Corsair ARF

WARNING! THIS IS NOT A TOY!

THIS IS NOT A BEGINNERS AIRPLANE

This R/C kit and the model you will build from it is not a toy! It is capable of serious bodily harm and property damage. It is your responsibility, and yours alone - to build this kit correctly, properly install all R/C. components and flying gear (engine, tank, radio, pushrods, etc. and to test the model and fly it only with experienced, competent help, using common sense and in accordance with all safety standards as set forth in the Academy of Model Aeronautics Safety Code. It is suggested that you join the AMA and become properly insured before attempting to fly this model. If you are just starting R/C modeling, consult your local hobby dealer or write to the Academy of Model Aeronautics to find an experienced instructor in your area.

Write to : Academy of Model Aeronautics, 5151 Memorial Dr, Muncie, IN 47302

LIMITED WARRANTY

Lanier R/C is proud of the care and attention that goes into the manufacture of parts for its model kits. The company warrants that for a period of 30 days, it will replace, at the buyers request, any parts or material shown to the company's satisfaction to have been defective in workmanship or material at the time of purchase.

No other warranty of any kind, expressed or implied, is made with respect to the merchandise sold by the company. The buyer acknowledges and understands that he is purchasing only a component kit from which the buyer will himself construct a finished flying model airplane. The company is neither the manufacturer of such a flying model airplane, nor a seller of it. The buyer hereby assumes the risk and all liability for personal or property damage or injury arising out of the buyers use of the components or the finished flying model airplane, whenever any such damage or injury shall occur.

Any action brought forth against the company, based on the breach of the contract of sale to the buyer, or on any alleged warranty thereunder, must be brought within one year of the date of such sale, or there after be barred. This one year limitation is imposed by agreement of the parties as permitted by the laws of the state of Georgia

Before you began to assemble this kit we suggest you read the instructions thoroughly to familiarize yourself with the complete assembly procedure.

Please check the contents of this kit against the parts list. If there is anything missing or damaged please contact the dealer immediately for replacement.

TO ASSEMBLE THIS KIT:

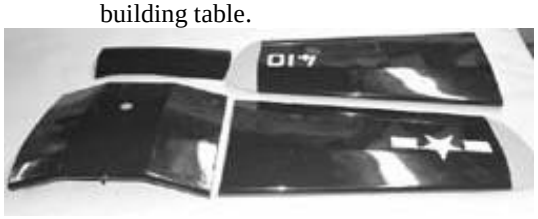
The following items listed below are needed to complete the kit but are not included in the kit.

EPOXY GLUE (5 minute and 30 minute)
CYANOACRYLATE GLUE (medium thickness)
MODELING KNIFE
SCREW DRIVER
HAND OR ELECTRIC DRILL
STRAIGHT EDGE RULER
SAND PAPER
NEEDLE-NOSE PLIERS
WIRE CUTTERS
SCISSORS

Other items required (not included)

A 4-CHANNEL RADIO W/5 SERVOS
12" AILERON EXTENSIONS
ONE Y-HARNESS
ENGINE
PROPELLER TO SUIT ENGINE
SILICONE FUEL LINE
SAFETY SPINNER NUT TO SUIT ENGINE
GLOW PLUG

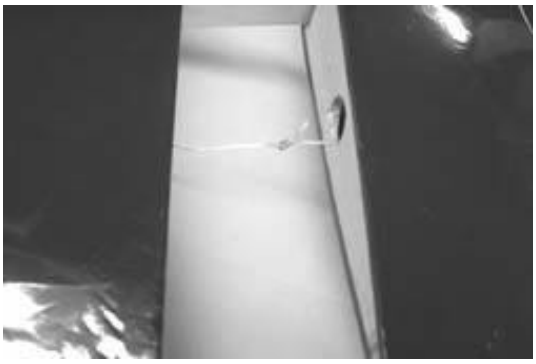
1) **Wing Construction:** The wing consists of four sections; the center section, the two outer sections, and the fiberglass belly pan. Carefully unpack the four sections and lay them out on your building table.



2) Next locate the two 3/16" plywood dihedral braces. Note that there is a long and short side to the braces. The short side mates with the center section, and the long sides mate with the outer sections.

3) Using the 30-minute epoxy, glue the dihedral braces into the center section of the wing.
4) Pull strings for the servo leads are already installed in each section of the wing. Before adding the outer wing sections, it will be necessary to pull the strings out from both sides of the center section and the root of each outer panel.

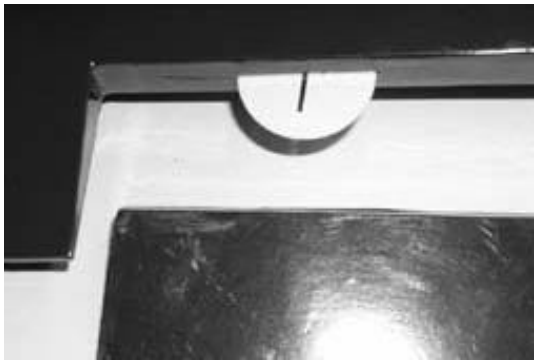
5) When the epoxy has cured in the center section, tie the end of the pull string from one side of the center section to the string from one of the outer wing panels. We are showing the right side here.



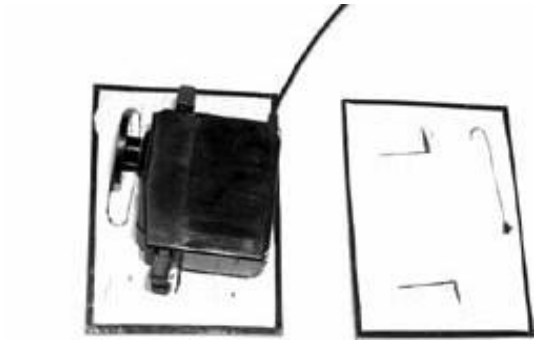
6) Next, apply 30-minute epoxy inside the slot in the outer wing panel. Now, using 5-minute epoxy, apply an even thin coat to the root rub of the wing panel.
7) Slide the wing panel onto the dihedral brace and up against the end of the center section, keeping the trailing edge of the wing aligned. ***Have a paper towel and alcohol handy to wipe away any excess epoxy that might ooze out between panels.*** Make sure the string does not get glued between the two sections. An easy way to do this is to hold the center section vertical and let the weight of the balsa at the end of the string pull the string through as you join the sections. Secure the panels in alignment until the 5-minute epoxy has cured. Repeat the process for the other outer wing panel. Set aside until the 30-minute epoxy has cured.

8) The ailerons have already been hinged, but the hinges have not been glued.

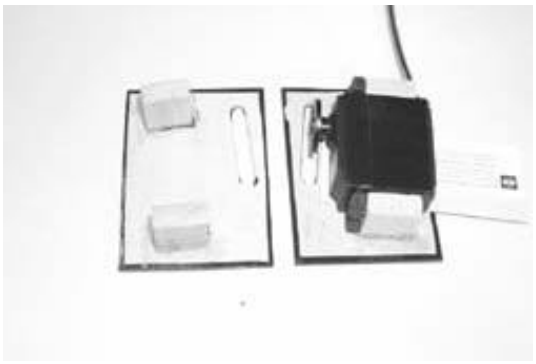
Align the aileron with the trailing edge of the wing, making sure that the gap at the hinge line is not excessive. When you are satisfied with the alignment, deflect the aileron to it's maximum throw and apply several drops of thin CA to each hinge on both the trailing edge side and aileron side. Repeat for the other aileron. Set aside to dry.



