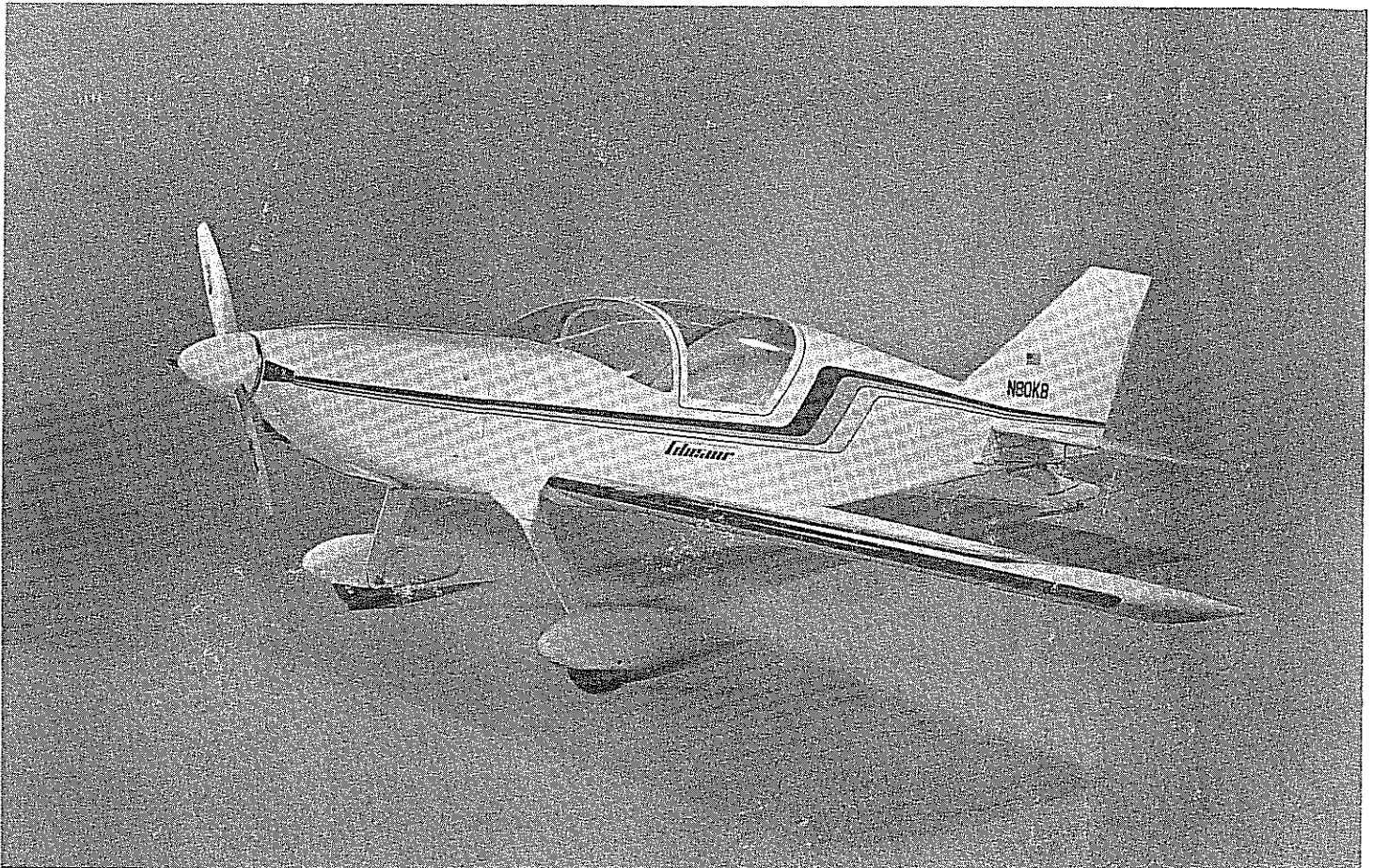


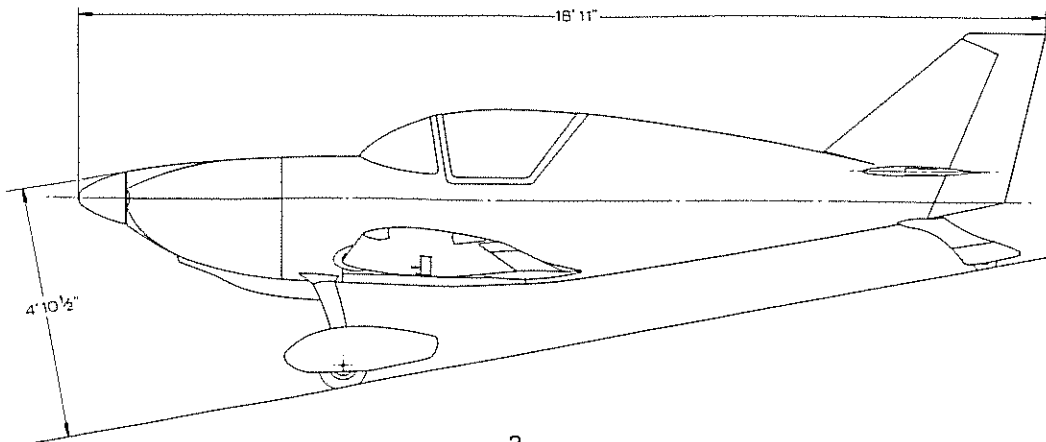
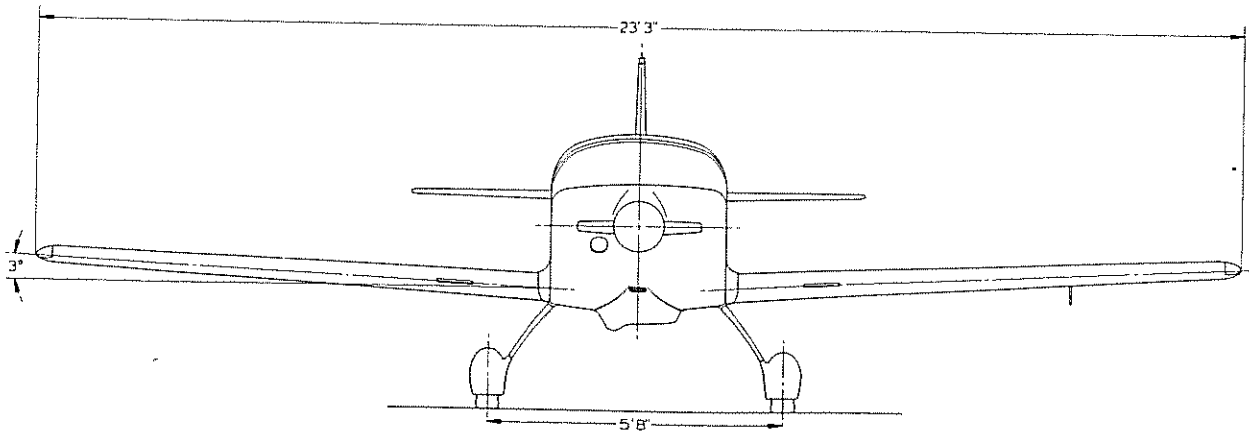
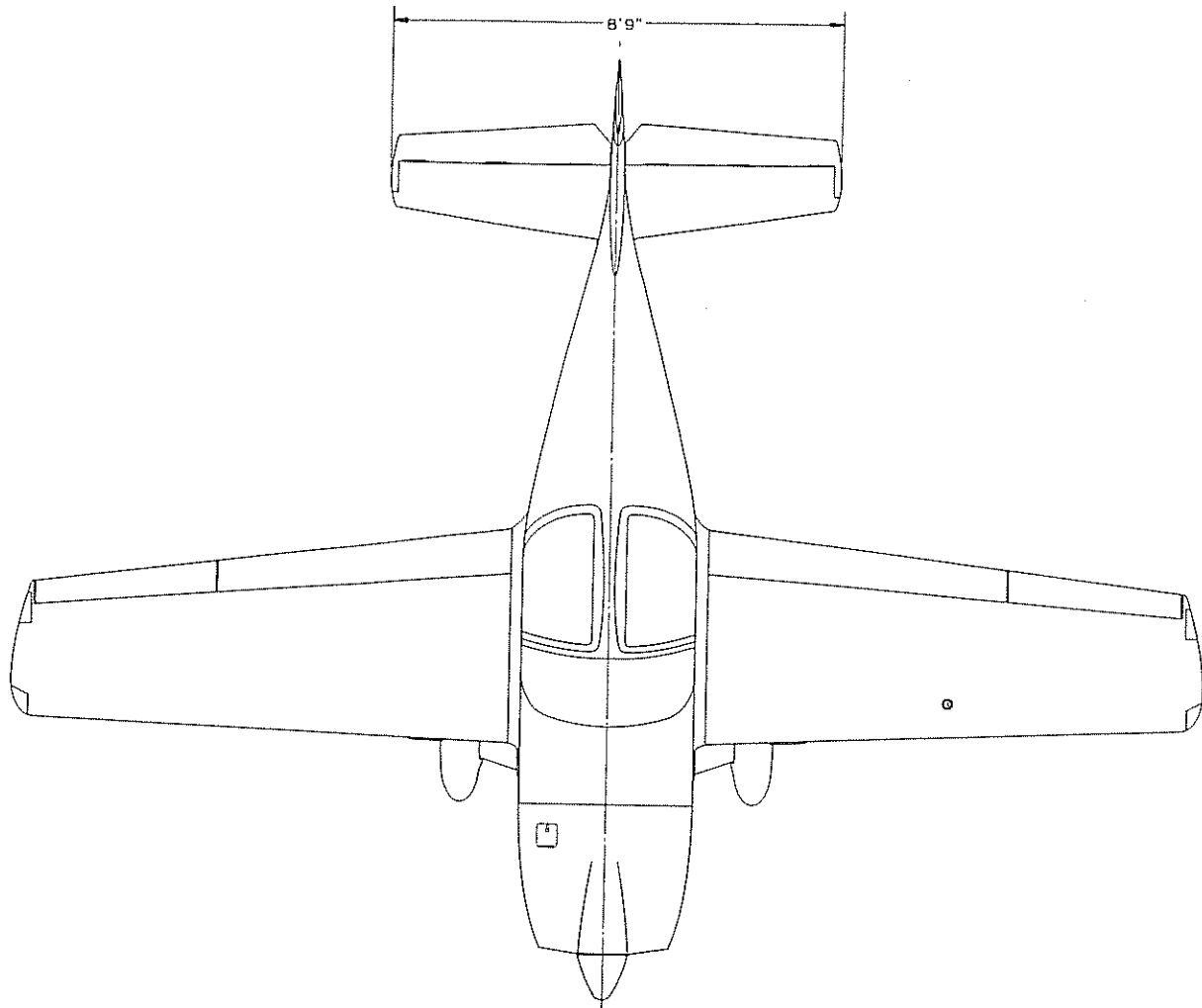


GLASAIR

OWNER'S MANUAL

- Assembly Instructions
- Operating Instruction
- Parts Lists and Drawings
- Safety Warnings





Byron Originals congratulates you on the choice you have made as the owner/pilot of a Glasair. This radio controlled model has undergone a very exhaustive and extensive testing program in order to provide you with the very best in materials and craftsmanship available in the R/C industry today. How you use this technology will be the means by which all of us as modelers will be judged by those who still claim our hobby is a "toy". We know our hobby requires skill, dedication, judgement, responsibility and above all safety. The

following paragraphs delineate the manner in which you should operate the model. By following this check list procedure, you the pilot, and all who watch will gain the utmost confidence and appreciation. As the full scale plane is a thing of beauty, so is the model. As the full scale plane properly handled brought great achievement, so can the model. As the full scale plane dealt unfavorably with poor judgement, lack of responsibility, and disregard for safety, so can the model.

