

CITABRIA 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 and thin)
MODELING KNIFE
SCREW DRIVER
HAND OR ELECTRIC DRILL
STRAIGHT EDGE RULER
SAND PAPER
NEEDLE-NOSE PLIERS
WIRE CUTTERS
SCISSORS
RC56 CANOPY GLUE

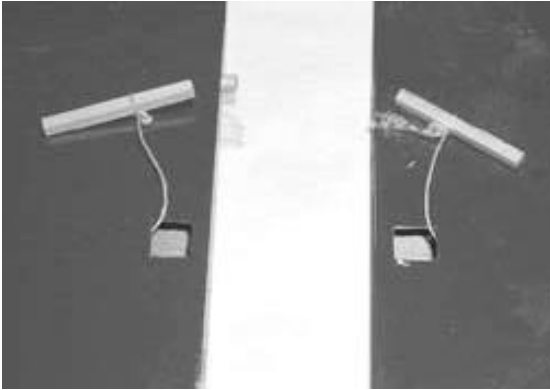
Other items required (not included)

A 4-CHANNEL RADIO W/5 SERVOS
12" AILERON EXTENSIONS
ONE Y-HARNESS
ENGINE
PROPELLER TO SUIT ENGINE
SILICONE FUEL LINE
TRU TURN 2-1/4" SPINNER WITH ADAPTER
GLOW PLUG
Nut (1/8"-black) (2)
Brass Collets (4)

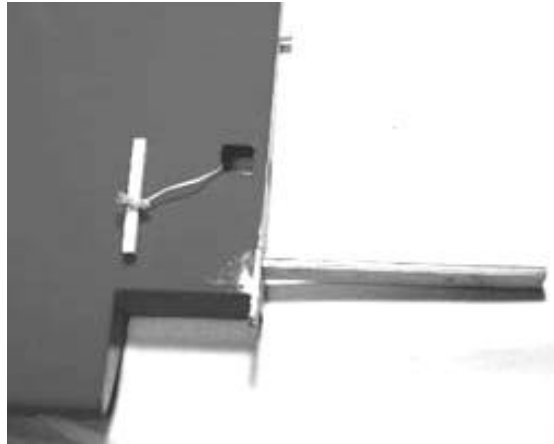
CITABRIA ARF INSTRUCTIONS

Wing Construction.

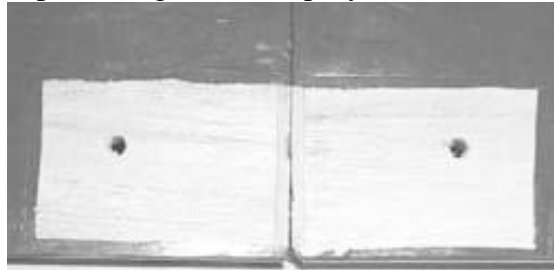
Locate the left and right wing halves. Looking on the bottom of each wing half at the root rib, cut away the covering from the 1/2 "square servo lead exit hole and pull the supplied pull string through the hole.



Next locate the 3/16" x 9/16" x 9-1/2" dihedral brace. Using 30-minute epoxy, glue the dihedral brace into the wing half containing the alignment dowel, making sure that the brace isn't upside down. Now apply 30-minute epoxy into the slot in the second wing half. Spread an even coat of 5-minute epoxy on the root rib of the second wing half and slide the wings together. Using a paper towel wet with alcohol, remove any excess epoxy that may have oozed out from the wing. Secure in place until the 5-minute epoxy has cured. Set the wing assembly aside and allow the 30-minute epoxy to cure.



Locate the pre-covered 1/8" plywood wing bolt doubler. Aligning it with the wing trailing edge and centered on the wing, trace around the doubler with a ballpoint pen. Remove the doubler and using a #11 Exacto blade cut away the covering 1/8" inside the pen mark. Epoxy the doubler in place using 5-minute epoxy.



