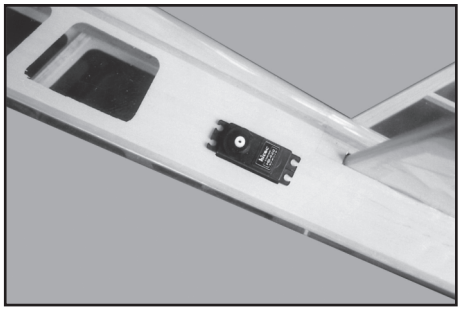
CUT AWAY THE COVERING

PICTURE 27



PREPARE THE SERVO OF RUDDER

PICTURE 28

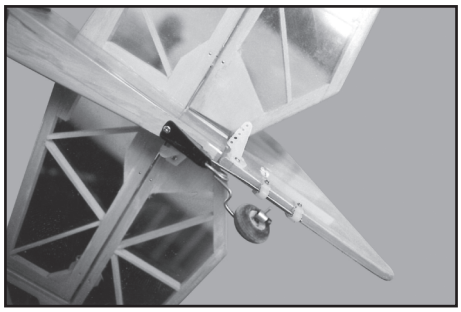


INSTALL THE SERVO OF RUDDER

5.1 There are precut rudder and elevator servo mounting trays in the rear of the fuselage. Use a sharp knife and carefully remove the covering over the trays.

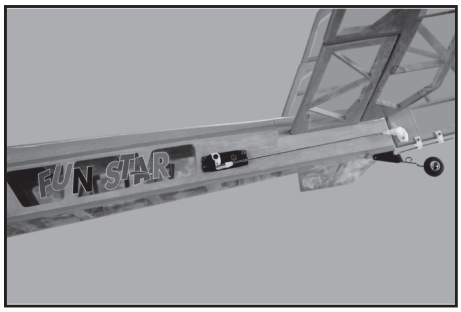
5.2 Install the rubber servo grommets and brass eyelets supplied with your radio equipment. The two servos that control the elevator and rudder are mounted in the fuselage. Note the orientation of each servo and position each into the plywood tray. Mark the servo mounting holes and drill pilot holes with a 1mm bit. Now screw the servos in position using the screws supplid with your radio.

PICTURE 29



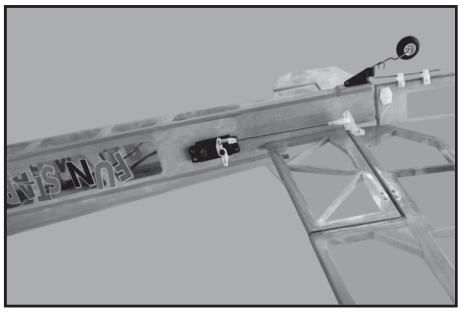
INSTALL THE RUDDER HORN

PICTURE 30



CONNECT THE RUDDER PUSHROD

PICTURE 31



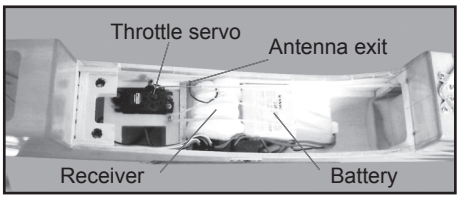
CONNECT THE ELEVATOR PUSHROD

5.3 Install the elevator horn and the rudder horn as shown in the picture.

5.4 Centre the rudder servo with the radio. Position the rudder servo arm perpendicular to the servo. Use marking tape to hold the rudder in the central position. Screw the clevis 12 full turns onto a pushrod wire and connect the clevis to the control horn. Mark where the pushrod wire passes over the outer hole of the servo horn. Mark an L shaped bend at the mark using pliers then fit to the servo horn with a swing keeper. Repeat for the elevator servo.

⑥ INSTALLING THE SERVO AND CONNECTING THE THROTTLE

PICTURE 32



GLUE THE SERVO TRAY

6.1 Glue the servo tray into the fuselage as shown in the picture.

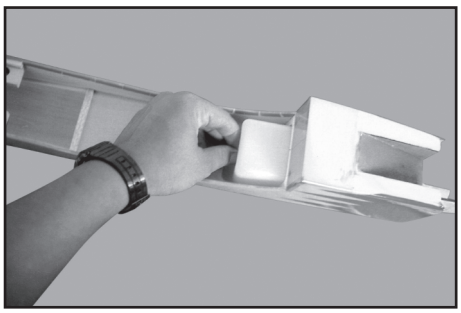
6.2 Install the throttle servo grommets and brass eyelets supplied with your radio equipment.