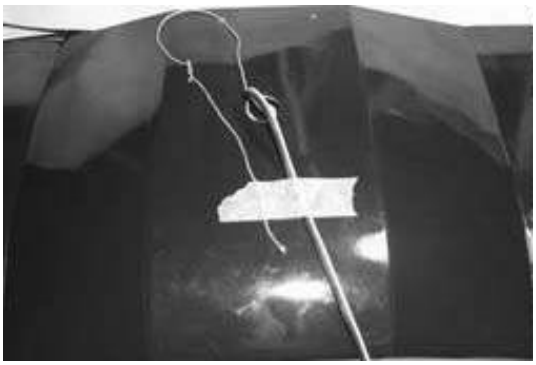
9) Locate the two servo covers and note that there is a left and right side.
10) Lay a servo on it's side on the uncovered side of the cover, aligning the output shaft with the center of the slot. Mark the location for the hardwood mounting blocks and remove the servo.



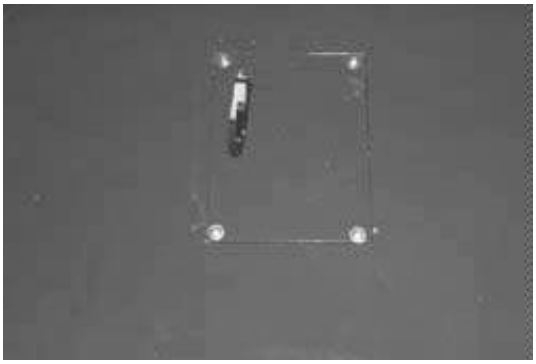
11) Epoxy the hardwood blocks in place. When the epoxy has cured, cut a piece of shirt cardboard or other suitable object to use as spacer for mounting the servo. Mount the servo using the hardware supplied with the servo. Remove the spacer and repeat for the other cover.



12) You will need two 8-inch servo extensions. Attach the extensions to your servo lead and secure with masking tape or one of the commercially available keepers.
13) Using the servo lead pull string, carefully pull the servo lead through the wing and out the exit hole in the center section of the wing. Tape in place so it cannot slip back into the center section.



14) Position the servo cover and the servo over the servo well and drill four 1/16" holes 1/8" in from each corner of the cover. Secure in place with the supplied #2 wood screws.



15) Using a straight edge, mark the location for the aileron control horn. (Note that the slot for the servo arm is cut at an

angle.) The control horn should be in line with the servo arm and hole in the control horn should be centered over the hinge line.

16) Now mount the control horn using the supplied hardware. Repeat the steps above for the other side. Locate two 2-56 pushrods, two clevis, and two rod keepers. Screw a clevis halfway onto one of the rods and attach to one of the servo arms, making sure the arm is centered. At the other end, make a 90° bend at the hole in the control horn. Cut off the excess rod, leaving ¼" of the 90° bend.

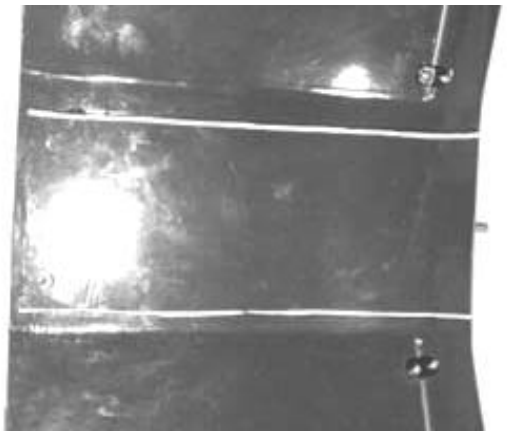
17) Insert the rod into the control horn and side on the keeper. Repeat for the other side. Fine tuning of the rod can be finished later by adjusting the clevis during the final radio installation.

18) Locate the pre-bent wire landing gear, noting that there is again a left and right side. The gear fits in the two slots on the bottom of the center section and is held in place with the supplied hardware.

19) Now install the wheels, using two of the supplied wheel collars on each axle.

20) The final step of the wing assembly is mounting the belly pan. You will need the fuselage for this step. Begin by mounting the wing on the fuselage. Now position the belly pan on the wing as shown and tape in place. Note that the end with the flange goes toward the front of the aircraft. Using a ballpoint pen, mark the edges of the belly pan where it will be glued to the wing. Even though the wing is dark blue, the indent made by the pen will be easy to see when you remove the pan. Now remove the pan.

21) With a #11 Exacto blade, cut the covering 1/16" inside of the line and make another cut 1/16" inside the first cut and remove the covering from the area. Now repeat the process on the other side.



22) Using 30-minute epoxy, run a bead along the two lines and carefully install the belly pan. ***Make sure you don't get any epoxy between the wing and the fuselage!*** Again it is a good idea to have paper towels and alcohol handy to clean off any excess epoxy.

23) Tape the front and back in place. Use T-pins and masking tape to secure the sides until till the epoxy has cured.

24) When the epoxy has dried, carefully remove the masking tape from the front and rear of the belly pan and gently lift the back edge o the wing up from the fuselage.

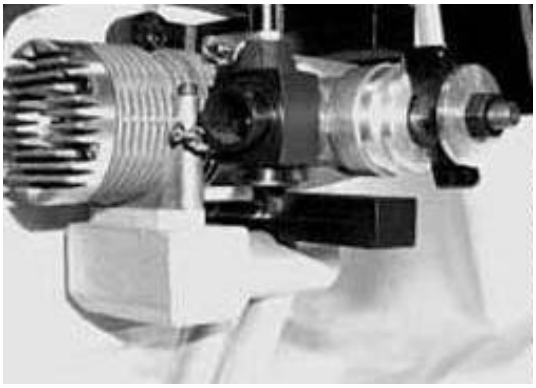
25) Turn the wing over and using a 9/64" drill bit, drill out the two access holes in the belly pan, following the angle of the holes in the wing.

26) Now turn the wing over and enlarge the holes with a 9/32" drill bit to allow for the bolt to be removed. Now remove the T-pins and masking tape from the sides of the belly pan. Your wing is now completed.

Fuselage Construction

1) We will begin the fuselage construction with the motor installation. In the back of this manual you will find a template for drilling the motor mounting holes. We used the Mecoa .46 motor (available from RJL) mounted sideways with a Slimline Pitts style muffler for the prototype. The spacing should be close for all motors of this size, But you should check it after you have your motor secured to the mounts.

2) Locate the two beam-type motor mounts. Secure one of the mounts in a vise and drill the holes for the motor. The cowl length is adjustable on the4 fuselage so the distance from the back of the mount is not critical. Mount the one mount 3ith the drilled holes to a scrap piece of plywood. Now align the other mount to the motor and secure it to the plywood. Now you can drill the holes in the mount for the other side of the motor. Secure the motor to the mounts and remove them from the plywood. Now you can check to see if the pattern is the same as the template. If not, align the mount and motor assembly on the centerlines of the template and mark the correct locations for the holes.



3) Align the template on the firewall and tape in place, drill the four 11/64" for the motor mounts. Secure it in place with the four 6-32" screws and blind nuts provided. Next mount the motor on the mount. Using the motor as a guide, locate and drill the hole for the throttle pushrod. Be sure that you drill through the second bulkhead located in the tank compartment inside the fuselage. The hole should be positioned level with the carburetor arm.

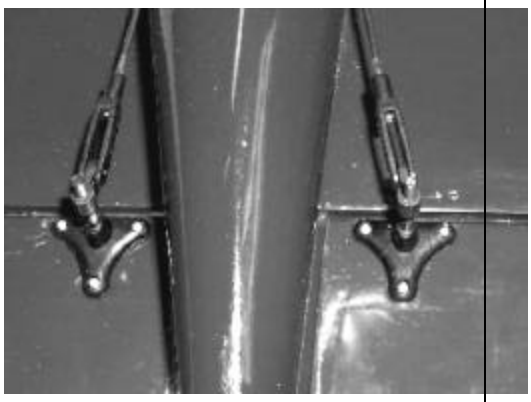
4) Locate the long plain wire used for the throttle pushrod. Make a Z-bend at one end of the wire where it attaches to the carburetor arm. Slide the wire into the plastic housing and attach the wire to the carburetor arm. (If necessary, remove the arm from the carburetor, attach the wire, slide the assembly into the fuselage and reattach the arm.) The

wire attaches to the throttle servo arm with an e-z connector.

