

FUN-50

ARF

ASSEMBLY MANUAL



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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.

Congratulations!

Kangke Industrial USA, Inc. brings you one of the finest ARF fun-fly 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:		Cowling	1	Wheels	2
Length	56 in.	Canopy	1	Tail gear	1
Wing Span	61 in.	PACK 1		Tail wheel	1
Area	735sq. in.	Stabilizer	1	Control horn	4
Weight	5-6 lbs.	Elevator	2	Control wire	4
Engine (2 Cycle)	40-52	Fin	1	Motor mount	1
(4 Cycle)	60-70	Rudder	1	Hardware pack	1
Kit Contents:		Dihedral brace	1	Pack 4	
Fuselage	1	PACK 3		Manual	1
Wing panel	2	Fuel tank	1	Decal kit	1
Ailerons	2				

The following additional items will also be needed to build the CAP-SPORT

HOBBY ITEMS:

4 oz. 30 min. epoxy
 Popsicle sticks
 Hobby knife
 Thin CA .5 oz.
 Radio 4-channel min.
 4 servos
 RTV silicone
 Motor
 Muffler

Spinner
 Fuel line

HOUSEHOLD ITEMS:

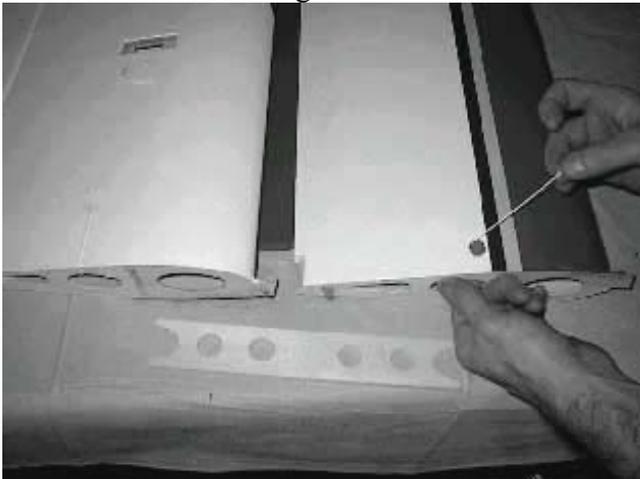
Alcohol
 Masking tape
 Ruler

Felt tip pen
 Screwdrivers
 Pliers
 5/32 drill
 1/8 drill
 Clothes pins
 Canopy glue
 Paper towels

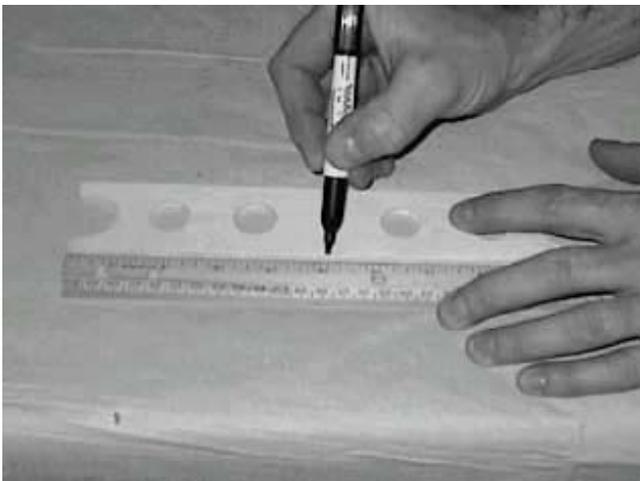
Read each step of the instructions carefully. Be sure you understand what is required and what the procedure is before you glue or cut anything. How well you assemble this model will have a direct effect on its flight characteristics.