6.3 Plug the throttle servo into the receiver and turn on the radio system, position the throttle stick and the throttle trim to their lowest idle position.

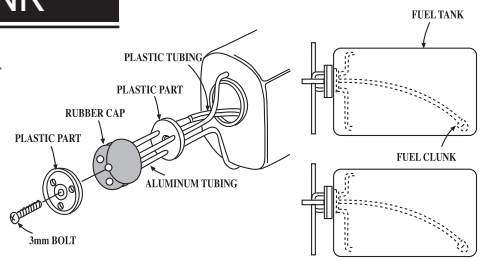
Completely close the carburator barrel. Fit the servo arm angled back towards the rear of the model, at about 45degree from centre line of the servo. Fit the pushrod into a metal connector and install the metal connector onto the servo horn. Tighten the metal connector onto pushrod and check for full and correct movement of the throttle.

⑦ FITTING THE FUEL TANK

PICTURE 33



INSTALL THE FUEL TANK

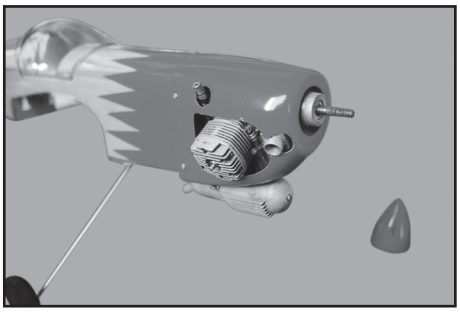


7.1 Assemble the fuel tank as shown.

Ensure that the tank screw is tightened enough to prevent leaks, but do not over tighten. Adjust the length of the fuel line so that the clunk is near, but does not touch, the bottom of the fuel tank. The battery and receiver are installed behind the fuel tank.Use foam packing to ensure that both are protected from vibration. The switch can be installed through the fuselage side, or alternatively, internally mounted, with a switch rod through the fuselage side.

⑧ FITTING THE COWLING

PICTURE 34

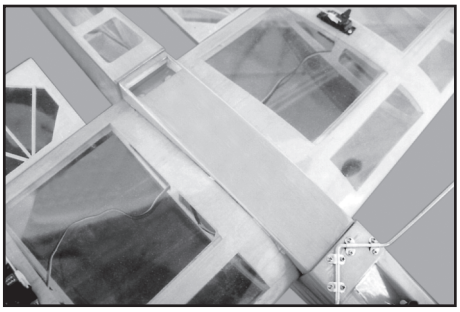


INSTALL THE COWLING AND THE PROPELLER AND SPINNER

8 Install the cowling, using four wood screws into the firewall. Make cutouts for the engine and muffler in the cowl.

⑨ FITTING THE BELLY PAN

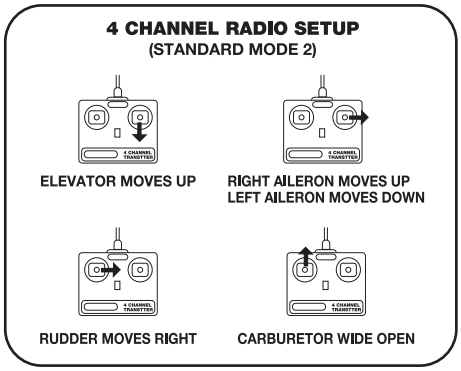
PICTURE 35



9.1 Mark the location of the belly pan on the wing and cut away the covering just inside the lines.

9.2 Glue the belly pan to the wing.

⑩ RADIO CONTROL AND CONTROL SURFACE THROWS



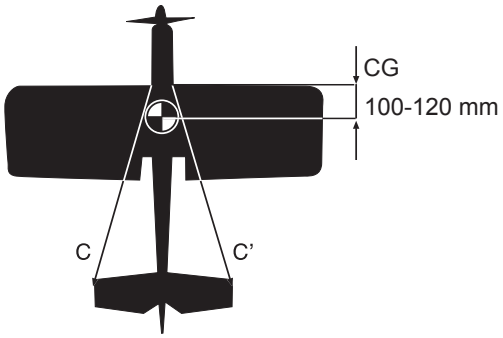
10 We recommend the following control surface throws:

ELEVATOR	:	25mm up 25mm down
RUDDER	:	50mm right 50mm left
AILERON	:	20mm up 20mm down

⑪ BALANCE YOUR MODEL

11.1 This section is very important and must not be obmitted ! A model that is not properly balanced will be unstable and possibly unflyable.