5) Slide the horizontal stabilizer in the slot at the rear of the fuselage. Using your ruler or measuring tape, center the stabilizer in the opening. Attach the wing to the fuselage and block up the airplane with the wingtips equal distance from the table. Measure the stabilizer at the tips. It should measure the same from each tip to the table. If the tips are not equal distance from the table , use sandpaper to sand down the stab mounting platform until the proper alignment is achieved. Now measure from the tip of the stab to the trailing edge of the wing and adjust the stab too, so the tips are equal distance from the trailing edge. Now mark the stabilizer where it and the fuselage meet on both side, top and bottom. Now remove the covering inside of lines. (Note: Don't remove the covering up to the lines. Stay approximately 1/16"inside the lines.) ***See the illustration in the back of the manual***. Now glue the stab in place using 30-minute epoxy, rechecking all your measurements before the epoxy sets. Set aside to dry. When the epoxy has cured, run a bead of medium CA as filler in the gap between the stab and the fuselage side. Now add the elevator halves, using the same method used for hinging the ailerons to the wings.
6) Now install the hinges in the rudder and trail fit it to the fin. When you are satisfied with the fit, remove the rudder and apply 5-minute epoxy to the hole and slot for the tailwheel wire. When the epoxy is dry, install the rudder using same method used for hinging the other surfaces. Keep the gap as close as possible while letting the rudder turn freely.
7) Now slide the tailwheel bracket on the tailwheel wire up to the fuselage. Using the bracket as a guide, drill the mounting holes through the mount. Secure the bracket with the screws provided. Install the tailwheel and collar, making sure the wheel turns freely. ***See the drawing in the back of the manual.***
8) Locate the following hardware: 4 nylon clevises, 4 brass collets, 4 threaded couplers, 2 control brackets, 2 control horns, 1 threaded rod, 2 nuts, 2 washers, and 2 hardwood blocks. Mark & drill a 1/8" hole through the rudder for the threaded rod, in line with the exit holes for the rudder cable. Use the nuts and washers to secure the threaded rod. Thread a horn bracket on each side of the rod. Using a pair of wire cutters, cut the cable into two equal lengths. Install a coupler at one end of each cable.
9) Insert the cable through the brass collet, then into the coupler, and back into the brass collet. Loop it around and back through the collet again. Squeeze the collet with pliers and either solder the assembly with silver solder or apply a drop or two of thin CA glue.
10) Thread a clevis halfway onto each coupler and attach the clevises to the control horns and drop the other end of the cable into the fuselage theough the cable exit holes.
11) Hold the rudder in it's neutral position using masking tape. Center the rudder servo arm. Glue the two hardwood blocks to the servo tray using medium CA, to elevate the rudder servo. This will prevent the rudder servo from interfering with the other servo arms. Attach the other two clevises with couplers to each end of the rudder servo arm.
12) Now attach the cables to the couplers in the same manner described above. The tension should be equal on each side and the rudder should move freely.

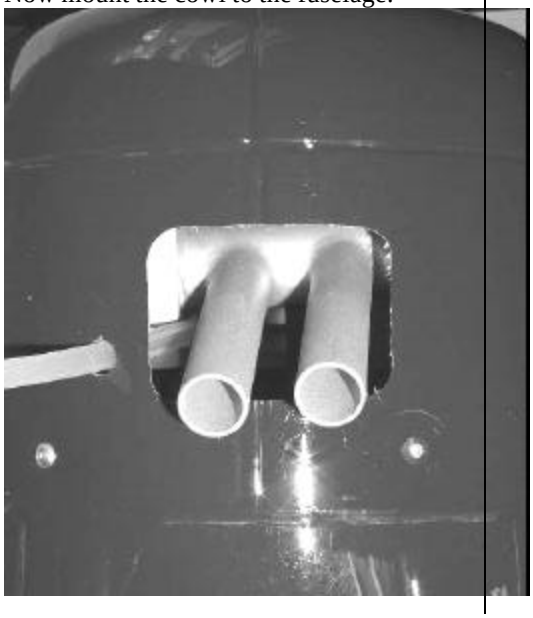
13) Next comes the elevator pushrod. Mount the two control horns on the

elevators following the method described for the ailerons. Next slide the elevator pushrod through the fuselage and out the two lower exit holes in the fuse. Thread a clevis halfway onto each rod and attach them to the control horns. Mount the elevator servo and center the servo arm. Secure the elevators in their neutral position using masking tape. Mark the pushrod at the servo arm and make an "L" bend. Cut off the excess, leaving approximately ¼" of the rod past the bend for the rod keeper. Insert the rod into the outer hole of the servo arm and secure in place with the rod keeper.



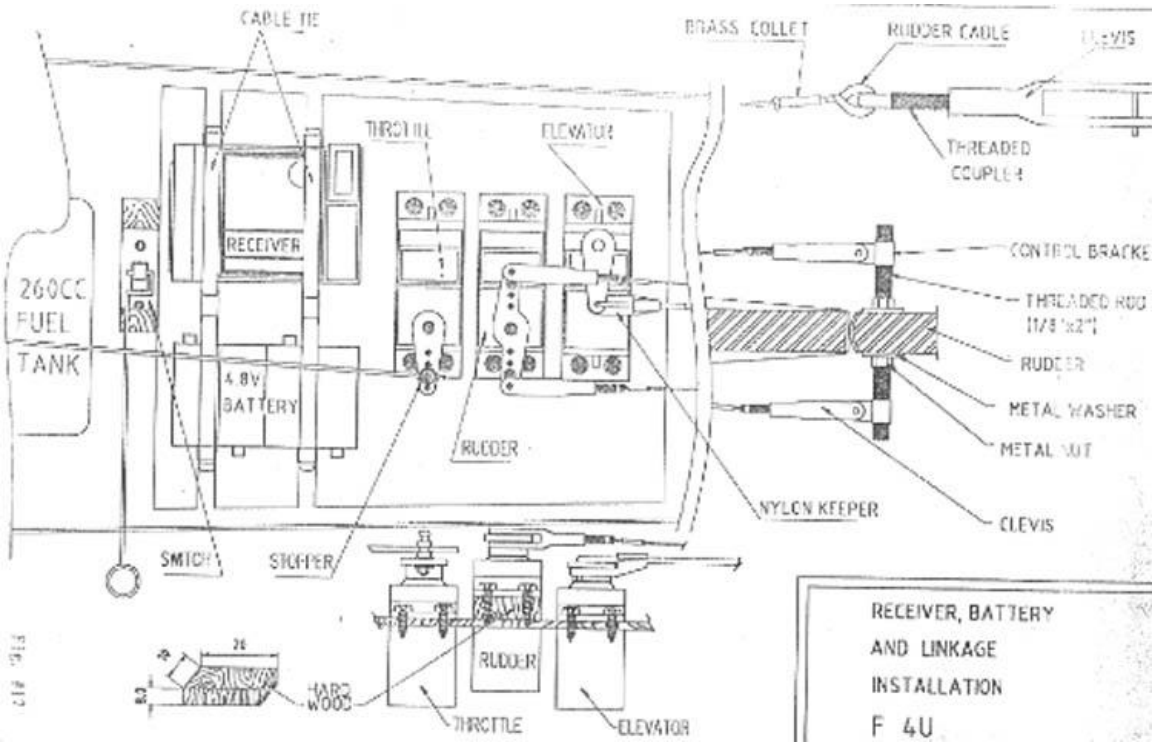
14) Locate the long plain wire used for the throttle pushrod. Make a "Z" bend in the end of the wire where it will attach to the throttle arm of the carburetor. Slide the wire into the plastic housing and attach the end to the throttle end. (If you have trouble attaching it to the are, you can attach it to the motor, then install the motor, or, remove the arm from the carb, insert the wire, then re-attach the arm.)
15) Wrap the battery pack in foam rubber and insert it into the fuselage as far forward as it will go, preferably snug against the rear of the firewall.
16) Next install the fuel tank. Insert the metal tubes through the large cover plate and out the rubber cap and through the smaller cover plate. See the figure in the back of the manual for tank assembly. Attach 3 pieces of fuel tubing to the metal tubes. Slide the tank into the fuselage, pulling the three pieces of fuel tubing through the large hole in the firewall.
17) Next, mount your on/off switch in a convenient location on the side of the fuselage. We used the Maxx Products #3170 switch for the prototype. It has a built-in charging jack and heavy-duty wires. It can be ordered with connectors for all popular radio brands.
18) Now connect your servos to your receiver. Don't forget the "Y" harness for the ailerons. Wrap the receiver in foam, then wrap it in plastic to protect it from any possible fuel leakage. Install the receiver in the fuselage in front of the servo tray.
19) **Radio Setup.** We will start with the throttle. Turn on your radio system and position the throttle stick and trim lever to their lowest position. Pull the carburetor barrel completely closed. Position the servo back toward the rear about 45° from the center line of the servo. Using an adjustable stopper, connect the pushrod to the servo arm at this position. Cut off the excess wire, leaving approximately ¼" at the rear of the stopper. Tighten the setscrew.
20) Next, with the radio still on, ensure that the elevator and rudder servo arms are centered. Check the rudder for centering. If it is not centered, adjust the clevis until it is centered. Next, check the elevators to see that they are set in line with each other and centered with the stab. Again, adjust the clevis if necessary. Finally, plug in the aileron servos and check the alignment of the ailerons. Adjust the clevis if necessary. Now check that all the surfaces are moving in the correct direction with the stick movement. Aircraft are very difficult if not impossible to fly when a control surface moves opposite to the transmitter stick.
21) **Finishing The Corsair.** Now comes the cowling installation. Glue the four wood mounting blocks to the firewall using 5-minute epoxy. They should be glued on the horizontal and vertical centerlines, and should be slightly higher than the firewall to allow for airflow and to fit the round cowl. ***(See the illustration in the***

