DuraPlane™

Aerobat 40

Almost Ready-to-Fly
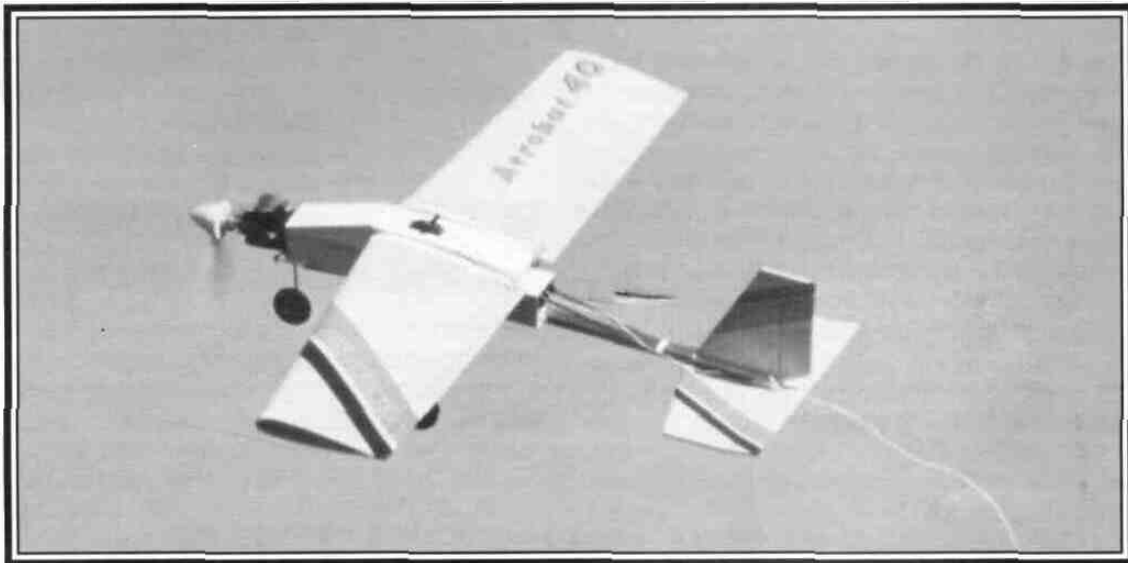
Assembly Instructions

Specifications:

Wingspan:	44 in (120 mm)	Engine Required: High-performance
Wing Area:	420 sq in (27.1 **sq dm)**	2-stroke .40 to .46 cu in (6.5-7.5 cc) or
Weight:	5.5 lb (290 g)	4-stroke .48 cu in (7.86cc)
		Radio Required: 4-Channel with
Fuselage Length:	38.75 in (984 mm)	4 servos

READ THROUGH THIS INSTRUCTION MANUAL BEFORE BEGINNING ASSEMBLY. IT CONTAINS IMPORTANT INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND OPERATION OF THIS MODEL.

DuraPlane
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Introduction

The Aerobat 40 is the third generation of DuraCraft models specifically designed for acrobatic flight Because the Aerobat 40 is fully aerobatic, it is recommended that you do not attempt to fly it as your first model.

Although designed for advanced flying, the Aerobat 40 maintains the tradition of simple construction and outstanding durability that you have come to expect from DuraCraft models

If this is your first model, the best way to learn to fly R/C is to join a flying club The Academy of Model Aeronautics is the national organization that charters model clubs, sanctions competitions and insures flying fields throughout the United States We urge you to join the AMA Membership will bring you flying insurance, a subscription to Model Aviation magazine and many other benefits The AMA will gladly send you membership information and lists of AMA-chartered clubs in your area where you can seek the help of experienced modelers.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, Indiana 47302-9252
(800) 435-9262

Your hobby shop is also an invaluable place for service, parts and information that you require We urge you to patronize your local hobby dealer, he's there to help you enjoy your hobby.

Finally, if you have any questions or comments about your DuraPlane, please write or call us at:

DuraCraft
P O Box 788
Urbana, IL61801
(217)398-8970

Warranty

DuraCraft guarantees this kit to be free from defects in both material and workmanship at the date of purchase This warranty does not cover any component parts damaged by use or modification In no case shall DuraCraft's liability exceed the original cost of the purchased kit DuraCraft reserves the right to change or modify this warranty without notice.

Warning

Radio control models are intended for adults or use under the close supervision of an adult Flying model airplanes can be dangerous and can cause serious injury DuraCraft assumes no responsibility for accidents or injury caused by this product.

Table of Contents

This instruction manual provides step-by-step instructions for assembling the Aerobat 40 kit Assembly of the Aerobat 40 consists of eight major steps and must be completed in the following order:

Suggested Tools

To assemble the Aerobat 40, you need the following tools:

- ❏ Flat blade and phillips screwdrivers
- ❏ Small pliers (needle nose)
- ❏ Hobby knife with #11 blades
- ❏ Electric drill
- ❏ Drill bits 1/16", 7/64", 1/8", 5/32", #18 (or 11/64")
- ❏ Hobby covering iron w/Hot Sock - optional (TOPR2175)
- ❏ Sandpaper assortment and sanding block
- ❏ Ruler & felt-tip pen
- ❏ Masking tape

Accessories & Additional Items

In addition to the parts included with the Aerobat 40 kit, you need the following accessories (we have had good success using Great Planes- brand Adhesives and Accessory Items):

- ❏ Four-channel radio w/4 servos
- ❏ .40-.46 2-stroke engine w/muffler or **.48** 4-stroke engine.
- ❏ Propellers (see engine instructions **for** recommended size)
- ❏ 1 roll Top Flite' EconoKote® model covering film
- ❏ 6-minute epoxy - (GPMR6045)
- ❏ 30-minute epoxy - (GPMR6047)
- ❏ 1 oz. thin CA - (GPMR6002)
- ❏ 1 oz. medium CA - (GPMR6008)
- ❏ Aliphatic resin (white glue) - optional (GPMR6160)
- ❏ #6 x 1" engine mounting screws - 4 (GPMQ3134)
- ❏ 2-1/4" spinner
- ❏ 8 oz. fuel tank - (GPMQ4103)
- ❏ 12" medium silicone fuel tubing - (GPMQ4131)
- ❏ **Box** of #64 rubber bands - (HCAQ2020)
- ❏ 5/32" wheel collars - 2 (GPMQ4306)
- ❏ 1/4" Foam rubber sheet - (HCAQ1000)
- ❏ 2-1/2" wheels - 3 (GPMQ4223)
- ❏ Fiberglass reinforced "strapping" tape
- ❏ 1/2" Double-sided foam mounting tape (GPMQ4440)
- ❏ 1/16" x 5/16" wing seating foam tape (GPMQ4422)
- ❏ Loctite® thread lock

Parts Included

Refer to the Parts List for a description of the parts and hardware included with the Aerobat 40 kit.