11.2 The Balance Point is 100-120mm back from the leading edge of the wing. Assemble the model and use masking tape to mark the balance point. Lift the model at the marks, if the nose of the model falls, it is nose heavy. If the tail of the model falls, it is tail heavy. To correct this, try moving the battery pack. If this is not enough, add ballast weight as necessary.



⑫ PRE-FLIGHT CHECK

12.1 Completely charge your transmitter and receiver batteries before your first day of flying.

12.2 Check every bolt and every glue joint in your model to ensure everything is tight and well bonded.

12.3 Check that silicone tubes used for clevis retainers are in place.

12.4 Double check the balance of the airplane. Do this before filling the tank with fuel.

12.5 Check the control surfaces. All should move in the correct direction and not bind in any way.

12.6 Check the receiver antenna. It should be fully extended and not still coiled up in the fuselage.

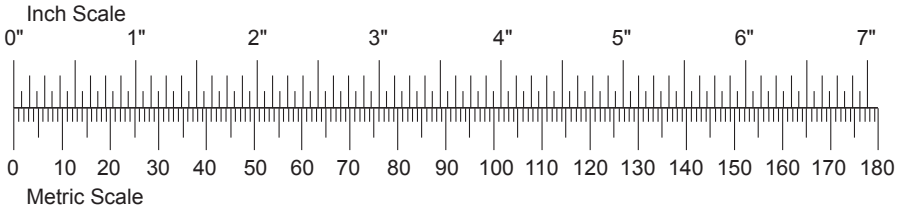
WARNING

This model should not be flown as high speeds using high power settings or the control surfaces may flutter and cause the airplane to crash. Full power should only be used on vertical flight, and should only be used when absolutely necessary. Full throttle straight and level flight, or diving flight, will result in flutter and damage to the airplane, possibly causing a crash and/ or damage to the servos.

Metric Conversions

Inches x 25.4 = mm (conversion factor)

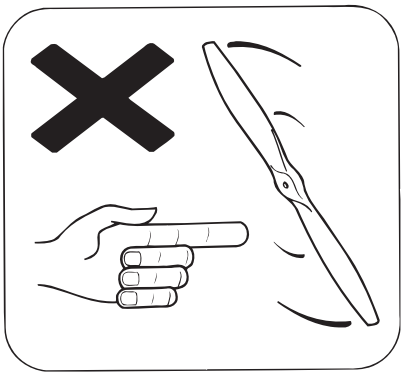
1/64"	= .4 mm	3/16"	= 4.8 mm	1"	= 25.4 mm	21"	= 533.4 mm
1/32"	= .8 mm	1/4"	= 6.4 mm	2"	= 50.8 mm	24"	= 609.6 mm
1/16"	= 1.6 mm	3/8"	= 9.5 mm	3"	= 76.2 mm	30"	= 762.0 mm
3/32"	= 2.4 mm	1/2"	= 12.7 mm	6"	= 152.4 mm	36"	= 914.4 mm
1/8"	= 3.2 mm	5/8"	= 15.9 mm	12"	= 304.8 mm		
5/32"	= 4.0 mm	3/4"	= 19.0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



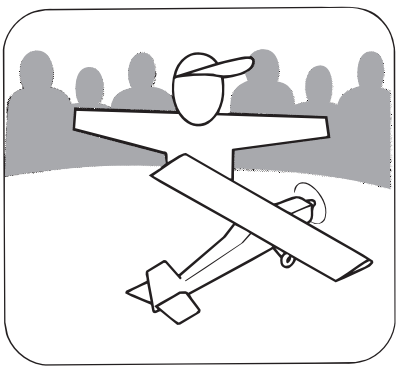
We wish you many enjoyable flights with your plane and once again thank you for your choosing Phoenix Model's product.

I/C FLIGHT WARNINGS

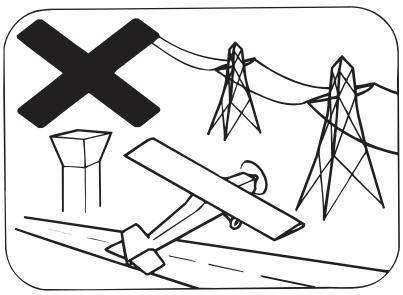
Always operate in open areas, away from factories, hospitals, schools, buildings and houses etc. **NEVER** fly your aircraft close to people or built up areas.