SAFETY PRECAUTIONS

PREFLIGHT

1. Prior to attaching the wing to fuselage, check radio system, ailerons, push rods, and linkages.
2. Check prop blades for nicks and/or scratches. Defective props should be changed.
3. Check hinge and exterior connections for breaks, cracks or looseness.
4. Visually scan fuselage for stress marks, cracks or popped glue joints. Anything found out of the ordinary should be fixed before flight.

BEFORE ENGINE STARTING

1. Make sure that no person is in line with prop arc or in front of aircraft as warning decal so indicates.
2. Make sure all loose clothing such as shirt sleeves, ties, scarves, coat tails are clear of prop. Objects in shirt pockets such as pens, screwdrivers, etc. should be removed.
3. Do not start engine over any area containing loose gravel or sand.
4. Conduct radio range and battery voltage tests before each flight.

ENGINE START

1. Connect spark plug wire.
2. Clear the prop area. (Under no **CIRCUMSTANCES** should any person be in line with the prop arc or ahead of prop.)
3. A second person is required to hold the model and choke the engine if needed.
4. Engine is started in the idle position and should never be started at any other position.
5. Keep face and body away from prop arc while briskly flipping the prop.
6. After the engine has started, **DO NOT** under any circumstances reach around the prop arc or near the prop. A second man should be holding airplane firmly.
7. Engine should remain in idle position until aircraft and pilot are ready to taxi.
8. Engine run-up should be conducted in an area away from people in accordance with warning decal and prop arc.
9. If engine adjustment must be done, shut engine down before making adjustments. (Refer to engine manufacturer's recommendations.)

TAKE-OFF

1. Make sure flying area is clear of other people and planes.
2. Align aircraft with centerline of runway into the wind.
3. Slowly advance throttle and be prepared to apply rudder for directional control immediately.
4. Lift off when model has reached flying speed.
5. Do not use full flaps on take-offs.
6. Make all turns away from people and flight line.
7. **Do Not Buzz** the flight line. Confine flying to approved flying areas where radio failure or pilot error will not harm other people or property.
8. Under no circumstances should any modeler fail to follow the A.M.A. Safety Code.
9. Never fly in the presence of spectators until you are comfortable with the model and in complete control.
10. Never fly higher than 400 feet above the ground at any time, nor within 3 miles of an airport without permission of the airport manager.

LANDING

1. **CAUTION:** Do not use flaps until you have gained experience with this type of equipment.
2. It is highly recommended that for the first few flights all take-offs and landings be from grass fields.
3. Plan approach in closer and a little higher than normal.
4. Use caution with flaps, reduce power, make normal landing.
5. Maintain directional control with rudder until aircraft is almost slowed to a stop before turning. At the first sign of a bad approach, do not be nervous, advance the power slowly and go around. Relax this time.

ENGINE SHUT DOWN

1. Remove spark plug wire and do not replace until ready to fly.
2. **DO NOT** use hands, fingers or any part of the body to stop engine.
3. **DO NOT** throw anything into a running prop.
4. While aircraft is parked, **DO NOT** allow interested people to rotate prop. It is an ignition engine and could start with only a slight rotation of the prop.

Due to the size and weight of this model, if any potentially damaging impact has occurred, **DO NOT FLY** until you have taken the time to inspect inside and out.

BUILDING TIPS

- I. The building of this model follows the procedures used in most fiberglass/foam kits and assumes that the modeler has the knowledge of building kits of this caliber.
- II. Before starting the actual assembly of the kit, please take the time to familiarize yourself with all of the drawings. Trial fit all parts and sand those that require sanding to insure proper fit.

IMPORTANT NOTE: Use only epoxy, Tite Bond or Sig Bond glue on Byro-Foam parts and mating parts. Model airplane glue and fiberglass resin will attack and destroy Byro-Foam. If you use any product you are unsure of, test them on a scrap of Byro-Foam before using on model. To insure proper bonding of all wood and foam parts, apply glue to both mating parts and press firmly into position. Wipe **ALL** excess glue off. Excessive amounts of glue are not recommended as this will only add unnecessary weight to your model.

While sanding Byro-Foam parts, check to see that all parts mate properly and that the alignment is true. In any manufacturing process, some parts are not perfect.

Byro-Foam parts are molded to hold very close tolerances, so that you will receive the very best molded parts possible. Due to a multitude of variables, you may find a slight amount of warpage in some parts. This warpage can usually be eliminated while you are covering and assembling them.

When covering Byro-Foam parts, you should use **EXTREME CAUTION**. Any covering technique involving the use of heat over 150° Fahrenheit may result in damage to Byro-Foam parts.

Radio equipment requires only standard servos, with the exception of 1 - 180° servo for the operation of flaps and retracts.

Aircraft should weigh approximately 17 - 18 pounds when finished to insure the best performance. In order to achieve this, it is recommended that the wing and all of the remaining control surfaces be Econokoted. You may paint over the Econokote by first etching surface of Econokote with acetone and then painting as usual.

REPAIR PROCEDURES

The wings and tail surfaces consist of molded expandable polystyrene which is referred to as Byro-Foam. **DO NOT** use model airplane cement or Alpha-Cyanoacrylate adhesives on Byro-Foam as they will melt it! The best adhesive is a quick setting two-part epoxy such as 5-minute epoxy. Broken Byro-Foam can be repaired by applying well-mixed epoxy to the broken edges and holding the parts in position until the epoxy cures. Dents can be filled with a spackling paste, Model Magic Filler or equivalent. Don't use lacquer based

paints as the solvents will melt Byro-Foam parts. It is a good idea to try out anything you use first on a molded foam part before using it on the model.

If the model sustains a hard knock on landing, inspect the radio installation carefully. Be sure that the power pack, receiver, and servos are tight in their compartments. A loose servo will cause erratic flight so you must be sure the servos do not move if you wiggle the servo case. Also inspect the whole model to make sure that nothing is broken or has jarred loose.

ADDITIONAL ITEMS

Items Not Included w/kit but Required

- | | |
|-----------------------------|-------------------------------------|
| 1. Engine and Mount | 16. C-clamps |
| 2. Muffler | 17. Zona Saw |
| 3. Radio | 18. Hot Glue and Gun |
| 4. Polyester Resin | 19. Masking Tape |
| 5. White Wood Glue | 20. Drill Bit Set and Drill |
| 6. 5-Minute Epoxy (fast) | 21. 2/56, 4-40, 8-32 tap |
| 7. 30-Minute Epoxy (slow) | 22. Tap Drill and Clearance Drill |
| 8. Sanding Block | 23. Paint and Primer |
| 9. Straight Edge (long one) | 24. Acetone |
| 10. #320 Grit Sandpaper | 25. Tack Rag |
| 11. #80 Grit Sandpaper | 26. Econokote, Iron and Heat Gun |
| 12. Flat File | 27. Solder Gun |
| 13. ¼" Round File | 28. Ruler |
| 14. X-acto Knife | 29. Tie Wire |
| 15. Scissors | 30. Clear Silicone Bathtub Caulking |

REPLACEMENT PARTS

Items with designated part numbers may be ordered from the factory. Those parts not marked should be purchased at your local hobby shop. Please note, some components are labeled as sub-assemblies and can only be purchased as such.

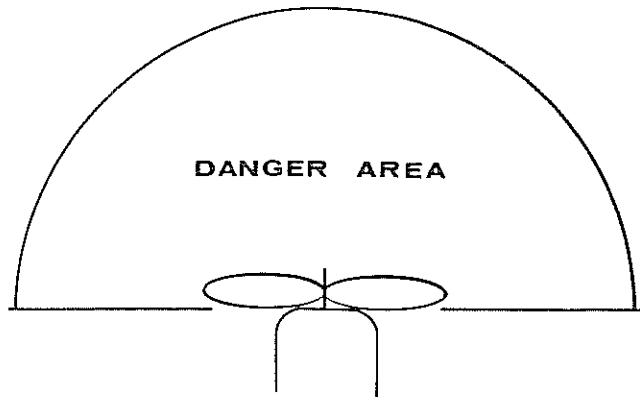
GLASAIR BALANCING AND TRIMMING DATA

Center of Gravity: 10-3/16" Back From Fiberglass Lip of Fuse at Firewall
(Ident Mark Has Been Molded into Fuselage)
Elevator Travel: Approximately 1/2" up and 1/2" down
Aileron Travel: Approximately 1/2" up and 1/2" down
Rudder Travel: Approximately 1 1/2" left and 1 1/2" right

REFERENCE DATA

Wing: 0°
Stab: 0°
Engine 0°

NOTE: WARNING DECAL IS SUPPLIED WITH KIT. DECAL TO BE AFFIXED ON TOP FRONT CENTER OF COWL.



FUSELAGE CONSTRUCTION (Bag 1 and 2)

1. Remove fiberglass windshield and right side cabin window using a zona saw or dremel tool to follow outline scribe in fuselage. Since the left side cabin window area is used as an access hatch it will be necessary to fit the fiberglass window hatch into the recess made for it in the fuselage. Use the window outline marked in the left cabin hatch as a guide, when removing the window. Scribe a line around the inside perimeter or recessed hatch area approximately 1/4" from the hatch outline and remove center fiberglass portion. The 1/4" lip remaining around perimeter of recessed area will be used to allow the fiberglass window frame hatch to fit uniformly into the side of fuselage and provide a surface for permanent bonding of butyl window to the inside of the fiberglass window frame hatch. (Make sure to fit butyl windows into their respective cut-outs prior to painting.)

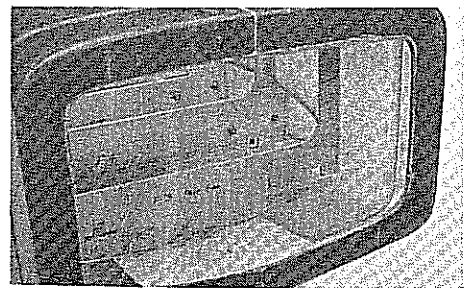
2. Open spar slots and linkage access holes in both fiberglass wing roots using identification marks made in the root areas.

3. Locate die-cut formers F-3, F-4, and templates provided. Align the template over the respective parts and mark areas to be removed. Trial fit 3/8"x3/8"x5-3/8" maple rails into square notches made in both and trial fit aluminum landing gear into slots of F-3.

4. Trial fit F-2 inside front lip of fuselage. Sand as required to allow front-side of F-2 to fit flush against backside of fiberglass lip on front of fuselage. Glue F-2 in position (5-minute or 30-minute) epoxy.