Build The Tail Feathers

Assemble The Fin & Rudder
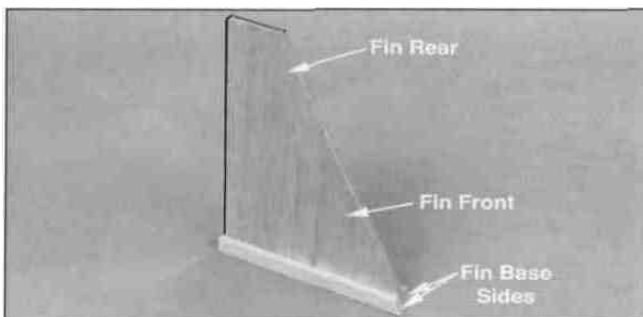
❏ 1. Glue the shaped 1/4" balsa **Fin Front** to the **Fin Rear** with medium CA. Use 150-grit sandpaper and a sanding block to sand the **Fin** flat and even before proceeding. Glue the 1/4" x 1/2" x 5-7/8" balsa **Fin Base Sides** to both sides of the **Fin.** Make sure that the bottom of the fin and the bottoms of the fin base sides are flush.
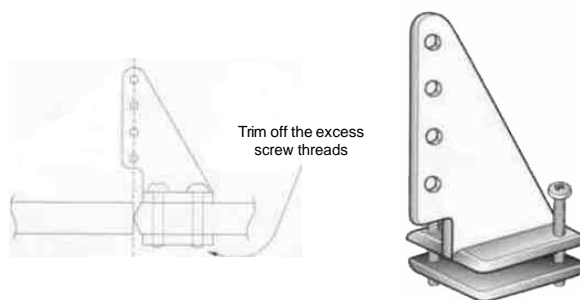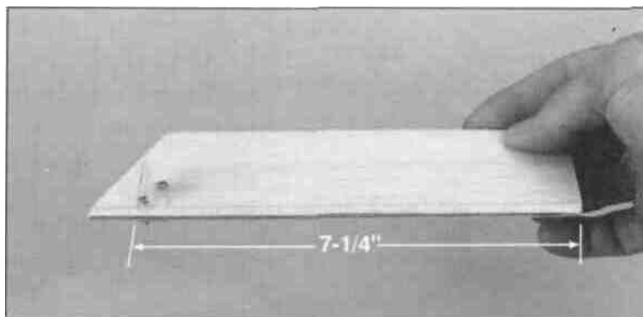

❏ 2. Sand the **Leading Edge** (LE) of the shaped 1/4" balsa **Rudder** to a "V" shape to allow for movement. Position a nylon **Control Horn** on the rudder so the **bottom edge** of the horn is 7-1/4" below the top of the rudder. Use the control horn as a template to drill two 1/16" holes for the 2-56 x 1/2" screws. Push the screws through the control horn. Then thread them into the **Control Horn Back Plate** until it is snug.
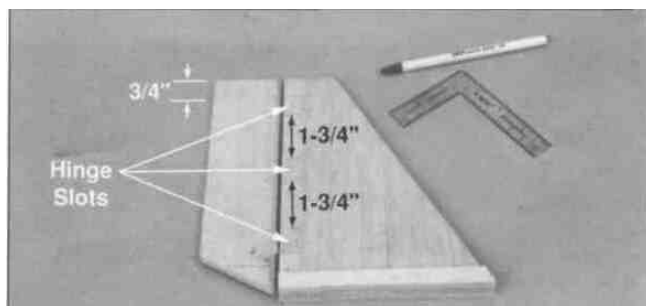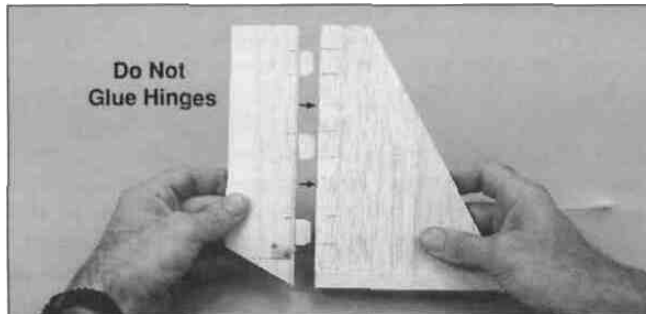

❏ 3. Mark the locations of the **Hinges** on the rudder and fin as shown in the photo above.

❏ 4. Use a hobby knife with a #11 blade to cut the hinge slots. **Tip:** Carefully move the blade back and forth to enlarge the slot.

3
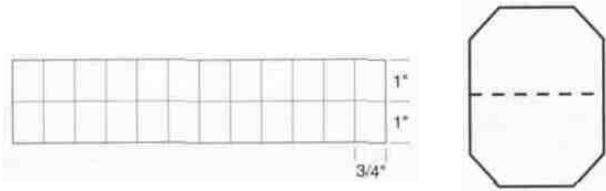
❏ 5. Cut the hinges from the 2" x 9" **CA Hinge Strip,** then use scissors to snip the corners off. Test fit the hinges to see if the slots are deep enough.

❏ 6. Temporarily join the rudder to the fin with three **hinges. Do not glue the hinges in the fin and rudder until instructed to do so.**
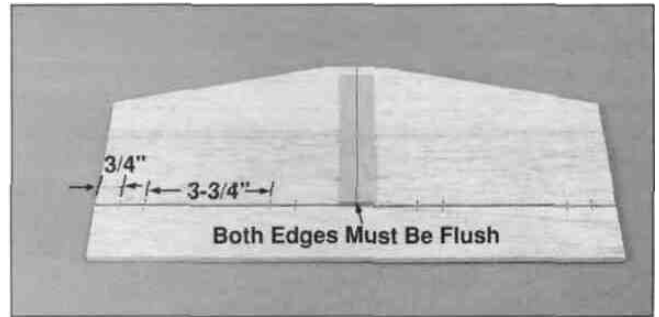
❏ 3. Sand the leading edge of the 1/4" balsa **Elevator** to a "V" shape. Cut four hinge slots in the elevator and stabilizer at the locations shown in the photo. Without using any glue, temporarily join the elevator to the stabilizer with four hinges.
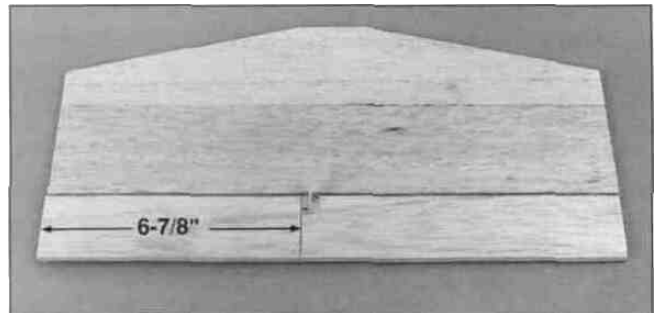
❏ 4. Draw a line on the top of the elevator 6-7/8" from the **left** tip. Align the **left edge** of a nylon control horn with the line, then drill two 1/16" holes through the elevator - just the same as you did on the rudder. Mount the control horn to the elevator with two 2-56 x 1/2" screws and the back plate.