Now, on the underside of the wing, locate the 1/8" holes for the wing bolts and cut away the covering. With a 1/8" drill bit, drill through the wing bolt doubler through the holes in the bottom of the wing.

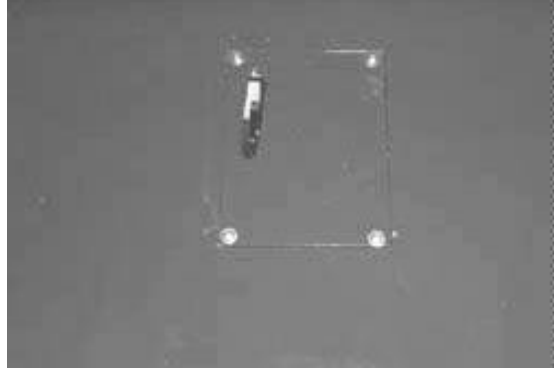
The ailerons are preinstalled, but the hinges need to be glued in place. Making sure the back edge of the ailerons are even with the rest of the wing, deflect the aileron to it's maximum throw and apply several drops of thin CA to each hinge, both on the trailing edge side and the aileron side.



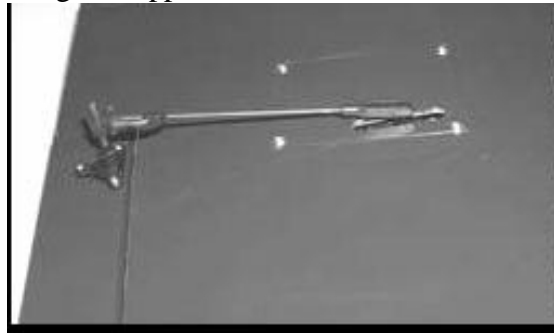
Now locate the 1/8" plywood pre-covered servo covers. Using a #11 Exacto blade, carefully cut away the covering from the precut slot. Place your servo on it's side on the servo cover with the output shaft centered over the slot cut for the servo arm. Mark the location for the 1/4" x 3/4" x 3/4" hardwood mounting blocks. Remove the servo and epoxy the blocks in place. Now, using a piece of shirt cardboard or similar object, shim the servo off the cover and mount it to the hardwood blocks.



Next, place the servo cover assembly into the servo bay in the wing with the slots toward the outside of the wing. Drill a 1/16" hole in the four corners and, using the #2 wood screws supplied, mount the cover to the wing.



Now, using a straight edge, mark the location on the aileron for the supplied control horn. It should be in line with the servo arm, and the hole on the control horn centered over the hinge line. Mount the control horn using the supplied hardware



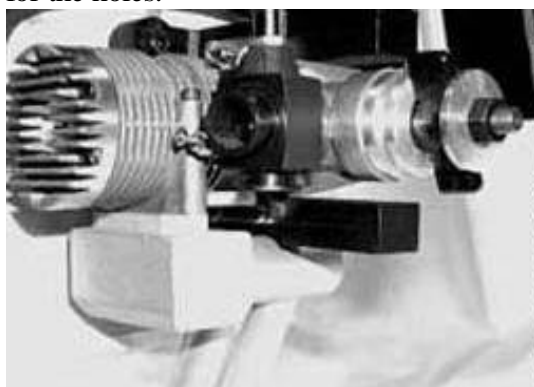
Make up a pushrod as follows:
Screw a clevis half-way onto one of the 2-56 pushrods. Attach the clevis to the servo arm, ensuring that the servo arm is centered. Aligning the pushrod with the hole on the control horn, make a 90 degree bend in the pushrod. Cut the pushrod off, leaving approximately 1/4" of the bend. Using the supplied keeper, attach the pushrod to the control horn. Repeat the above procedure for the other side of the wing. Any final adjustments can be made at the clevis end of the pushrod when the radio is installed and servo neutral is established.