5. Before trial fitting F-3 inside fuselage 5" back from front of fuselage, glue a piece of 1/64"x4"x5" plywood over the air scoop opening in floor of fuselage. This will maintain the flow of air through the air scoop once the front and rear outlets are opened. Warm engine air trapped inside of the cowl will be drawn out of cowl through air scoop (front portion molded on cowl

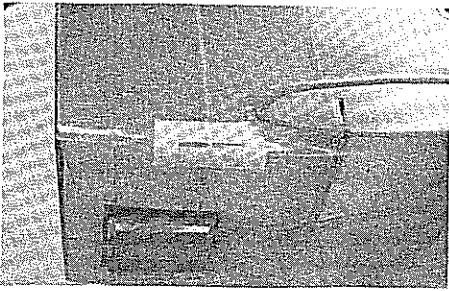
and rear portion molded on bottom of fuselage).



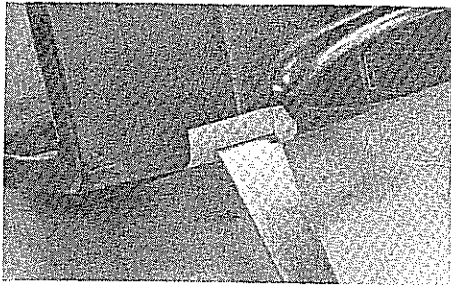
Pictures shows trial fit of F-3, F-4 and F-5. NOTE: 1/64" plywood cover glued over airscoop opening.

6. Cut a slot in lower corner of fuselage 1" each side of former F-3 to allow aluminum landing gear to slide through fuselage and into slot made in F-3.

7. Temporarily bolt aluminum extrusions to the backside of F-4 and F-5 (use marking punch marks in location where extrusion bolts to former and drill holes for 4-40 bolts.) Install 10-32x1/4" bolt in each



1/8"x2" slot centered on F-3 use slot made in F-3 to determine exact starting point.



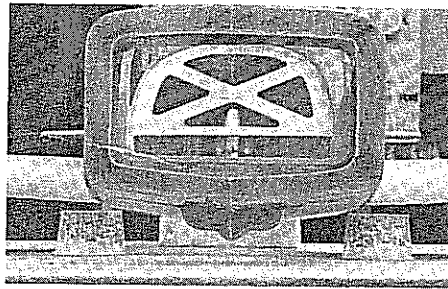
extrusion. (Bolt should be facing toward the bottom of the aircraft.)

8. Place F-4 and F-5 into their respective positions inside the fuselage aligning the slots previously made in fiberglass wing root with slots in each extrusion. While holding F-4 and F-5 in place, slide each wing into position on fuselage matching the airfoil of the wing with the airfoil fillet on the fuse side. Use masking tape to hold wings in position on fuselage. (It may be necessary to sand perimeter of plywood formers to allow for any irregularities of interior fuselage surfaces caused by cloth overlap, fuselage joining and build-up required during lay-up process.)

9. Make an access hole on the bottom of fuselage at each 10-32x1/4" extrusion bolt location. The easiest way to accomplish this is to look through the fiberglass skin. Mark location (1 1/2" in from edge of fiberglass wing root and 1/4" back of plywood formers) drill a small hole at this location and again look through to see if you can see the bolt in the extrusion. Enlarge hole 1/4" diameter to allow for easy access to 10-32 bolt when attaching and removing wings. Tighten 10-32x1/4" bolt in each extrusion to lock wing spars in position.

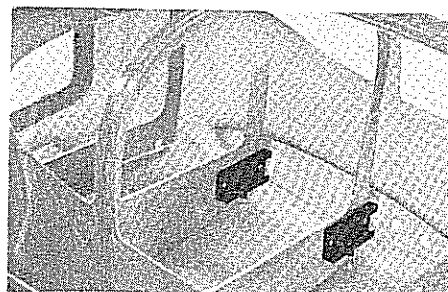
10. Place fuselage on two blocks of equal height on a flat surface. Position blocks underneath fuselage wing root edges approximately half way between F-4 and F-5. Measure and make a mark on leading edge of

both wings 24" from root end. Measure from surface to the approximate center line of wing at fiberglass fuselage wing root and 24" mark on leading edge of wing. The difference between these two measurements should be 1-1/8" to 1 1/4". Adjust position of extrusion on former to bring measurement on one side into agreement with measurement on opposite side. A slight change in 4-40 bolt hole may be all that is required.



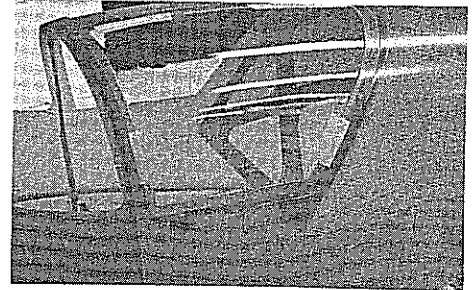
Front view of model on blocks to check dihedral.

11. Note and mark any change that may have been made in alignment of extrusions because the entire assembly of F-4 and F-5 will have to be dismantled for further preparation prior to final assembly. Thoroughly sand the plywood formers on both sides. Use 80 grit sandpaper to rough up the backside of each aluminum extrusion. Apply 30-minute epoxy to the backside of extrusion and bolt each in their respective positions on plywood formers. Install 4-40x1/2" flat head bolts using a #4 flat washer and hex nut on front side of plywood formers. Reinstall formers in fuselage, position and lock wings in position, align wings with wing root fillet of fuse, check dihedral one last time. If everything checks out a-okay, tack glue F-4 and F-5 on inside of fuselage. After glue has set up carefully remove wings.

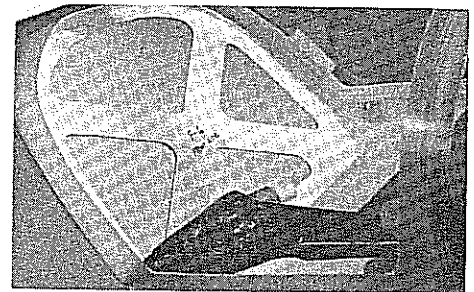


Fuselage formers F-2, F-3, F-4, F-5 tack glued inside fiberglass fuse.

12. Position and tack glue 1/16" die-cut former F-6 on inside of fuse approximately 3/4" back of and parallel to rear window edge outline. Fit and tape window hatch into position during this operation.



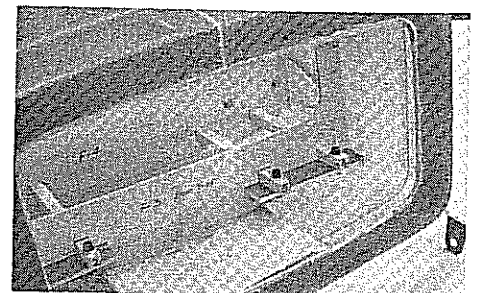
Cabin window hatch with butyl window taped in position on fuselage.



Tack glue F-6 inside fuse approximately 3/4" behind window line.

13. Use template provided to locate holes to be drilled in each 3/8"x3/8"x5-3/8" maple landing gear rail.

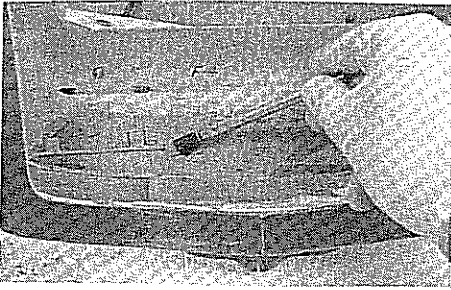
14. Slide each aluminum landing gear leg into position along with 3/8"x3/8"x5-3/8" maple rails. Rear portion of rails lock into slots made in F-4 (2) 8-32x3/4" socket head bolts with #8 flat washers bolt through each rail into aluminum landing gear.



View of left gear leg bolted to rails locked into F-3 and F-4.

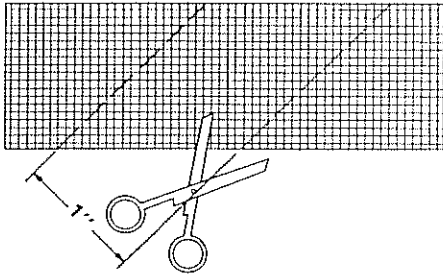
15. With the landing gear bolted in place tack glue F-3 in position. Dismantle and remove the landing gear and prepare to glass all of the plywood formers (F-2, F-3, F-4, F-5

and F-6) to the inside of fuse. (Be sure to add an extra layer of cloth over landing gear slot cut in F-3.)



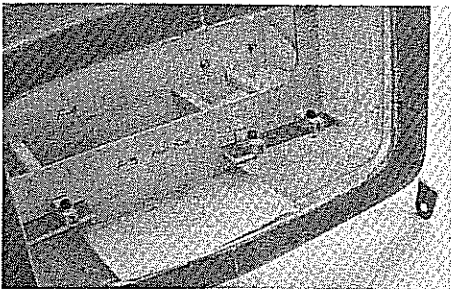
Using a 12"x4" wide piece of cloth to glass along bottom of F-3. Glass to lay approximately 2 1/2" on face of F-3.

16. Cut 1" wide fiberglass strips from 6 oz. cloth provided. Using polyester resin, glass the plywood formers to the inside surface of fuse. When cutting fiberglass cloth strips, it is helpful to cut 45° to the weave of the cloth. This allows the cloth to form in sharper corners since the glass fiber will lay through the joint on a 45° angle instead of 90°.



CUT CLOTH 45° TO WEAVE AS SHOWN.

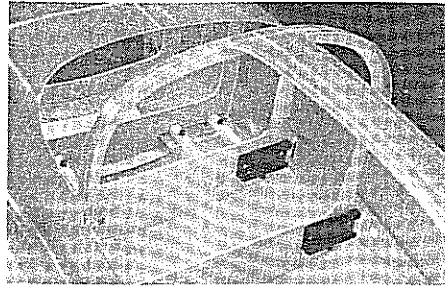
17. Reinstall aluminum landing gear, gluing maple rails into position as you go.



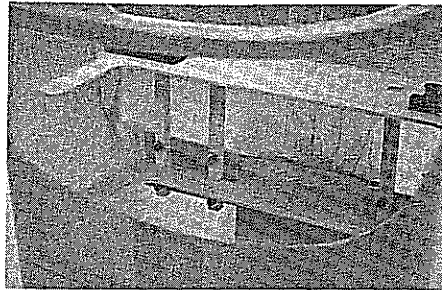
Landing gear reinstalled after trimming cloth from cut out areas of F-3 after resin cures.

18. Position and tack glue 1/16" plywood upper cabin former F-5A to inside of fuse. Bottom ends of F-5A butt against top edge of F-5. The upper portion of F-5A should be positioned in the middle of the

fiberglass strip that separates the windshield from the side windows. Cut 1/2" wide strips of cloth and again glass F-5A to inside of fiberglass surface.



F-5A added to reinforce fiberglass strip that separates rear of windshield from front of side windows.