Assemble The Stabilizer & Elevator
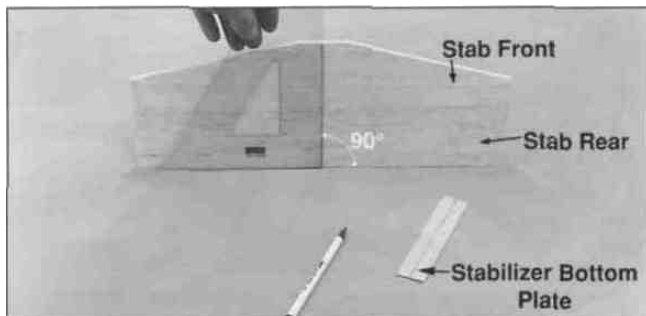
❏ 1. Glue the shaped 1/4" balsa **Stab Front** to the **Stab Rear** with medium CA. **Tip:** Sand the **Stabilizer** flat and even before proceeding. Draw a center line on the stab and also on the 1/16" plywood **Stabilizer Bottom Plate.**

❏ 2. Align the center lines. Then glue the stabilizer bottom plate to the stabilizer. The end of the bottom plate should be flush with the TE of the stabilizer. See the photo at step 3.

Mount The Fin & Stab To The Aluminum Fuse Channel
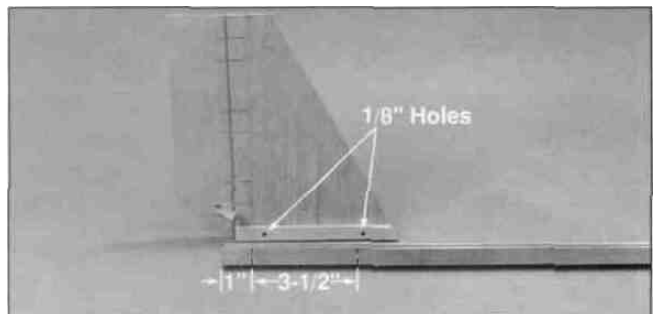
❏ 1. Drill two 1/8" holes through both sides of the **rear** of the **Aluminum Fuselage Channel** at the locations shown in the photo (the rear is the end with the two *pre-drilled* smaller holes in the bottom that are closer together). Insert the fin in the fuselage channel so that the trailing edge is aligned with the aft edge of the channel. Mark the location of the holes in the **bottom** and the **sides** of the fuselage channel on the fin. Remove the fin and drill 1/8" holes through only the marks on the **side** of the fin.

❏ 2. Align the centerline you drew on the stabilizer bottom plate with the holes in the fuselage channel and mark their location. **Note:** The TE of the stab should be aligned with the end of the channel. Drill 1/8" holes through the slot at the marks.

#4 Washer

4-40x3/4"
Machine Screw
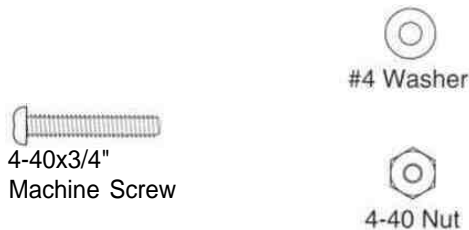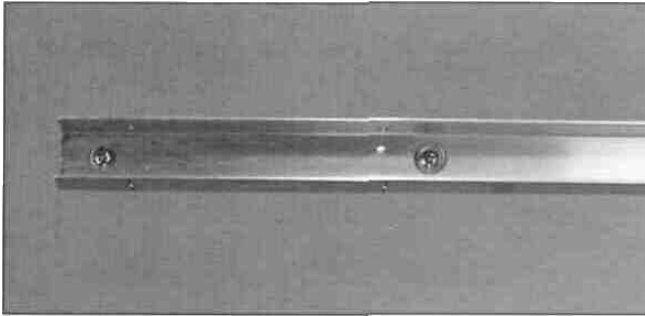
4-40 Nut

❏ 3. Use 6-minute epoxy to glue two 4-40 x 3/4" machine screws in the bottom **rear** holes of the fuselage channel. After the epoxy has cured, temporarily mount the stab to the fuselage channel with the 4-40 screws, #4 washers and two 4-40 nuts. **Note:** The **bottom** of the stab is the side with the 1/16" plywood stabilizer bottom plate.
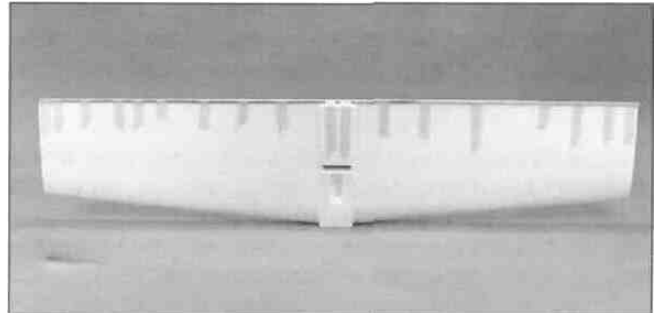
4-40x1" Machine Screw
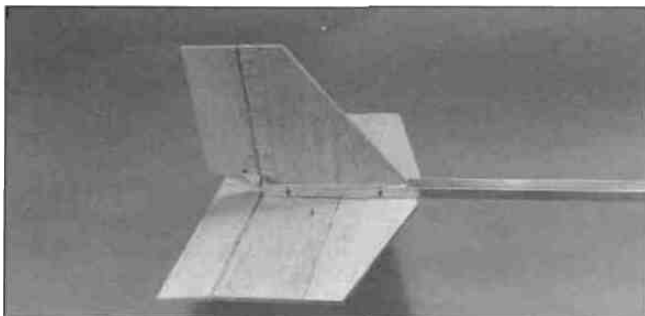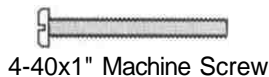
❏ 4. Remove material from the bottom of the fin as needed to clear the heads of the screws, then temporarily mount the fin to the fuselage channel with two 4-40 x 1" machine screws and nuts.

Build The Wing

Assemble The Ailerons

❏ 1. Cut both 1/4" x 5/16" x 24" balsa **Trailing Edges** to a length of 22" and both 1/4" x 1" x 24" balsa **Ailerons** to a length of 20".

❏ 2. Use aliphatic resin ("white glue" such as Great Planes Pro) or epoxy to glue the trailing edges to the wing. Use masking tape to hold the trailing edges in position until the glue cures. **Tip:** If you decide to use 6-minute epoxy, mix one batch at a time. Don't try to glue both trailing edges with the same batch.
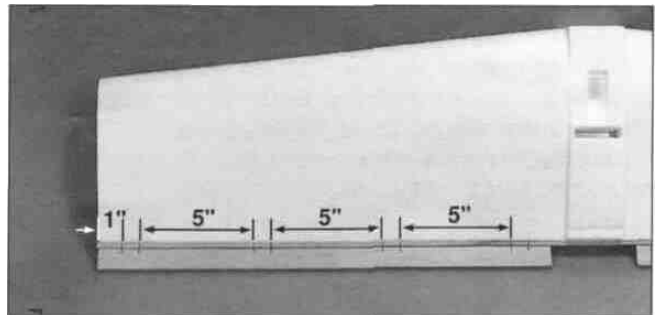
❏ 3. Sand the leading edge of the ailerons to a "V" shape to allow for control movement. Mark the locations of the hinges on the aileron and the wing as shown in the photo. Then make the hinge slots just the same as you did for the rudder and elevator. Temporarily attach the ailerons to the wing with the hinges.