Remove the screws holding the servo cover and lift the cover up. You will need a servo extension, at least 8" long. Attach the extension to your servo lead. Be sure to use

tape or some other way of keeping the leads from pulling apart. Using the pull string, pull the servo lead through the wing and out the square exit hole. Reinstall the servo cover. Repeat for the other side of the wing. This completes the wing assembly.

Fuselage Construction.

We will begin the fuselage construction with the motor installation. We used the Mecoa .46 motor (available from R/JL) mounted sideways with a Slimline Pitts style muffler for the prototype. Locate the two beam-type motor mounts. Secure one of the mounts in a vise and drill the holes for the motor. The spinner backplate should be 4-1/8" from the firewall. Mount one side of the mount 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. Align the mount and motor assembly on the centerlines of the firewall and mark the correct locations for the holes.



Next mount the motor on the firewall using the screws and blind nuts provided. 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.

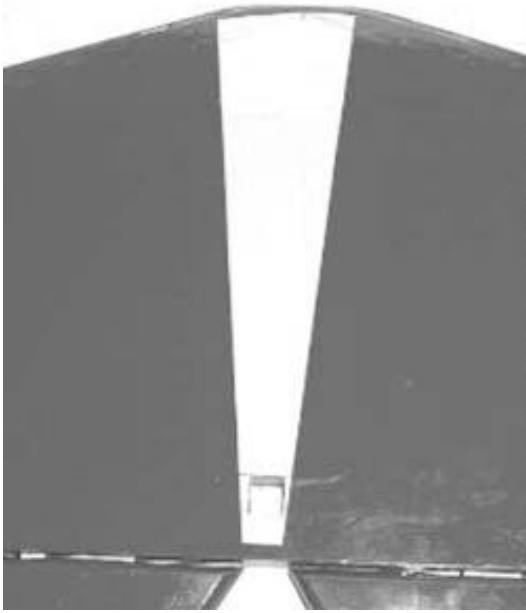
Locate the long plain wire used for the throttle pushrod. Make a Z-bend at one end of the wire where it attaches to the carburetor arm. Slide the wire into the plastic housing and attach the wire to the carburetor arm. (If necessary, remove the arm from the carburetor, attach the wire, slide the assembly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

Locate two of the control horn brackets. Using the hardware supplied, mount the brackets on the side of the fuselage approximately 1/4" behind the cutout for the landing gear.



Attach the wing to the fuselage, including the struts. Use the adjustments on the struts so they attach without twisting or pulling the wing.

Locate the horizontal stabilizer and trial fit it on the fuselage. Using the alignment diagram in the back of the booklet, pin the stab in place, double-checking the alignment. Mark the stabilizer where it attaches to the fuselage. Remove the stab and cut away the covering, keeping about 1/16" inside the marks.



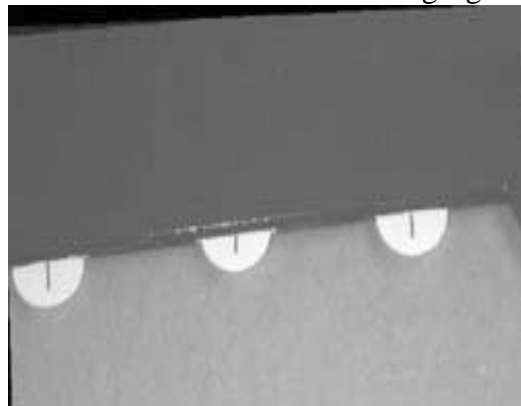
Using 30-minute epoxy, glue the stab to the fuselage, rechecking the alignment. Pin the stab in place until the epoxy has cured.

When the epoxy on the stab has cured, locate the vertical fin and trial fit it in the alignment slot. It should be at right angles to the stab and centered on the fuselage. Using the bottom edges of the fin as a guide, mark the top of the stab where the fin will be glued. Remove the fin and cut away the covering on the top of the stab, again cutting about 1/16" inside the lines.