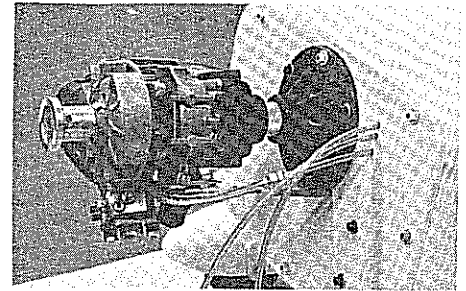
19. Two die-cut 3/32" ply firewalls F-1 have been supplied. Sand both sides thoroughly. Laminate the (2) F-1's using epoxy and apply weights to prevent warpage until epoxy has cured.

20. Numerous marking punches have been installed in the die to provide the bolt pattern for our Universal mount system, bolting the firewall on to the fuselage and the addition of an aluminum angle bracket onto which the fuel tank is fastened along with location of fuel line exit through firewall. Position the firewall on the front of the fiberglass fuselage and secure in place with masking tape.

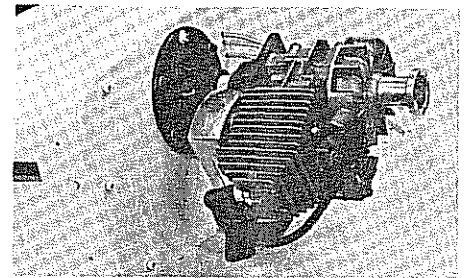
21. Using a #5 drill bit, drill holes through F-1 and F-2 around perimeter of F-1 at location identified. Remove F-1, install 8-32 blind T-nuts and reinstall F-1 to fuselage using 8-32x3/4" socket head bolts and #8 flat washers.

22. While other engines certainly could be used, installation of Q-35 will be used in this example. Drill #5 hole locations identified for engine mount. Install 8-32 blind T-nuts and bolt firewall bracket to firewall. Use instructions provided with the Universal mount to bolt mount to engine. The one deviation

will be the placement of the knurled tube into the bracket bolted onto engine. The end of the aluminum tube should be held 1/4" from back of engine case and not tight against the case. Reason for this is that there needs to be a 1/2" separation between the front edge of firewall bracket and the rear edge of the engine brackets. (i.e. 1/2" of knurled tube showing when entire assembly is bolted in place on firewall.)



Left view of Q35 installation.



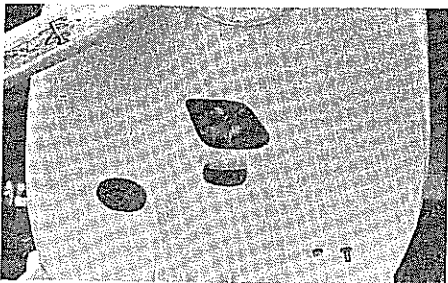
Right view of Q35 installation. Note head position.

23. Locate a 1/8"x3/4"x8" piece of aluminum and the template for the aluminum fuel tank bracket. Drill and tap holes as indicated for 8-32 bolts. Drill holes at index location on firewall. Install klunk assembly in tank and attach fuel lines to outlets on tank. Glue a strip of Latex foam to top of aluminum angle bracket to separate tank from metal surface. Use rubber bands to secure fuel tank to top of aluminum bracket. Bolt bracket to backside of F-1 using (2) 8-32x3/4" socket head bolts and #8 flat washers. Fuel lines should extend through firewall at location of 3 index marks located above bracket bolts. Fuel lines for fill and vent should be left long enough to allow them to pass through holes made in bottom of cowling by approximately 1".

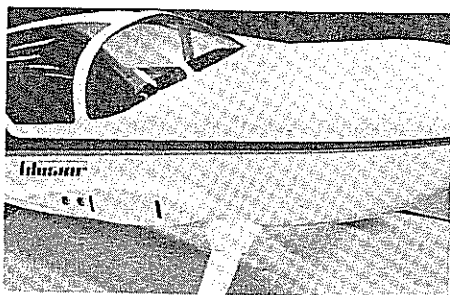
24. 1/4"x3/4"x3/4" maple blocks are to be glued to the inside left and right fuse side as an anchor for the 8-32x1/2" round head nylon cowl attach bolts. Actual position of

blocks are not critical. (See fuse side view drawing.)

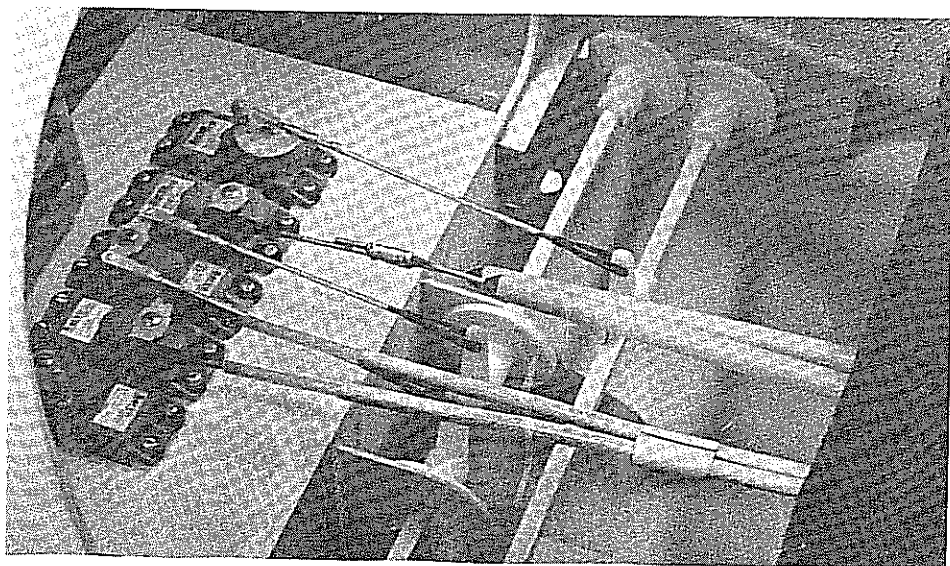
25. A slight hole will have to be cut in the bottom of the cowl ahead of air scoop to allow clearance for the carburetor. I would recommend removing the carburetor from the engine when fitting and adjusting the cowl onto the aircraft with engine in place. Then reinstall carburetor and carefully make the necessary cut out.



Round hole right side for muffler; hole ahead of air scoop for carburetor.



26. Use the servo tray template to cut out the servo tray from the center portion of die-cut part F-3. Size of actual servo hole cut out depends upon your equipment. Trim the servo tray to fit between F-4 and



Interior view of cabin servo installation and linkages.

F-5 and glue in position (see drawings).

27. Installation of F-7 and F-8 will be left until after the wings have been completed.

FIBERGLASS TAIL SECTION (Bag 3 and 4)

RUDDER/RUDDER POST

1. Use an x-acto knife to separate the foam rudder from the rudder post.

2. Shape the leading edge of the foam rudder and install 1/32" die-cut plywood R-1 to foam rudder tip. Make a small cut into the foam rudder to allow R-1 to fit the top of rudder cut out.

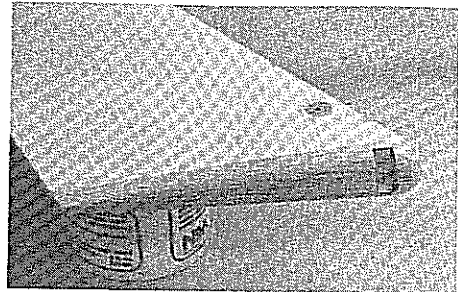
3. Drill and tap a (4-40) hole through a length of 3/8" dowel that fits flush with surfaces of foam rudder. Thread a 4-40x1 1/2" pan head bolt through dowel, leaving enough threads to bolt a 4-40 ball link into bolt. Clip the head of bolt on other side and install 4-40 ball link on this side. Glue dowel assembly into hole of foam rudder.

4. Sand the bottom of the foam rudder and glue a 3/8" piece of balsa to the bottom of the rudder. Sand balsa to match rudder air foil shape. The purpose of this piece is to provide a base for anchoring a brass steering arm used to drive the steerable tailwheel, and to make up for foam shrinkage.

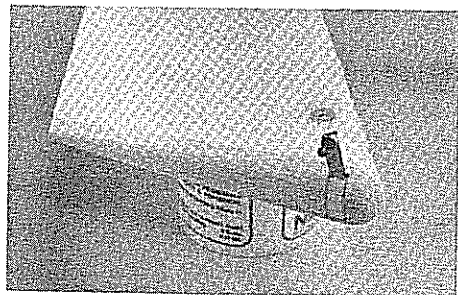
5. Locate a brass strip 1/16"x1/4"x1 1/2" and use template to bend as required. Drill and tap a 2/56 hole in outboard end of brass

and install 2/56 ball link. A 2/56 hex nut secures the ball link on the top side.

6. Cut a 1/4"x1/4" notch across the balsa cap just glued to bottom edge of rudder and glue the 1/4" wide rudder arm into this notch and fill the top over with scrap balsa.

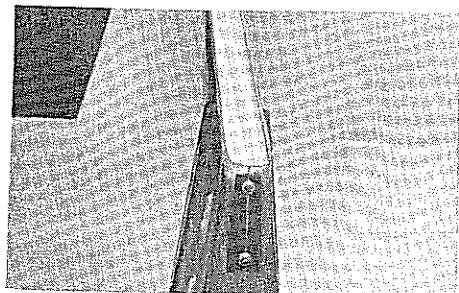


1/4" wide notch cut in bottom of 3/8" balsa cap. Start cut 1/2" back of rudder leading edge.



Brass rudder arm epoxied into slot with balsa scrap.

7. Locate 1/8" die-cut plywood F-9 (tailwheel anchor plate). Drill 1/8" diameter holes the same distance apart as the holes in the large leaf spring of the tail wheel and install a 4-40 blind T-nuts. Place the plywood plate inside the tail section so that the rear bolt hole is a 1/2" ahead of trailing edge of fiberglass surface. You may have to bevel the sides of the plywood a little to allow a better fit. With this done, rough up the mating surfaces with sandpaper and glue the plate to the floor of the tail section. Open holes in fiberglass surface to match holes in anchor plate.



F-9 positioned inside fuselage tail section.

8. Cut and glue a 3/8" piece of balsa to the top of the rudder post and sand to match foam shape after glue has cured. The angle on the extreme front edge of foam rudder post must be sanded carefully to allow proper fit of rudder post inside trailing edge of vertical stab.

9. Fit the foam rudder post inside vertical stab allowing for a 3/8" recess at the top and 1/2" recess at the bottom.

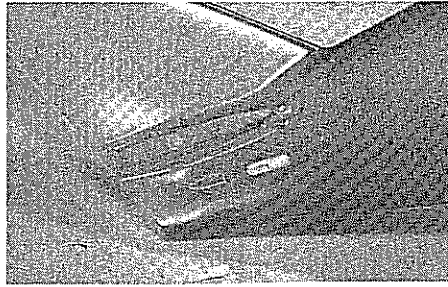
10. Sand mating surfaces and epoxy foam rudder post inside fiberglass vertical stab. Sand balsa cap added to rudder post flush with fiberglass edges. Tail section should be temporarily attached to fuselage to prevent warping and aid alignment.