Install The Aileron Servo

❏ 1. Cut the 1/8" x 1/4" x 2" plywood **Servo Mount** into two 7/8" long strips. Then glue them to the servo rails in the middle of the wing with 6-minute epoxy.

1/8" Ply Servo Mounts
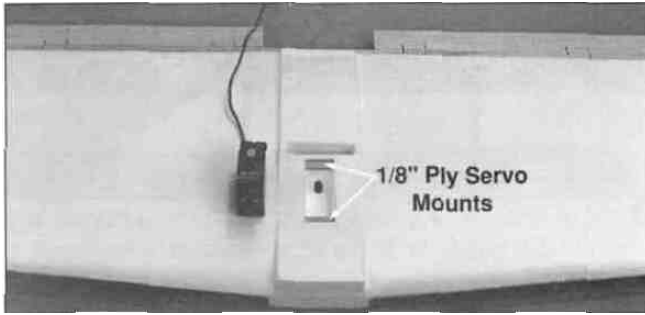
❏ 2 Drill or cut a hole through the wing to allow the servo cord to pass, then test fit your servo in the wing so the output shaft is closest to the trailing edge Make adjustments to the spacing of the rails if required Then mount the servo with the screws included with your radio system.

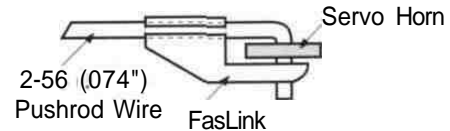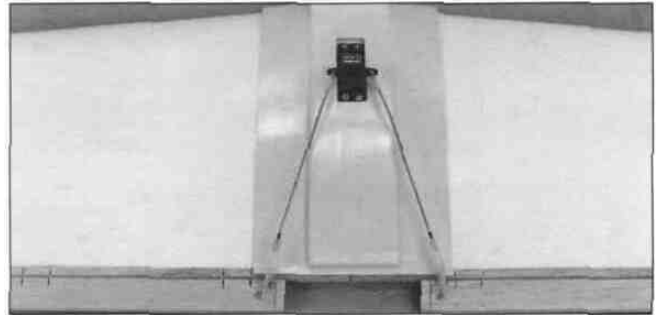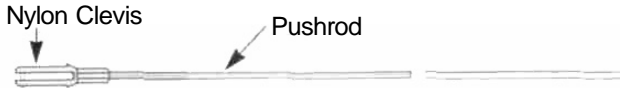❏ 3. Use Kyosho® Lexan® Scissors or a hobby knife with a sharp #11 blade to cut out the servo area on the plastic **Wing Shield.** Trim the edges of the wing shield to fit the wing Temporarily set the wing shield in position on the wing but do not glue it until instructed to do so

Connect The Pushrods

Nylon Clevis   Pushrod

❏ 1 Draw a line on each aileron 1/4" from the inboard tip Screw a nylon **Clevis** about 20 turns onto each 12" wire **Pushrod.** Connect a nylon control horn to each clevis in the second hole from the top

❏ 2 Fit a servo **arm** on your servo Position each control horn (with the pushrod connected) on the ailerons so that the edge of the horn is on the line and the control rods are over the holes on the servo arm Drill and mount the control horns to the ailerons with 2-56 x 1/2" screws, then use a felt-tip pen to mark where the pushrods intersect the holes on the servo arm

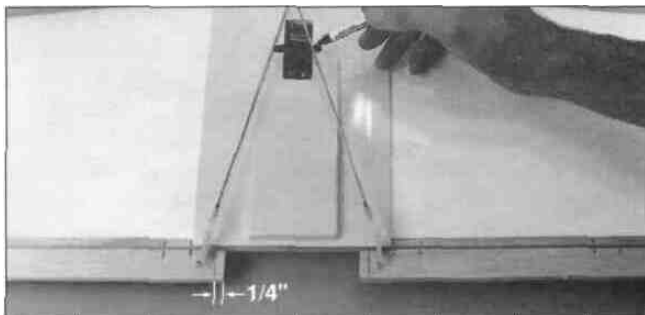

Servo Horn

2-56 (074") Pushrod Wire   FasLink

❏ 3 Make a 90 degree bend at each mark Then cut the pushrods 1/4" past the bend you just made and connect them to the servo arm with a **Nylon FasLink** pushrod keeper

Assemble The Fuselage

Install The Engine Mount & Fuel Tank

❏ 1 Test fit your engine to the **Engine Mount** If the engine is within the recommended range but does not fit, use a Dremel Moto-Tool or a file to carefully grind away the plastic until your engine drops into the mount Mark the location of the engine mounting holes, then drill 7/64' holes for mounting the engine with # 6 x 1 " screws and washers (not included) Some modelers prefer to drill and tap the holes for 6-32 machine screws instead

Outer Pushrod Tube
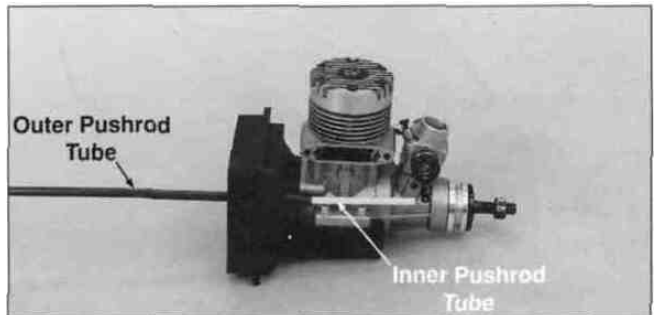
Inner Pushrod Tube

❏ 2 Mark the location where the throttle pushrod will pass through the engine mount when it is connected to the throttle Drill a 3/16" hole through the engine mount at this point Temporarily mount the engine to the mount Fit a 12" **Outer Pushrod Tube** and a 12" **Inner Pushrod Tube** through the hole in the engine mount.

→| |←5/16"
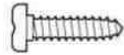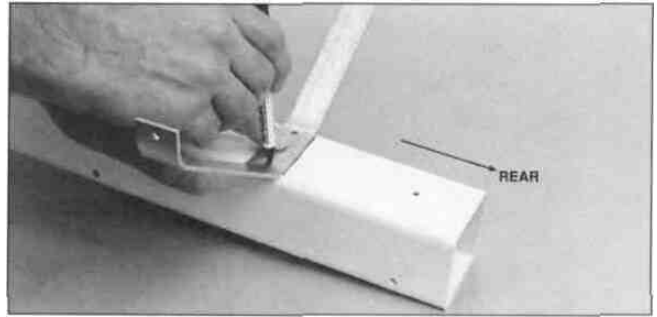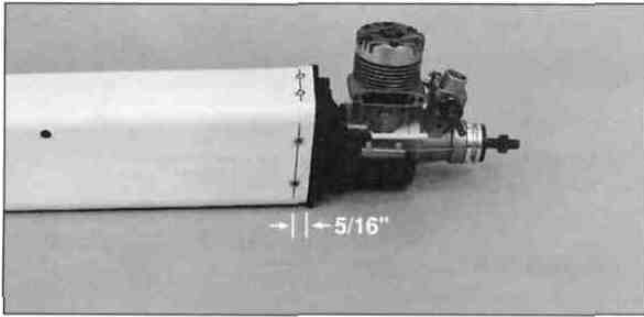
#6x1/2" Sheet
Metal Screw

❑ 3. Mark the locations on the sides, top and bottom of the **Fuselage** for the eight mounting holes, evenly spaced, 5/16" behind the front edge. Fit the mount in position, then drill eight 7/64" mounting holes through the fuselage into the engine mount. **Be careful not to drill into the throttle pushrod.** Install the engine mount on the fuselage with eight #6 x 1/2" sheet metal screws.