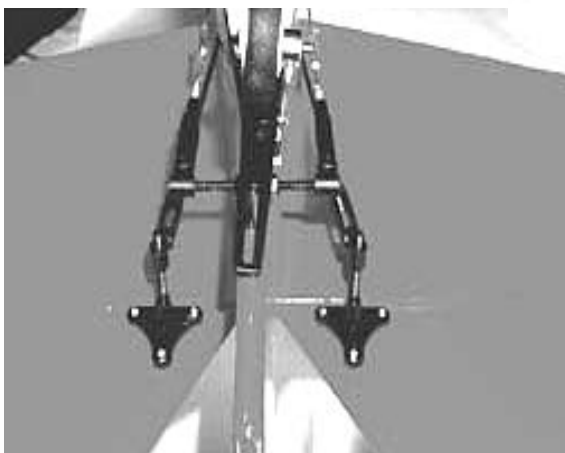
Now, using 30-minute epoxy, glue the vertical fin in place, using a square to ensure it is at 90° to the stab. Pin in place until the epoxy has cured.

Next install the elevators and rudder. They are already hinged for you, but the hinges need to be glued. Ensure that the hinges are properly orientated, then apply a few drops of thin CA glue to each side of every hinge. Be sure that the gap at the hinge line is not excessive. You can use the cover of a matchbook as a gauge.



pushrod. Use the hardware supplied with the servo. 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 upper

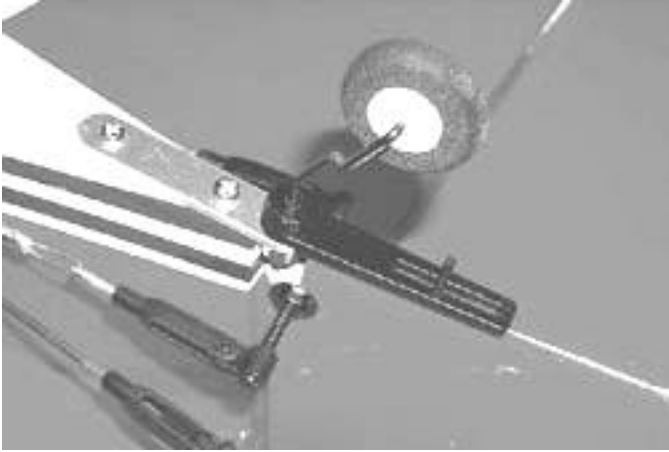
exit holes in the fuse. Thread a clevis halfway onto each rod and attach them to the control horns. Center the elevator servo arm. Secure the elevators in their neutral position. Next comes the elevator pushrod. Install the elevator servo in the servo mount. It goes in the opening on the opposite side from the throttle using masking tape. Mark the pushrod and make an "L" bend. Cut off the excess leaving approximately 1/4" 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.



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 arm. (If you have trouble attaching it to the arm, 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.) Install the throttle servo in the outside slot opposite the elevator servo. Position the arm at 45° and install an E-Z connector in the outside hole of the servo arm. Slide the throttle pushrod wire into the connector and push the rod so the carb is fully opened. Tighten the screw on the connector.



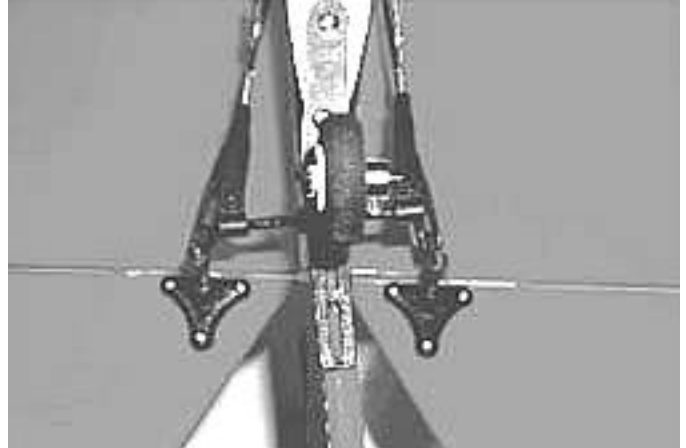
Next comes the tailwheel installation. See the picture below. Mount the metal bracket to the fuselage using the provided screws. Insert a wheel collar into the black nylon arm and slide the tailwheel wire into the collar. Position the nylon arm over the bottom of the rudder and mark the rudder in the middle of the slot in the arm. Drill a 3/32 hole where you marked the rudder, approximately 3/8" deep. Glue in the 1-inch rod with medium CA glue. Position the arm over the rod and align the tailwheel wire so it is at 90° to the rudder. Tighten the set screw in the wheel collar. Using the supplied wheel collars, install the tailwheel on the wire.



