

TIGER SHARK-40

ARF

ASSEMBLY MANUAL



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Congratulations!

Kangke Industrial USA, Inc. brings you one of the finest Tiger Shark models available. Skilled craftsmen combined with top grade materials and precision jigs have all come together to produce an aircraft with outstanding flight qualities. If you follow the directions carefully the performance of this aircraft will surely please you.

Specifications:

Length	54.5 in.
Wing Span	47.5 in.
Area	535 sq. in.
Weight	5.5-6.5 lbs.
Engine	40-52 2 Cycle

Kit Contents:

Fuselage	1
Wing panel	1
Ailerons	2
Canopy	1

PACK 1

Stabilizer	1
Elevator	1
Fin	1
Rudder	1

PACK 2

Servo tray	1
Servo block	2
Servo rails	2

PACK 3

Fuel tank	1
Wheels	3
Main gear	2
Nose Gear	1
Control horn	1
Control wire	6
Control rod	1
Bellcrank	1
Hardware pack	1
Clevises	5

Pack 4

Manual	1
Decal kit	1

The following additional items will also be needed to build the Tiger Shark

HOBBY ITEMS:

4 oz. 30 min. epoxy
Popsicle sticks
Hobby knife
Med. CA 1 oz.
Radio 4-channel min.

4 servos

Fuel line 20-inches
Motor (Tiger Shark .40/52)
Muffler
Spinner (Super Kraft 2.25")
18-inch servo extension
Canopy glue

HOUSEHOLD ITEMS:

Paper towels
Alcohol
Masking tape
Ruler
Felt tip pen
Screwdrivers
Pliers
RTV silicone
Sewing thread
5/32 drill
1/4 drill
1/8 drill
1/16 drill
Clothes pins

Read each step of the instructions carefully. Be sure you understand what is required and what the procedure is before you glue or cut anything. How well you assemble this model will have a direct effect on its flight characteristics.

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Warranty: Kangke Industrial USA Inc. guarantees the kit to be free of defects in both material and workmanship at the date of purchase. This warranty does not cover any parts damaged by use or modifications. In no case shall Kangke Industrial's liability exceed the purchase cost of this kit. Since Kangke Industrial has no control of final assembly and material used by user for final assembly, no liability shall be assumed or accepted for any damage resulting from the use by user of final user-assembled products. This kit has been flight test for normal use. If the plane will be used for extremely high stress flying, the modeler is responsible for reinforcing the high stress points. Inspect this kit immediately after receiving it, report any missing and damaged parts within 10 business days otherwise the claim may be denied.

Note that because of the unique design of the Tiger Shark, the assembly sequence is unusual when compared to most other ARF designs. We at KANGKE have found this to be the best sequence and recommend you do not deviate from it.

FUSELAGE

Carefully trim the covering and remove the access hatch as shown in the photo. Secure the loose edge of the covering with a covering iron.



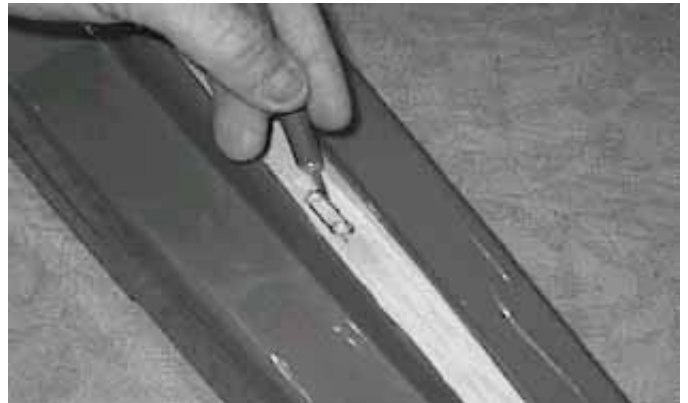
Locate the fin support block. Slide the block into the rear of the fuselage. *DO NOT GLUE!*



Using a 1/4-inch drill, make a hole through the fuselage as far to the rear of the fin slot as possible.

Drill another 1/4-inch hole 1-inch forward of the rear of the fin slot. Remove the fin support block.