11. Plunge holes for hinges in rudder. Crimp the hinge extrusions onto one end of (4) Robart super hinges. This hinge extension consists of a 7/32 O.D. x 2" brass tube which slides over the existing hinge arm and is held securely in position by pinching the brass tube lightly along the area of the hinge with a side cutter.

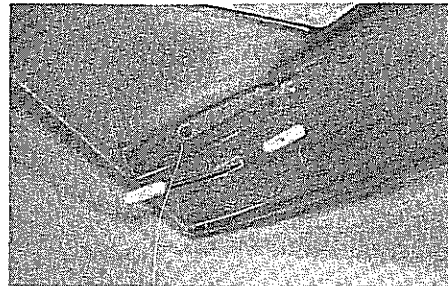
12. Transfer hinge location to trailing edge of foam rudder post and again plunge holes at these locations for the hinges. Trial fit rudder to tail section. Make sure to allow for a sufficient air gap between top of vertical stab and plywood cap of rudder. Additional fiberglass surface will have to be removed along trailing edge of fiberglass vertical stab to allow sufficient movement of rudder.

13. With the rudder in proper position sand the 3/8" balsa cap, glued to bottom of foam rudder, to match the bottom shape of the fiberglass tail section.

14. Below the horizontal stab fillets in each side of the tail section you will find scribed marks. These are to help you install (4) nylon exit guides in the side of tail section. Use a dremel tool to open these holes and trial fit the nylon exit guides as you go. Glue (2) blue nyrods into (2) exit guides for the rudder prior to gluing exit guides into fuse. Sand the mating surfaces of both parts and glue exit guides into the tail section. (Zap works great for this.)



Installation of elevator push rod exit guide.



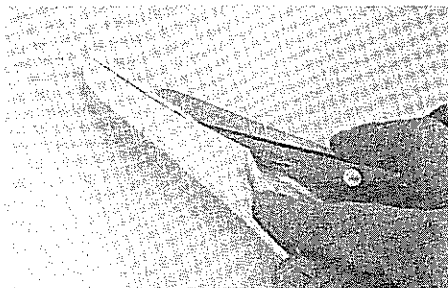
Installation of rudder nyrod into exit guide. Then glue exit guide into fuse.

A. B. S. TAIL WHEEL FAIRING

(4) A.B.S. vacuum formed pieces comprise the complete fairing and wheel pant assembly which encapsulates the tail wheel leaf spring and tire.

It will be necessary to cut each of the four pieces from their individual vacuum formed sheets along the center parting line; then butt the adjoining pieces together and bond together using acetone or Zap.

1. If you examine the inside surface of each A.B.S. part, you will see a very definite line scribed around the perimeter of the part. This is the center parting line you need to follow when trimming.



Trimming along scribe line molded on inside of A.B.S. parts.

2. Sand center parting line of each part flat. #80 grit sandpaper glued to a flat block works well for this operation.

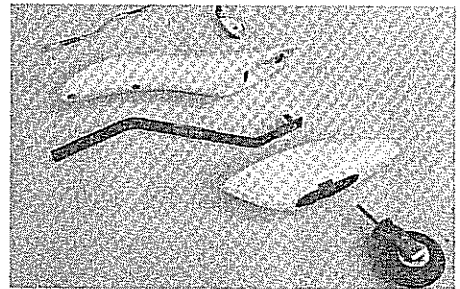
3. Use templates provided to

mark and layout cut outs for such things as the tail wheel, yoke, tire, steering arm and access holes for mounting bolts.

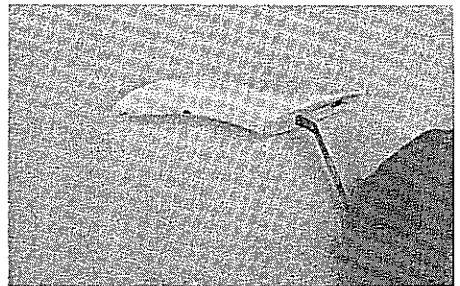
4. Butt center parting line edges of like parts together and bond together with acetone and Zap.

5. Trial fit double leaf spring into upper fairing by inserting front end of leaf springs through slot made in bottom of upper fairing until aluminum bushing located on rear of long leaf spring slips into hole made on bottom of upper fairing. Pieces of Latex foam can be placed on both sides of leaf spring inside fairing to stabilize the fairing.

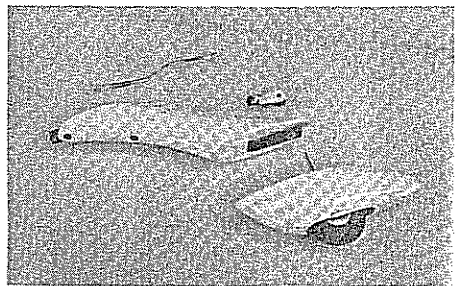
6. Trial fit yoke assembly inside lower fairing. Slots cut into each side of wheel opening allow yoke to lock A.B.S. fairing in place.

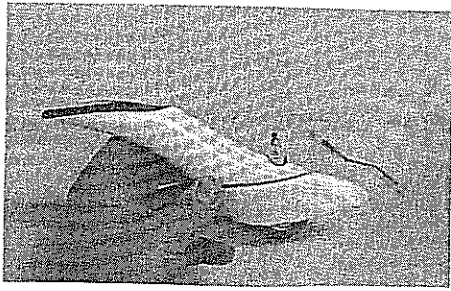


Completed A.B.S. parts and other tailwheel parts. NOTE: The two leaf springs have been banded together with packaging tape.



Inserting leaf springs into front notch of A.B.S. upper fairing.

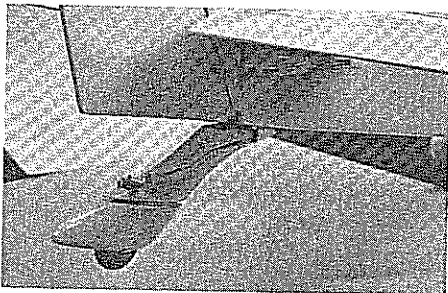




Completed assembly.

7. Install 1 1/2" diameter tire, slide tail wheel yoke assembly onto wheel pant through tire opening. Slide steering arm shaft of yoke into aluminum bushing on leaf spring. Place steering arm over shaft and tighten set screw of collar in steering arm.

8. Bolt the tail wheel onto the tail section using 4-40x1/2" bolts and a little Loctite. Install a 2/56 ball link on steering arm and make a linkage (after rudder has been permanently installed) to connect the brass arm installed in rudder to the steering arm of tail wheel using (2) nylon sockets, (1) brass solder connector and (1) 2-56 wire threaded on one end.



NOTE: Linkage between rudder arm and steering arm of tail wheel.

ELEVATOR (Bag 3)

1. Separate the foam elevators from the stabs. Shape the leading edges of the foam elevators and trim out the hinge slot holes.

2. Remove the tip of each elevator. Glue the reinforcing piece of 1/32" ply (E-1) to each tip and then back onto the elevator (see drawing).

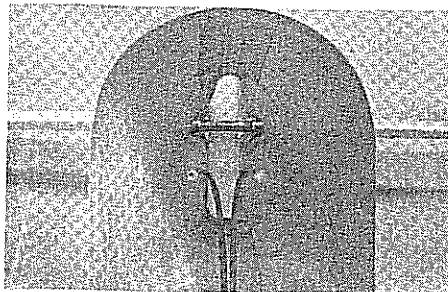
3. Drill a 1/8" hole through 2 lengths of 3/8" wood dowel that will fit flush with the surface of the elevator. Glue the wood dowel into holes provided in the elevator. After covering/finishing a 1/8" diameter,

a 2" length of steel music wire will be glued into each wood dowel. A nylon connector drilled out to 1/8" diameter slides into 1/8" diameter music wire and is secured by means of a 1/8" wheel collar and set screw.

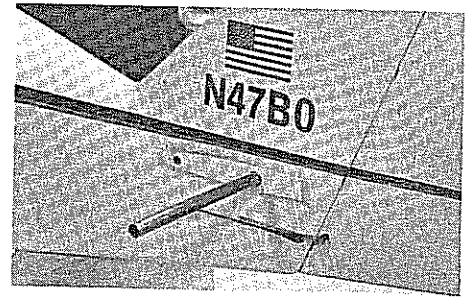
4. Plunge holes for hinges in each elevator at location marked. **NOTE:** one smaller standard Robert hinge point is used at the outside location of each elevator.

HORIZONTAL STAB (Bag 3)

The stab will be permanently attached to the fuselage tail section or it may be made removable. A 13/32 diameter x 12" thin wall brass tube, which is used as a spar, extends through the fiberglass stab fillet on tail section. This tube is permanently attached to the fiberglass area by epoxy and/or glass cloth/polyester resin. Before final installation of 13/32 brass spar tube, sharpen inside radius of one end of tube using an x-acto knife, this will allow you to cut these plugs from root area of each foam wing. These plugs will fit into holes located midway in top and bottom of each wing panel just ahead of spar. A 1/4" diameter x 1 1/2" aluminum tube acts to pin the leading edge of the stab to the fiberglass fillet. If it is not desirable to make each stab removable, all that needs to be done is glue each stab onto brass spar tube, fiberglass fillet and 1/4" diameter x 1 1/2" aluminum front pin. If it is desirable to have the stabs removable, slide stab in position on spar, drill a #33 hole through 1/8" ply in stab, brass tube fused inside of stab and brass spar tube. Place a pin, made from 4-40x2 3/4" bolt through this hole. A small piece of trim Monokote placed over the top of the head of the bolt and surrounding surface will hold the pin in position.



Front view of tail section showing foam rudder post and 13/32" O.D. brass spar glued inside fiberglass tail section.



Completed model with stabs removed. (This option is left up to the modeler.)

1. Use the scribed marks on root ends of fiberglass fillets to open these holes. The front hole accepts the 1/4" diameter x 1 1/2" aluminum tube while the rear hole accepts the 13/32 diameter x 12" brass spar tube. Fit the 13/32" tube first, then trial fit stab. Sand foam stab root to mate perfectly with adjoining fiberglass root fillet.

2. Place the 1/4" diameter x 1 1/2" aluminum tube in front hole of foam stab and again trial fit stab onto tail section. Carefully enlarge 1/4" front hole in fiberglass fillet to accept the aluminum tube and bring the stab into alignment with fiberglass fillet. If the fiberglass hole becomes too large, simply glue a piece of 1/8" scrap plywood (with 1/4" hole) to the inside area of the fillet. For the plug-in feature, this is mandatory as constant usage could enlarge the fiberglass edges of the hole causing an excessive amount of play in the front aluminum stab pin.

3. Install 1/32" ply die-cut stab root (S-1) and tip caps (S-2) and sand them flush with stab airfoil.

4. Sand the foam hinge cover recess area, fit the 1/32" ply die-cut hinge covers (S-3) and glue them into the foam recess along the trailing edge of the stab.