WING ASSEMBLY

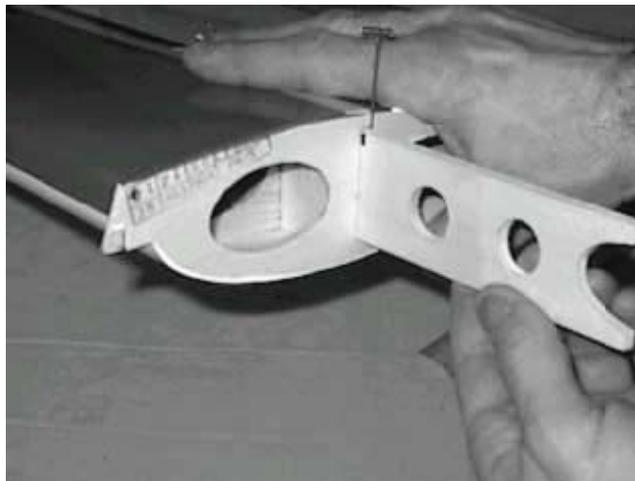
Remove the tape from the servo wire pull string at the center of the wing. Work the string through the exit hole in the wing bottom and secure.



Measure the dihedral brace, locate and mark its center. Insert a pin in the edge of the brace at the mark. Because there is no dihedral there is no top or bottom to the brace.



Trial fit the dihedral brace in its box in both wing panels. The brace should have a snug fit, sand lightly if necessary.

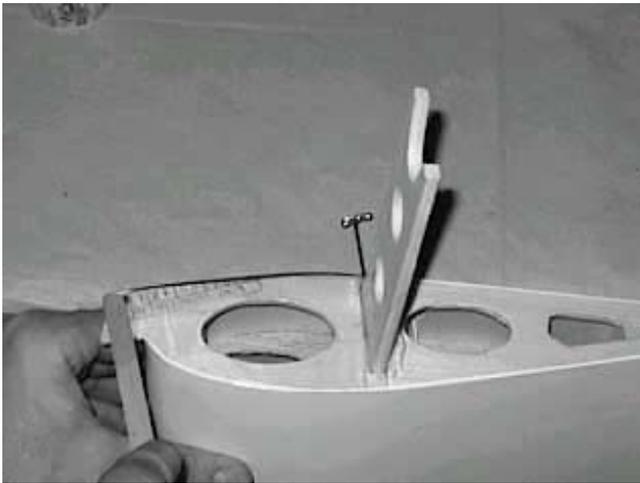


The following steps must be done quickly before the epoxy has time to set up. Read the procedure and gather the materials before starting.

Mix a small amount of 30-minute epoxy. Spread the epoxy in the dihedral box top, bottom, and sides about 1 inch in on both wing panels. The snug fit of the brace will push it down the box.



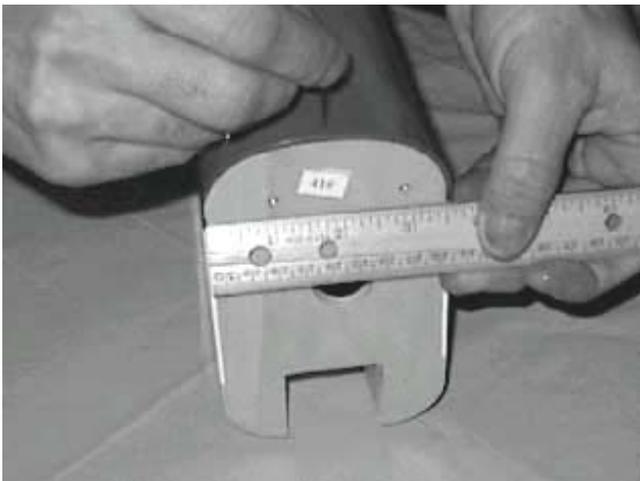
Apply epoxy to one half of the wing spar and slide it into position. Spread the epoxy that oozes out over the wing mating surface as well as the other half of the wing spar. Slide the other wing panel in place, remove the pin and wipe off the excess epoxy with a paper towel moistened with alcohol.