Using a razor knife, remove the balsa between the holes making a slot. Reinstall the fin support block. *DO NOT GLUE!*



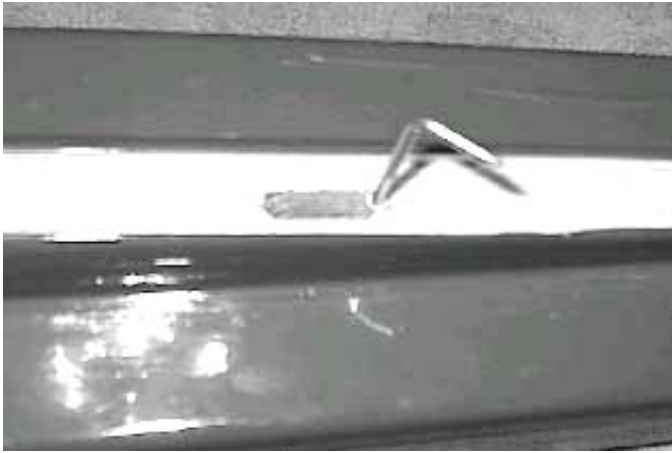
Using a small saw blade, notch the rear of the fin support block, as well as the fuselage 1/8-inch at the center of the slot { *this is for rudder bellcrank clearance* }. Remove the fin support block.



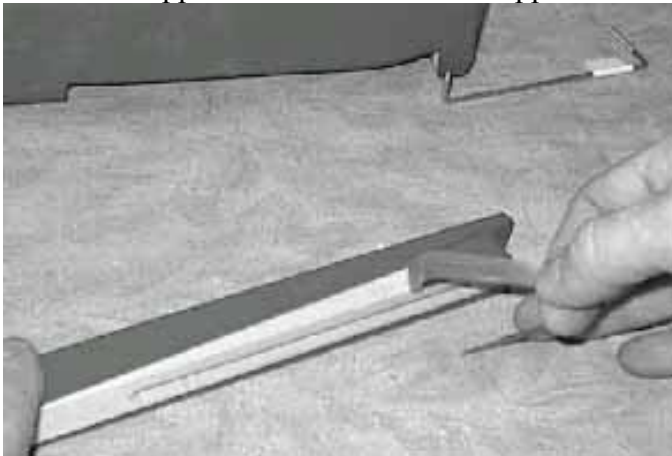
Using a razor knife, make a slot in the rear of the fuselage opening for the rudder bellcrank support-bearing tab.



Test fit the bellcrank in the rear of the slot *DO NOT GLUE!*



Insert the rudder support block in the fuselage, using a felt tip pen mark the outline of the fuselage on the fin support block. Remove the support block.



Using a razor knife, slice and remove the covering 1/8-inch below the drawn line.



Mix a small amount of 30-min epoxy, coat the bare wood on the fuselage and slide in the rudder support block. Allow to cure.



Coat the bellcrank wire generously with petroleum jelly to be sure glue does not stick to it, be careful not to get any on the support tab. Using a tooth pick work a small amount of 30-minute epoxy into the support tab slot and install the bellcrank.



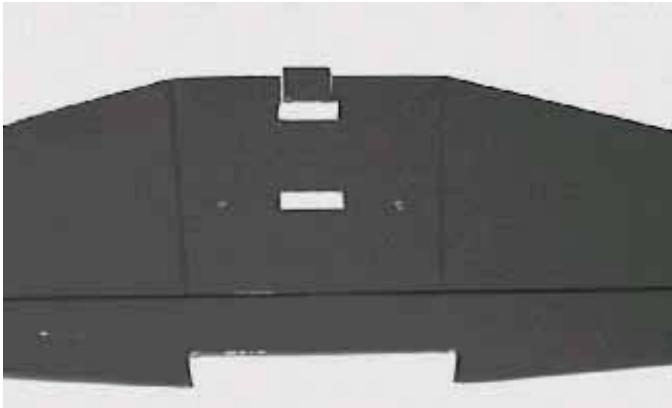
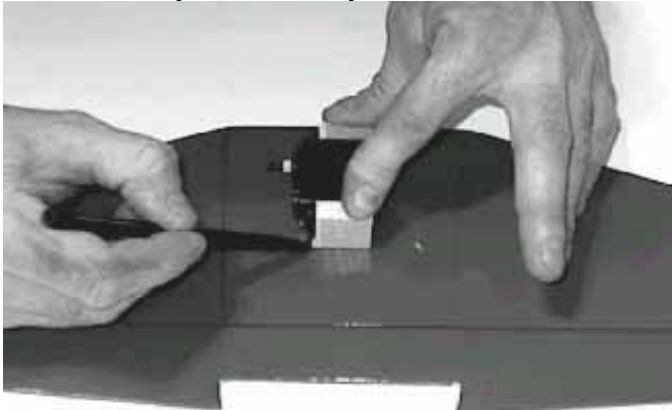
Be sure the bellcrank is in its slot and allow to cure. *If the bellcrank enters the fin slot, the fin will prevent it from moving once it is installed.*