Next is the installation of the rudder pull-pull controls. Drill a 1/8" hole in the rudder 3/8" behind the hinge line and 3/8" above the tailwheel wire. Install the threaded rod using the nuts and washers provided. Ensure that the rod is centered. Now thread a control horn on each side of the rod. Make sure that the horns are equally spaced from the rudder. Locate the control cable and cut it in half with a pair of wire cutters. Install a threaded coupler on one end of each wire. First thread the wire through a brass collet, then through the coupler, and back through the collet. Loop the wire around and back through the collet again. Squeeze the collet to lock the wire in place. Now you can either solder or CA the collet to secure it further.

Thread a clevis halfway onto each threaded coupler and attach to each control horn. Feed each cable through the rudder pushrod exit holes. Secure the rudder in its neutral position using masking tape. Glue two of the supplied hardwood blocks at each end of the center opening in the servo tray. This will elevate the rudder servo enough so that it will not interfere with the elevator servo. Center the rudder servo control arm and mount the rudder servo. Attach two threaded couplers with clevis attached to each side of the servo control arm. Adjust the length of the cables so that the rudder is centered and

moves without binding. Secure the cables to the threaded rods using the method described above. The cables should be tight enough that the rudder has no play but moves freely.



The next step is installing the main landing gear. Using the screws provided, mount the aluminum landing gear in the slot in the fuselage. Locate the pre-covered balsa filler piece and trial fit it in position. If it will not line up flush with the bottom of the fuselage, you may have to make a slight indent in the balsa for the screw heads. Check the fit again, then glue in place with 5-minute epoxy.



Locate the wheel pants and observe that there is a left and right side. The indents in the pants match up with the aluminum landing gear. Align one of the wheel pants

with the gear and mark the location for the axle hole. Drill the wheel pant to allow for the machine screw axle. Repeat the procedure for the other side.



Locate the wheel parts bag with the two main wheels, two machine screws, four hex nuts, and four flat washers. Slide a wheel onto the machine screw, then screw a hex nut onto the axle. Make sure you don't tighten it where the wheel can't roll freely. Next slide a flat washer onto the axle and carefully slide the assembly through the hole (from the inside) you drilled in the wheel pant and through the hole in the aluminum landing gear. Now slide a flat washer and screw the other hex nut. Tighten securely. A drop of Loctite is helpful here to prevent the nut from loosening. (See the drawing in the back of this manual. Repeat the procedure for the other wheel pant.

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.

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.

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.

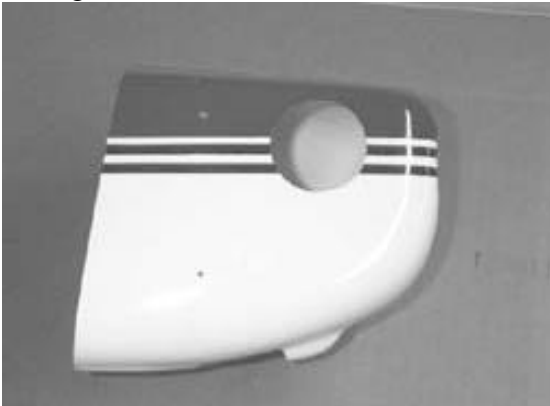
Now connect your servos to your receiver. Don't forget the "Y" harness for the ailerons. Wrap the receiver in foam, then wrap it in plastic to protect it from any possible fuel leakage. Install the receiver in the fuselage in front of the servo tray.