Stretch masking tape across the joint in such a way as to apply pressure to the joint. Lay the wing flat. **DO NOT DISTURB THE WING UNTILL THE EPOXY HAS FULLEY CURED.**

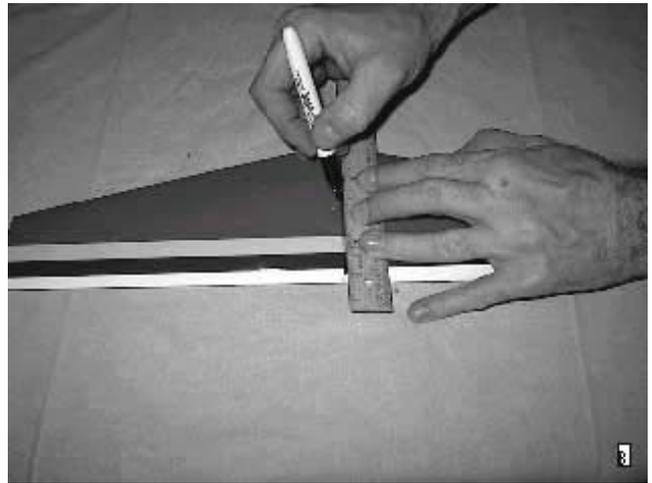


FUSELAGE ASSEMBLY

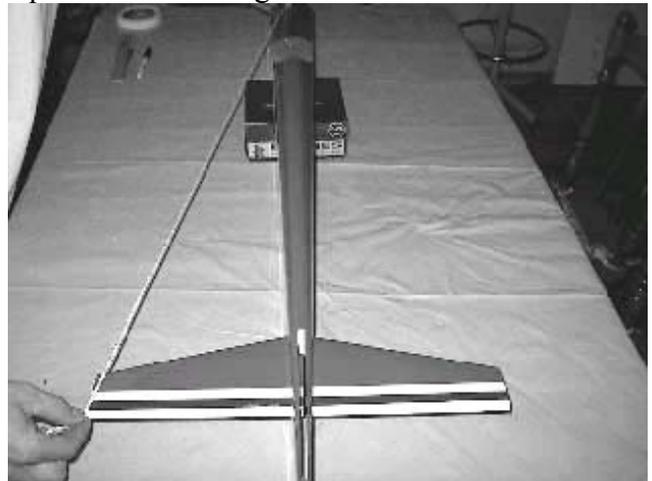


Locate and insert a pin in the firewall on the top of the fuselage.

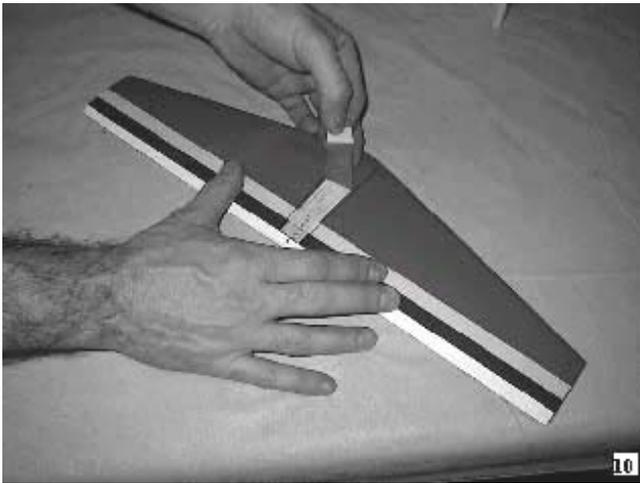
Remove the elevators from the stabilizer. Locate and draw a line down the center of the stabilizer.



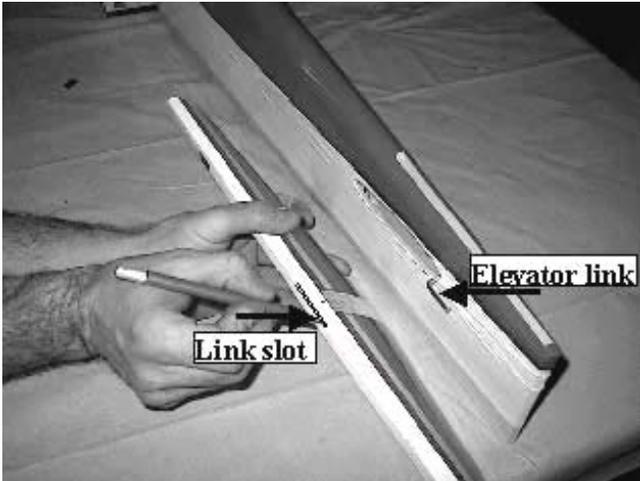
Looking through the rudder slot for the line, center the stabilizer in the fuselage. Using a piece of string go back and forth between the ends of the stabilizer adjusting it till it is centered and square to the fuselage. **DO NOT GLUE**