Open the screw holes in the stabilizer and trial fit to the fuselage. Mark the location of the elevator on the stabilizer. Using a toothpick work a small amount of epoxy into the hinge slots, wipe off the excess with a paper towel moistened with alcohol and install the hinges and elevator.

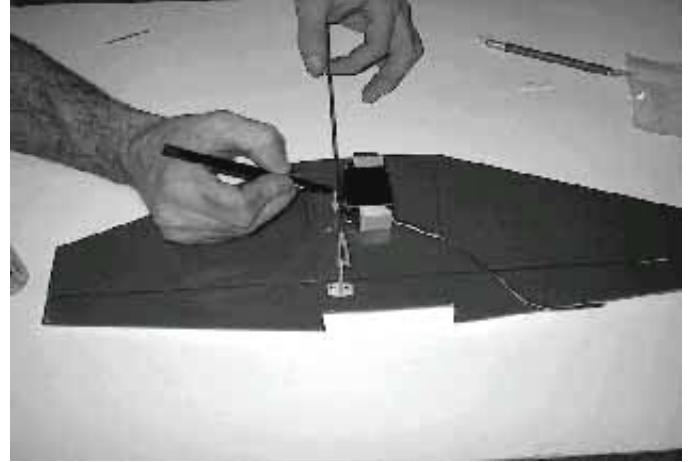


Using the servo as a spacer, mark the location of the elevator servo mounting blocks. Depending on the servo used, some modification of the stabilizer mount tab may be necessary.

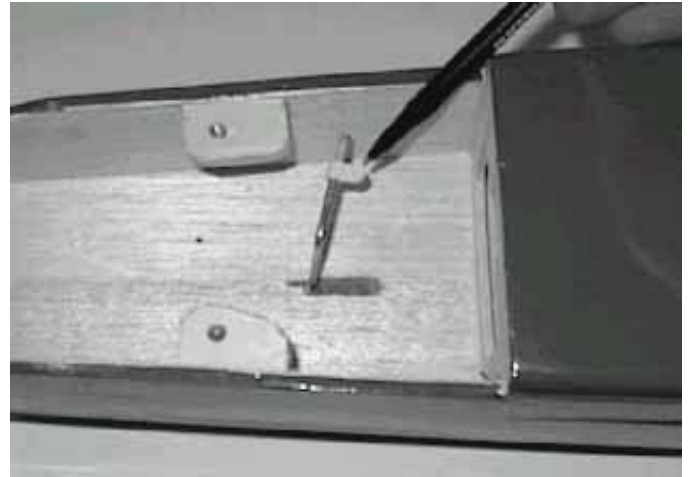


Remove the covering at the mount location and epoxy the mount in place. Be sure the hard wood on the mount will be against the servo mounting tabs.

Install the servo. Line up and install the elevator bellcrank. Screw a clevis on to a threaded rod, center the servo and mark the servo arm hole on the rod. Make a "Z" bend in the rod and install.



Install the rudder control tab on the rudder bellcrank.

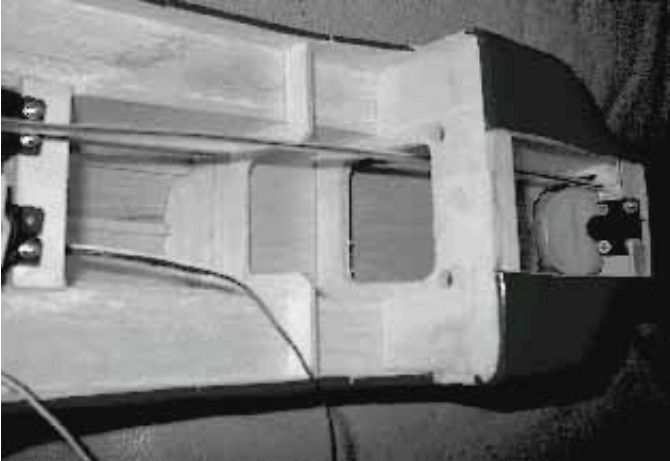


Using the servos as spacers install the servo mounting rails as shown with epoxy. Install the rudder and throttle servos.