❑ 4. Assemble an 8 oz. fuel tank according to the manufacturer's instructions and install 6" of medium fuel line on the fill and vent tubes. Insert the fuel tank into the rear of the fuselage and slide it up to the front with the throttle pushrod between the tank and the fuselage side. Route the vent an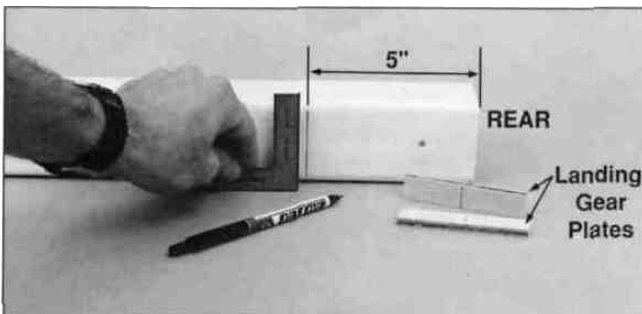d filler lines through the hole in the center of the engine mount. Confirm that you have not distorted the throttle pushrod too much due to the location of the fuel tank - make sure that the inner pushrod can still easily slide in and out of the outer pushrod.

Mount The Landing Gear

5"

REAR

Landing Gear Plates

❑ 1. Place the fuselage on its side and use a 90° triangle or a builder's square to mark a line 5" from the rear of the fuselage. Draw a line across the middle of each 1/4" thick plywood **Landing Gear Plate.**

REAR

❑ 2. Align the **aft edge** of the aluminum **Landing Gear** with the line you drew on the bottom of the fuselage, then mark the location of the two **outermost** holes in the landing gear. Drill a 7/64" hole through the fuselage at each mark.

❑ 3. Use coarse sandpaper and a sanding block to round off a bottom corner of each landing gear plate so it conforms to the curve inside the fuselage. The bottom of each landing gear plate is the side with the line you drew. Place each landing gear plate inside the fuselage so the line is visible through the holes you drilled, then mark the location of each hole on the landing gear plate. Drill a 7/64" hole through each plate.

❑ 4. Enlarge the landing gear holes in the **fuselage only** with a 5/32" drill bit. Use two #6 x 1/2" screws to mount the landing gear to the fuselage with the landing gear plates inside. **Optional:** For added strength, glue the landing gear plates to the fuselage.

❑ 5. Remove the engine from the mount. Then secure the wire **Nose Gear** to the engine mount with three 5/32" wheel collars and 6-32" x 1/4" screws. Insert one of the wheel collars into the nylon **Steering Arm.** Arrange the wheel collars and temporarily tighten the screws so the fuselage is level when sitting on your workbench.
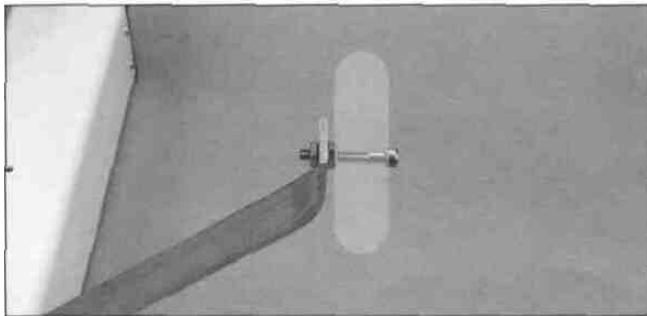
❏ 6. Drill the hub of the 2-1/2" main wheels with a #18 (or 11/64") drill, then secure them to the landing gear with **8-32 x** 1-1/4" socket head cap screws and a 6-32 nut. Apply thread lock compound to the remaining portion of the 8-32 cap screw, then screw it into the landing gear and secure it with another nut and another drop of thread lock. Secure the front wheel to the nose gear with a 5/32" wheel collar (not supplied) on each side of the wheel.

❏ **7. Set the fuselage on the** landing gear and readjust the wheel collars on the nose gear so the fuselage is level when sitting on your workbench. Secure the 6-32 screws in the wheel collars with a drop of thread lock or CA.

Radio Installation

Install The Servos

❏ 1. Use 6-minute epoxy to glue two 6-32 x 1/2" machine screws in the front holes in the bottom of the fuselage channel. Insert the screws from the inside of the channel just like the rear 4-40 screws for the stab.

❏ 2. Insert three servos into the fuselage channel as shown in the sketch above. Wrap two layers of 1/2" fiberglass reinforced tape around the servos and the channel. The front servo should be about 1" behind the front edge of the channel and the servos should not be touching each other. Install a servo arm on each servo.

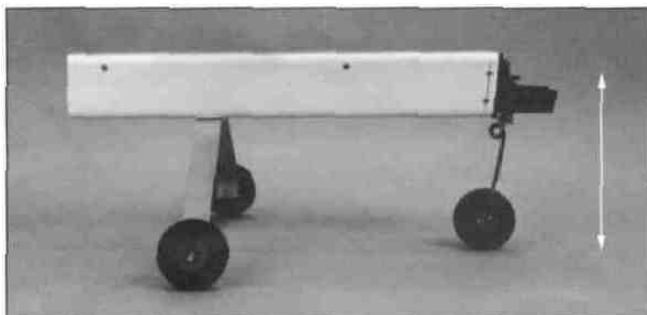❏ 3. Temporarily connect the servos to the receiver and the battery pack, then turn the system on to center the servos. Position the servo arms on the centered servos in a neutral position as shown in the photo above. Turn off the transmitter and receiver. Then disconnect the receiver and battery.

❏ 4. There are several ways to mount the receiver. The fastest and easiest way is to wrap it with 1/4" foam rubber, then secure it with tape or rubber bands to the fuselage channel behind the rear servo. Or, you could make a receiver plate out of 1/8" lite-ply which can be permanently mounted to the fuselage channel. The receiver is in turn mounted to the plate with 1/4" foam in between. Make sure this arrangement will clear the rear 1/4" **Wing Dowel** when the fuselage channel is mounted to the fuselage.

Connect The Elevator & Rudder Pushrods

Threaded Stud

❏ 1. Thread a nylon clevis onto a 1" threaded stud about 20 turns, then thread the other end of the threaded stud about 1/2" into a 24" long **Inner Pushrod Tube.** Connect the clevis to the control horn on the elevator. Route the inner pushrod tube over the receiver and place it on top of the elevator servo arm. Cut the inner pushrod tube 7/8" short of the servo arm.