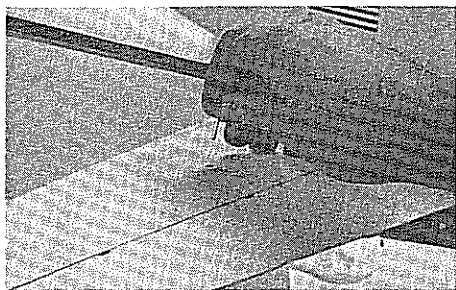
5. Epoxy 1/4" diameter x 1 1/2" aluminum tubes into front holes of foam stab and 1/8" x 3/4" x 3/4" plywood squares (S-4) in area provided on top and bottom of each stab.

6. Fit the elevators to each stab, transfer hinge locations and plunge holes for hinges. Trial fit each stab/elevators to the tail section. Take the time to make and hook-up the push rod linkage, connect it to the control surface, play with it. If there is a bind, find out where it is and solve the dilemma.

7. If you are going to glue the stabs on permanently, finish the

stabs and fuselage, then install the stabs.

8. If you are going to make the stabs removable, slide the stabs into position on the tail section, mark the center of the 1/8" ply insert and drill a #33 hole completely through the stab at this point. Locate (2) 4-40x2 3/4" round head bolts. Cut the bolts to a length of 3/4", file the head to a flat shape and file the cut end to a point. Slide the pin through the hole in each stab. Cut a piece of trim Monokote to cover the head of the bolt and an amount area adjacent to the pin (i.e. 1/2" diameter circle). This will hold the pin in position until removal is desired. The stabs can be finished and installed anytime you desire.



Stabs being reinstalled on model. 4-40x2 3/4" bolt cut to a length of 3/4" acts as a pin to lock stab onto brass spar tube.

9. Sand the mating surface where the tail sections mount to the front fuselage section.

10. Trial fit tail section onto front fuselage and bolt the two sections together by using (3) #2x3/8" sheet metal screws.

11. Remove screws, apply 30-minute epoxy to mating surfaces. Join the two fuselage sections reinstalling #2x3/8" sheet metal screws as you go. After the epoxy cures remove the sheet metal screws, and fill the holes prior to finishing.

WING CONSTRUCTION (Bag 5)

1. Lightly sand the entire wing with #220 sandpaper. Two pieces of 1/2" tapered balsa trailing edge stock have been provided to be spliced and glued (using a white glue) to trailing edge of each foam wing panel. You will notice slight differences in the thickness of foam control surfaces as you glue balsa in position. Don't become alarmed. Strive to glue balsa onto foam trailing edge so as to preserve a straight trailing edge.

2. After the glue has dried (start from root end) carefully sand foam surface to match balsa trailing edge surface. As you work your way toward the tip, gradually start to sand the balsa trailing edge to match the foam aileron surface and wing tip. A flat piece of wood with #80 grit paper glued to it works very well throughout this phase of construction.

3. Use an x-acto knife to remove ailerons and flaps from wing panels and install foam plugs made during horizontal stab construction.

4. Place wing panels on aircraft. Mark and sand foam wing roots to match fiberglass wing fillet. Epoxy 1/4"x1/4"x36" spruce spars to recess on top and bottom of each foam panel. (Make sure to place wing on flat surface to prevent warping.)

5. Epoxy 1/16" ply die-cut wing root cap (W-1) to each foam wing panel and quickly install wing on aircraft and lock in position until epoxy cures.

6. Sand to shape the leading edges of each control surface and clean up the hinge slots.

7. Install 1/32" plywood die-cut end caps W-2, W-3, W-4 and W-5 to control surfaces taking into consideration proper clearances between each. Install W-6 to wing tip.

8. Cut 3/8" wood dowels to length that allow for flush fit into each hole of control surfaces. Mark, drill and tap a 4-40 hole in center of each wood dowel. Install a 4-40 x 1 1/2" bolt in each, clip head and install 4-40 ball link. The distances from surface of wing to bottom of ball link are as follows: Aileron: 1/8"; Flap: 1/4".

9. Plunge hinge holes in center of each hinge slot and trial fit Robart super hinges. (NOTE: outboard hinge in each aileron requires standard Robart hinge point.)

10. Cut a strip of 1/32" plywood from sheet provided to cover the trailing edge of the foam wing. This will provide added strength to the wing as well as strength to the hinges. Glue strip to foam wing trailing edge and sand plywood flush with wing surface.

11. Transfer hinge locations from ailerons/flaps to trailing edge of wing, plunge hinge holes, add hinge extensions to end of each hinge that will glue into the wing, and trial fit control surfaces to wing.

12. Before getting into an explanation on how to install the torque rods for ailerons. It is important for you to make a decision. If you are accustomed to two servo operations (one servo located in wing that operates each aileron), run the aileron servo cable through the front hole molded into the wing, out to the location you determine for the servo. Cut a hole in bottom side of wing to accommodate servo installation. There is no substitute for direct servo hook-up to a control surface such as ailerons. Quick, crisp response can be achieved without a great deal of work. If you choose the torque rod method described below, please spend the extra time to make sure no binding exists in any of the linkages or control surfaces.

13. Locate (2) 1/4" O.D. x 22-5/8" aluminum aileron torque rods and (2) 1/4" O.D. x 6 1/2" flap torque rods. Before installing 1/4" diameter aluminum torque rod tubes, buff each tube with steel wool (00 grade) to remove tarnish. Remove any burrs from around tapped bolt hole in outer end of tube. Slide end of aileron tube with 4-40 tapped hole into front hole of wing root, until tapped hole of tube appears beyond the end of the 9/32" brass tube (bushing) which has been fused inside the wing torque rod cavity. Thread 4-40x1" bolt (from top side of wing) through 4-40 tapped hole and tighten bolt in threads using Loctite to secure threads. Install 4-40 hex nut and lock against tube. Install all other torque rods in similar manner.

14. Cut 1/32" plywood hinge covers from material provided using the template. Trailing edges of hinge cover should be tapered to allow radius of control surfaces free movement during use. Two notches must be made in each bottom hinge cover to allow 4-40 bolt installed in torque rod to pass through. These notches have been marked on template.

15. Fit and glue 1/32" plywood hinge covers to wings. These should be glued in place with an epoxy or if you prefer Zap/Z-Foam primer. Use the primer over the foam mating surface. Tape hinge cover to wing along leading edge of hinge cover. Mark outline of wing trailing edge on underneath side of ply hinge cover. Fold hinge cover back over onto wing and apply Zap to wood hinge

cover. Quickly flop hinge cover back onto wing surface and press into position. Be sure you are working on a flat surface. Sand excess hinge cover plywood from root end of wing using W-1 as a guide.

16. Trial fit control surfaces and make up linkages between control surface and torque rod.

17. Study the fuselage top view for placement of F-7 (aileron flap bearing mount plate) and F-8 (center aileron bearing mount plate) and associate linkage. Delrin bearing mount plates with control arm pressed into position bolt onto F-7 and F-8. The ends of the torque rods located in root end of wing have Delrin male plug-in connectors secured to aluminum torque rod. The plug-in connector engages the square hole of the control arm pressed into the bearing mount. A 7/32" square brass tube extends from the other end of the control arm to either another control arm pressed into bearing plate mounted to F-8 for the aileron or to the control arm on opposite side of fuse for flaps.

18. Slide one Delrin plug-in connector onto end of each aluminum torque tube extending from both wing panel end roots. Position and lock wings onto fuselage.

19. Locate (2) 1/16" plywood die-cut F-7's and F-8's, (6) Delrin bearing mount plates, (7) Delrin control arms, (2) 7/32"x5 1/2" square brass tubes, and (1) 7/32" x 10 3/4" square brass tube.

20. Position and tack glue F-7 against side of fuselage allowing notch in front edge of F-7 to fit over aluminum extrusion mounted on backside of F-5 and butt against backside of plywood F-5. Holes in F-7 should be centered over Delrin plug-in connectors protruding through fuse fillet.

21. Remove any flash from Delrin parts and press Delrin control arm into Delrin bearing mount. Slide bearing mount assembly over Delrin plug-in connector. Transfer (2) hole positions from bearing mount to plywood surface of F-7. Install each Delrin bearing mount assembly to plywood wing (2) #2x3/8" sheet metal screws per unit. The idea here is to get the bearing mounting plates attached to the plywood without inducing a bind.

22. F-7 may now be glassed to the side of fuse using 6 oz. cloth and

polyester resin.

23. Lightly file ends of 7/32" square x 5 1/2" brass tubes. One end fits into the control arm on side of aircraft and the other end fits into a Delrin control arm pressed into another Delrin bearing mount. This bearing mount will be bolted onto 1/16" ply die-cut center aileron bearing mount plate (F-8).

24. Position F-8 against backside of F-5 and floor of aircraft. Allow Delrin bearing mount assembly to float at the best possible position where no bend is present. Use (2) #2x3/8" sheet metal screws to secure Delrin bearing mount to side F-8. Use 6 oz. cloth and polyester resin to glass F-8 to fuselage and F-5. The servo linkage will now be able to be connected from the servo mounted in the center of tray to the two Delrin control arms now positioned close together in center of fuselage.

25. Remove one wing panel. Lightly file and/or sand the brass 7/32" square x 10 3/4" tube so that it will slide through the square center of a Delrin control arm.

26. Slide square brass tube through control arm in wing fillet, on into fuse. Before engaging the flap control arm on the opposite side of fuse, slide the remaining Delrin control arm onto square brass tube. Control arm can be slid into proper alignment after flap servo and linkage has been installed.

27. After aileron and flap servo linkages have been constructed, glue the Delrin plug-in connectors onto aluminum torque rod with wing in place, and controls neutralized. After the glue cures remove wings, drill and tap a 4-40 hole through Delrin plug-in connector and aluminum tube. Install 4-40x3/8" bolt in each Delrin plug-in connector to prevent rotation of tube inside Delrin part.

28. Wings are now ready for sanding and finishing. After finishing, glue hinges into control surfaces first and then control surfaces into wing trailing edge.

BUTYL WINDOW INSTALLATION

1. Before priming and painting the fuselage, cut out the clear butyl cabin inside windows and windshield. Please notice that the actual windows have been embossed which means that the windows fit

into fuse from inside leaving the window surface flush with the exterior surface of the fuse.

2. When trimming the butyl side windows leave approximately 3/8" to 1/2" around edges of windows. More may be left around the front and sides of windshield. However along the back upper edge of windshield, 1/4"x3/8" lip should be left.

3. Sand the mating surfaces with 80 grit sandpaper and fit right side window and windshield into area previously removed.

4. Before fitting left side window, place fiberglass window hatch into recess molded into fuselage and tape into position. Now you proceed with fitting the left side cabin window.

5. After the fuselage has been painted, place a bead of clear silicone rubber around sanded lip of window and carefully tilt cabin window into position. Start with the left side window first, after the silicone has cured, remove window hatch and proceed with right side window and windshield. Place small scraps of 1/8" ply on inside of hatch area to anchor #2x3/8" sheet metal which will hold fiberglass window hatch onto fuselage.

INSTRUMENT PANEL

(Bag 9)

1. The instrument panel consists of a pressure sensitive decal placed over a finish surface (1/16"x7 1/2"x12 1/2" ply, provided), then cut out following outline of decal. (An additional 1/16" should be trimmed from each side of instrument panel to make installation and removal easier.)