Locate and drill a 5/32-inch hole in the fire wall for the throttle control wire and casing.



Drill a 5/32-inch hole next to the nose gear support block. Rough the casing at both locations and epoxy in place.



The fuel tank is mounted sideways. Trial fit the tank in its opening {the offset of the tank goes to the motor side} Mark the top to avoid confusion and install the vent and pickup lines as shown. Do not tighten the screw.



Apply a 1/4-inch bead of RTV silicone around the front of the tank. Press the tank into position and while holding it there tighten the screw.[the rubber

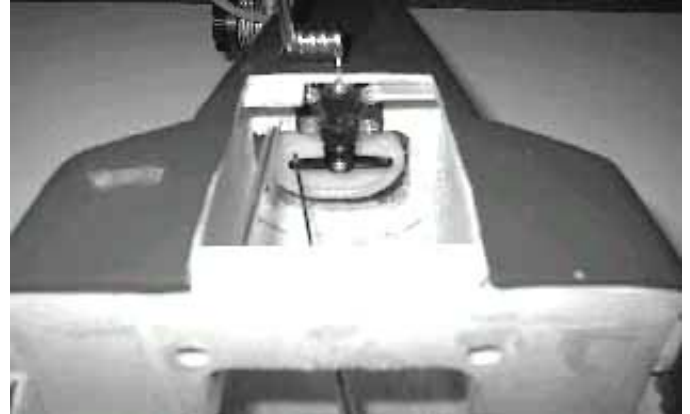
plug will expand holding the tank in position while the RTV cures]



Install the fuel and vent lines. Make a "Z" bend in the end of the throttle wire and install the wire with the motor. It is sometimes easier to install the motor without the carburetor then install the carb and throttle wire.

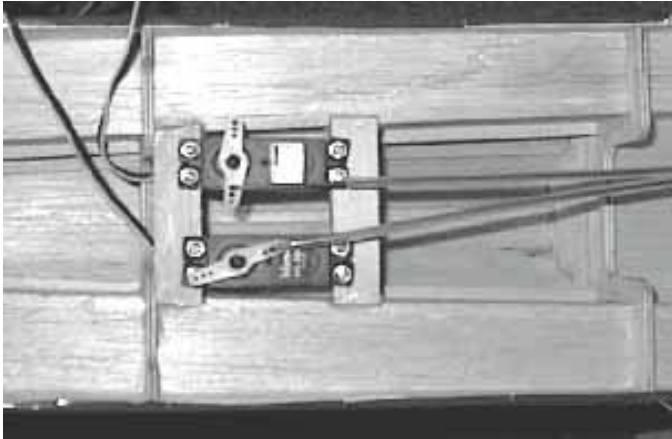


Insert the nose gear through the fuselage, then the retaining collar, nose gear block and finally the



steering bellcrank. Make a "Z" bend in the steering control rod and install in the steering bellcrank.

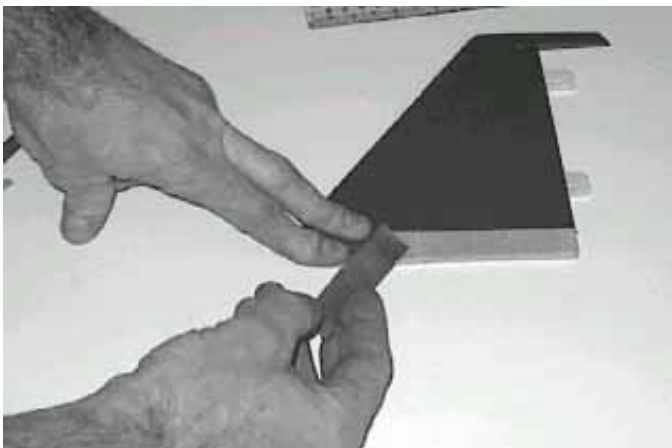
With the servo centered and the nose wheel straight, mark the control rod and install with another "Z" bend as shown.



