



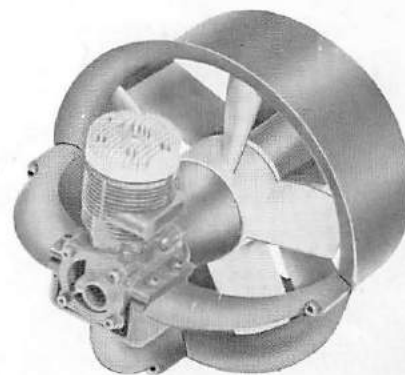
F-86 SABRE OWNER'S MANUAL

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



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BYRON ORIGINALS
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PATENT PENDING



Byron Originals - P.O. Box 279 - Ida Grove, Iowa, 51445 - Ph (712) 364-3165

Finishing Fiberglass Fuse

The finish applied to any model comprises a substantial portion of the **TOTAL BUILDING TIME**. A fiberglass fuselage does shorten the total building time by providing the final shape, strength and detail. But it **DOES NOT** eliminate "finishing work". The fuse must be sanded, filled, and primed prior to the actual painting. Many of the most experienced model builders in the country have stated time and time again in magazine articles that a beautiful paint job is the result of the effort put forth in the preparation of the surface—Not the final coat of paint. The paint will highlight your work, not hide it.

The technique described below is the system we use on all of our models.

1. Sand fiberglass fuse with #220 sandpaper.
2. Fill voids with polyester body putty and sand to match surrounding area.
3. Brush on coat of K & B Super Poxxy Primer and Brushing Catalyst. Allow to dry 24 hours.
4. Pin holes are now filled with glazing putty or spackling.
5. Sand entire fuse with #220 sandpaper removing nearly all of the primer, clean detail lines.
6. Spray again using K & B Super Poxxy Primer and Primer Catalyst applying it as though it were a finish coat. Allow to dry 24 hours.
7. Sand lightly with #320 sandpaper and remove dust with tach rag.
8. Apply base coat of K & B Super Poxxy Paint Color of your choice. Trim model as desired.

Finish Epoxy/Glass Covered Part

1. We recommend covering foam wing and stabs with our epoxy/glass kit. Sand entire surface with #220 sandpaper being very careful not to sand thru cloth.
2. Fill any dents with Body Putty and sand to match surrounding surface.
3. Brush on two coats of K & B Primer and Brushing hardener. Allow to dry 24 hours.
4. Sand with #220 sandpaper.
5. Spray even coat of K & B Primer & Primer Catalyst allow to dry 24 hours.
6. Sand with #320 sandpaper and dust with tach rag.
7. Spray finish. K & B Super Poxxy color of your choice.

A.B.S. Parts

1. Sand with #320 sandpaper.
2. Prime lightly with K & B Primer/Primer Catalyst.
3. Sand lightly with #320 sandpaper.
4. Spray finish K & B Super Poxxy color of your choice.

F-86 Sabre

ASSEMBLY INSTRUCTIONS

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 and 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. As in any manufacturing process, some parts are not perfect. While we are molding our Byro-Foam parts, we strive 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.

ADDITIONAL ITEMS LIST

Retract Landing Gear System (Rhom Air Retracts)	Econokote covering	Glue brushes
Byro-Jet Fan Unit	Paint & primer	Masking tape
.60 Series Engine (Refer to Byro-Jet Test Data Below)	Heat sealing tool	Sanding block
Starter extension	Heat gun	Soldering tool
Byron Original's Custom Byro-Jet Pipe System	X-acto Knife	Yellow Glue (Tite Bond or Sig Bond)
Radio equipment	Zona Saw	"Crazy-Tape"
	Scissors	#320, #150, and #100 Sandpaper
	"5 minute epoxy"	Tack Rag
	"30 minute epoxy"	G.E. silicone bathtub caulk & seal

To insure good model performance, we recommend using engines that produce a minimum of 7 ½ lbs. static thrust when properly tuned and installed in the Byro-Jet fan unit. Below you will find a list of engines we have tested and judged suitable for use in our Byro-Jet powered F-86. Various data including R.P.M.s and static thrust, have been included in order to help you compare the performance of each engine. Various factors such as temperature, humidity and air density will affect performance. It is also important to remember that these variables will affect the muffler and header pipe lengths when one begins tuning the exhaust system. The header pipe measurements outlined below serve only as a reference point for our particular setting (altitude, temperature, etc.) Refer to the last paragraph on page 12 for proper procedures for tuning the exhaust system and measuring R.P.M.s

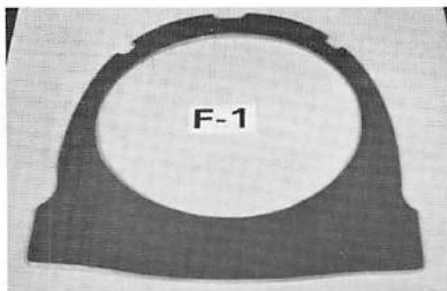
Engines	Request Engine Mount No.	% Nitro Fuel	RPM	Static Thrust (lbs.)	"A" Muffler Lgth	"B" Header Pipe Lgth
No. 1 - Custom Tuned Muffler Ass'y - Rear Exhaust Plus No. 2 Custom Header Pipe Ass'y.						
Webra .61 Speed #1030 Rear Exhaust - Front Valve. See Diagram 3	1	15%	16,625	7 5/8 lbs.	10"	4"
YS FR .60 Front Valve, Rear Exhaust. See Diagram 3	2	15%	17,300	8 ¼ lbs.	10"	3 ¼"
No. 1 - Custom Tuned Muffler Ass'y - Rear Exhaust Plus No. 5 Custom Header Pipe Ass'y.						
O.S. Max .61 VF Rear Exhaust - Front Valve. See Diagram 3	1	15%	16,625	7 5/8 lbs.	10"	3"
O.S. Max .61 VF Rear Exhaust - Front Valve. See Diagram 3	1	5%	16,000	7 lbs.	10"	3"
No. 1 - Custom Tuned Muffler Ass'y - Rear Exhaust - Header Pipe Included with Rossi & O.P.S. Engines						
Rossi .65 ABC Rear Exhaust - Rear Valve. See Diagram 2 . . .	1	15%	19,000	10 lbs.	10"	3"
Rossi .61 ABC Rear Exhaust - Rear Valve. See Diagram 2 . . .	1	15%	18,500	9 ½ lbs.	10"	3 ½"
Rossi .81 RC, RV, Rear Exhaust - Rear Valve. See Diagram 2	4	5%	19,000	10 lbs.	10"	3 ¾"
O.P.S. Speed .60 Rear Valve, Rear Exhaust. See Diagram 2 .	5	15%	17,600	8 ¾ lbs.	10"	3 ¼"
O.P.S. .65 #826, Rear Valve, Rear Exhaust. See Diagram 3 .	5	5%	17,200	9 lbs.	10"	3 5/8"

IMPORTANT!

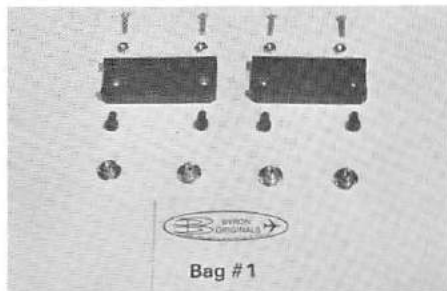
1. If this is your first radio controlled plane **DO NOT ATTEMPT TO FLY IT YOURSELF ON THE FIRST FLIGHT**. Flight instruction and assistance by a local experienced flier is strongly recommended.
2. A license is required to operate R/C model planes. A license can be obtained by sending a simple required form to the FCC (Federal Communications Commission). No examination required. Application details are included with your radio system (sold separately).
3. Learn and obey all regulations. Observe all local flying courtesies.
4. **This is not a toy. Adult supervision required.**