Use a felt tip pen to mark the outline of the fuselage on both the top and bottom of the stabilizer. Remove the stabilizer. Cut through the covering about 1/8-inch inside the lines and carefully remove the covering exposing the wood. *{Be careful not to cut into the wood, as this would weaken the structure}*



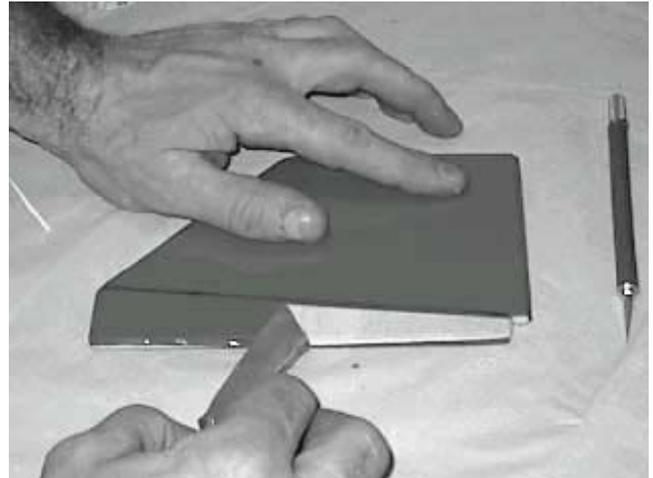
Place the elevator link in the fuselage, hold it to the rear with a rubber band. Open the link slot in the rear center of the stabilizer.



Slide the stabilizer back into the fuselage, leaving 3/8-inch of bare wood exposed. Coat the wood top and bottom with epoxy, slide the stabilizer through the fuselage exposing the wood on the other side, and coat the wood with epoxy. Center the stabilizer and use the string as before to verify

its alignment. Wipe the excess epoxy with a paper towel moistened with alcohol. Allow to cure before proceeding.

Remove the rudder from the fin. Slide the fin into the fuselage and with a felt tip pen outline the fuselage. Remove the covering 1/8-inch down as was done with the stabilizer.



Coat both sides of the wood on the fin with epoxy {do not coat the inside of the slot or epoxy will be pushed down on to the elevator link}. Push the fin in the slot until it bottoms against the fuselage. Wipe off excess epoxy with a paper towel moistened with alcohol.



Install the engine mount beams. Locate the engine on the beams with the back of the spinner 4-7/8-inches from the firewall. Remove the engine



FUEL TANK

Pass the two metal tubes through the silicone stopper. Place the large endplate on the outside and the small endplate on the inside. Press the screw through the outer plate and through the silicone stopper, screw it into the inner plate *do not tighten*. Slide the metal tubes so 1/2-inch extends past the outer side of the silicone stopper. Gently bend the long tube up to point into the “bubble” at the top of the tank. Push the flop weight into one end of the silicone tube. Cut the tube so that when the other end is pushed on the short metal tube the flop weight will be approximately 3/8-inch from the back of the tank. Slide the assembly into the tank, making sure to get the vent tube in or near the top. Tighten the screw until the stopper is tight in the opening. It is best to label the vent and carb lines with a felt tip marker on the outer plate to avoid confusion later.