Trial fit the fin and rudder. When satisfied with the fit, remove the rudder and using a felt tip pen, mark the fuselage line on both sides of the fin.



Using a razor knife, cut and remove the covering 1/4-inch below the line.

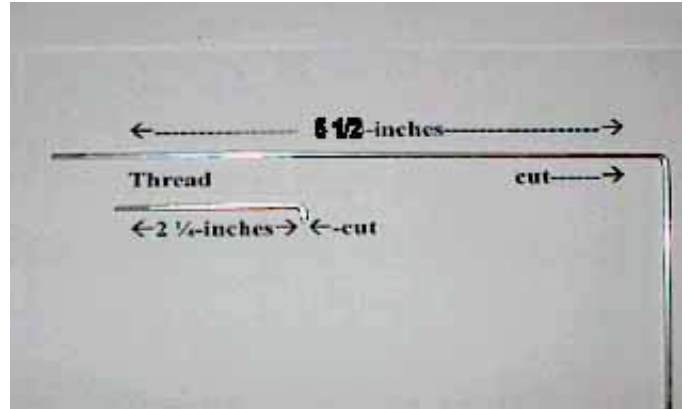


Coat the rudder bellcrank with petroleum jelly. Epoxy the fin in place using the lines as a guide. Test fit for rudder clearance before the epoxy cures.

Clean the excess with a paper towel moistened with alcohol. When cured, install the rudder as was done with the elevator.



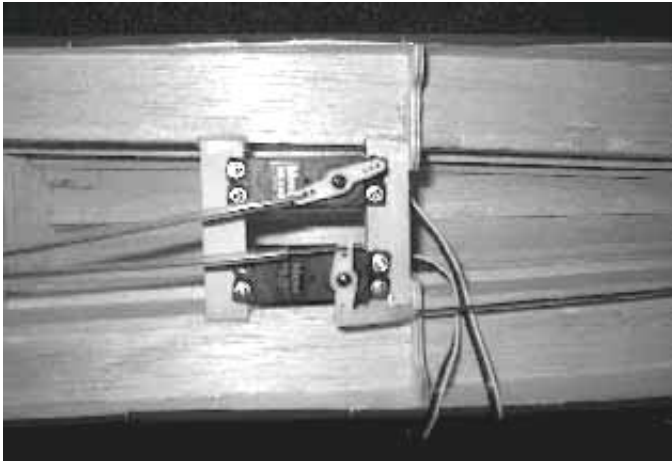
Begin the rudder control rod by bending one rod 6 1/2-inches from the threaded end. Bend another rod 2 1/4-inches from the threaded end. Cut the rods 1/4-inch after the bend. Be sure not to cut the side with the threads.



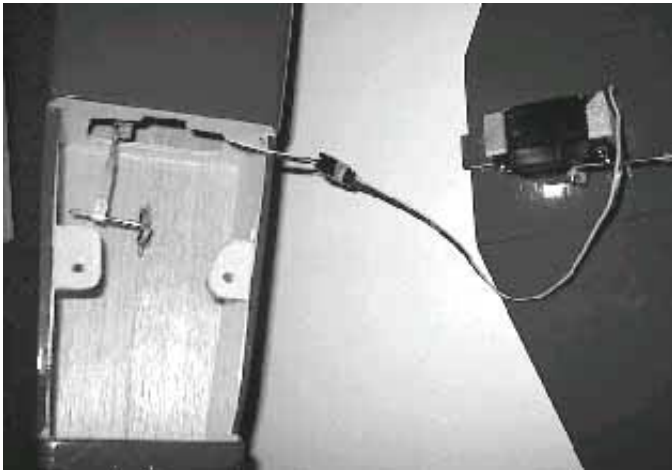
Insert the cut end into the hole in the wood dowel, press the rod into the slot in the dowel. Wrap the end tightly with thread and cover with CA. screw a clevis on the rod. Repeat the process on the other end.



Install the short end on the rudder bellcrank the long end on the servo. Adjust the rod length till the rudder is straight.



Run the servo extension through the fuselage, plug in the elevator servo and install the stabilizer.