F-86 Sabre Material List

Item No.	Description	Qty.	Item No.	Description	Qty.
FOAM PARTS			BAG #6 ACCESSORY PARTS (#6030196)		
5930665	Wing panels	2	2431044	Ball driver 9/64"	1
5930666	Rudder and rudder post	1	2431052	awl	1
5930667	Stabilizer and elevator	2	5930681	Glass cloth	1
			2431083	Loctite	1
FIBERGLASS PARTS			BAG #7 FUEL SYSTEM (#6030197)		
5930661	Nose section (D-Model)		2431134	16 oz. bottle	1
5930662	Nose section (H-Model)		2431137	Threaded brass fittings	2
5930663	Tail section (Same Both Models)		2431138	Brass nuts	4
ABS (BUTYL VACUUM FORMED PARTS)			0730097	4/40x 1/2" pan head bolts	3
5930700	Canopy .030 Butyl		1430020	4/40 lock nuts	3
5930701	Cockpit .015 Black ABS		5930684	Fuel line	2
5930702	Instrument panel hood .015 Black ABS		5930685	1 1/4"x4" mounting tape	1
	Seat headrest .015 Black ABS		2431139	3-5/8"x1/8" cable tie	5
	Avionics Case .015 Black ABS				
BAG #1 ENGINE FORMER HARDWARE (#6030191)			OPTION BAG (Retract Sequencing Door Option)		
1430500	8/32" tee nuts	4	2431100	Sequencing air valve	1
0730075	8/32x 1/4" socket head bolts	4	2431133	Air cylinder	1
0730073	4/40x 1/2" flat head bolts	4	2431065	Goldberg bell cranks	2
1410009	4/40 hex nuts	4	2431065	Goldberg bell crank bushings	2
5930277	1"x2 1/2" aluminum extrusion channel	2	0730041	2/56x 3/4" pan head bolts	3
BAG #2 STABILIZER AND RUDDER HARDWARE (#6030192)			0730072	2/56"x 1/2" pan head bolts	4
5930673	1/4"x6 1/2" aluminum front spar	1	1330052	#2 flat washer	2
5930672	1/4"x11" aluminum rear spar	1	1430478	2/56 hex nuts	12
5930674	3/16x5" brass tube (elevator and rudder control)	3	2431066	4" threaded rod (both ends)	1
0730107	4/40x 1/4" pan head bolt	3	2431028	4" threaded rod (one end)	1
2431018	Dubro bolt on ball link	3	2431067	1 1/2" threaded rod	6
BAG #3 CONTROL LINKAGE AND HARDWARE (#6030193)			2431030	Dubro Kwik Link clevis	3
2431010	Robart hinges	12	2431073	Dubro threaded ball link	3
2431020	Dubro nylon socket	9	2431020	Dubro nylon sockets	3
2431073	Dubro threaded ball link	2	5930677	1/4"x3 1/4"x.032 brass strip	2
2431030	Dubro Kwik Link clevis	8	5930676	1/8 O.D.x1" brass tube	2
2431032	Dubro Kwik Link nylon clevis	4	2431106	Rocket City 3/32x6 3/4" wire horns	2
1430478	2/56" hex nuts	2	2431135	Rocket City nylon clevis	2
0730065	#2x3/8" pan head screw (canopy, nose gear and thrust tube)	10	2431136	Rocket City nylon swivel	2
0730104	#4x 1/2" pan head screw (landing gear mount)	12	2431132	Air tank and cap	1
2431066	4" threaded rod (both ends)	6	5930208	Air pressure fitting	1
2431028	4" threaded rod (one ends)	1	2431093	Air pressure tees	5
2431067	1 1/2" threaded rod	8	1410009	4/40 hex nuts	2
5930686	3x6" .020 aluminum sheet (fuel tank mount)	1	0730091	4/40 x 1" pan head bolt	2
2431070	5/32" wheel collar and set screws	3	2431095	Fill valve and pal nut	1
BAG #4 WINGS & AILERON HARDWARE (#6030194)			2431096	Pressure gauge and pal nut	1
5930675	3/16x15" brass tube (aileron torque tube)	2	5930682	1/16" air pressure hose	12
5930512	Delrin aileron bearing mount	2	5930683	1/8" air pressure hose	1
5930513	Delrin aileron control arm	2	OPTION BAG (Quick Connectors for Pneumatic Retracts)		
5930511	Delrin aileron plug-in adapter	2	Order as required.		
5930307	Delrin wing bushing (male)	4	For 2 Line System		1 pr.
5930307	Delrin wing bushing (female)	4	For 4 Line System (ie. Rhom)		2 pr.
0730065	#2 x 3/8" pan head screw	1	BULK ITEMS		
5930691	3/4"x1 1/2" angle block (aileron bearing mount)	2	2030021	Blue Nyrod 36"	6
BAG #5 WOOD PARTS (#6030195)			2030020	Yellow Nyrod 36"	5
5930687	3/8x3/8x12" hardwood (servo tray & gear)	3	5930054	8"x12"x 1/2" foam rubber	1
5930688	1/4x 3/4x26" balsa trailing edge stock (wing)	2	2431090	Robart 3" tires main gear	2
5930689	1/4x 3/4x14" balsa trailing edge stock (elevator)	2	2431075	Robart 2 1/4" nose gear	1
5930690	3/8x 3/4x11" balsa trailing edge stock (rudder)	1	6030201	Lexon thrust tube	1
			DIE CUT SHEETS		
			1/32" ply 6"x35" (Template drawing for aileron hinge covers, retract valve mount, main landing gear struts)		1
			1/8" ply sheet (engine former)		1
			3/32" ply sheet (servo and receiver tray)		1
			1/16" ply sheet (nose gear mount, wing rootplate, servo tray nyrod former and wing plug-in adaptor washers)		2
			1/32" ply sheet (wing spar. covers, control surface end caps and stabilizer hinge covers)		2
			1/32" ply sheet (gear door reinforcement former and main gear covers and air cylinder mount)		1



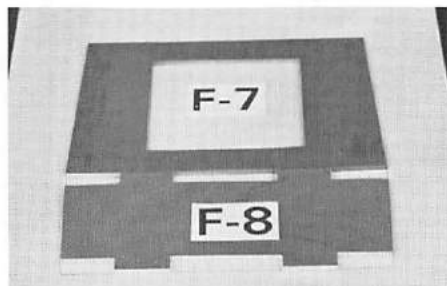
1/8" ply sheet (engine former)



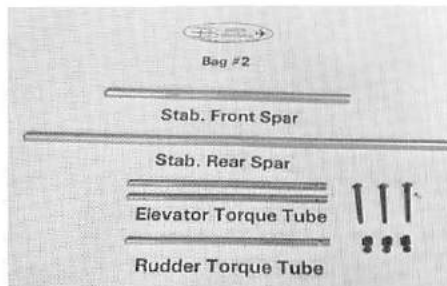
Engine former hardware



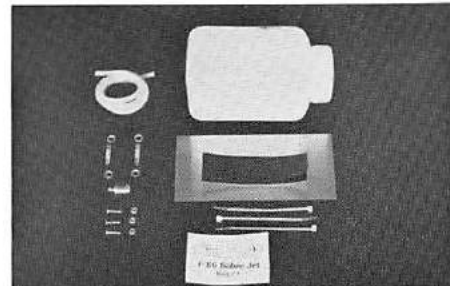
Accessory parts



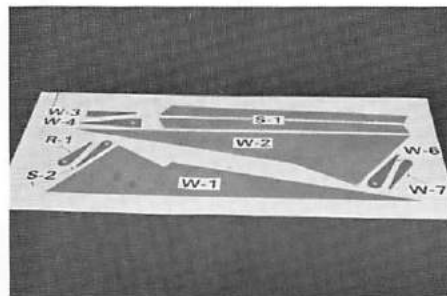
3/32" ply sheet (servo and receiver tray)



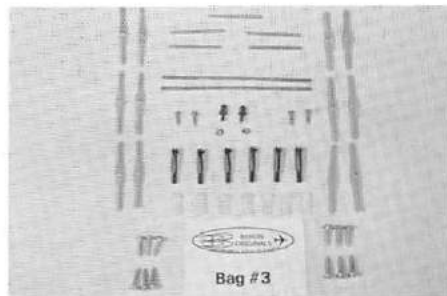
Stabilizer and rudder hardware



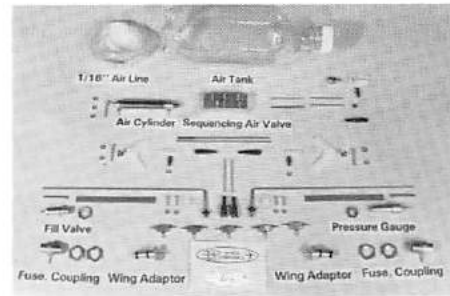
Fuel system



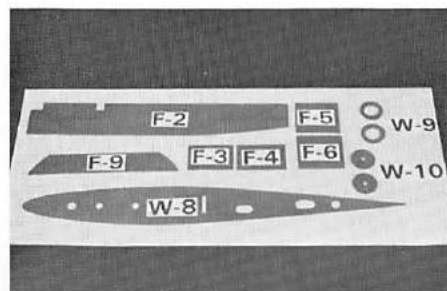
2 regular 1/32" ply sheet (wing spar, covers, control surface end caps and stabilizer hinge covers)



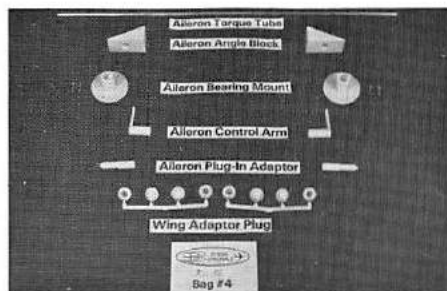
Control linkage and hardware



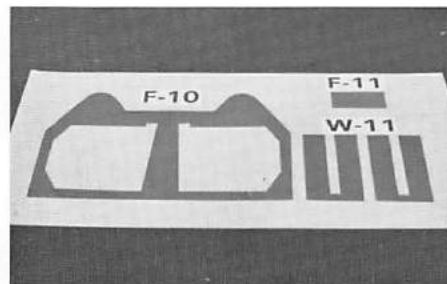
Option Bag
Retract sequencing door option



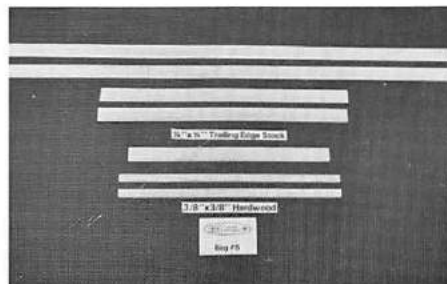
2 regular 1/16" ply sheet (nose gear mount, wing root plate, servo tray nyrod former and wing plug-in adaptor washers)



Wings and aileron hardware



1/32" ply sheet (gear door reinforcement former, main gear covers and air cylinders mount)



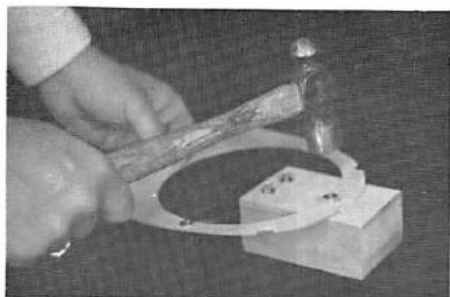
Wood part

F-86 FUSELAGE CONSTRUCTION

Remove engine former F-1 from the 1/8 plywood die cut sheet. Drill four engine mounting holes with a 7/32 drill in the marking punch holes. Drill the four aluminum extrusion holes across the bottom of the former with a 3/32 drill which are also located with a marking punch. Install the four 8/32 Tee nuts (located in bag #1) on the back side the engine former in the 7/32 drilled holes.