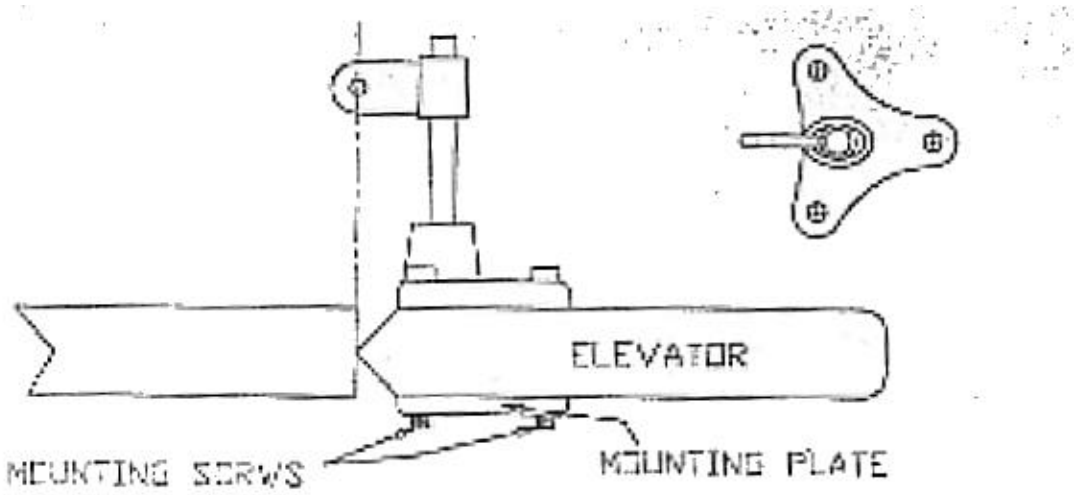
back of this manual.) Rounding the corners will make for a better cowling fit. Temporarily remove the muffler from the engine and slide the cowling over the fuselage, aligning it with the thrust washer on the motor. Make a few alignment marks on the fuselage at the back edge of the cowling. Masking tape comes in handy here. Now measure the distance from the marks to the wood blocks, as well as the muffler location, engine head, and the carburetor needle. Using a Dremel tool with a sanding drum, cut out the holes. It is better to cut them slightly undersized and adjust them as necessary. Now drill the holes for the cowl mounting screws. Here it is better to drill them slightly oversized to make it easier to mount the cowling. Now mount the cowl to the fuselage.