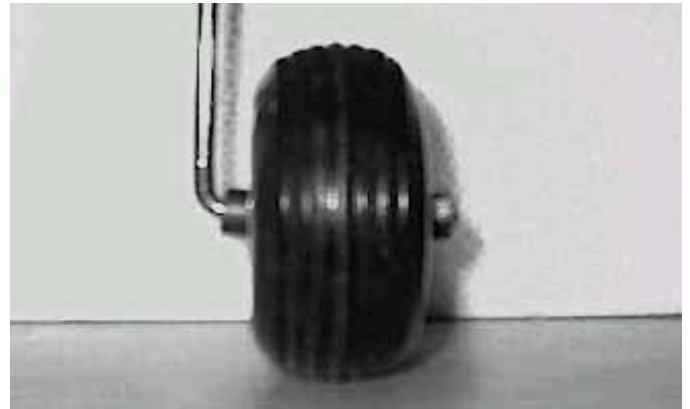
Cut a notch in the lock down tab of the access hatch to clear the nose gear collar.



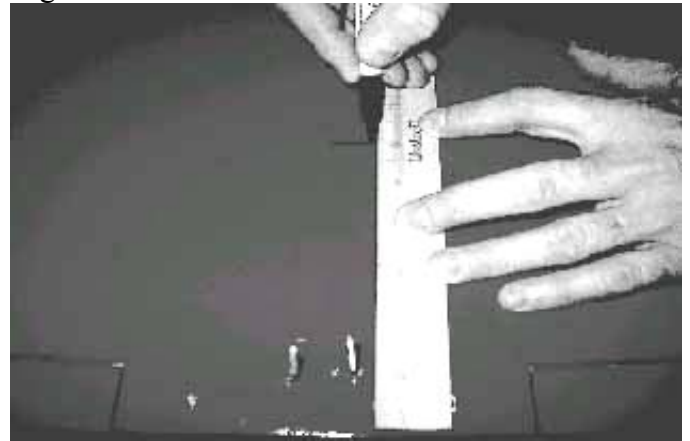
Install the access cover and secure with a screw.



Install the front wheel.

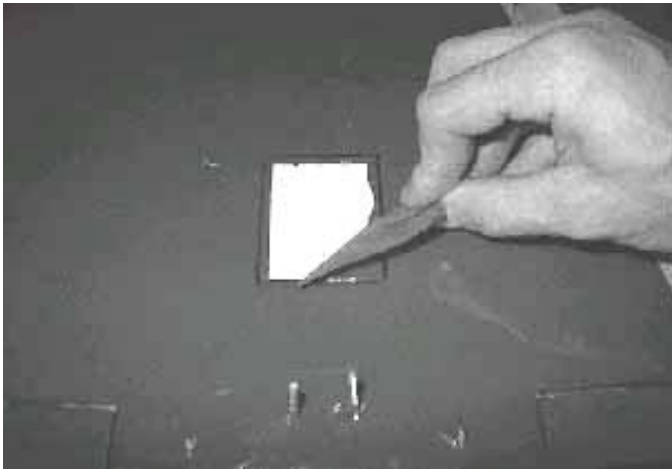
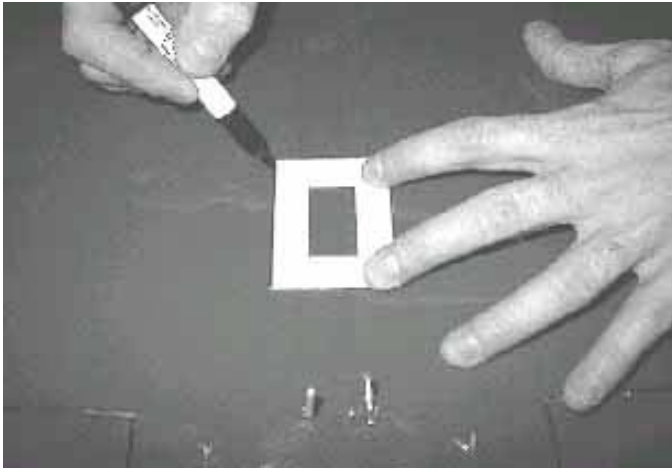


Begin the wing by installing the hinges and ailerons using the same procedure as before. Make a mark on the top of the wing 6-inches from the trailing edge.