These Tee nuts may be installed by placing the ply former on a hardwood block and carefully driving the Tee nuts in with a hammer in order to seat the barbs into the plywood. A thin coat of epoxy glue may be put on the back of the Tee nuts to keep them in place.

Being careful not to apply glue in the threads of the nuts.

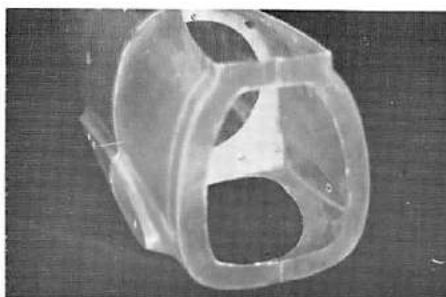


Install the two aluminum extrusion channels (**Note:** 8/32 bolt holes in channel rail point down to fuselage bottom) in the four bottom holes of the former on the back side with the four 4/40 x 1/2 flat headed bolts and install the nuts on front side of former.



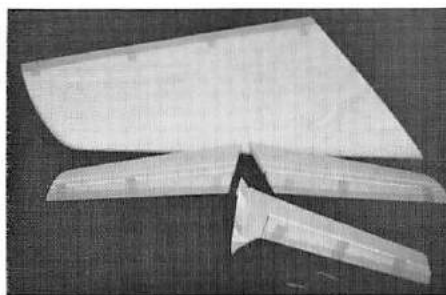
Locate the three engine former molded indentations on each fuselage side. (Refer to fuselage drawing for approximate location). Install the engine former at these identification locations, be sure that the base of the Tee nuts and aluminum extrusions face to the rear of fuselage. At each former identification location on the fuselage drive a Tee pin through the identification and into the edge of the engine former. These six pins will hold the engine former in place at the proper location and angle.

Spot glue the engine former in place at each identification location with hot melt glue or a 5-minute epoxy. After glue has cured, remove Tee pins. Engine former can either be permanently bonded in place with a bead fillet of silicone rubber on both sides of former (such as G.E. tub seal or Dow Corning tub seal, available at most hardware stores.) Engine former can also be fiberglassed with 1" wide glass cloth. Be careful not to get glue or silicone rubber into the aluminum extrusion channel on back side of the engine former. **ALLOW** overnight cure of this assembly.



FOAM PARTS

Sand all trailing edges of wing panels, stab panels and rudder with a sanding block with 220 grit paper. Do not remove any of the control surfaces from the panels at this time. Glue the 1/4 x 3/4 balsa trailing edge stock (located in Bag #5) on the wing panels, stab and rudder with white glue (Titebond, Sig bond, etc.) using masking tape to hold the trailing edge stock in place and set parts aside to cure. You may use any building procedure you like. We are just suggesting the building sequence we normally use.

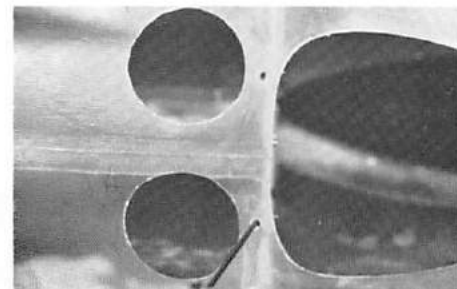


Locate the molded wing spar identification on the fuselage wing fillet and remove the fiberglass material with a knife or dremel tool to allow the wing spar to slide into each fuselage half and into the aluminum spar extrusion on the engine former. Note the position of the 8/32 threaded bolt holes at the bottom of each spar extrusion. Drill a 1/4 hole through the bottom of the fuselage at each hole location and install the four 8/32 x 1/4 socket head bolts, add a drop of loctite thread sealant to each bolt and install the bolts with the 9/64 ball driver supplied in kit. Bolts should only be started into the extrusion to allow the wing and spar to slide into the extrusion. Wing panels can be slid on the extrusions at this time and secure the 8/32 socket head bolts on the wing spar. Determine the wing and fuselage wing fillet match. The engine mount extrusion holes can be reamed up or down to allow wing spar extrusion movement for correct wing position on fuselage

wing fillet. When satisfied with wing position, coat a thin layer of epoxy on the 4/40 nuts to prevent them from vibrating loose. You may also sand and epoxy the back side of the extrusion to the engine former for a permanent bond. Remove wing panels at this time and lay aside for building sequence later.



Cutting spar outline on fuselage.



1/4" holes being drilled for access to 8-32 socket head bolts.

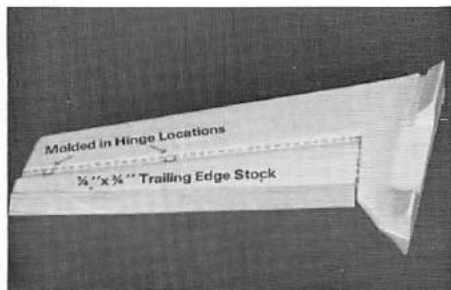
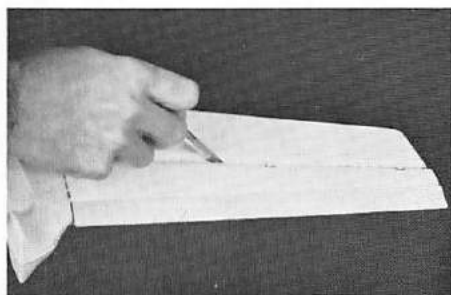
STAB & RUDDER & ASSY. (Bag #2)

Locate the two 1/4" molded stab spar recess on each fuselage half and install the front 1/4 x 6 1/2" aluminum stab spar and rear 1/4 x 11" stab spar. Best method of material removal is by starting a small hole with a knife or drill and enlarging it with a round file to the diameter of the recess outline for a tight fit of the 1/4 aluminum stab spars. Remove oblong hole recess area behind the stab spar hole which is for the 3/16 elevator control tube and horn. Same method of material removal is advised for all fiberglass areas such as the wing plug in adapter holes, aileron linkage, and pneumatic retract gear plug in adapter fitting holes in wing fillet of fuselage.



RUDDER & POST ASSEMBLY

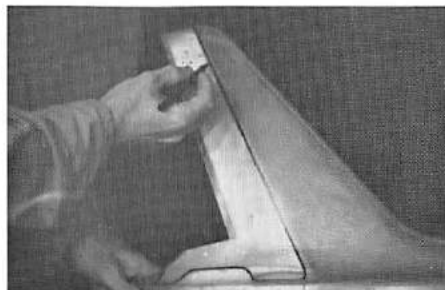
Rudder can now be removed from the foam rudder post assembly with a knife at the trailing edge of the rudder post and bottom of rudder. Remove the rudder cap R1 from the 1/32 die cut ply sheet and glue to bottom of rudder with white glue. Using the leading edge radius of the cap as a guide, sand a radius on the leading edge of the foam rudder. Cut out the recessed areas to the center of the radius to allow clearance for the two Robart hinge points. Remove masking tape from trailing edge stock and sand balsa and foam rudder to match. Trial fit rudder post in fuselage. The top of rudder post may have to be sanded narrower to allow for the extra thickness of the fiberglass jointing tape on fuselage vertical stab.



Before installing rudder post in fuselage trial fit rudder on foam post. Slide the 3/16x5" brass tube through the molded hole in the base of the rudder post and into the 1/32 ply cap (R1) and molded hole in rudder. Leave 1/32" clearance between rudder cap (R1) and rudder post base. Mark the hinge location on the rudder post across from the molded recessed hinge locations on the rudder.

Use your 1/8 awl provided in the kit to plunge the holes in the rudder and post assembly for the Robart hinges. (Do not glue in hinges at this time.) With the rudder installed on the tail post assembly, place the assembly through the engine mount hole and locate in place in rear of the fuselage. There should be ap-

proximately 1/8" from the back edge of the rudder post to the fuselage edge at the top of the rudder and 3/8" at the bottom. When satisfied with the fit of the post and rudder pin the post assembly in place, using Tee pins through the side of the fuselage and into the foam post.



Mark the tail post outline on the outside of the fuselage on both sides with a pen or trim tape can also be used. Remove the Tee pins and rudder assembly from the fuselage. Rudder can also be removed. Using the outline you have drawn or taped, sand this area inside the fuselage with #80 grit sand paper and also the foam contact area on the rudder post. Brush on a coat of 30-minute epoxy with a brush to the outline you have drawn or taped on the fuselage. Install the rudder post only in fuselage using your outline on the fuselage as a guide and place the Tee pins back in their same location before, when outline was made. We suggest to insure complete epoxy contact to foam post by placing 2 straight pieces of 3/8x3/8x12 hardwood (provided in kit for servo tray and gear mount rails, Bag #5) on both sides of the fuselage next to the trailing edge of rudder hinge gap. Use modeler's clamps to hold them in place. (Photo shown with KRAFT clamps.)

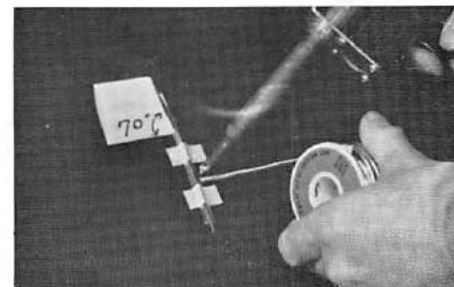
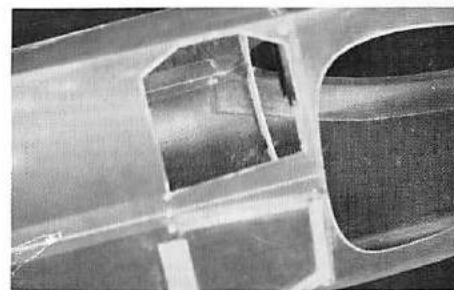


RETRACT MAIN GEAR AND SEQUENCING DOOR OPERATION.