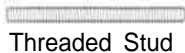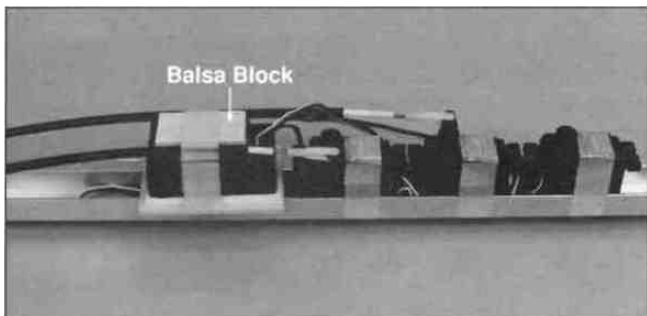❏ 2. Cut a 24" **Outer Pushrod Tube** 2" shorter than the inner pushrod and slide it over the tube. Thread another clevis onto a threaded stud, then screw it into the inner pushrod just the same as you did on the other end. Temporarily connect the clevis to the servo.

❏ 3. Perform the same operation for the rudder with the same hardware you used for the elevator.

❏ 4. Secure the front end of the elevator and rudder outer pushrod tubes by taping them directly to the receiver. **Tip:** Place a 3/16" x 1" x 2" balsa block (not included) between the pushrods.
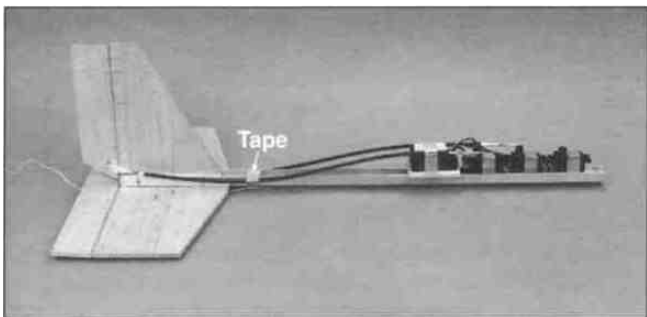
❏ 5. Temporarily tape the aft end of the outer pushrod tubes to the fuselage channel about 1" ahead of the stabilizer.

Connect The Throttle Servo

❏ 1. Connect a clevis using a 1" threaded stud to one end of the 12" inner pushrod tube. Then, from inside the fuselage, slide it into the outer pushrod tube through the engine mount.

6-32 Nut

❏ 2. Temporarily mount the fuselage channel to the fuselage with a 6-32 nut on each of the two 6-32 screws that you glued to the fuselage channel. Mount the engine if you have not already done so.

❏ 3. Connect the clevis on the throttle pushrod tube to **the** throttle servo arm. Use another clevis and a 1" threaded stud to connect the other end of the throttle pushrod to the arm on the carburetor barrel. The outer pushrod tube should be about 1" shorter than the throttle pushrod **at** each end.

Connect The Nose Wheel
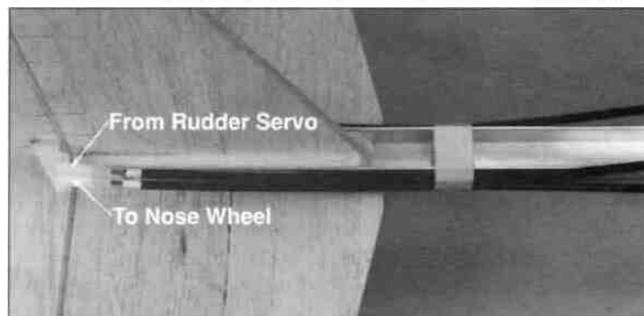
❏ 1. Screw a 1" threaded stud with a clevis into the 36" long inner pushrod tube, then slide it into an outer pushrod tube cut to a length of 30". Connect the clevis to the rudder control horn next to the other clevis from the rudder servo. Remove the tape from Step 5, then tape all three pushrod tubes to the fuse channel.

❏ 2. Install two **Pushrod Hold Down Clamps** on the outer pushrod tube and position them on the bottom of the fuselage at the approximate location shown in the photo in the following step. **Do not drill into the fuel tank, receiver, receiver battery or other equipment.** Drill two 7/64" holes through the bottom of the fuselage. Then use a #6 x 1/2" screw to fasten each nylon clamp to the fuselage.

Pushrod hold down clamp
(Do not drill into the fuel tank)

❏ 3 Cut the inner pushrod tube to the correct length then install the last 1" threaded stud with a clevis Position the steering arm as shown in the photo Adjust the length of the pushrod so that when the rudder is neutral and the pushrod is connected to the steering arm, the nose wheel is also neutral.

❏ 4 Turn the model over and confirm the coordination of the rudder and the nose wheel - when the rudder moves left, the nose wheel should turn left.

Cover The Wing & Tail Surfaces

We presume that the Aerobat will be built by experienced modelers but due to its simple rapid construction, the Aerobat may appeal to less experienced modelers as well For new modelers or those unfamiliar with finishing techniques, we have provided some basic information about the covering materials available and **the** recommended covering sequence.

The foam wing and the balsa surfaces, including the ailerons and tail feathers, must be covered with a protective, fuelproof finish Among the many model airplane covering materials available Top Flite EconoKote film is recommended EconoKote film requires a lower heat range to apply than other iron-on films, so it can be applied over the foam wing It can also be applied to the wood tail surfaces as well Apply EconoKote film with a hobby heat seal **iron.**

One six-foot roll will be enough to cover the Aerobat, but if you wish to add trim colors or other designs, you will have to purchase more than just one roll

Prepare The Tail Feathers & Wing For Covering

❏ 1 Disconnect the elevator and rudder pushrods from the tail feathers Remove the control horns and hinges. Then take the stabilizer and fin off the fuselage channel Use a sanding block and 150-grit sand paper to round the leading edges of the fin and stabilizer Final sand all the tail surfaces with 320-grit sandpaper **Tip:** If you don't mind a little extra work and would like to have a better looking model with a 'finished" appearance, taper the rudder and elevator by sanding the trailing edges to a thickness of approximately 3/32' This is optional and does not affect the flight performance of the Aerobat.

❏ 2 While the ailerons are still connected, sand the tips of the wing so the balsa trailing edge and ailerons are all flush with the wing tip Disconnect the pushrods and remove the control horns from the ailerons Detach the ailerons from the wing and remove the hinges

❏ 3 Apply white Hobbico HobbyLite" filler to any dents in the foam wing After the filler has hardened, use a sanding block and 220-grit sandpaper to remove irregularities and the seam on the leading edge For the best appearance, it is recommended that final sanding be done with 320-grit sandpaper but without a sanding block **Tip:** As with the rudder and elevator, for a "finished" appearance, you may taper the ailerons

❏ 4 Before covering, remove as much balsa and foam dust as possible left from sanding the model This can be done with compressed air, a vacuum cleaner, a brush or a tack cloth.

Now the Aerobat 40 wing and tail feathers are ready for covering

Cover The Wings & Tail Feathers

Carefully follow the instructions included with the covering you have selected

Tips For Covering A Foam Wing With EconoKote Film

Many modelers are experts at applying iron-on coverings to wood surfaces but have never tried it over foam. Here are some tips

A Top Flite Hot Sock" is highly recommended for covering the foam wing. It helps distribute the heat and keeps dents, scratches or 'swirls' from being added during covering

Find the optimum temperature of the iron. The hotter the better, up to the point of distorting the foam. The Top Flite MonoKote Iron can be set at around "2-1/4", but this may vary from iron to iron. Use the flat center section on the bottom of the wing as a test area. Cut out a piece of covering and apply it to the bottom of the wing in the center. Increase the heat of the iron until the covering gets that 'pig skin' look (like a football). At that point the iron is slightly too hot, so turn the heat down a little and you're ready to apply the covering.