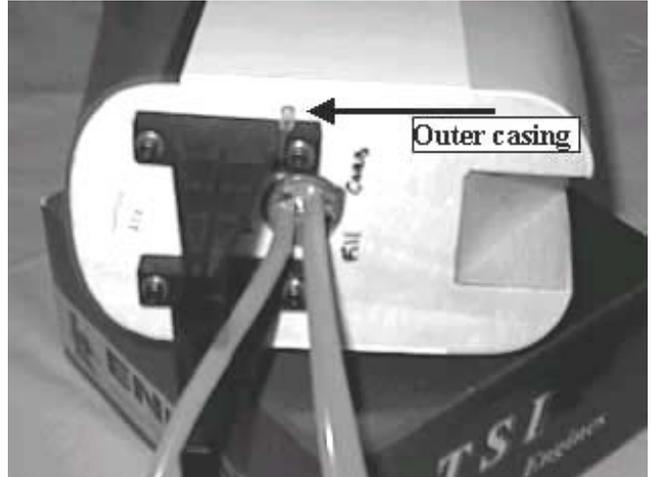
Apply a 1/4-inch bead of RTV silicone around the tank stopper.



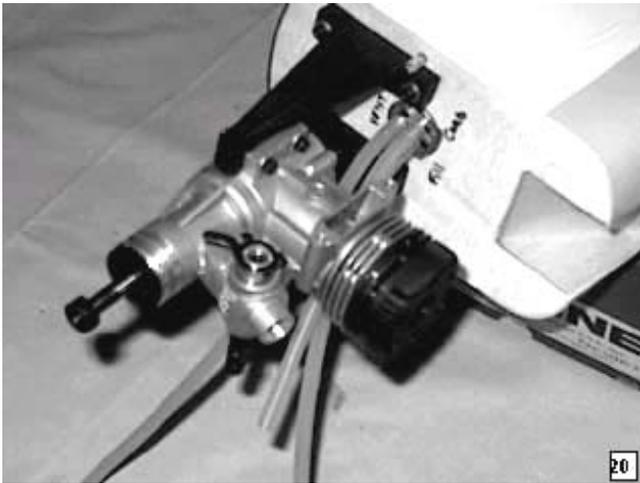
Slide the fuel tank into position, wedge a piece of foam in at the rear of the tank to hold it in position. Allow the RTV to cure.



Drill a hole in the firewall and install the throttle wire outer casing. Install the fuel lines.



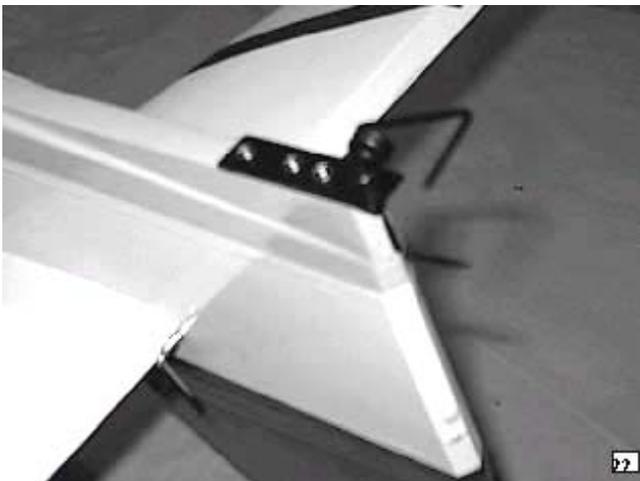
Install the engine with the supplied screws and lock nuts.



Install the wire main landing gear with the supplied straps and screws.

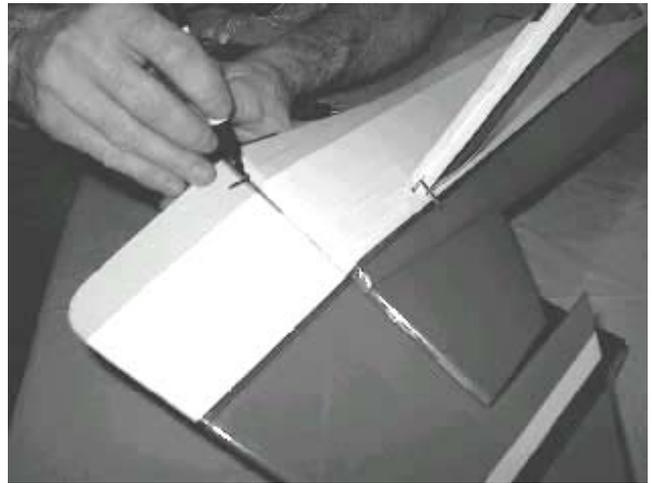


Install the tail wheel bracket as shown with the



provided screws.