IMPORTANT: Read door option section, page 8 before proceeding.

Carefully cut out gear door outline on fuselage with a zona saw. Sand both gear door edges and door

opening for an even door outline. Epoxy 1/32 die cut F-10 plywood gear door reinforcement former on fuselage bottom and against the rear engine former, refer to photo and drawing. Position former in wheel opening to maintain a 1/8" lip on three sides of the door opening and flush with the fuselage cutout on the door hinge side in the middle of fuselage. Locate the two ident locations (molded in fuselage bottom) for the two bell cranks and the two center punch marks on the 1/32" ply former and line up these locations before gluing in place. Cut to length the two 3/32"x6 3/4" wire horns as per drawing. Solder the wire horn to the 1/4"x3/4" brass strip. (Note the 70° angle of each horn on the brass strip and be sure to make a LEFT AND RIGHT pair.) Refer to template drawing and fold drawing 90° on dotted line to locate correct angle of threaded portion of horn and placement on brass strip.



Position retract door horn assembly on fuselage with a 1/8" gap between wire hinge and fuselage door cut out. Mark front horn wire location on engine former and drill a 5/32" hole, to accept the 1/8" O.D. x 1" brass bushing and epoxy in place. Drill two 3/32" holes for the rear nylon hinge support for each door hinge. Use the four 2/56"x1/2" pan head bolts and hex nuts to secure in place.

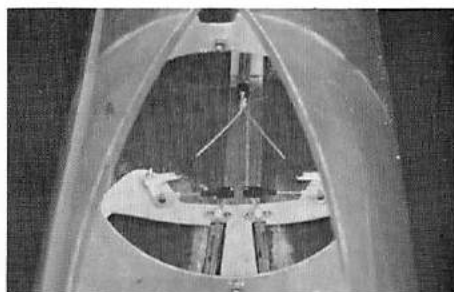
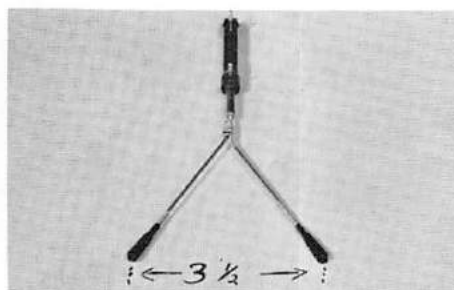
Sand the door hinge brass strip and the glue contact area on the fiberglass door. Epoxy the 1/4"x3/4" brass strip. Install and center each gear door in the fuselage door outline. Tape door in position until

epoxy has cured. Referring to gear door drawing, make two door linkage push rods by installing a nylon clevis on two 1 1/2" threaded rods and a nylon ball socket on the other end. Install the Dubro threaded ball links in the outboard hole of each bell crank, making up a LEFT AND RIGHT assembly. Install each bell crank in the fuselage molded indent locations, which are drilled with a 3/32" drill through the fuselage and 1/32" ply former.

Secure with a 2/56"x3/4" bolt, bell crank bushing, washer and 2/56 nut.

Position of threaded ball link on bell crank is to front of fuselage and clevis portion of bell crank arm is to rear and center of fuselage.

At this time make up the air cylinder control fork.



Use one 4" threaded rod (both ends) and one 4" rod threaded on one end. Bend and solder rods together as shown in drawing. Locate rear air cylinder molded identification on fuselage bottom, drill a 3/32" hole in fuselage identification and also in the two 1/32"x1"x2" die cut ply F-11 which are glued together and epoxy into fuselage bottom. Screw 2/56" threaded fork assembly on the air cylinder and secure air cylinder and another 2/56" hex nut which is spot glued in place. Install two Dubro Kwik Link clevis to the ends of the fork and install into the outer holes of the bell cranks. Install the two 1 1/2" threaded rods with the ball socket on the bell crank and the nylon clevis to the swivel on the

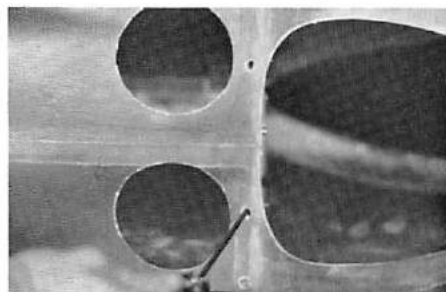
threaded rod of the door hinge. Adjust door linkage so that when the air cylinder piston is retracted, the wheel doors are closed.

Work the air cylinder piston with the control fork manually to check the proper door operation.

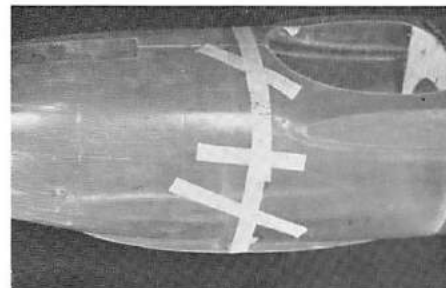
RETRACT DOOR OPTION

If you do not desire to use the sequencing door operation, you may cut out only the tire reference outline in each door on the fuselage and use the vacuumed formed A.B.S. wheel well pocket. (Refer to drawing for proper main gear length.)

Trim wheel well pocket and place the straight lip edge of the pocket against the rear of the engine former and glue in place to fuselage bottom with 5-minute epoxy.

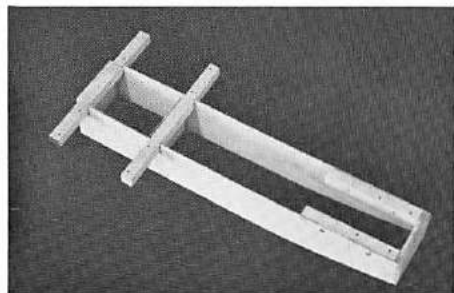


The nose section of the fuselage can be installed at this time. Sand the lip area of the rear fuselage section and the inside of the front section with #80 grit sandpaper. Use either 5-minute or 30-minute epoxy, match panel lines, and tape in place with masking tape until epoxy has cured.



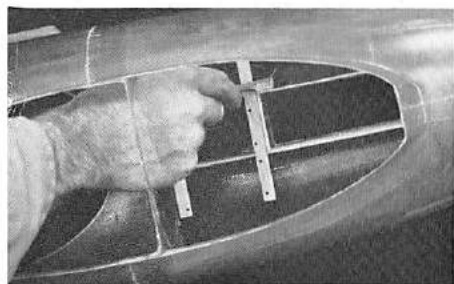
Remove the nose gear die cut parts from both 1/6 ply sheets (2) F-2, (2) F-3, (2) F-4, (2) F-5, (2) F-6. Determine which model of the F-86 you are building, the 2 1/16 die cut formers F-2 are made for the F-86 H model. To modify F-2 for the F-86-D model, draw a straight line along the bottom edge of F-2, (refer to drawings) from former F-3 to former F-6. Remove this material which will allow the nose gear assembly to lay flat on the bottom of the fuselage of

the D-model version. Glue and laminate both F-3, F-4, F-5 and F-6 together to make a 1/8 former of each. (Do not glue the F-2 formers together.) Epoxy F-3 to F-4 which will leave a 1/16" edge on both sides of F-3. Build the nose gear up side down on a flat surface. Epoxy F-2 1/16" ply die cut nose gear former (F-2) on both sides of former F-3 which will leave former F-4 flush with the outside of F-2. Epoxy formers F-5 and F-6 in their positions as per photo and drawing which will make up a rectangular box.



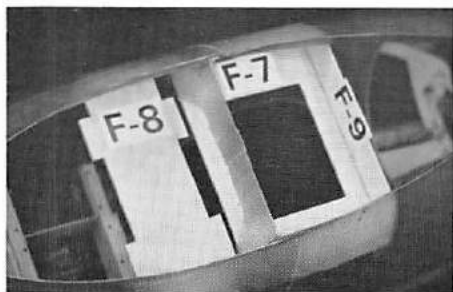
Nose gear assembly

Remove assembly from building surface and turn right side up. Epoxy the 3/8"x3/8"x3" (Cut to length from 3/8"x3/8"x12" stock supplied in kit.) Nose gear mount rails to the top edge of F-2 and to the back of former F-3. Glue the 3/8"x3/8"x5" hardwood servo rails in the notches of former F-2 and against formers F-5 and F-6 (cut from 3/8"x3/8"x12" stock supplied). Mount nose gear box assembly in fuselage and center over nose gear door outline on fuselage. Former F-6 of the gear box assembly should butt against the rear 3/4" fiberglass lip of the fuselage. Spot glue the nose box assembly in place with 5-minute epoxy. Cut out the fiberglass material on fuselage bottom on molded gear door outline between formers F-2 and the F-3 front former and F-5 rear former. Cut 1" wide strips of glass cloth and fiberglass assembly to the fuselage bottom with 30-minute epoxy.