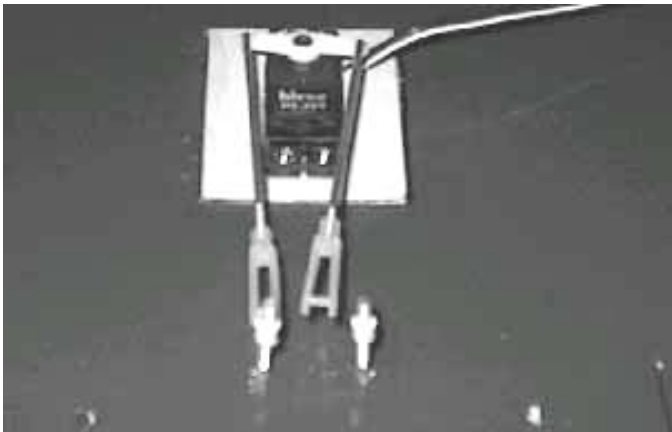


Line up the forward edge of the servo doubler with the mark. Center the doubler on the wing and using a felt tip pen trace its outline.

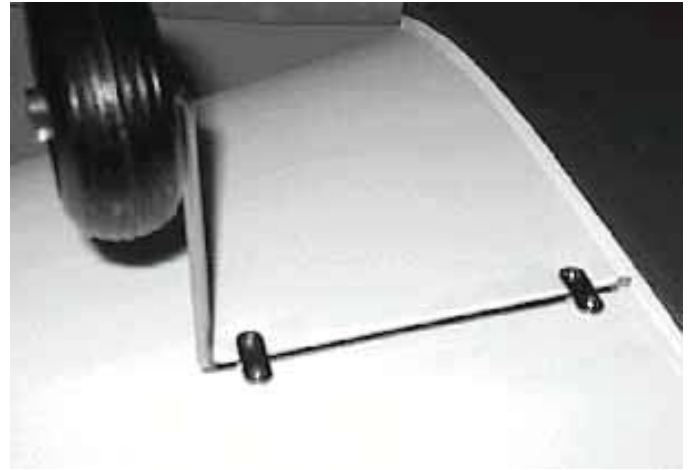
Using a razor knife, trim and remove the covering 1/8-inch inside the lines.



Epoxy the servo doubler in place. Cut the center out as necessary to fit the servo. Mount the servo following the manufactures instructions. Fabricate the control rods as before and install.



Cut the covering over the slots in the bottom of the wing for the landing gear. Insert the landing gear wire in the slot, and secure with straps and screws as shown. Instal wheel collars and wheels as before.



Trim the canopy along the scribe lines. Sand the edges smooth with fine sandpaper if nessasary. Trial fit the canopy and when satisfied install with canopy adhesive. *The canopy may be tinted using canopy dye from your local hobbie supplier. Be sure not to let the dye temp exceed 140-degrees.*



The exhaust cone must be painted and glued in place using canopy adhesive.