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. 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.

Finishing the Citabria

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 cowl. 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.



The final step is windshield and window installation. Set the windshield in place and check the fit. At the top the windshield goes on the outside of the fuselage. Trim the windshield until you are satisfied with the fit. Using RC56 canopy glue, glue the windshield in place. Secure with masking tape until the glue is completely dry.



Locate the six precut side windows and trial fit them to their respective locations in the fuselage. Apply a thin bead of RC56 canopy glue to the flanges and install them in the window openings. Set aside until the glue has completely dried.



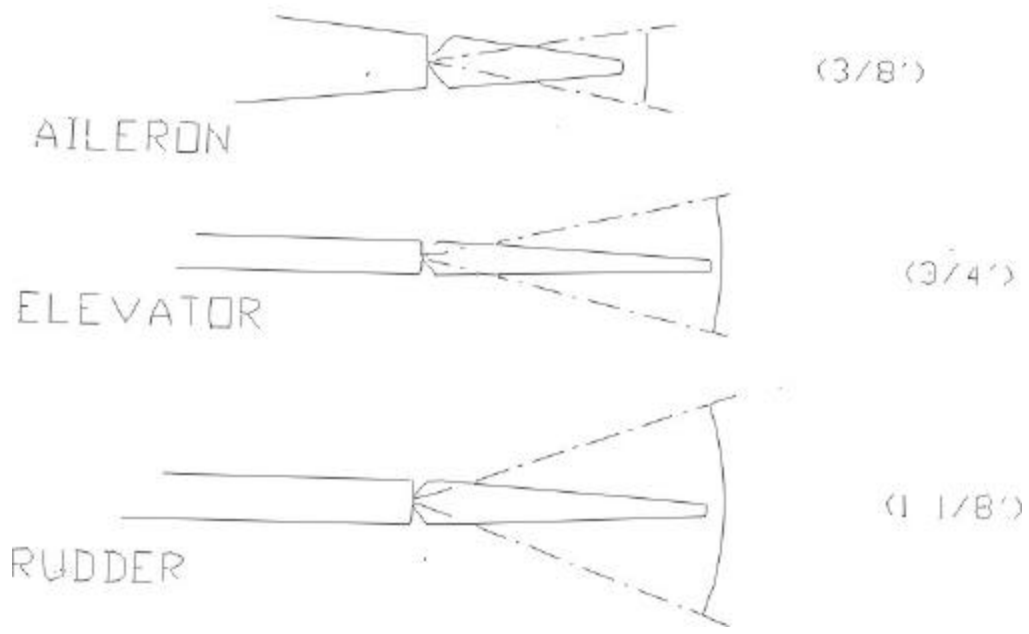
Preflight Checks.

Check the balance of the aircraft. It should balance 3-1/4" 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!***