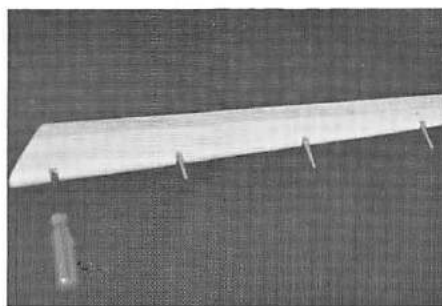
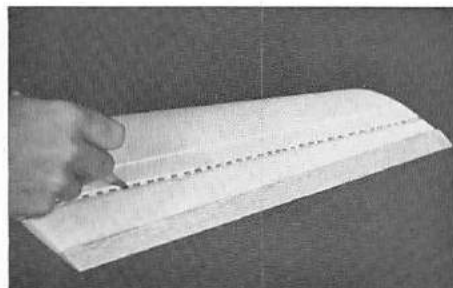
Nose gear assembly being glassed to fuselage.

Remove the receiver and servo tray F-7 and F-8 from the 3/32" die cut sheet and spot glue into position as shown on fuselage drawing. Cut 1" wide strips of fiberglass cloth and epoxy trays in place. Remove servo tray former F-9 from both 1/16" die cut ply sheets and laminate both parts together and epoxy to rear edge of servo tray F-7 and also to fuselage sides. This former supports the Nyrod linkage for the elevators, rudders and ailerons at the servos.

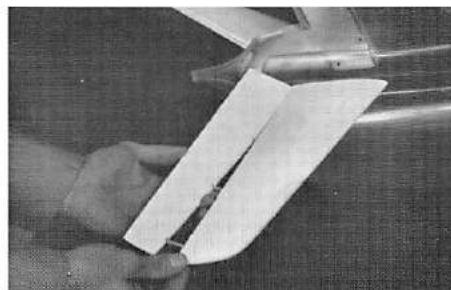


STABILIZER ASSEMBLY

Cut both elevators from the foam stabilizer assembly as shown in photo. Remove S-2 from the 1/32" ply sheet and glue on end of each elevator using S-2 end cap as a guide, sand a radius on the leading edge of the elevator. Cut out the 3 hinge locations on each part and plunge a hole in the center at each hinge location with the 1/8" awl for the Robart hinges. Place elevator next to stabilizer trailing edge and mark hinge location. Use the awl to plunge the holes in stabilizer for the hinges. Remove the four elevator hinge covers S-1 from the two 1/32" die cut sheets and sand the molded recess areas on the foam stabs and position in place with masking tape S-1 along the leading edge. Place elevator and hinges into the stabilizer assembly and check for elevator clearance between the hinge covers. Elevator travel should be 3/4" on each side of center. Hinge covers can be sanded narrower for more travel.



Slide the 1/4"x11" aluminum rear spar and 1/4"x6 1/2" front spar in fuselage. Trial fit the stabilizer assembly on fuselage and sand stabilizer root for proper fit to fuselage. You can cover each stabilizer, elevator and rudder at this time; before gluing on fuselage, do not glue hinges on yet. We recommend using low temperature covering materials, (Top Flite Econokote, pactra solar film, etc.) Sand the stabilizer contact area on the fuselage and aluminum spar tubes. Put 5-minute epoxy in the molded spar tube holes in each stabilizer and position in place on the spar tubes and hold in place until epoxy has cured. Install the two 4/40x3/4" pan head bolts in the two 3/16"x5" brass tubes. Epoxy glue the threads of the bolts inside each tube. Epoxy the top threads of the bolts and install the two Dubro bolt on ball links. Sand the surface of the area of the tube which slides into the molded hole in the elevator (approximately 4"). Refer to elevator drawing for proper horn angle and epoxy tubes into the foam. Be sure to make a LEFT AND RIGHT elevator assembly. Position the 4/40x3/4" pan head bolt in a 90° angle from a flat surface with the trailing edge blocked up 3/8 of an inch. Measure 1" at the elevator root cap (S-2) to the bolt center on the back side of the tube for proper horn length. Epoxy the three Robart hinges into each elevator and make sure that the hinge pins are on the center line of the 3/16" tube and also on the foam radius of the elevator. Install each assembly into the oblong hole in the fuselage by lifting up the trailing edge of the elevator to allow clearance to install and glue hinges into stabilizer. (Refer to photo) (NOTE: elevator horns must be to the top of fuselage.)



RUDDER ASSEMBLY

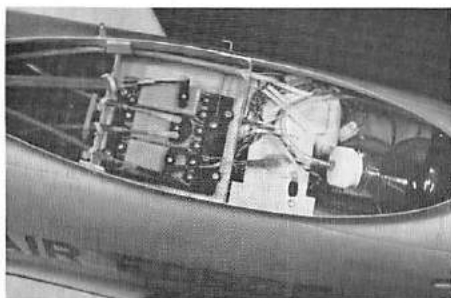
Install and epoxy two Robart hinges into the rudder, be sure hinge pins are at the center line of the radius of the foam rudder and molded tube hole. Sand only the area of the 3/16"x5" brass tube that will be epoxied into rudder. (Do not sand area of tube in bushing location.) Install the 4/40x3/4" bolt into the 3/16" brass tube and epoxy the threads inside the tube and top of bolt and install the Dubro bolt on ball. Mark a reference line 1/2" up from the 4/40x3/4" bolt on the brass tube. This mark should be flush with the rudder post base when gluing the 3/16" tube in the rudder. Put epoxy glue into the molded hole of the rudder only and glue hinges into rudder post. Position fuselage assembly upside down and install the 3/16" tube from the base end of the rudder post to the reference line marked on the 3/16" brass tube with the 4/40x3/4" rudder horn bolt 90° to the right of the center line of the fuselage (with fuselage in upright position).

CONTROL LINKAGE AND HARDWARE (Bag #3)

Make up two elevator nyrod push rods, use two 36" blue shells and two yellow lengths with two 4" threaded rods (threaded both ends) on one end of each yellow nyrod. Install a nylon socket on the other end of the 4" threaded rod. Install these control rod assemblies from the front of the fuselage on top of the engine former and back into the

foam molded channel on each side of the rudder post. Snap the nylon ball sockets on the elevator horns and glue the blue nyrod to the molded foam channel. Make up the rudder nyrod push rod with one 36" blue shell and one yellow length with a 1 1/2" threaded rod and Dubro nylon socket. Install rudder push rod assembly from top of engine former and back to rudder post. Snap the nylon socket on the rudder horn ball and glue the blue shell to the inside fuselage wall ahead of rudder post. Install one 36" blue nyrod shell from the front edge of the fuselage, to top of the engine former and to rear of fuselage. Route your receiver antenna in this shell.

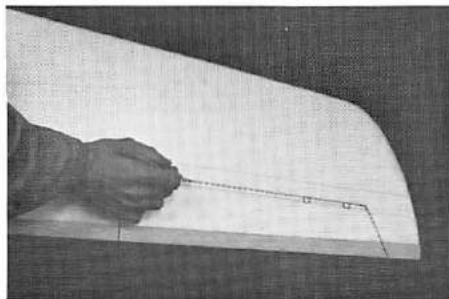
Install the servos (elevator left side, aileron and rudder right) and radio receiver in the 3/32 die cut ply trays, (F-7 and F-8). The marking punch holes are for the Kraft #200-092 servo tray. We also mount the switch assembly on the tray and use a 1/16" wire to activate the switch from outside the fuselage. Cut the blue nyrod to length (approximately 1/2" ahead of the servo tray former F-9). Determine the position of the Nyrod in relation to the servo arm, mark this position of the Nyrod on the former, (F-9) and notch with a round file. Epoxy the Nyrod in the notch to secure in place. Use the 1 1/2" thread rods and Kwik Link clevis to secure the yellow Nyrods to the servo arms. The two elevator Nyrods require two 1 1/2" threaded rods soldered together making up a fork assembly.



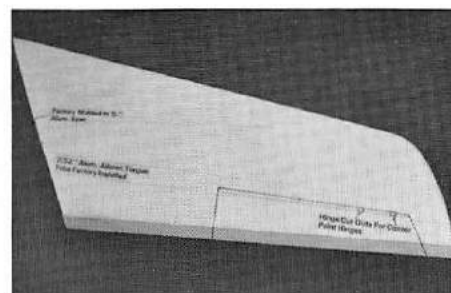
WING AND AILERON ASSEMBLY (Bag #4)

Remove the ailerons from both wing panels, use same procedure as on elevators. Sand both ends of each aileron and install end caps (W-6 and W-7) from the 1/32" die cut sheet with white glue. Using the end caps as a guide, sand the leading edge radius on each aileron and cut out

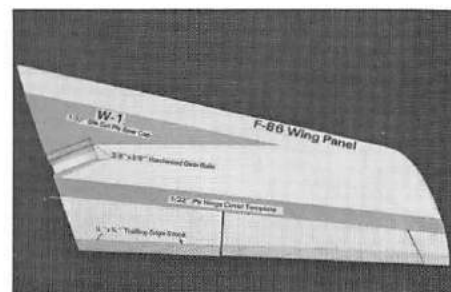
the hinge cavity to the center line of the radius for the two hinges in each aileron. Plunge a hole in each hinge cavity with the 1/8" awl. Glue the wing panel inboard and outboard caps (W-4 and W-3 from the 1/32" die cut sheets) in place allowing 1/32" clearance between each end of the aileron. Mark the hinge locations across from the aileron on the wing panel and center these holes. Plunge a hole at each hinge mark with the 1/8" awl. Install the Robart hinges in the ailerons and trial fit the assembly on the wing panel.