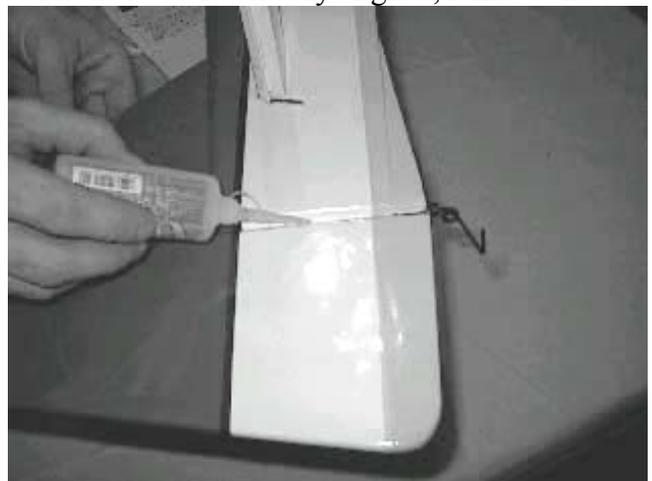
With the rudder correctly aligned, mark and drill the hole for the tail wheel tiller arm.



Insert pins on the centerline of each hinge to prevent them from sliding too far in. Install the hinges, rudder and tiller arm.

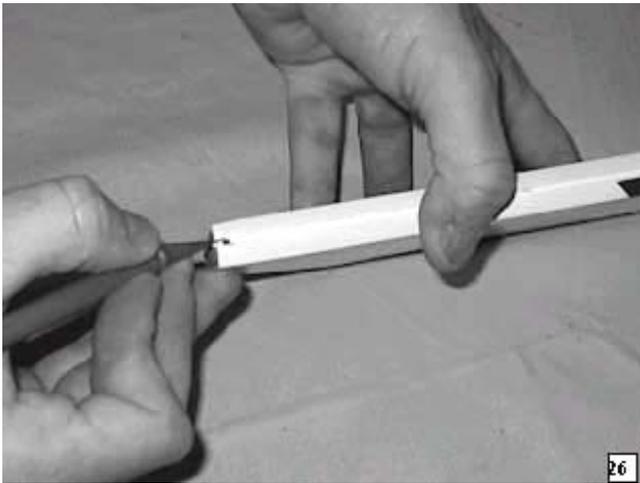


With the rudder correctly aligned, remove the

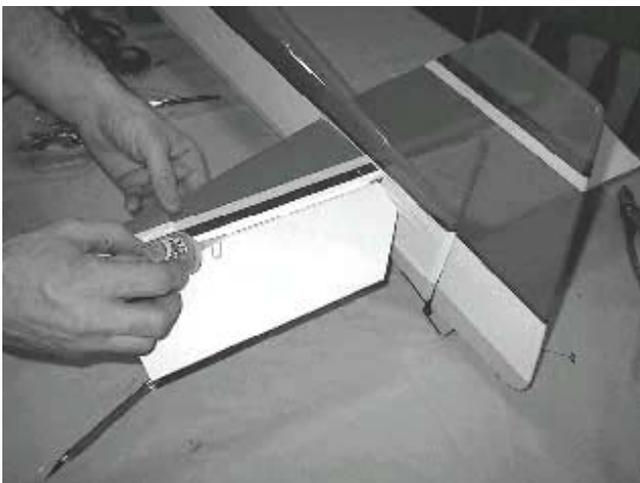


pins and place a drop of thin CA on each side of each hinge.

Remove the covering over the elevator link holes at the inside corner of each elevator half.



Use a toothpick to coat the inside of the hole with epoxy.