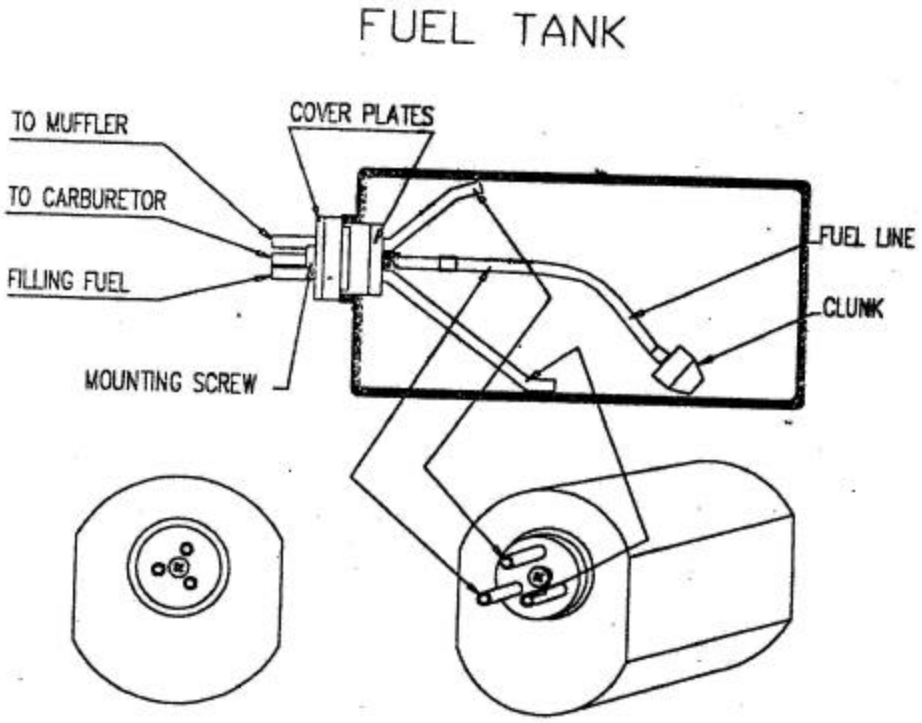


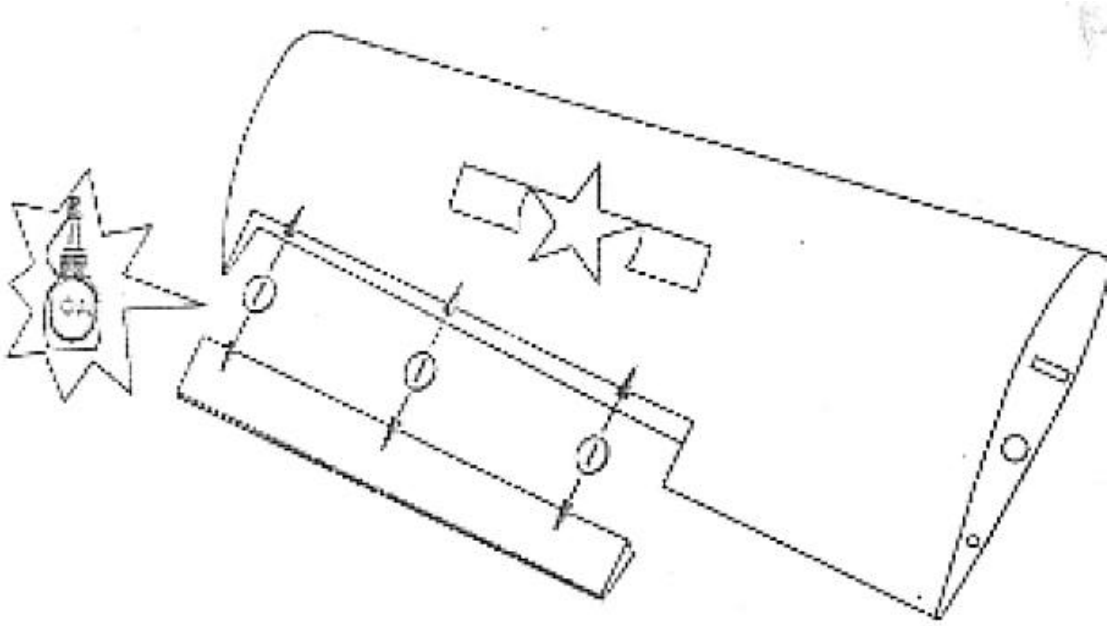
22) The final step is the canopy installation. Apply a thin bead of canopy glue (we used RC56) to the inside edge of the canopy. Set the canopy in place and secure with several strips of masking tape. When the glue is dry, remove the masking tape. The construction of your Corsair is now completed.

23) Preflight Checks. Check the balance of the aircraft. It should balance 3-1/2" back from the leading edge of the wing measured at the fuselage. Balance the aircraft with the fuel tank empty. If necessary, add weight to the nose or tail until the aircraft is balanced. Range check the radio per the manufacturers instructions. Give the plane a final once-over, checking all screws and hardware. *Check once again that all control surfaces move in the proper direction.*
.**HAPPY FLYING!**

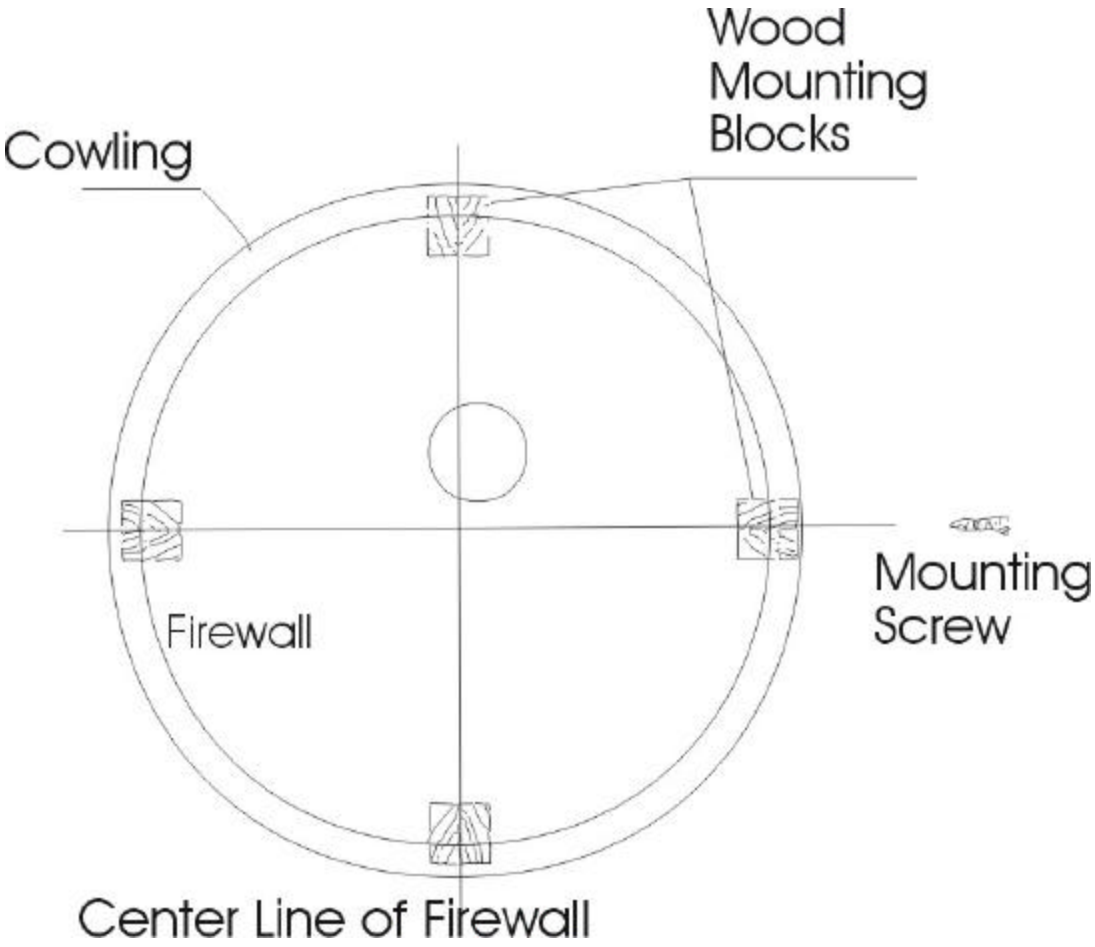

CABLE TIE
BRASS COLLET
RUDDER CABLE
CLEVIS
THREADED COUPLER
THROTTLE
ELEVATOR
RECEIVER
260CC FUEL TANK
4.8V BATTERY
RUDDER
CONTROL BRACKE
THREADED ROD
RUDDER
METAL WASHER
METAL NUT
NYLON KEEPER
CLEVIS
SWITCH
STOPPER
RUDDER
HARD WOOD
THROTTLE
ELEVATOR
RECEIVER, BATTERY AND LINKAGE INSTALLATION
F 4U