Locate two 3/16"x15" brass tubes and sand approximately 1/2" on one end of each tube and 3 1/2" on the other end of each tube. Drill a 3/16" hole in both Delrin aileron plug-in adaptors (be careful not to drill the hole any deeper than the existing hole) to accept the brass tubes which can be epoxied in place at this time. The tube can be pinned to the adaptor by drilling a 1/16" hole through the adaptor tube and insert a 1/16" wire pin. Slide the 3/16"x15" brass tube and adaptor from the root of the wing and into the molded hole of the aileron and end cap. Install the two aileron hinge covers (cut from 1/32"x6"x35" ply sheet and template provided) by using masking tape along the leading edge of the covers. Check aileron to hinge cover clearance for aileron throw (approximately 3/8" up and down). Trailing edge of hinge covers or foam radius of aileron may be sanded for more clearance and aileron throw. Hinge the covers back over the masking tape and sand the glue contact on the foam. Apply epoxy on the foam and fold the covers back down on the glue contact area. Ailerons can be removed at this time for a final sanding before covering.

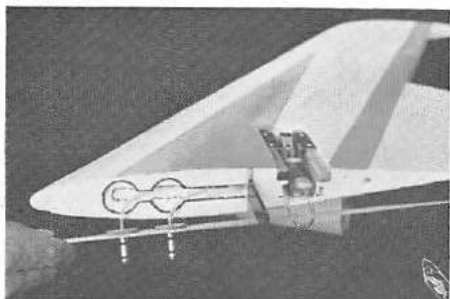


Epoxy the four 3-3/8 landing gear rails into the molded gear cavity flush with wing root surface. (Cut from the 3/8" square hardwood stock provided.) Epoxy the 1/16" ply 3/4"x2 1/2" reinforcement strip into the molded cavity and outboard ends of the gear rails (cut from 1/16" ply scrap). Install the four 1/32" die cut spar covers (W-1) and (W-2) by using masking tape along the leading edge of each cover. Hinge the covers back over the tape and sand the glue contact area on the foam, brush on epoxy, fold the spar on the glue area and tape the trailing edge of the cover until the epoxy has cured.

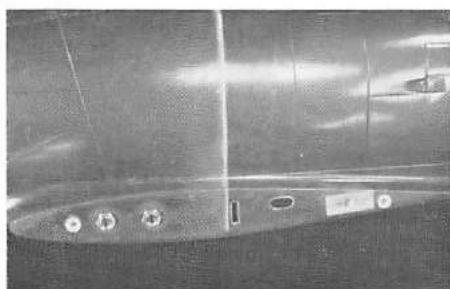


When using the Byron pneumatic retract quik-connect system on your model (Rhom Air System require four adaptors while other systems only use two.) Install adaptors from the back side of the 1/16" ply root plate (W-8) in one or both 5/16" holes. Glue the 1/16" ply o-ring (W-9) around the adaptor flange to root plate. Glue the 1/16" ply washer (W-10) on top of (W-9) to hold the adaptor in place (refer to wing root drawing and photo). Cut out foam in wing root to route the 1/16" air lines through the inboard 1/2" hole in the aluminum spar molded in wing panel (refer to shaded area in drawing and photo) to the retract main gear unit. Install and epoxy the four Delrin 3/8" male plug-in adaptors on the back side of the 1/16" root plate (W-8) in the leading and trailing edge holes. Position 1/16" air lines in the

cavity and epoxy root plate assembly to wing panel.



Drill 7/16" hole in the center of the 3/4" molded recessed area on the fuselage wing fillet to accept the retract coupling. Install a 7/16 nut on each coupling, position coupling from inside of fuselage and secure with a 7/16 nut in the 3/4" recessed hole. End of coupling must be flush with the 7/16 nut on the outside of the fuselage wing fillet. Remove the fiberglass material in the 3/8" holes of the leading and trailing edge of the fuselage wing fillet to accept the female plug adaptor. Put the Delrin female adaptors on the male adaptors which have been epoxied in place on the wing root cap. Slide wing panel assembly on the fuselage and align the retract fuselage coupling to the wing retract adaptor. Push the wing female adaptor plugs into the 3/8" holes at the leading and trailing edge of the fuselage and tighten the four 8/32x1/4" socket head bolts on the engine former extrusion to secure the wing in place. When satisfied with the wing to fuselage fillet position, sand the fiberglass area around the four Delrin female plugs and epoxy in place. Glass cloth can also be used when gluing the Delrin parts in place. Turn the 7/16" hex nut on the inside of the fuselage on the retract coupler until it has just made contact with fuselage surface. The retract coupler should float in the fiberglass hole of the fuselage to provide a proper o-ring seal on the wing plug-in adaptor. Use Loctite on the 7/16" hex nuts to prevent them from vibrating loose.



Remove wing panel from fuselage assembly and install the aileron on the wing, (do not glue in hinges at this time). Slide the 3/16x15" brass tube with the Delrin Aileron plug-in adaptor into the molded aileron hole in the wing panel and into the aileron. The aileron plug-in adaptor should extend 1" beyond the root plate of the wing and into the 3/8" hole into the fuselage to make a positive lock into the aileron control mount inside the fuselage. Locate the two 3/4"x1 1/2" angle blocks and install the two aileron control mounts on the blocks with the four #2x1/2" panhead screws, make a LEFT AND RIGHT assembly as per drawing. Trim the excess material of the mount off to the same width as the wood block.

Sand the inside area of the fuselage before gluing the aileron blocks in place. Apply epoxy on the wood angle blocks and slide them on the aileron plug-in adaptor inside the fuselage wing root. A strip of fiberglass tape can also be epoxied on the wood block and fuselage. Cut two 12 1/2" lengths of blue Nyrod and two yellow lengths. Install four 1 1/2" threaded rods on each end of the yellow rod and two Kwik Link clevis on the aileron control arm end. Slide the aileron nyrod assembly into the die cut notch on each side of the engine former and install the Kwik Link clevis in the out board hole of the aileron control arm. Leave 6 1/2" of blue nyrod in front of the engine former to the servo former (F-9). Notch the servo tray former (F-9) for the nyrod in line with the aileron servo arm. Nyrod can be secured to former (F-9) notch with fine wire, tie wrap or epoxy in place.

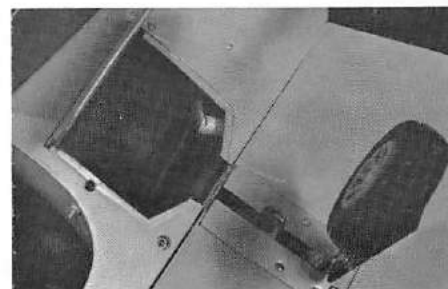
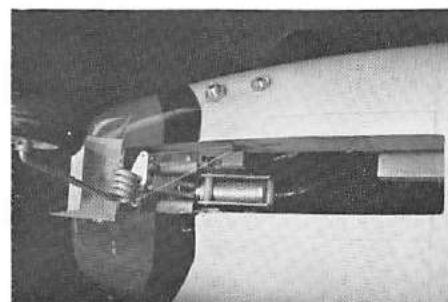
LANDING GEAR

Install main landing gear units in wing panels and measure down from wing bottom surface 4-1/8" to axle. Remove gear struts from retract units and bend 90° and cut axle to length to accept the 3" Robart tire. Secure tire on axle with the 5/32" wheel collar provided in (Bag #3). Sand the landing gear strut and install the 1/32" ply strut cover with fine wire to the landing gear leg. A fillet of Sig epoxy lite putty can also be used on the back side of the strut cover on both sides of the landing gear wire.

If you are using the sequencing

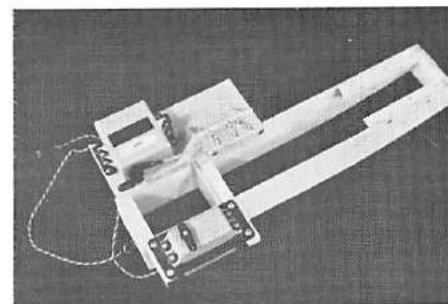
door system, it will be necessary to route out the fuselage wing fillet to allow for the landing gear wire and the width of the strut cover to lay flush with the bottom of the fuselage. The wheel door will then close over the top of the landing gear strut cover.

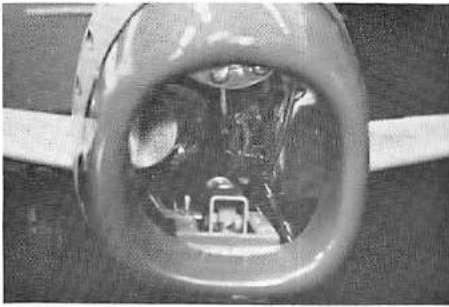
Install the nose gear retract unit and measure down from the fuselage bottom surface 4-3/8" to the axle. Remove unit from fuselage and bend 90° and cut axle to length for the 2 1/4" Robart nose wheel. Secure tire on axle with a 5/32" collar provided.



INSTALLING RETRACT SYSTEM

Install the nose retract gear unit in place (refer to drawing for proper gear length) and route the steering cable in a blue Nyrod shell (approximately 14" long) through the left side the nose gear former (F-2) to the rudder servo. Secure Nyrod to nose gear former (F-2) with epoxy and to the receiver tray (F-8) for the rudder servo. We use the Spring Air Retract System #102 for our model.





When using the Byron sequencing door option, make up a sequencing valve and servo tray from the 1/32 ply 6"x34" sheet provided. (Refer to template for patterns and drawing for assembly). Install a 180° servo on a tray (Kraft #200-094) and mount servo tray assembly on the 1/32 ply mount with the four #2 screws provided with the servo tray package. Install sequencing valve assembly on the 1/32 ply valve mount with the two 4/40x1" bolts and hex nuts in (Option Bag). Cut two 1/2" lengths of 1/16 air line and use as a coupling between two 2/56x1 1/2" threaded rod. Install a Dubro nylon socket on one end of the threaded rod and coupling. Put a drop of loctite thread seal on the other end of the threaded rod and install into the inboard brass spool valve. Install a threaded ball link in the inside hole of off set arm of the servo and connect to the ball socket. (Position offset arm on servo as per diagram which is shown in the retract position).