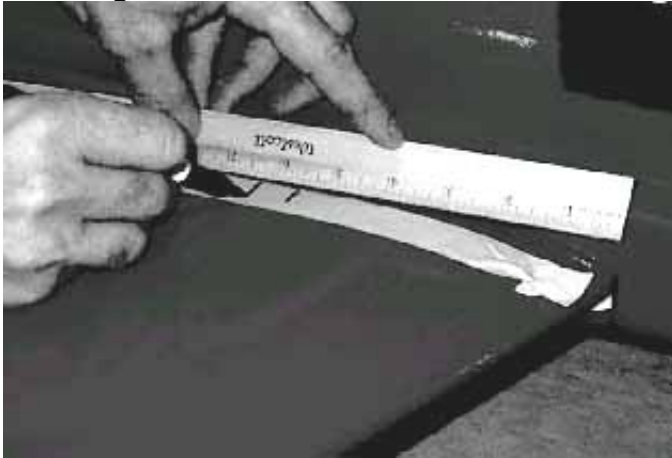


WEIGHT AND BALANCE

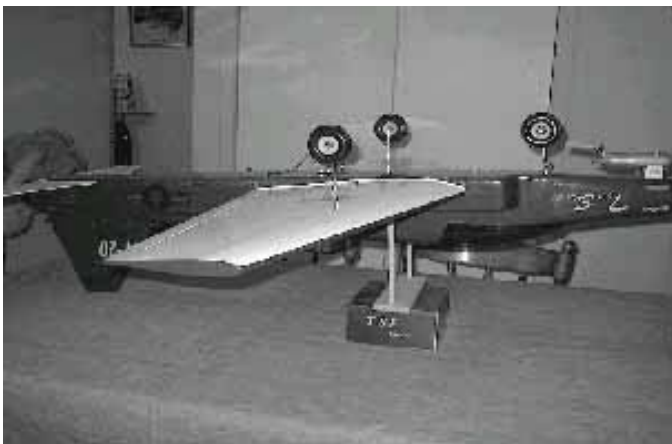
Nothing affects the way a plane flies more than weight and balance. Failure to perform this procedure may result in an aircraft that is at best difficult to control and at worst impossible to fly.

Even small changes in the balance point make large changes in stability. For your first flights we recommend using a balance point at the forward end of the center of gravity {C.G.} range, this location will provide the most stability. As your comfort and skill increase slowly move the C.G. aft to increase the control response.

Lay a strip of masking tape along the top of each wing as shown. Make two marks on the tape one 5 1/2-inches, one 6 1/4-inches back from the leading edge of the wing. Repeat on the other side of the fuselage. These marks represent the limits of the C.G. range.



Turn the aircraft upside down and support it from between the two marks. Slide the battery pack to a position where the plane will balance level to slightly nose heavy. Mount the battery inside the fuselage at the determined location. Install the on off switch in a convenient location per the manufactures instructions. Reinstall the wing and check the C.G. again. If necessary add weight to the nose or tail.



CONTROL THROWS

Double check all controls move in the proper direction

With your radio on, center all trims and adjust the clevises so all control surfaces are straight. Measure the control surface movement at the widest part of each surface. Use the servo horns and bell crank holes to adjust the control throw. For your first flights the control throws should be set to the following:

Elevator 1/2-inch up / down
Rudder 1 1/2- inch right / left
Aileron 1/4-inch up / down

MOTOR SET UP

Be sure the motor is properly broken in using the manufacture instructions. Set the throttle throw to shut the motor off when the trim is pulled down and idles reliably with the trim up.

After the motor is set, run one tank of gas at full throttle, measure how much time it takes to run the tank dry.

CONGRADULATIONS you are now ready for test flights.

Before leaving for the field be sure your batteries are fully charged and you have all the required support equipment {fuel, starter, glow driver, etc.}. Although the TIGER SHARK will fly well in wind, wait for a nice day.

At the field have a helper hold the airplane, following the radio manufactures instructions perform a range check of the radio. Do this with the motor off, start the motor and do it again. *Perform this test EVERY TIME YOU GO TO FLY!*

TRIMING BASIC FLIGHT

The TIGER SHARK is NOT a trainer. A true aerobatic aircraft, it goes only where you point it and will not recover to level flight without control input. If you do not have high performance experience seek the help of someone who does.

Line up on the center of the runway and slowly open the throttle, using the rudder to maintain directional control. Once the tail is up apply a little up elevator and allow the plane to gently lift off the runway. Keep the climb angle and turns shallow

until you reach a safe altitude. Reduce the throttle to about 60% power. With the airplane flying away from you adjust the radio aileron trim tab till the wing stays level. Turn and line up the plane with the runway. Adjust the elevator trim till the plane maintains level flight. Once again with the airplane flying away from you adjust the rudder trim till the fuselage tracks straight {it may be necessary to correct the aileron trim after this procedure}. Continue to fly and trim until the aircraft is tracking well, land before the fuel runs out. Carry a little power on final approach until over the end of the runway, then cut power to idle, hold the plane just off the runway till the airspeed bleeds off and the plane settles on. If the landing is too long add power go around and try again, don't try to force it to the ground.

Now its time to zero out the trims. To do this measure the control location, center the trim tab on the radio and adjust the servo horn for large changes, the control clevis for small changes. For example if after the flight the rudder is 3/16 inch to the right, center the radio trim and adjust the clevis till the rudder once again measures 3/16 right. By doing this whenever you fly, setting the radio trims at center will result in a well-trimmed plane. Increase the control travel, as you become more familiar with the flight characteristics until loops take about 100 feet and final roll rate should be 200-250 degrees per second.

If you have followed the procedures in this Manuel you will now be rewarded with one of the finest flying sport models available. All primary aerobatic maneuvers are at your fingertips and the aircraft will perform them with ease.