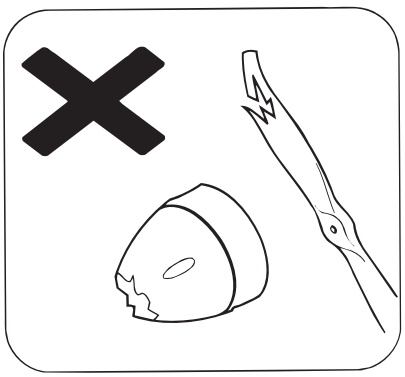
THE PROPELLER IS DANGEROUS Keep fingers, clothing (ties, shirt sleeves, scarves) or any other loose objects that could be caught or drawn in, away from the propeller. Take care at **ALL** times.



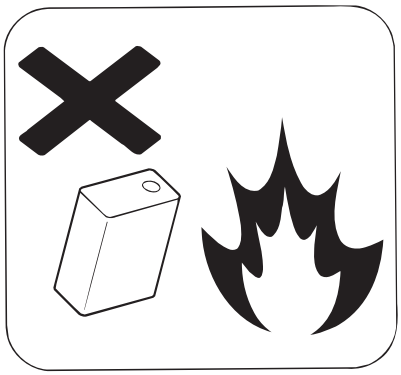
Keep all onlookers (especially small children and animals) well back from the area of operation. This is a flying aircraft, which will cause serious injury in case of impact with a person or animal.



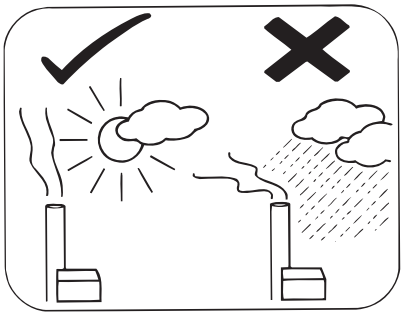
NEVER fly near power lines, aerials or other dangerous areas including airports, motorways etc.



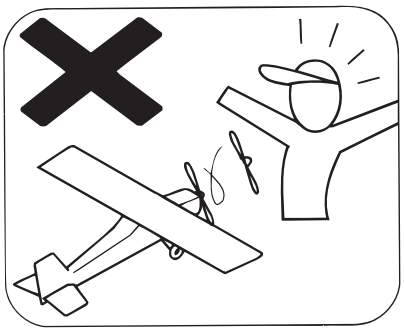
NEVER use damaged or deformed propellers or spinners.



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

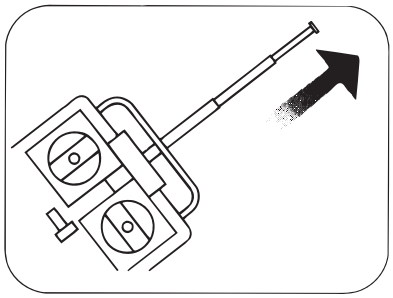


NEVER fly in wet conditions or on windy or stormy days.

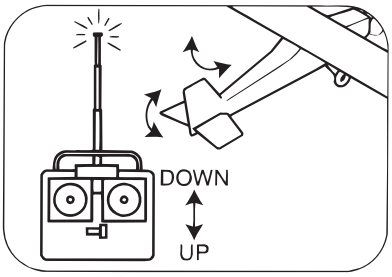


ALWAYS adjust the engine from behind the propeller, and do not allow any part of your body to be in line with the propeller.

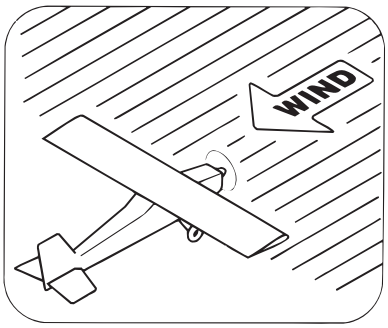
I/C FLIGHT GUIDELINES



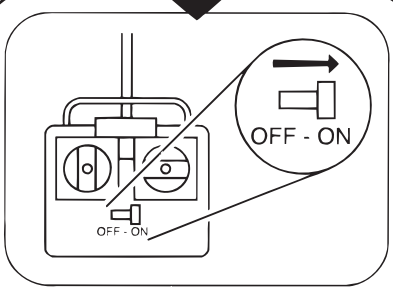
When ready to fly, first extend the transmitter aerial.