Cut two 2/56x1 1/2" threaded rod to 1-1/8" length. Install the 1/16"x1/2" coupling between the two 1-1/8 threaded rods, install a Kwik Link clevis on one end, put a drop of loctite on the other end of the threaded rod and install in the outboard brass spool of the valve assembly. Adjust the Kwik Link and nylon socket to position both spool **VALVES** flush with back end of valve body. Depending upon servo rotation, the Kwik Link clevis may have to be installed in the opposite arm in the inside hole position. Servo rotation will not change the offset arm position. Install the fill valve and pressure gauge (Option Bag) on the bottom of the nose section of the fuselage with pal nuts supplied. Drill a 3/16" hole above the right wing spar extrusion next to the outer edge of the fuselage. Route the 1/16" air lines from the main gear door air cylinder on the right side of the

fuselage and through the 3/16" hole in the engine former and along the fuselage side to the door opening and door closing fittings on the sequencing valve. Install a 1/2" length of air line and tee coupling to the landing gear fitting on sequencing valve. Route air line from this tee to the nose gear cylinder. Install another air line on opposite end of tee route to the main gear plug-in couplings, which will also require one tee for the coupling on the opposite side of the fuselage. Install two 3/4" lengths of 1/16" air line hose on both air pressure, supply fittings with a tee fitting between them. Install air hose to the opposite end of tee fitting and route air hose forward to the air pressure gauge with a tee fitting and a short length of air hose to gauge. Install another air hose on the opposite end of pressure gauge tee and route forward to a fill valve tee with a short length of hose to the fill valve. Install a 1/2" length of air hose on the opposite end of fill valve tee as a bushing and slide the 1/8" air hose over the 1/16" air hose bushing and wire tie hose on the tee and bushing. Route 1/8" air hose to supply bottle fitting. Drill 3/16" hole in center of bottle cap and install brass fitting and nut. Use a cyanoacrylate glue to seal fitting to cap. Install the 1/8" air hose to cap fitting and wire tie (refer to air tank isometric drawing). Sand a gluing area on top of air bottle and epoxy a 3"x3" foam rubber mounting pad on bottle and top of fuselage nose section ahead of cockpit.

FAN, SHROUD & ENGINE MOUNT

Trim any mold flash from fan blades and sand with #320 grit sand paper or scrape very lightly with a knife blade. Be careful not to remove excess material which will cause an unbalanced fan. (Refer to Byro-jet fan balancing sheet) after balancing the fan, install the proper fan bushing in the hub to fit your engine. Trim the A.B.S. entry cone to fit the front engine housing and silicone to engine housing. Install fan hub assembly on engine shaft with engine thrust washer and tighten nut. Bolt engine on mount using four 8/32x1" socket head bolts and lock washers. Position engine and mount assembly on fan shroud and check clearance between fan hub and center of shroud hub. If clearance is

more than 1/16", remove fan from engine and install one or more aluminum shims, (provided) in back of fan hub to maintain a 1/32" to 1/16" maximum clearance. Drill aluminum shims at center punch mark location to the shaft diameter of your engine.

Fold the lexan thrust tube and install through air outlet opening in tail of fuse. Slide air tube forward to engine former until rear outlet of thrust tube contacts fuselage tail opening with out collapsing air tube. Position tube with the seam on top. Bend the aluminum strips on the thrust tube over onto the front side of the plywood engine former. Install fan shroud into engine former and thrust tube. Secure fan shroud to engine former with a 8/32x3/4" socket head bolt and lock washer at bottom of engine former. When satisfied with the thrust tube fit on fan shroud and in tail outlet opening without any wrinkles in thrust tube, use a #2x3/8" pan head screw in each aluminum strip on front of the plywood former to secure thrust tube in place. Trim lexan thrust tube within a 1/4" of tail opening of fuse.

Install engine, mount and fan assembly to fan shroud, using three 8/32"x1 1/2" socket head bolts and lock washers. Cut throttle linkage from nyrod to length and use one 1 1/2" threaded rod on each end of nyrod.

Use a steel Kwik Link clevis to the throttle servo on the nose gear mount and install a nylon Kwik Link clevis to the carburetor linkage on the engine and adjust as required.

We recommend on a new engine it is best to break-in your engine with a standard prop on a test stand according to the manufacturers specifications. The header pipe lengths on our Test Data sheet are average lengths for each engine and fuel mixture. This varies greatly upon Barometric pressure altitude from sea level in various parts of the country. We suggest for optimum performance, add approximately 1/2" to our header pipe measurements and test your engine with this added length first. Cut 1/4" off the engine header pipe at a time to determine the optimum performance for your engine and fuel mixture for your fan unit. To check the R.P.M. of the engine we paint a white strip (approximately 1/2" wide) on one fan blade, (trim Monokote strip also works well). Using a photoelectric

tac, such as (Royals protach, Giezendanner Digital tac.) measure the R.P.M. and multiply by two to arrive at the correct R.P.M. reading. Do not cut any material from the length of the Byro-tuned muffler pipe, only the header pipe.

Install the header pipe with the 2" length of silicone hose and tie wraps. Position the header pipe clamp and bracket assembly on the front of the tuned muffler pipe and secure to right side of nose gear mount rail with the 6/32" bolt, washer and hex nut.

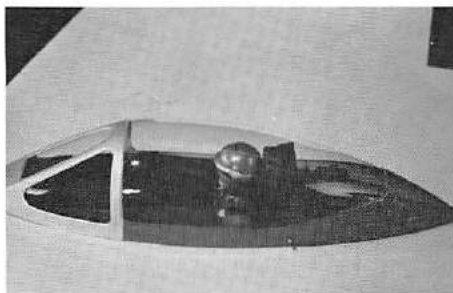
FUEL SYSTEM

Use the aluminum sheet and template provided, cut the two fuel bottle mounting brackets and bend to 90° as shown in drawing. Drill two 3/32" holes in the front tank bracket and one 3/32" hole in rear bracket. Cut two strips of 1/2" foam 1"x2 3/4" and epoxy to bottom of each bracket. Block up fuel tank 1/8" on a flat surface. Position fuel tank mounting brackets on each end of tank and mark hole centers on fuel bottle and cap. Plunge holes in tank with 1/8" awl and secure aluminum brackets to tank using 4/40x 1/2" pan head bolts and 4/40 lock nuts. Use a cyanoacrylate glue on bolt heads to seal tank. Drill a 7/32" hole in bottom center of tank, and one hole toward the back and outside edge of tank (Refer to drawing for location). Install a 4" length of fuel line on one end of the threaded brass fitting and one brass nut and secure line with a wire tie or tie wrap. Install the fuel pick-up klunk on the opposite end. Install this assembly from inside of fuel bottle in the center hole on bottom of tank. Secure with brass nut and seal with a cyanoacrylate glue. Use threaded brass fitting and nuts in other corner hole in bottom of tank and seal with glue. Install fuel line on fitting, wire tie or use a tie wrap and vent line to top of fuselage. Position fuel tank on left fuselage side with center line of tank in line with carburetor needle valve. The 3/4" fuselage lip ahead of fuel tank can be removed to allow a forward position of tank. (NOTE: forward position of fuel tank can adversely change models C.G. as fuel is burned off.)

We recommend using a carburetor needle valve extension to outside of fuselage (shown in drawing) for ease of carburetor adjustment safety.

COCKPIT AND CANOPY ASSEMBLY

Trim cockpit, instrument panel hood, seat back rest, and radio A.D.F. case from vacuum formed sheet. Glue instrument hood over cockpit panel and install instrument panel decal. Glue seat backrest to cockpit floor on vacuum formed shoulder. Cut hole opening in rear of cockpit and install the avionics case from back side of cockpit, and glue avionics case flange to cockpit. If you choose to install a pilot we use a Williams 2" Scale Military Type. Trim canopy from clear butyrate sheet and sand on side gluing area on canopy and lip of cockpit assembly. Fit cockpit assembly over fuselage fiberglass lip and glue canopy to cockpit lip with epoxy. Tape canopy on fuselage until glue has cured. Drill a 1/16" hole in canopy lip on each side of fuselage and one hole on front edge of canopy to accept three #2 x 3/8" pan head screws. Remove canopy from fuselage and cut three 3/8"x 3/4" mounting blocks from the 3/32" scrap ply sheet and glue blocks on inside fuselage lip at each 1/16" drilled hole location for the #2 x 3/8" canopy mounting screws.



COVERING & FINISHING

We suggest covering all foam parts with any of the low heat sensitive materials such as (Econokote, Superkote, Solar Film, etc.) When using the white econokote covering material on our models we have painted various camouflage paint designs. When using this procedure we steel wool the material surface (.00 grade) very carefully to dull the gloss finish of the surface to provide a base cover for primer. Wipe the surface very carefully and sparingly with acetone.

Spray on a thin coat of K & B epoxy primer and let dry. Then follow with a thin spray coat of the colors of your choice. We use this lighter method of covering on the models with the optional sequencing

door system due to the added weight of the system. (Keep your building, covering and painting procedure as light as possible for the best flying performance.) On the models which are equipped with only the A.B.S. wheel well liners, you can possibly glass the foam parts with cloth and epoxy resin. Remember to use the epoxy resin sparingly and keep the primer and paint build up to a minimum.

The fiberglass fuselage should be sanded with 220 sandpaper. Then apply a thin spray coat of K & B primer as a base coat. Fill any pin holes with an automotive glazing body putty, (we use Martin Senior glazing putty #6385; available at any NAPA store). Sand fuselage assembly again with 320 grit paper and apply another thin spray coat of primer. When base coat is dry, you can spray on the color coat of your choice.