With pins on the center of the hinges slide the elevator half in position. Be sure to engage the elevator link. *{DO NOT CA THE HINGE}*
Repeat the procedure for the other side.

With the two elevator halves in position and properly aligned side to side, remove the pins and CA the hinges.

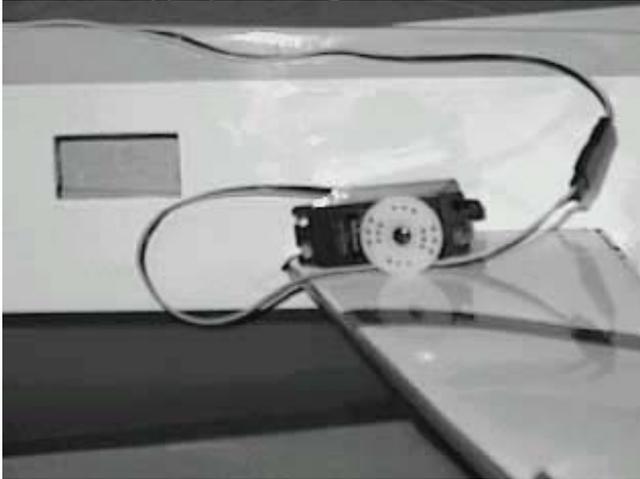


Use the same procedure to install the ailerons on the wing. Insert pins in the center of the hinge, install and align the aileron, then apply one drop of thin CA to each side of the hinge.

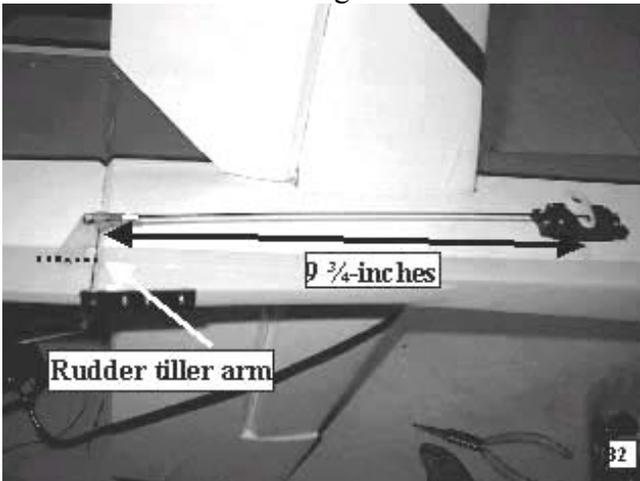


Because of the lightweight airframe, the FUN-50 was designed to use standard 40-ounce servos. Our prototype used HITEC HS-425BB with excellent results. Use these directions as a guide and install the servos following your radio manufactures instructions.

Open the elevator and rudder servo holes in the rear of the fuselage. Test fit your servos and install the appropriate length extension.



Install the servos following the manufacture



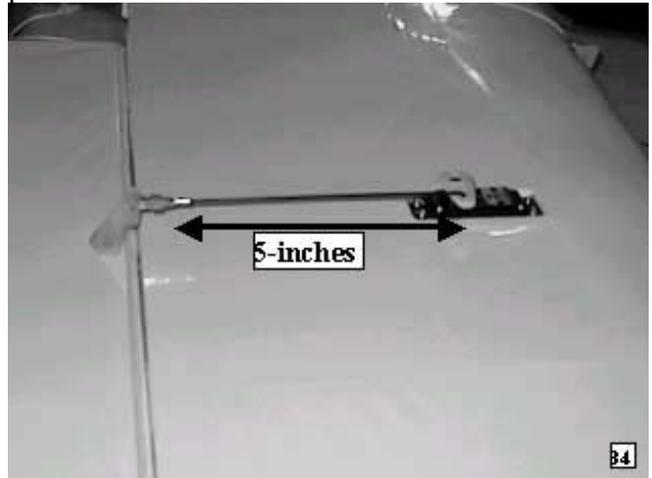
instructions. For the rudder side, fabricate a push rod by making a “Z” bend 9 3/4-inches from the threaded end. Install the control horn in such a



way that the clevis holes line up with the hinge line and the tail wheel tiller arm is pinched.