ELEVATOR
MOUNTING SCREWS
MOUNTING PLATE

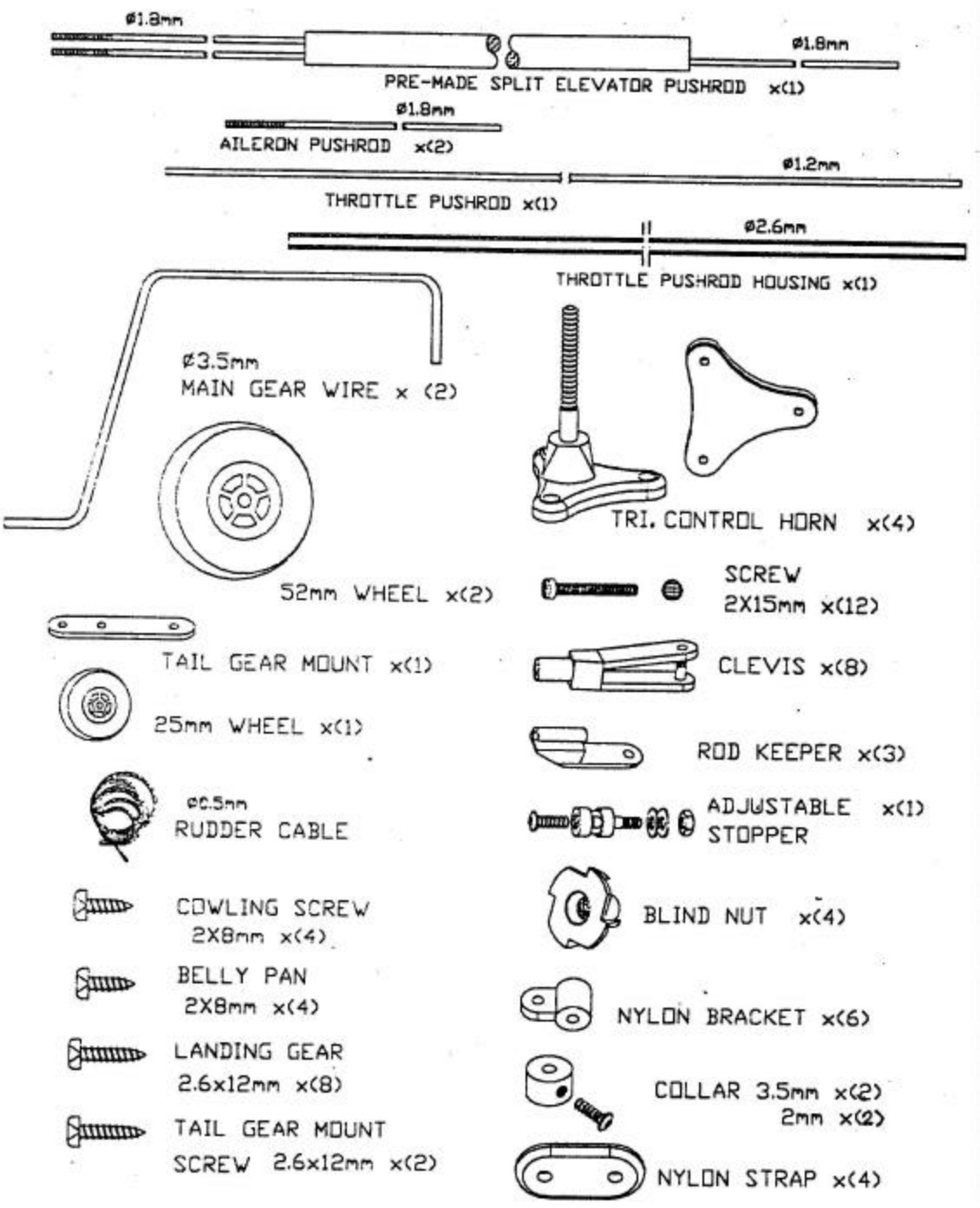

FUEL TANK
TO MUFFLER
COVER PLATES
TO CARBURETOR
FUEL LINE
FILLING FUEL
CLUNK
MOUNTING SCREW



Cowl Mounting Diagram

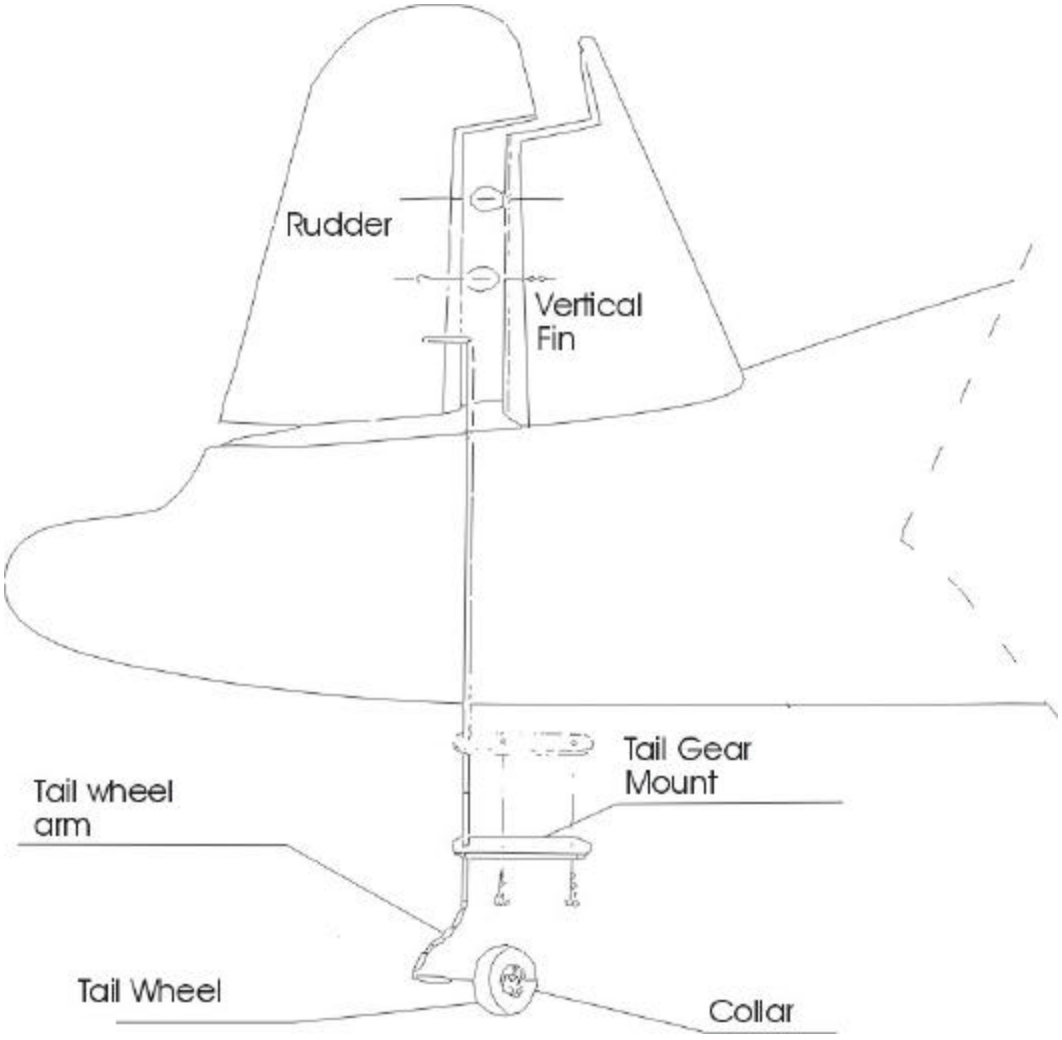


F4U Corsair Parts



Description

Tail Wheel Assembly



PARTS LIST

AIRFRAME

Fiberglass Cowling (1)
Belly Pan (1)
Rudder (1)
Horizontal Stabilizer w/Elevators
Clear Canopy (1)
Fuselage (1)
Wing sectors w/ Ailerons (3)
Cover Plate for Aileron Servo (2)

MAIN GEAR ASSEMBLY

Main Gear Wires (2)
Nylon Straps (4)
Wheel Collars (3.5mm) (2)
Wheels (2)
Wood Screw (2.6x12mm) (8)

TAIL WHEEL PARTS

Tail Wheel (1)
Wheel Collars (3.5mm) (1)
Wood Screw (2.6x12mm) (2)
Tail Gear Mount

FUEL TANK PARTS

Fuel Tank (6oz) (1)
Fuel Tank Outer Plate (1)
Fuel Tank Inner Plate (1)
Fuel Tank Rubber Cap (1)
Metal Tubing (3)
Silicone Fuel Tubing (1)
Fuel Pick-up (1)
Screw (3.x25mm)