Parts List

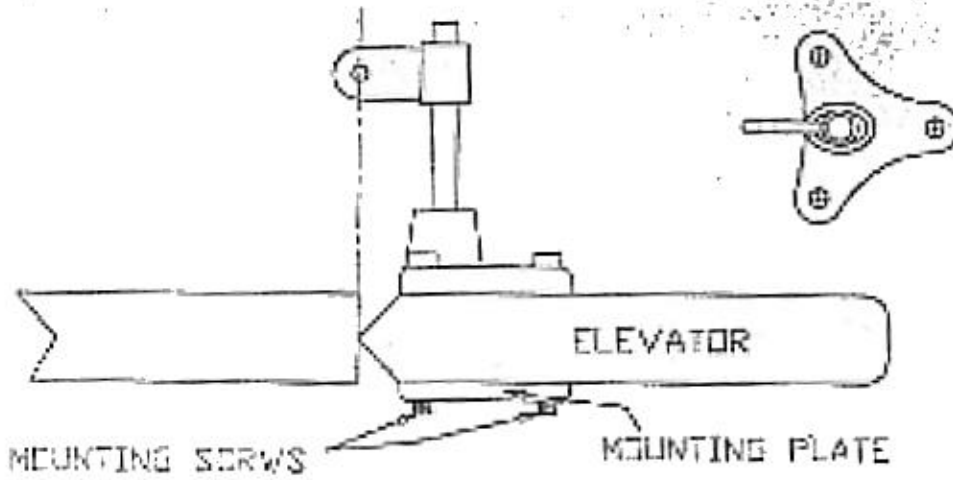
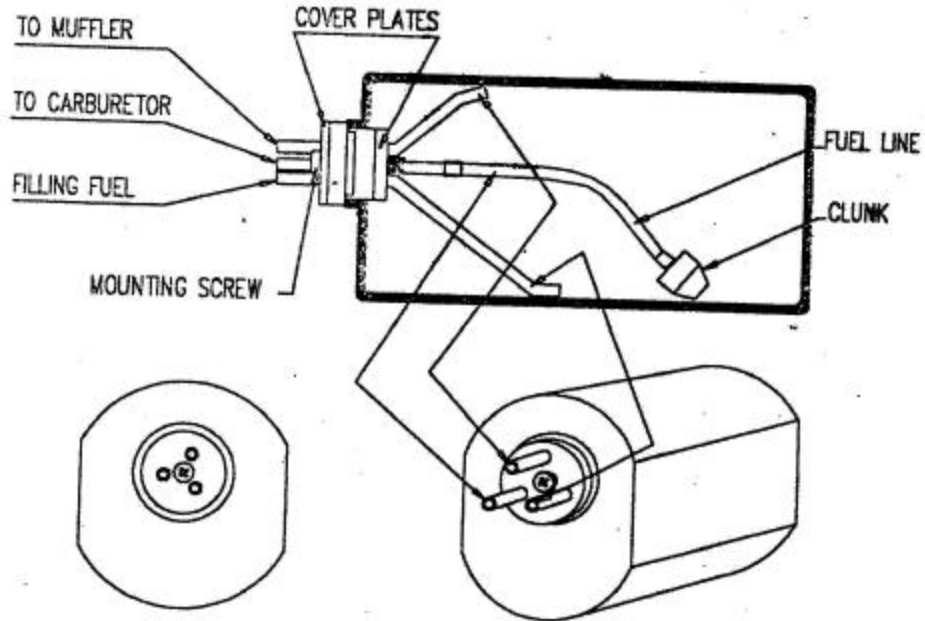
Tri control horns with screws (10)
 Beam motor mounts (2)
 Motor mount screws with blind nuts (4)
 Fiberglass engine cowl
 Cowl Mount screws (4)
 Preformed windshield
 Side windows (6)
 Cowl mount blocks (4)
 Hardwood servo blocks (2)
 Hinges (15)
 Aluminum landing gear
 Fiberglass wheel pants (1 set)
 Axle machine screws (2)
 Flat washers for axles (4)

Hex nuts for axles (4)
 Foam main wheels (2)
 Split elevator pushrod
 Cable assembly & hardware for rudder
 Throttle pushrod & housing
 Aileron pushrods (2)
 Nylon rod keepers (5)
 E-Z connector for throttle (1)
 Clevises (10)
 Nylon control horns (12)
 Threaded rudder rod (1)
 Flat washers & hex nuts for rudder (2 ea)
 Landing gear screws (2)
 Fuselage
 Wing panels (left and right)
 Pre-covered servo covers
 Hardwood servo mounting blocks (4)
 Dihedral braces (2)
 Pre-covered stabilizer
 Pre-covered fin
 Pre-covered elevators (2)
 Pre-covered rudder
 Pre-made wing struts (2)
 Tailwheel
 Wheel collars for tailwheel (1)
 Tailwheel bracket
 Tailwheel mounting screws (3)
 Fuel tank with hardware
 Decal Set
 Pre-covered landing gear filler block