The elevator push rod is made in the same fashion. The length for the elevator is 5 3/4-inches. Mount the control horn 3/16-inch in from the inside edge of the elevator.

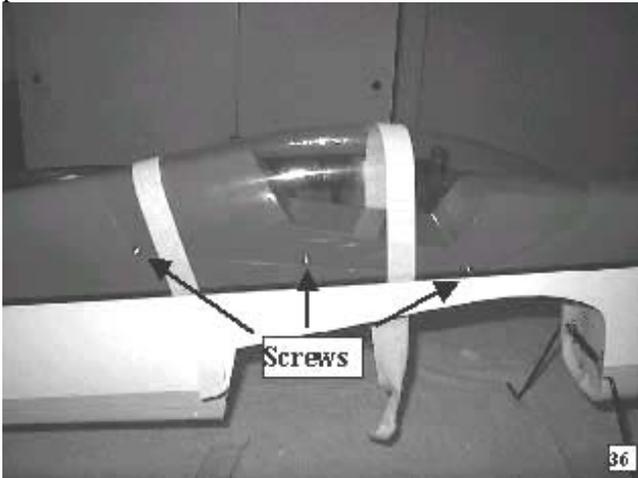
Test fit the aileron servos in the wing. Add the servo wire extension and use the string to pull through the wing. Fabricate the push rod by making a “Z” bend 5-inches from the threaded end. Mount the aileron bellcrank in the aileron hard point so the push rod is as straight back as possible.



Install the throttle servo in the servo tray as shown. With the servo in the closed position close the carburetor and fabricate the push rod using a “Z” bend at each end.



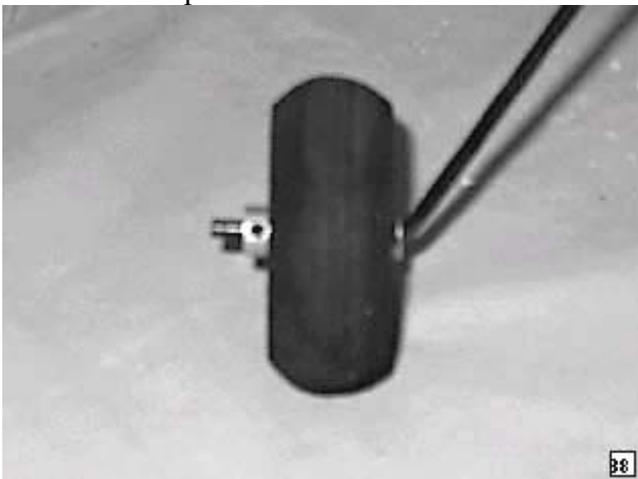
Trim the canopy along the indicated lines. Carefully position the canopy of the fuselage and tape in place. Secure the canopy with the provided screws.



Open the required holes for your engine {cooling,



carb, needle valve, and exhaust}. Align the cowl with the spinner leaving a 1/4-inch gap. Secure the cowl with the provided screws.



Install the wheels on the axles using the collars and set screws.

Install the tail wheel and collar.



Install the remainder of the radio gear following the manufacture instructions. Open the holes in the wing for the hold down screws. Install the wind and belly pan with the provided screws.



BALANCE

The center of gravity must be located from 3 1/2 to 4 1/2-inches behind the leading edge of the wing. Moving it to the forward side of the range will increase the stability of the aircraft, moving it aft will increase control response. We recommend the forward position for initial flight tests.

The final step is the decals and covering. The covering may have developed wrinkles and they can be easily removed with a modelers heat gun.



Be careful when heating the covering not to twist the control surfaces. Should a surface develop a twist it can be easily removed by GENTLY twisting while applying heat. Apply the decals after the covering has been corrected.

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 3/4-inch up / down

Rudder 1 1/2- inch right / left

Aileron 3/8-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, ect.}.

Although the FUN-50 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 FUN-50 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 50 feet and knife edge can be maintained with 80% stick deflection. Final roll rate should be 300-360 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.