CONTROL SYSTEM

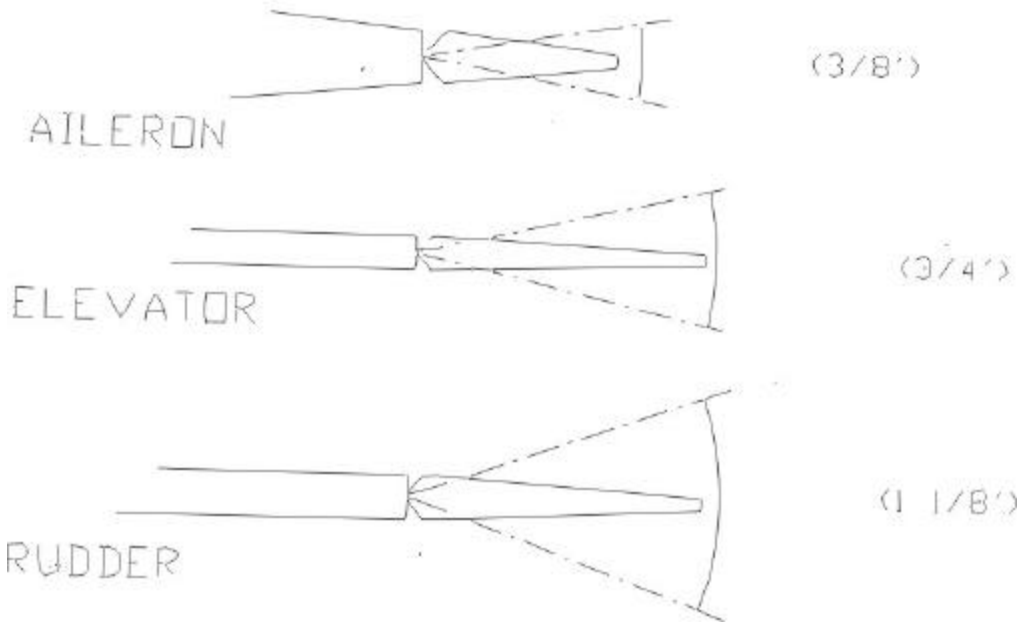
Pre-made Split Elevator Pushrod (1)
Tri. Control Horn w/ mounting screws (4)
Aileron Pushrod (2)
Nylon Clevises (8)
Nylon Brackets (6)
Rudder Cable (1)
Washer (black) (2)
Threaded Rod (1/8”x50mm) (1)
Throttle Pushrod (1)
Throttle Housing (1)
Rod Keeper (3)
Threaded Couplers (4)

Nut (1/8”-black) (2)
Brass Collets (4)

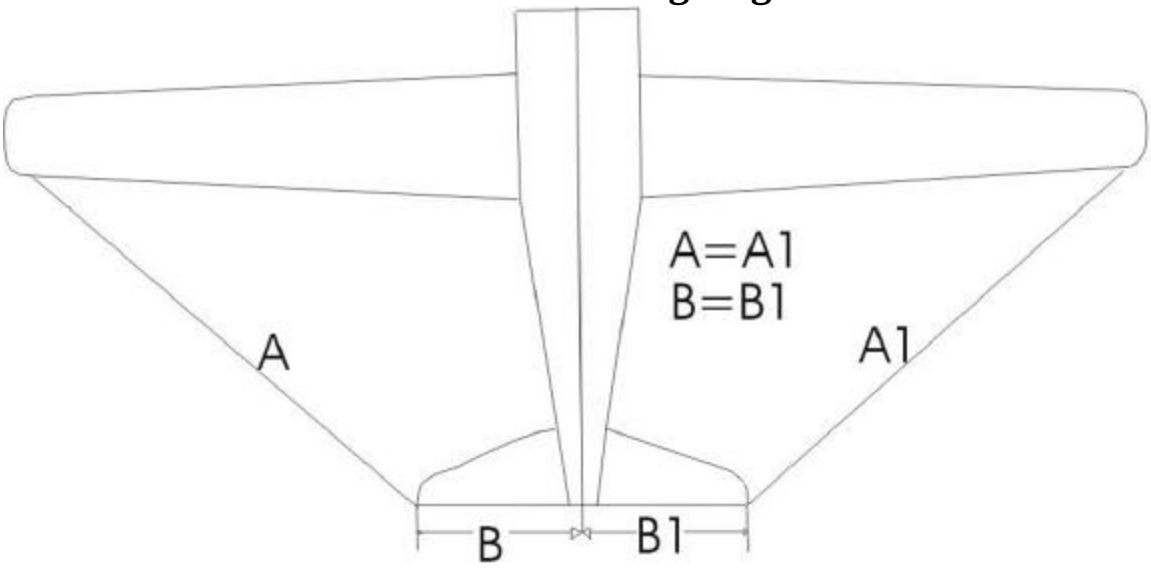
ACCESSORIES BAG

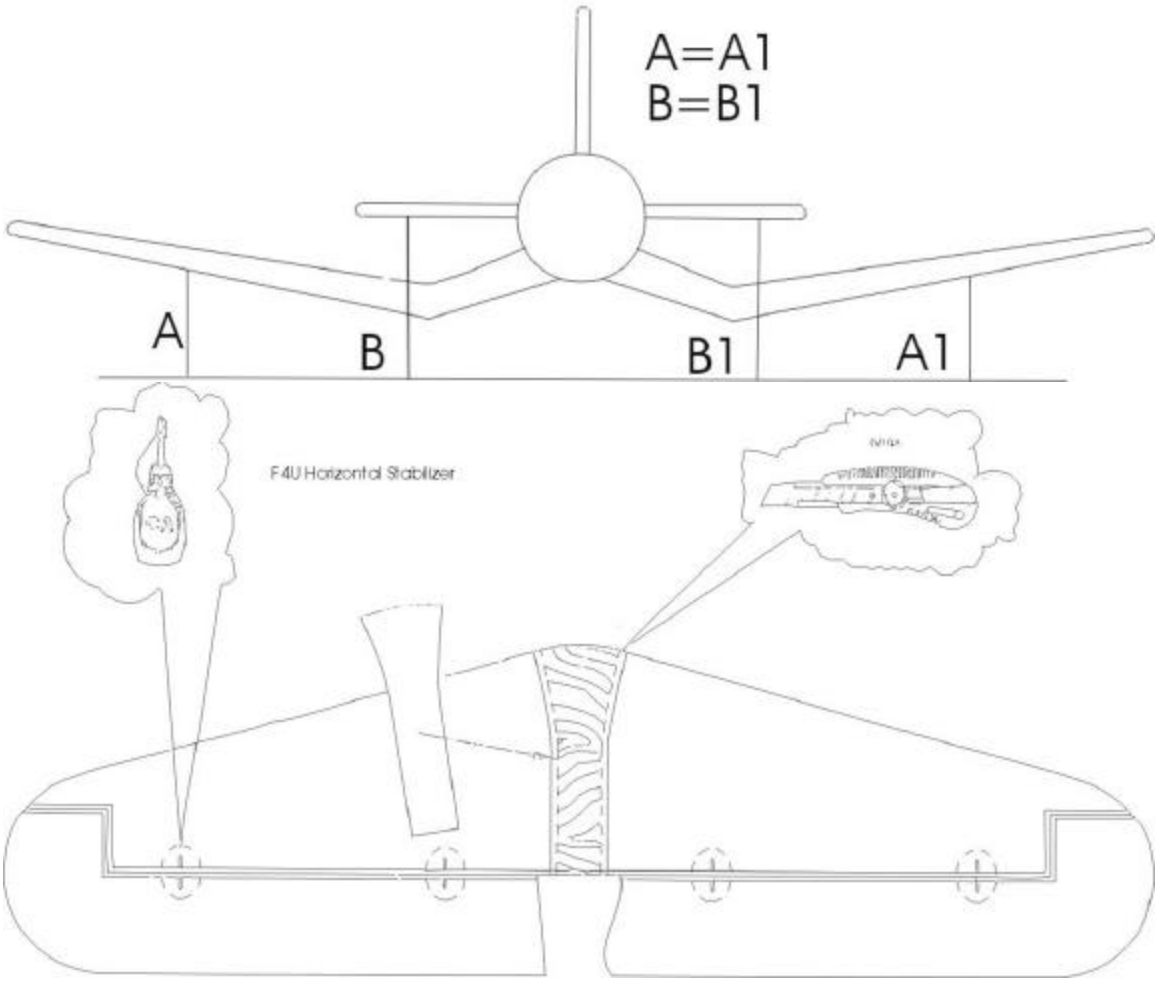
Engine Mount Beams (2)
Plastic Washer (2)
Adjustable Stopper (1)
Hardwood Block (2)
Wood Mounting Block (4)
CA Hinge (20)
Blind Nut – 4mm (4)
Screw – 4x35mm (4)
Wood Screw – 4x20mm (8)
Screw – 4x20mm (4)
Spring Lock Washer (4)
Cable Tie (4)