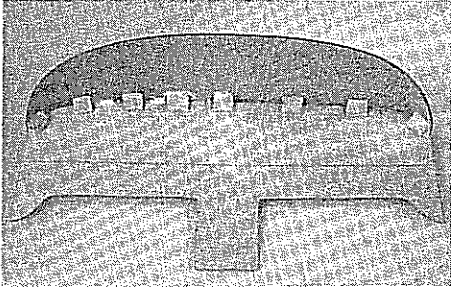
2. A 1/64" ply instrument panel hood extends over the face of the instrument panel by 1/2". (Template and material provided.)

3. Before gluing the hood onto the top edge of the instrument panel, cut several 1/4" lengths of 1/2" balsa triangle and glue them to the backside of instrument panel around perimeter placing 90° corner of triangle flush with top edge of instrument panel.

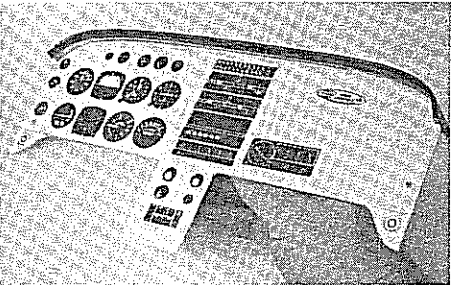
4. Glue hood to instrument panel leaving 1/2" overhang. (See drawings and templates.)

5. Use template to cut vinyl hood cover and install over 1/64" ply hood. Wrap rear excess portion of vinyl cover hood over 1/2" lip extension.

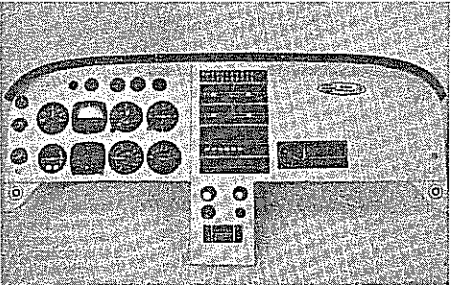
6. Glue $\frac{3}{4}$ "x1" pine block to top backside of F-4, bolt instrument panel to the backside of this block. Instrument panel may be removed by opening hatch, removing (2) #2x3/8" sheet metal screws and removing instrument panel/hood assembly.



Backside of instrument panel with hood glued onto top perimeter edge. Small lengths of $\frac{1}{2}$ " triangle balsa provide extra strength.



Hood over-hangs face of instrument panel by approximately $\frac{1}{2}$ ". Vinyl is wrapped around hood.



Instrument panel ready for installation. Monokote trim sheet was used over plywood prior to placing of instrument panel decal.

WHEEL PANT CONSTRUCTION (Bag 6)

1. Drill a 5/16" diameter hole at the axle location identified on inside left and right wheel pant.

2. Fit and glue the 5/16 - 24 thread aluminum axle mount to inside surface of both wheel pants, centering assembly with 5/16 hole.

3. Insert and thread, axle into wheel pant, sliding outboard 3/16" drilled axle mount into axle. Fit and glue aluminum axle mount to inside of fiberglass surface. Remove axle and glass aluminum axle mounts to inside of wheel pants using 6 oz. cloth and polyester resin.

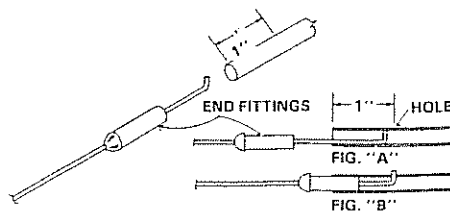
4. After wheel pants have been finished, center tire on-axle in wheel pants using 3/16" wheel collars as spacers. Outboard wheel collars should be locked onto 3/16" axle shaft to prevent wheel from driving off the outboard end of axle and ripping the wheel pant in the process.

5. Secure wheel pant to landing gear leg tightening 5/16 - 24 thread, half nut and star washer to inside of each gear leg. A $\frac{1}{2}$ " diameter vinyl disc is provided to be used as a rub pad between pant and gear leg. Peel off backing and stick on painted gear leg.

SERVO LINKAGE DETAILS (Bag 7)

To assemble a pushrod, drill a hole to fit the wire size in use - one inch from the end of the fiberglass tube. After sliding the appropriate end fitting on - bend the end 90° and cut to $\frac{1}{4}$ " and insert as in Fig. "A". Poke the wire through the hole as in Fig. "B" and after smearing the assembly with epoxy or slow type cyanacrylate, push the fitting into the pushrod tube. Now - cut the other end of the tube to proper length and repeat this procedure.

FIBERGLASS PUSHROD ASSEMBLY



ELEVATOR

1. Cut two 7" lengths from 2-56x12" wire threaded one end. Install these in one end of each fiberglass pushrod as per detail above. This pushrod end extends through the front nylon exit guide (previously installed in the fuselage) and connects to nylon connector of elevator horn with a 2-56 threaded steel clevis. The other 2/56 wire from the second pushrod is soldered to the 2/56 wire of the first pushrod. This independent elevator adjustment is available and if you have elected to make the stabs removable it becomes easy to disconnect the elevator linkage.

RUDDER

2. A push-pull arrangement utilizing nyrod connected to both 4-40 ball links on rudder. A 2-56 threaded steel clevis connects to servo end. Clip (2) 2-56x1 1/2" threaded stud bolts in half and install each in end of yellow nyrod.

THROTTLE

3. Drill a hole through firewall (F-1) to allow blue outer nyrod shell to pass. Install 2/56 ball link to end of servo out put arm and a nylon socket to 2/56 stud bolt threaded into yellow inner nyrod. A 2-56 threaded steel clevis attaches to carburetor arm and 2/56 threaded rod threaded into yellow inner rod.

AILERON

4. Linkage consists of a 2/56x4" wire threaded one end threads into 2-56 threaded steel clevis connected to Delrin control arm. The servo end receives a solder clevis soldered to 2-56 wire cut to length.

FLAP

5. A 2-56 ball link is secured to the servo out put arm. Thread 2-56 threaded steel clevis into 2/56x4" wire threaded one end and connect to Delrin control arm. A brass solder connector is soldered to the other end of 2-56-wire and a nylon socket installed.

FINISHING AND PAINTING FIBERGLASS PARTS

1. All fiberglass parts should be sanded with #220 grit sandpaper. Any large voids should be filled using body putty.

2. Prime all sanded parts with K&B Super Poxy Primer. Allow primer to dry overnight.

3. Fill pin holes with spackling paste, Model Magic Filler, or similar material. (Allow to dry.) Sand with #220 grit paper again.

4. Apply even coat of primer as if it were a finish coat and allow to dry overnight.

5. Sand lightly with #320 grit paper and apply color coat.

6. After color coat is thoroughly cured use templates to mark and lay out design on cowl side and fuselage sides.

7. Install A.B.S. landing gear cuffs to landing gear leg using clear silicone rubber to hold cuff bottom to landing gear.

8. Install windows, cowl and wheel pants.

BALANCE AND FLYING

1. A center of gravity ident mark has been scribed into both sides of fuse slightly below windshield and just aft of instrument panel. Drill holes at these locations, insert two wires and hoist model off the ground. Model should hang slightly nose down at this point. Shift battery pack around to achieve desired balance.

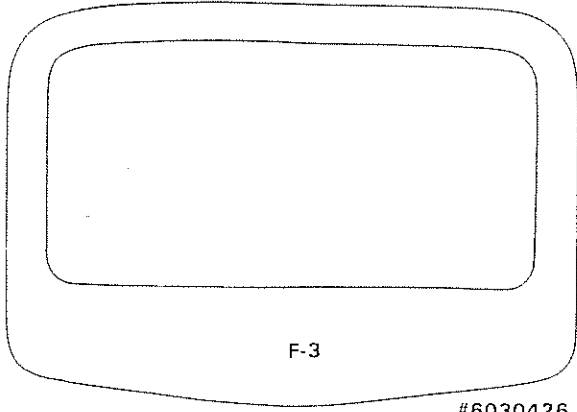
2. Protect and mount radio equipment as per radio manufacturer recommendation.

3. Pre-flight the model carefully, conduct a thorough range check of radio equipment, avoid flight conditions such as gusty winds cross wind. Don't get in a hurry, relax, take your time. Taxi the model around a little to get use to handling. When ready, line up with end of runway - add power and be ready to feed in right rudder to keep aircraft aligned with runway. Allow the tail to raise to flying altitude, shortly after the tail rises, ease back on elevator and take-off. Maintain a shallow climb out and continue to climb to a safe altitude where you can experiment with your new aircraft. Practice slow-flight and stalls. When ready to land set up an approach with a nice easy descent to the runway. When the wheels touch, stay on the rudder to keep model aligned with runway. As the model slows the tail will lower, giving you tail wheel steering. When the model slows down, to a taxi speed - turn around on runway and taxi to the pits.