Start by touching the iron to the middle of the covering and work outward when covering the wing (or other large surfaces).

Lightly "push out" wrinkles and air bubbles as you get to the edges.

Don't be afraid to press down on the iron and apply a little pressure to the covering. This helps bond it to the foam and will eliminate wrinkles and air bubbles from appearing later

Avoid moving the iron in a circular motion and hold it as flat as possible.

Always use a sharp hobby knife to cut the covering. Some **modelers** prefer a single edge razor blade for this

Cover The Wing In This Sequence

- ❏ 1 Bottom of the center section
- ❏ 2 Right, then left wing tip
- ❏ 3 Bottom right wing panel
- ❏ 4 Bottom left wing panel
- ❏ 5 Top left wing panel*
- ❏ 6 Top right wing panel
- ❏ 7 Ailerons**

* If you have decided to glue the plastic wing shield to the wing **after** the covering is applied, temporarily place the wing shield on the wing. Then lightly trace its outline onto the wing. The covering should extend past the line and "under lap" the wing shield by 1/8". The wing shield must be glued directly to the bare foam, not the covering.

Cover The Tail In This Sequence**

- ❏ 1 Stab bottom plate
- ❏ 2 Stab bottom left, **then right****
- ❏ 3 Stab top
- ❏ 4 Elevator
- ❏ 5 Fin **Base Sides**
- ❏ 6 Fin left, then right side
- ❏ **7. Rudder**

** Some modelers cover the **tips** of the ailerons, elevator, rudder, stab and fin separately. If you use this method, this should be done first. Generally, it is easiest to cover the stab and fin in two pieces (halves). The ailerons, rudder and elevator are smaller, so they may be covered in one piece by "wrapping" the covering all the way around. Try to make all seams in the covering face rearward or downward.

Final Assembly

Glue The Hinges

DRILL A 3/32" HOLE 1/2" DEEP, IN CENTER OF HINGE SLOT
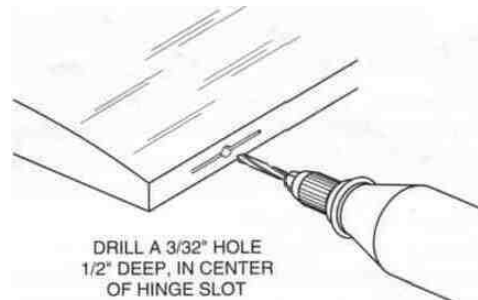
❏ 1 Slit the covering on all the surfaces where each hinge slot is located. Drill a 7/64" hole 1/2" deep in the center of each slot. This will enable the CA to "wick" into the hinge much better.
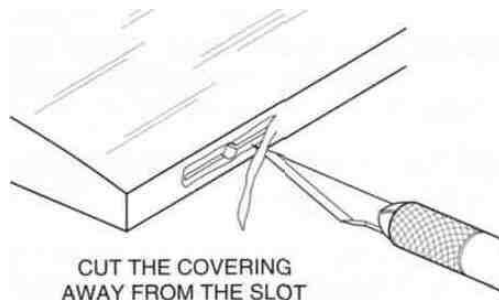
CUT THE COVERING AWAY FROM THE SLOT

❏ 2. Cut the covering away from the slot.
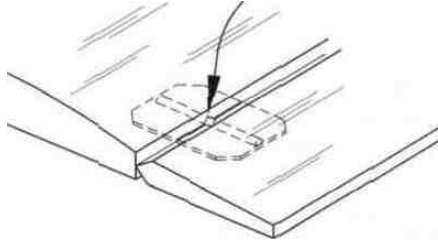
❏ 3 Insert the hinges and attach the ailerons to the wing the elevator to the stab, and the rudder to the fin Glue the hinges by applying 6 drops of thin CA to the center of the hinge, on both sides.

Reassemble The Model

❏ 1. Add a 1/16" thick x 5/16" wide strip of wing seating foam tape to the wing saddle area on the fuselage (where the wing contacts the fuselage) Round the ends of the 1/4" **Wing Dowels,** then install them in the fuselage No glue is required to secure the dowels

❏ 2 Roughen the underside of the wing shield with 150-grit sandpaper so glue will adhere then glue it to the wing with 30-mmute epoxy **Tip:** "Clamp the wing shield to the wing by mounting the wing on the fuselage with #64 rubber bands with the wing shield in position
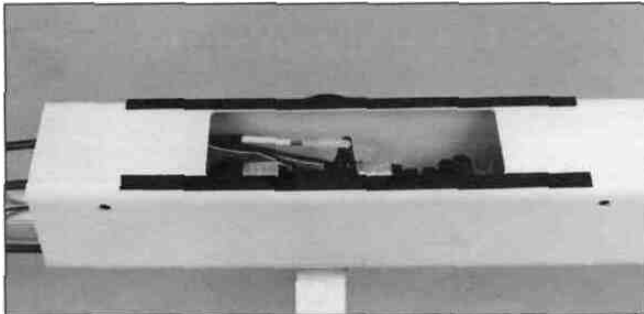
❏ 3 Reinstall the aileron control horns and hook up the linkages

❏ 4 Mount the stab and rudder to the fuselage channel as you did during construction Use thread lock or CA on all **the** nuts Install the control horns and connect the pushrods

❏ 5 Mount a 2-1/4" spinner (optional) and a propeller of the correct size to the engine

❏ 6 Mount the switch You can cut a slot and drill two holes just about anywhere and mount it directly to the fuselage or you can use foam mounting tape to secure the switch inside the fuselaae at the rear where it is accessible

Balance The Model (Check The Center Of Gravity)

This procedure must not be omitted. A model that is improperly balanced will be uncontrollable, resulting in a crash and possible damage to persons or property.

Note: The C.G. must be determined with the fuel tank empty.
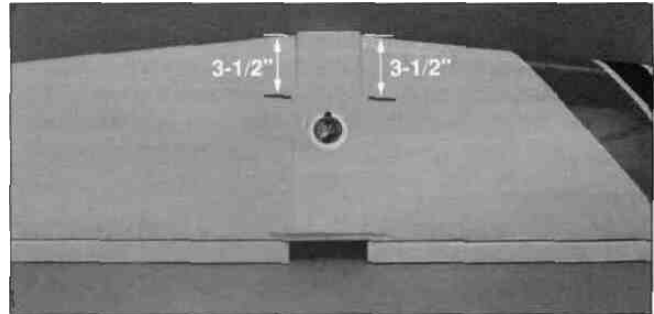
❏ 1 Apply two pieces of 1/8" wide tape or use a felt-tip pen to mark the **Center of Gravity** (C G) location on the bottom of the wing, near the fuse, 3-1/2' back from the leading edge

❏ 2 Mount the wing to the fuselage with a couple of #64 rubber bands With your battery pack handy, lift the model at the C G location on each side of the wing Position the battery pack on the wing until the model is level or slightly nose down This is the position where you must mount the battery pack inside the fuselage Try to position the battery pack so no ballast will be required to correct the C G

Final Hookups & Checks

❏ 1 Mount the battery pack There are several ways to do this Wrap the battery pack in 1/4" thick foam and tape it directly to the fuselage channel or mount it to the inside of the fuselage with foam mounting tape On our prototype, the 500 mAh flat battery pack was mounted directly to the inside of the fuselage next to the front servo with no additional weight required for C G correction.