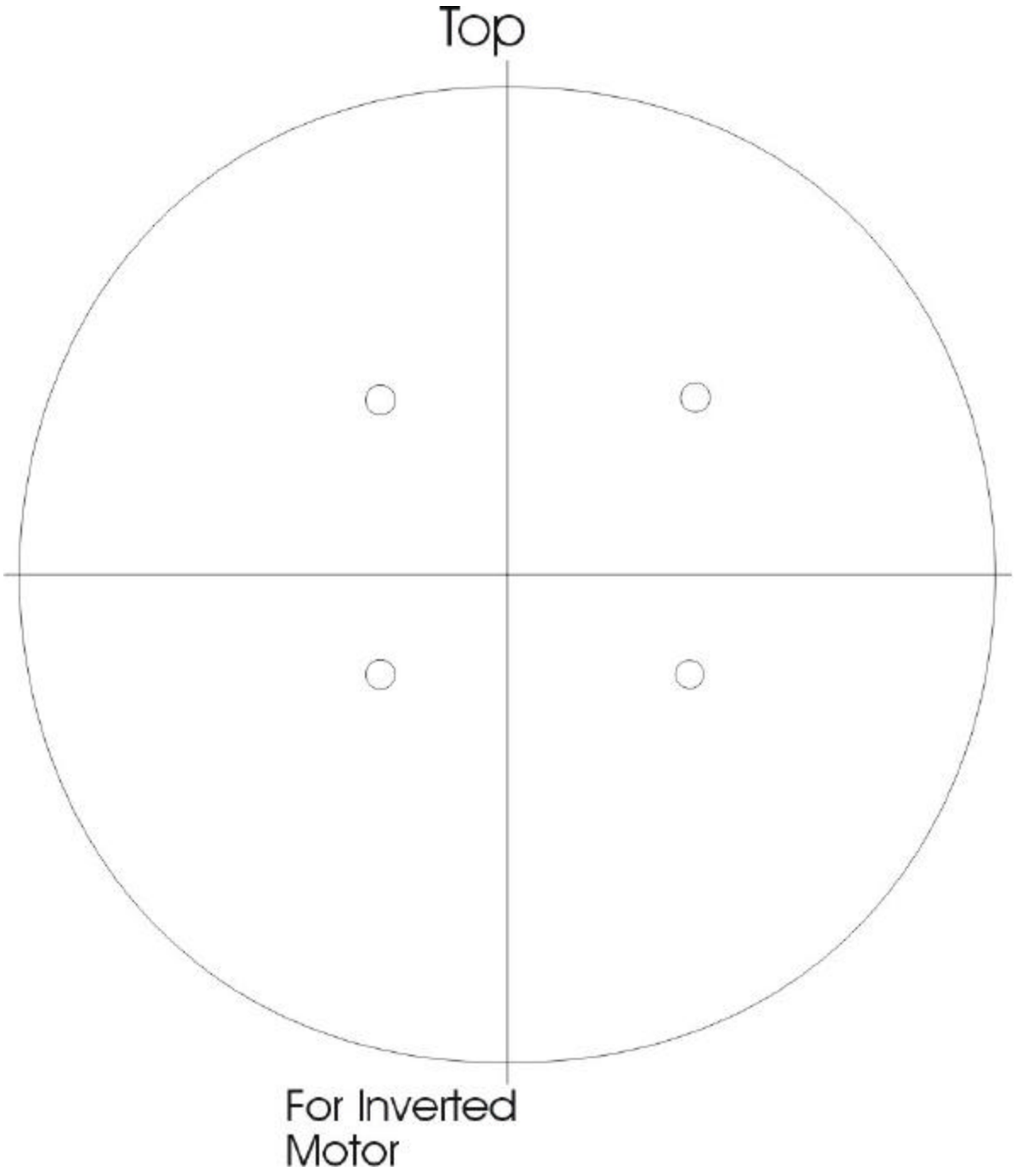
Control Surface Travels

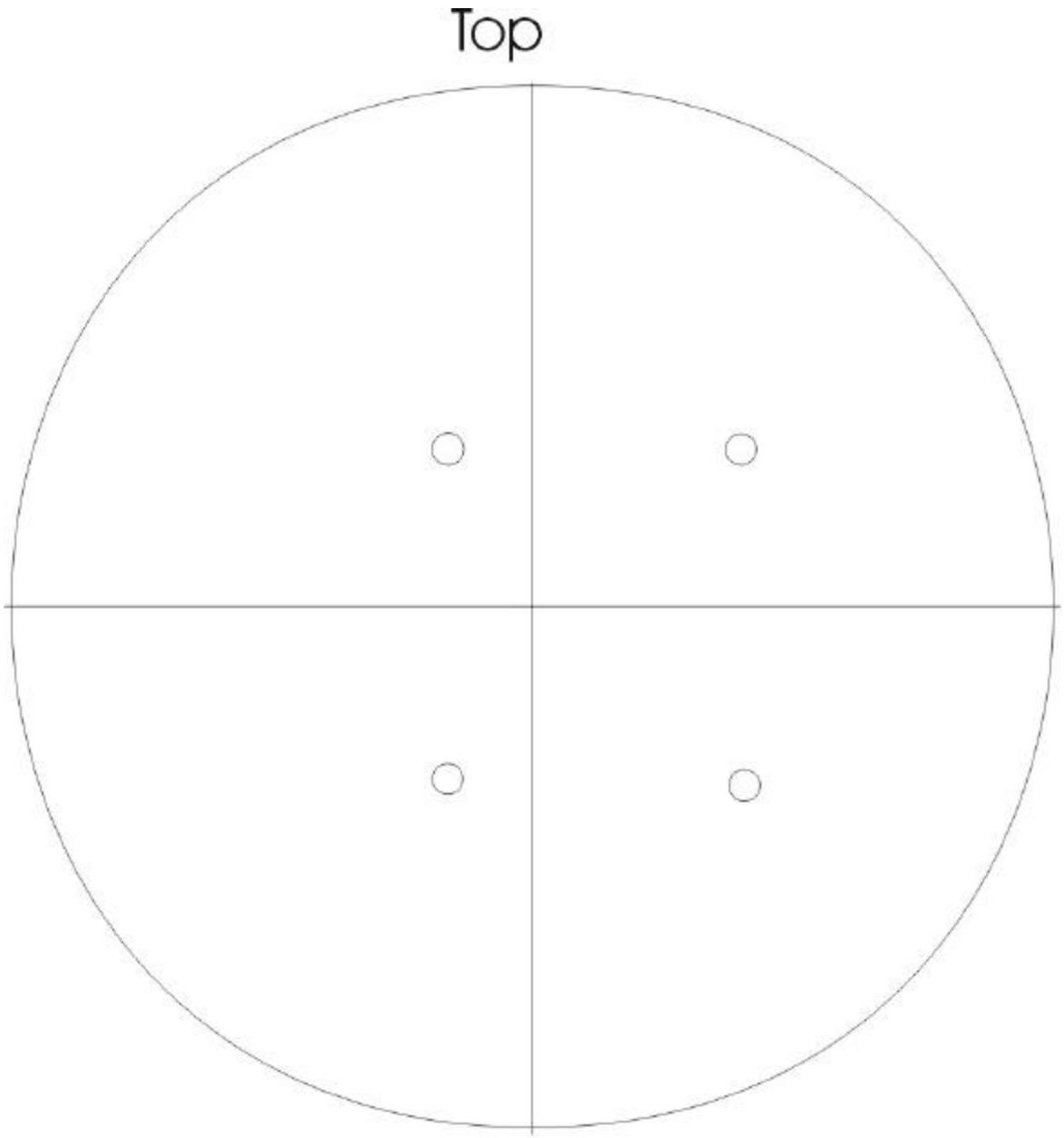


Horizontal Stab & Wing Alignment






Top
For Inverted
Motor



For Side Mounted Motor