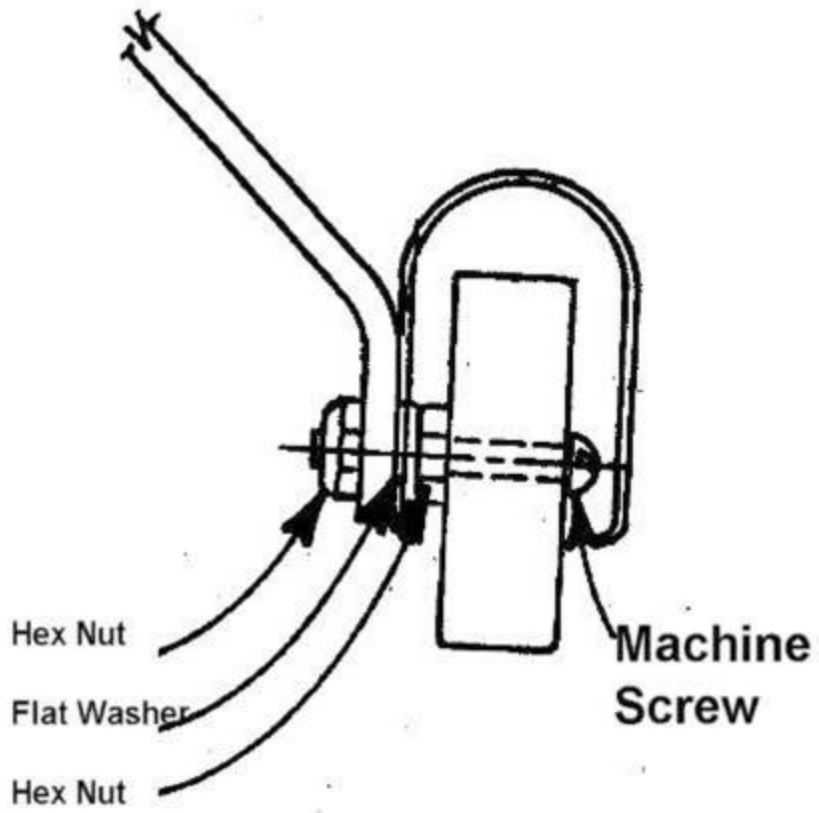


Control Surface Travels

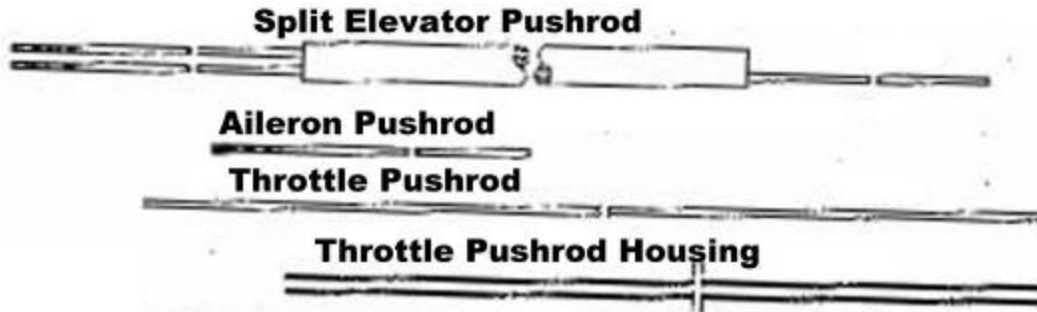
FUEL TANK



Control Horn Mounting



Wheel Pant Mounting



Main Wheels



Tri Control Horn



Tail Wheel



Clevis



Rudder Cable



Rod Keeper



Cowl Mount Screw



E-Z Connector



Blind Nut



Nylon Control Horn



Tail Wheel Mounting Screw



Wheel Collar

Parts Identification