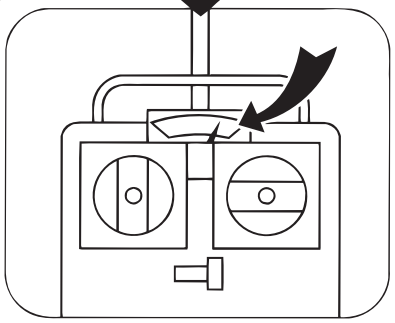
Operate the control sticks on the transmitter and check that the control surfaces move freely and in the **CORRECT** directions.



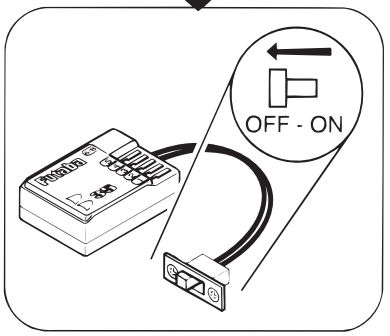
ALWAYS land the model INTO the wind, this ensures that the model lands at the slowest possible speed.



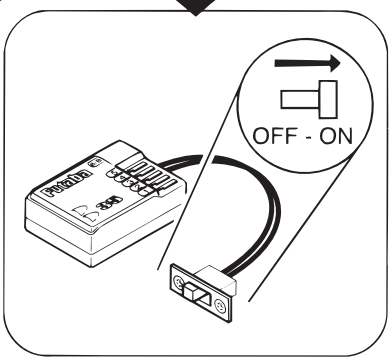
Switch on the transmitter



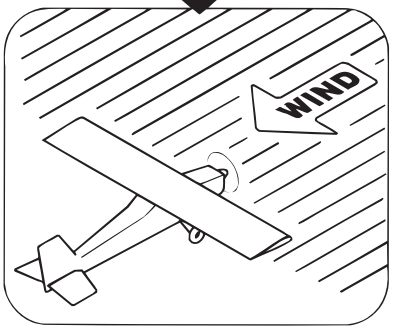
Check that the transmitter batteries have adequate power.



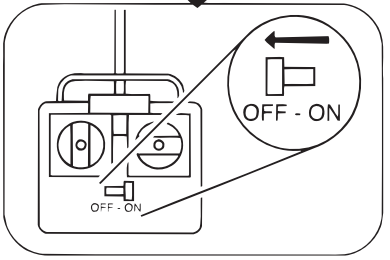
Switch off the receiver.



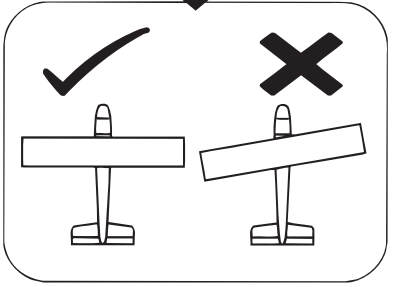
Switch on the receiver.



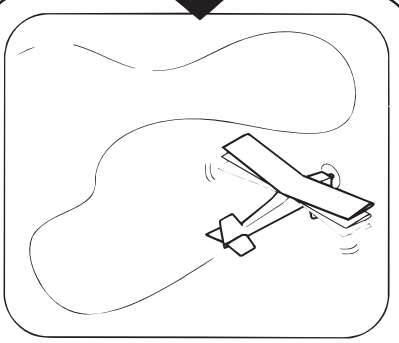
ALWAYS take off into the wind.



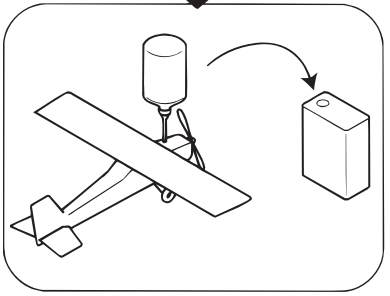
Switch off the transmitter.



Check that the wings are correctly fitted to the fuselage.



If the model does not respond correctly to the controls, land it as soon as possible and correct the fault.



Empty the fuel tank after flying, fuel left in the tank can cause corrosion and lead to engine problems.