Refer to the F-86 in Action booklet for the various paint schemes and markings. (Note decal sheet includes squadron markings for F-86D as shown on back cover of the booklet and squadron Black Angle paint scheme on center spread of booklet.) Standard military markings are also included. Refer to guide sheet for proper placement of mylar decals and markings.

SERIAL NUMBER LOCATION:

5 minute epoxy serial number tags onto the Byro-Jet engine mount and onto the inside of the F-86 Sabre fuse.

STORAGE NOTE: When storing your F-86 Sabre it is not advisable to lay it in an inverted position as this could warp fuselage.

F-86 SABRE BALANCING AND TRIMMING DATA

Center of Gravity: 2" back of engine former.
Elevator Travel: Approximately 5/8" up and 5/8" down. (Use index marks on fuse.)
Aileron Travel: Approximately 3/8" up and 3/8" down.
Rudder Travel: Approximately 3/4" left and 3/4" right.

NOTE: It is recommended the C.G. be 2" back of engine former for your first flight. Battery pack can then be re-positioned to achieve desired C.G. and preferred flight characteristics.

NOTE: Maximum weight 10-11 1/2 lbs. (with retract). Wing area 708 square inches. Wing Loading 35-36 ounces per sq. ft.

General Note:

If this is your first radio controlled plane, do not attempt to fly it yourself on the first flight. Flight instructions and assistance by a local experienced flier is strongly recommended.

Flight Procedures:

1. Due to the clean aerodynamic design, the F-86 will perform similar to most pattern type aircraft. However, one big difference you will recognize will be that the control response and lift will be obtainable only by increasing the air speed, whereas the prop aircraft, control response and lift are developed almost immediately with the addition in power, due to prop blast across wings and control surfaces.
2. On your first flight, takeoff into a crosswind should be avoided, until you become more familiar with your model.
3. Upon takeoff, model will require very little rudder due to **TORQUE FREE POWER**. Then apply elevator until liftoff, but be prepared to relax control pressure partially after becoming airborne.
4. Once you are airborne, and at a safe altitude, slow plane down and become familiar with slow-flight characteristics and control response.
5. It is a good idea to make several landing approaches, to get the feel of the model, before attempting to land. The fuse and wing design allows it to fly at very low air speeds and makes for docile landings.

REFUELING AND STARTING INSTRUCTIONS

Invert plane so left wing is down. Remove fuel line from filter on tank side and fill the fuel tank. Care should be taken to prevent raw fuel from draining out of carburetor and seeping into cockpit area. Raw fuel will discolor canopy material. Attach glow plug connector firmly so it will not come loose and enter the fan. Insert your Sullivan starter extension into air tube and make contact with fan. **CAUTION:** Place free hand on leading edge of wing.

You will find that it makes it very convenient to make all necessary engine adjustments while your aircraft is in this inverted position. (Checking fuel adjustment, idle, etc.) Use gravity feed fuel system only.

This means that any critical idle adjustments that are made should be made when aircraft is in upright position.

CAUTION: Use extreme care to keep hand and/or fingers clear of rotating fan blades.

STARTER EXTENSION INSTRUCTIONS

First remove starter cone by removing locknut. (**Note:** Right-hand thread on starter shaft.) Hook up starter to battery for left-hand rotation. Now hold cup, turn on power and spin cup off. Next, reverse wire to battery and power thread starter extension on. Secure with No. 6-32 setscrew. Now securely tighten 1/4-20x1" long cap-screw into starter cone. Next, thread cone onto extension shaft with starwasher in-between and tighten firmly.

Reference: Sullivan No. 601 Electric Starter

POINTS TO PONDER

1. Will my _____ engine work? Please refer to the back page of our pamphlet entitled "Custom Byro-Jet Pipe System Bench Test Data". This pamphlet gives you **ALL** of the information **WE HAVE** concerning engines, pipes, fuel and performance. The use of engines which produce less than 7½ pounds of thrust are not recommended. The reason some engines run better on a piped system is due to the design of the engine and not the fuel or pipe system used.
2. How fast does it fly? Our ducted fan models have been radar checked at speeds between 90 and 105 mph, depending on gross weight of model, engine used, and configuration of aircraft. Landing speeds are not any faster than what you are accustomed to. But I think you must understand that you are flying a scaled down version of a jet. As with any model, take the time to get the feel of the model in slow flight at altitudes where you have time to recover from a stall.
3. My engine seems to loose power in the air. Are you a needle valve tweaker? If so, you will probably have trouble with reliable engine runs. After the engine has started, allow 30 seconds or more for proper pipe operating temperature. Momentarily pinch fuel line at tank until RPM changes and then release fuel line. If, when you pinch the fuel line the RPM increases but decreases after releasing the fuel line, fuel mixture is probably a **LITTLE** rich. Lean the mixture **SLIGHTLY** and repeat procedure until the RPM will increase only slightly. Once in the air, the mixture will lean further.
4. What should the model weigh? It is very important that excess weight be eliminated. Some of us have a tendency to build heavier than others, and for this we will be penalized. Weight must be kept to a minimum. (10-11½ lbs. maximum)
5. Where can I obtain information on the F-86 Sabre? Refer to publication entitled "F-86 In Action" which is included in kit. Another excellent book is:

Fighting Colors F-86 Sabre In Color
Squadron/Signal Publication
1115 Crowley Drive
Carrollton, TX 75006

6. Byron Originals would be happy to hear from you regarding our products. Please **WRITE** us a letter at the address below.

Byron Originals
Production Development
P.O. Box 279
Ida Grove, Iowa 51445

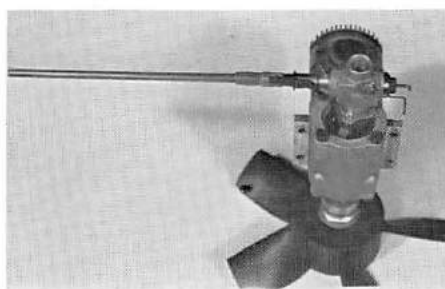
NEEDLE VALVE ADJUSTMENT

In order to obtain proper needle valve adjustment, airplane **MUST BE IN UPRIGHT POSITION**. In order to accomplish this, a needle valve extension through the fuselage side is necessary (see photos).

A simple extension may be added to your needle valve by attaching a piece of nyrod (outer shell) to needle valve using a 1" long piece of neoprene fuel tubing (used in gas engines such as Quadra) and secured with type wires.



Extension installed on O.S. .61 VF



Installation on Rossi .61

SAFETY PRECAUTIONS

1. Keep hands away from fan as much as possible.
2. Keep face and body away from path of fan as you start and run engine.
3. To stop engine, cut off fuel supply or follow engine manufacturers' directions. **DON'T** use hands, fingers or any part of body. **DON'T** throw anything into running props or fan blades.
4. Discard any fan rotor with nicks, scratches, splits or cracks, or **ANY** sign of wear or damage.
5. **NEVER** repair, alter, shave or bend fan blades or shroud. Normal engine vibration can loosen engine bolts. Inspect and retighten if necessary.
6. Use safety glasses when starting or running Byro-Jet Unit.
7. Don't run engine in area of loose gravel or sand; fan may throw such material in face or eyes.
8. **KEEP AWAY FROM FAN:** Loose clothing, shirt sleeves, ties, scarves or loose objects (pencils, screw drivers) may fall out of shirt or jacket pockets into fan.
9. Make certain glow plug clip or connector is secure so that it will not pop off or otherwise get into running fan.
10. Never fly your model higher than 400 feet within 3 miles of an airport without notifying the airport operator.
11. Never fly your model in a careless, reckless and/or dangerous manner.
12. Never fly your model in the presence of spectators until you are sure you are able to completely control model. Never fly over top of any spectators.
13. Make a radio equipment ground range check before the first flight of your new model.
14. Make sure that your flying area is safely clear of all utility wires and poles.

NOTE: The attached Warning Decal is to be affixed on bottom of fuselage to the rear of fan opening. Special note should be made of these precautionary measures to prevent bodily injury.

PRE-FLIGHT

1. Develop the habit of checking your models before every flight just as full-scale pilots do before they fly. A few minutes spent now will give you more confidence that everything is O.K. and ready to go.
2. Inspect the model carefully. Inspect the tail surfaces to be sure they are secure. Be sure that the radio is properly mounted. Inspect the pushrods to be sure that the clevises are correctly attached to the control horns as well as at the servo arm.
3. Assemble the wings on the model, aligning carefully so that the wings are centered on the fuselage. Visually check the tail surfaces and check the fan unit for tightness or damage.
4. Be sure that the receiver and transmitter batteries are fresh. More radio failures are caused by defective batteries than any other reason.
5. Check the radio operation. Be sure your frequency is clear before turning on the transmitter. **YOU MUST NOT** turn on your transmitter when someone else is flying or operating their model on that same frequency. Stand behind the model to see that all control surfaces are operating correctly.
6. You are now ready to start flying.

REPAIR

The wings and tail surfaces consists of molded expandable polystyrene which we refer to as Byro-Foam. **DO NOT** use model airplane cement or Alpha-Cyanocrylate adhesives on Byro-Foam as they will melt it! The best adhesive is quick setting two-part epoxy such as Devcon 5-minute epoxy. A broken wing 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 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 beverage cup or egg carton 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 and you must be sure they do not move if you wiggle the servo case. Also inspect the whole model to make sure that nothing is broken or jarred loose.

REPLACEMENT PARTS

We suggest you purchase any replacement parts from your local hobby shop. If this is inconvenient, or he does not stock parts, you can order direct from the factory. A minimum of \$10.00 will be charged for any order. Prices and specifications are subject to change without notice. Iowa residents must add 3% sales tax.

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