❏ 2 Recheck the C G Add stick-on lead weights to the nose or tail of the model if required to correct the C G.

CUT   CUT

                                    RUBBER
                                    BAND   T-PIN

STRAIN RELIEF   ANTENNA HOLDER
INSIDE FUSELAGE   AT THE TOP OF THE
                       VERTICAL STABILIZER
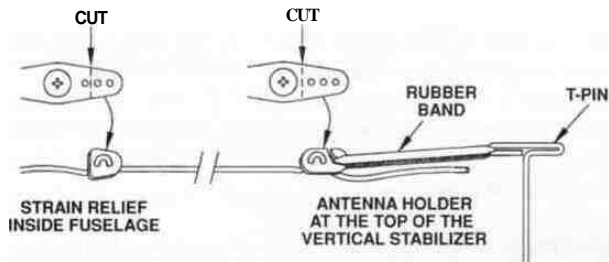
❏ 3. Route the receiver antenna. You can secure it to the top of the fin with a piece of tape or make a strain relief and antenna hook out of a servo arm as shown in the sketch. Connect the rubber band to a pin Inserted into the top of **the** fin.

Nylon Clevis

❏ 4. Add silicone Clevis Retainers to all clevises on the model.

❏ 5. Cut the plastic **Cowl** along the cut lines. With the wing mounted to the fuselage, position the cowl so it mates with the wing. Then use double sided tape or foam mounting tape to hold the cowl to the fuselage.

Control Surface Throws

We recommend the following control surface throws as a starting point. The throws are measured at the trailing **edge** of the ailerons, elevator and rudder:

Ailerons ....7/16" ....Up and Down

Elevator........................7/16"................Up and Down

Rudder ....3/8" ....Left to Right

Before Going To The Flying Field

4-CHANNEL RADIO SET-UP
(STANDARD MODE 2)

ELEVATOR MOVES UP

RIGHT AILERON MOVES UP
LEFT AILERON MOVES DOWN

RUDDER MOVES RIGHT

CARBURETOR WIDE OPEN

❏ 1. Confirm the direction of the controls.

❏ 2. It is highly recommended that you balance the propeller. An unbalanced propeller can cause poor engine performance and decrease its life. Vibration can cause problems with your in-flight radio system. A Top Flite Precision Magnetic Balancer is recommended (TOPQ5700).

❏ 3. Make sure the fuel lines are properly connected. **An in-line fuel filter is recommended.**

❏ 4. Make sure the transmitter and receiver batteries are fully charged.

❏ 5. Perform a range check of your radio system as described by the radio manufacturer.

We mounted an O.S.® .48 Surpass™ on an Aerobat 40. It's a great way to experiment or get the feel of a 4-stroke for the first time. Besides, it flies great!

Requires: Great Planes 40-70 Adjustable
             Mount (GPMG1061)

             DuraCraft Trainer 20
             Firewall (DPL2F03)

Flying

The DuraCraft Aerobat 40 is intended for intermediate to expert level pilots Beginners can enjoy flying the Aerobat 40 also, if they have had experience flying trainer models

TAKEOFF: Control throws are not provided for the nose wheel as this varies greatly depending on the conditions of the field More nose steering will be required if taking off a grass field than would be required if taking off from a paved runway Too much nose wheel throw will make it difficult to keep the model on heading during roll out - especially if using a paved runway Move the clevis out one or two holes on the steering arm of the nose gear for less response

Unless you are a highly experienced pilot, first flight attempts should be reserved for calm days or when the prevailing wind is down the runway if possible Advance the throttle slowly at first Then a little more rapidly, apply full throttle Build as much ground speed as your strip will allow, then smoothly apply up elevator until the nose wheel rotates and the airplane lifts into the air Don't 'yank up" on the stick but slightly relax the up elevator and allow the Aerobat to steadily climb to a comfortable altitude before executing the first turn.

FLYING: The Aerobat is a straightforward model with no unexpected tendencies Once airborne get the trims corrected before attempting any aerobatics Fly a few straight and level passes adjusting the trims each time The most important recommendation we have is to get used to the feel of the model and the control rates The

recommended throws are relatively mild so after familiarizing yourself with the model, experts will most likely wish to add a little more aileron throw and considerably more elevator throw If the model seems unstable or reacts too quickly to control inputs the C G may be too far aft Add some weight to the nose if this is the case At a high altitude, throttle back to see how the Aerobat will handle during landing approach

LANDING: Make sure you have enough fuel left to make a few landing approaches Use a normal landing circuit and keep a few clicks of power on until you are over the runway threshold Plan to land a little faster on your first few attempts until you really get the feel of the Aerobat.

The Aerobat is a tough "kick around" plane that looks rather sporty and is lots of fun to fly So get carried away and have a blast'

BUILDING NOTES	
Kit Purchase Date	Date Construction Finished
Where Purchased	Finished Weight
Date Construction Started	Date of First Flight

Flight Log

DURAPLANE Aerobat 40

Everything For Flying Your Aerobat!

DuraPlane Funfly 40
A low-risk way to learn Fun Fly maneuvers this competition Fun Fly style model has a fully symmetrical wing and huge control surfaces It features injection-molded parts that save time and aluminum channel reinforcements for extra strength High-quality components and a low parts count make the DuraPlane series the most rugged and practical airplanes available **DURA1150**

Hobbico* Ultra-Tote" Field Box
Keep your field gear organized and handy with the Hobbico Ultra-Tote Tools can be stored in its deep roomy drawer held closed by a hook & loop strip Foam padded cradles are included for plane repairs and maintenance Also featured are a ventilated 12V battery compartment and a power panel opening Comes in kit form with assembly instructions included **HCAP5020**

Futaba* 4NBF Conquest 4-channel Radio
Flexibility and convenience make the Futaba Conquest FM radio systems a good choice for experienced fliers **FUTJ39"**

O.S.* .48 Surpass 4-stroke Engine
Lower noise higher torque increased fuel economy and longer engine life make the 0 S 48 Surpass engine an excellent choice for your Aerobat **OSMG0848**

Great Planes Pro' Thin, Instant Set CA
Instant-setting Pro CA is ideal for fast assembly with a curing time of 1-3 seconds All Pro CAs are dated for freshness **GPMR6002**

Great Planes Pro Medium CA
Thick CA+ is an excellent gap filler that cures in 10-15 seconds All Pro CAs wick better into balsa wood for the strongest possible bond **GPMR6008**

Great Planes Pro 6-minute Epoxy
Pure powerful Pro 6-minute Epoxy cures quickly while also providing incredible strength Two-bottle set includes 4 5 oz bottles of epoxy and hardener **GPMR6045**

Great Planes Pro 30-minute Epoxy
Pro 30-minute Epoxy provides modelers with longer curing time to reposition parts and provides greater strength for high-stress areas **GPMR6047**