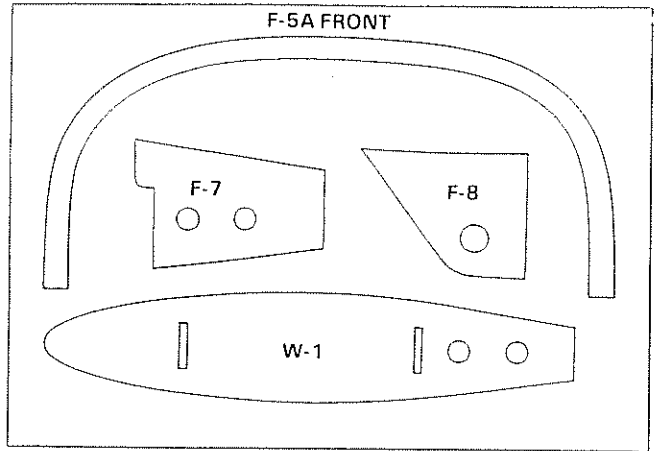
GLASAIR MATERIAL LIST

Item No.	Description	Qty.	Item No.	Description	Qty.
5931152	cowl, fiberglass	1	5931136	Brass 1/16"x1/4"x1 1/2" rudder arm	1
5931150	fuselage, fiberglass	1	2431073	2/56 ball link	1
5931151	tail section, fiberglass	1	1430478	2/56 hex nut	1
5931154	wheel pant, fiberglass	2	5931171	1/8" diameter x 2" music wire	2
5931153	window hatch, fiberglass	1	2431118	nylon connector	2
5931100	rudder/post, foam	1	2431072	1/8" wheel collar w/set screw	2
5931112	horizontal stab/elevator, foam	2	5931018	13/32 OD x 12" brass spar tube	1
5931111	wing, foam	2	0730100	4-40x2 1/2" round head bolt	2
5931155	windshield, .030 clear butyl	1	2431199	nylon push rod exit guide	4
5931156	right cabin window, .030 clear butyl	1	5931172	3/8"x1 1/2"x7" balsa sheet	1
5931157	left cabin window, .030 clear butyl	1	5931173	1/4" OD x 1 1/2" aluminum tube	2
5931158	landing gear cuff, .030 white A.B.S.	2			
5931159	left side tail wheel fairing, .030 white A.B.S.	1	BAG #4 - TAIL WHEEL HARDWARE - 6030414		
5931160	right side tail wheel fairing, .030 white A.B.S.	1	1430556	4-40 blind T-nut	2
5931161	left side tail wheel pant, .030 white A.B.S.	1	0730097	4-40x1 1/2" pan head bolt	2
5931162	right side tail wheel pant, .030 white A.B.S.	1	6030428	3/8"x6-7/8"x18 ga. tail wheel leaf spring with bushing	1
2431130	tires, Dubro 4" diameter	2	5931174	3/8"x4 1/2"x18 ga. tail wheel leaf spring	1
5931163	left landing gear leg, aluminum	1	2431060	steering arm	1
5931164	right landing gear leg, aluminum	1	2431062	3/32" steering arm wheel collar w/set screw	1
2431040	3 1/2" spinner, backplate assembly (white)	1	6030429	aluminum tail wheel yoke assembly	1
3930072	1/4"x1/4"x36" spruce spar	4	5931175	nylon washer .093 thick x 5/8" diameter	1
5931135	1/4" OD x 22-5/8 aluminum aileron torque rod	2	2431073	2/56 ball link	1
5930673	1/4" OD x 6 1/2" aluminum flap torque rod	2	1430478	2/56 hex nut	1
2030027	pushrod, fiberglass	2	2431028	2/56x4" wire thd one end	1
2030020	yellow nyrod, 36"	2	2431016	brass thd solder connector	1
2030021	blue nyrod, 36"	3	2431020	nylon socket	2
5931102	yellow nyrod, 18"	1			
5930324	blue nyrod, 18"	1	BAG #5 - WING HARDWARE - 6030415		
5931101	1/2"x24" tapered balsa trailing edge	4	5930508	large Delrin male plug-in adapter	4
6030219	1/32"x12"x40" plywood sheet	1	0730064	2/56x3/8" pan head bolt	4
5931165	1/16"x7 1/2"x12 1/2" plywood sheet	1	0730091	4-40x1" pan head bolt	2
4930143	12"x48" foam pad	1	0730036	4-40x1 1/4" pan head bolt	6
5930054	1/2"x8"x12" latex foam	1	1410009	4-40 hex nut	4
	Owner's Manual	1	2431018	4-40 ball link	8
	Set drawing/templates	1	2431020	nylon socket	8
4830047	decalsheet	1	2431067	2/56x1 1/2" thd stud bolt	4
6030421	1/32" die-cut plywood sheet	2	2431010	Robart standard hinge point	2
6030422	1/16" die-cut plywood sheet (W-1, F-5A)	2	2431171	Robart super hinge	14
6030423	3/32" die-cut plywood sheet (F-4 & F-5)	2	5931095	7/32 ODx2" brass tube (hinge extension)	14
6030424	1/8" die-cut plywood sheet (F-1)	1	5930435	5/32 ODx1 1/2" aluminum tube (hinge extension)	2
6030425	1/8" die-cut plywood sheet (F-2)	1			
6030426	1/8" die-cut plywood sheet (F-3)	1	BAG #6 - WHEEL PANT HARDWARE - 6030416		
6030427	1/16" die-cut plywood sheet (F-6)	1	5930025	5/16 thd axle-mount	2
			5930026	3/16 drilled axle-mount	2
BAG #1 - FUSELAGE HARDWARE - 6030411			6030003	axle 5/16-24 thd	2
0730059	8-32x3/4" socket head bolt	18	1330204	star washer	2
1430500	8-32 blind T-nut	10	1430520	5/16-24 half nut	2
1330060	#8 flat washer	18	2431046	vinyl disc	2
5930878	large aluminum extrusion	4	2431145	3/16 wheel collar	6
0730115	10-32x1/4" socket head bolt	4			
0730073	4-40x1/2" flat head bolt	8	BAG #7 - SERVO LINKAGE HARDWARE - 6030417		
1330211	#4 flat washer	8	2431030	2/56 thd steel clevis	10
1410009	4-40 hex nut	8	2431026	2/56 solder clevis	2
5931166	3/8"x3/8"x5-3/8" maple landing gear rail	4	2431073	2/56 ball link	2
5930509	large Delrin bearing mount plate	6	1430478	2/56 hex nut	2
5930510	large Delrin control arm	7	2431067	2/56x1 1/2" thd stud bolt	3
0730065	#2x3/8" sheet metal screw	16	2431024	2/56x12" wire thd one end	2
5931167	7/32 sq. x 5 1/2" brass tube (aileron extensions)	2	2431028	2/56x4" wire thd one end	5
5931168	7/32 sq. x 10 1/4" brass tube (flap tube)	1	2431020	nylon socket	4
0730076	8-32x1/2" nylon bolts	4	2431016	brass connector	1
5930391	1/4"x3/4"x3/4" maple blocks	4	3530033	large bullets (push rod end)	4
5931170	5/8"x3/4"x1" pine block	2			
BAG #2 - FUEL TANK ITEMS - 6030412			BAG #8 - ACCESSORY BAG - 6030418		
2431202	16 oz. fuel tank w/accessory package	1	2431044	9/64 ball driver	1
5930955	Buna fuel line, 24"	1	2431045	5/32 ball driver	1
2431146	No. 64 rubber band	6	2431052	awl	1
0730038	#14 screw eye hook	4	2431083	loctite (blue)	1
5931169	1/8"x3/4"x8" alum. fuel tank brkt	1	5931099	19"x36" 6 oz. fiberglass cloth	1
BAG #3 - TAIL SECTION HARDWARE - 6030413			BAG #9 - EXTRAS BAG - 6030419		
2431171	Robart super hinge	10	5931178	1/16"x4"x13" vinyl	1
2431010	Robart std. hinge point	2	5931179	1/64"x4"x18" plywood	1
5931095	7/32 OD x 2" brass tube (hinge extension)	4	5931180	18" length, 1/2" balsa triangle	1
2431018	4-40 ball link	2	5931181	3/8" dowel 8" long	1
0730037	4-40x1 1/2" pan head bolt	1			

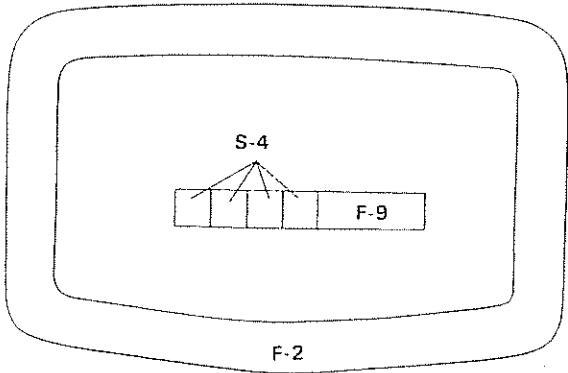
Place die-cut sheets on flat surface with side that is not completely cut through face down. Mark part numbers on parts as shown below.



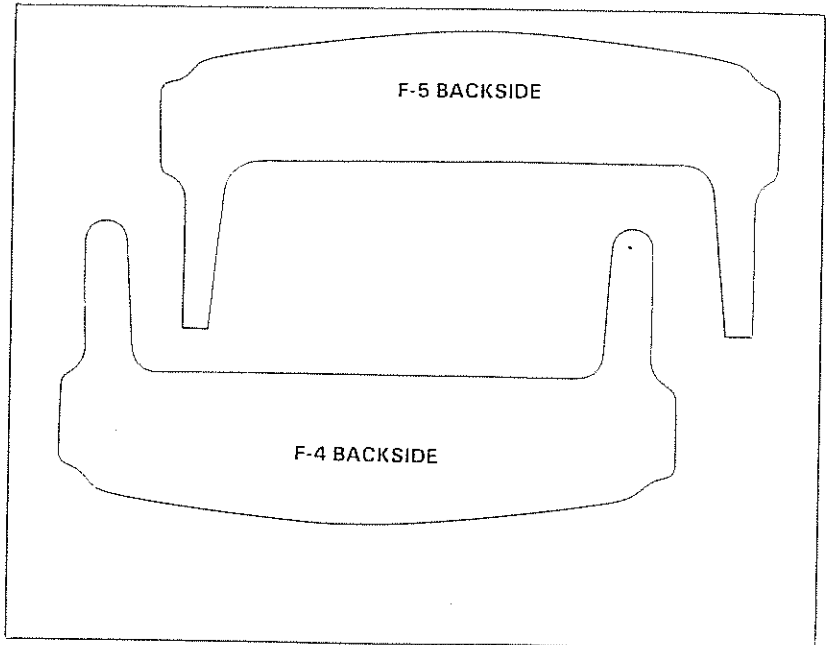
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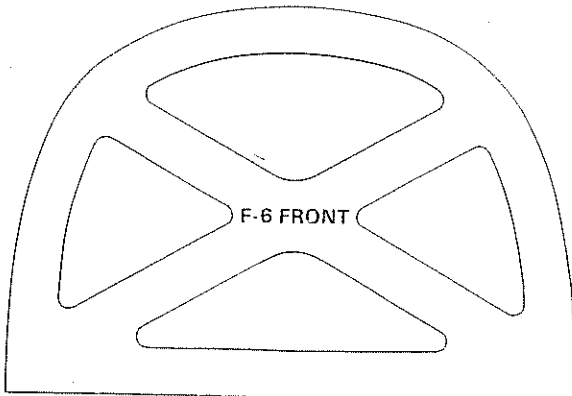
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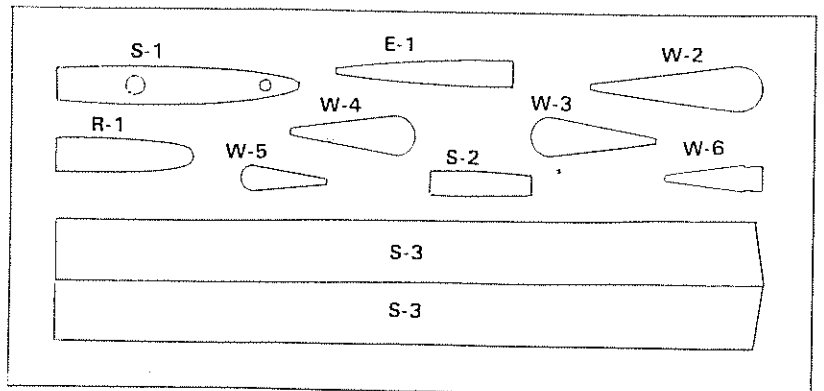
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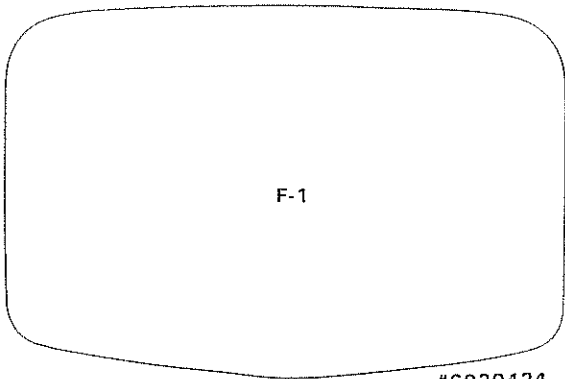
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1/32 PLYWOOD DIE GLASAIR #6030421



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