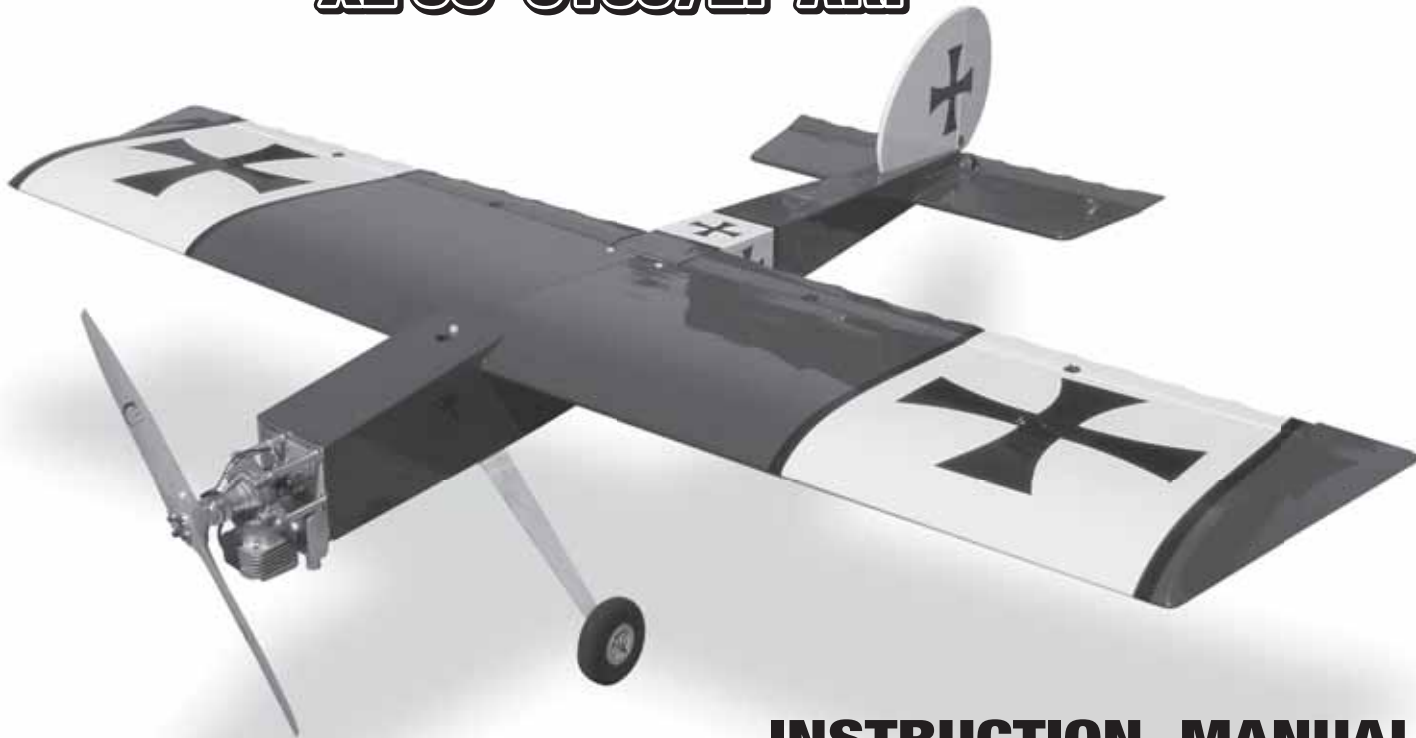


GIANT BIG STIK

XL 55-61cc/EP ARF



INSTRUCTION MANUAL

SPECIFICATIONS

Wingspan: 96.5 in [2451mm]	Wing Area: 2029 in ² [131 dm ²]	Engine: 3.4 – 3.7 cu.in. [55–61cc] spark ignition gas
Length: 85 in [2159mm]	Wing Loading: 20–24 oz/ft ² [61–73 g/dm ²]	Motor: Great Planes RimFire .65 (80-85-160) Outrunner Brushless
Weight: 18–21 lb [8165–9525 g]		
Radio: 5+ channel radio	Battery: 12S 5000mAh	ESC: 160A High Voltage

WARRANTY

Great Planes® Model Manufacturing Co. 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 Great Planes' liability exceed the original cost of the purchased kit.** Further, Great Planes reserves the right to change or modify this warranty without notice.

In that Great Planes has no control over the final assembly or material used for final assembly, no liability shall be assumed nor

accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

To make a warranty claim, go to: greatplanes.com/support

READ THROUGH THIS MANUAL BEFORE STARTING CONSTRUCTION. IT CONTAINS IMPORTANT INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.



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INTRODUCTION

The Big Stik has been around for many years and is a favorite of many modelers. It's the plane that you take to the field to just toss around and have fun. Great Planes has now increased the fun by increasing the size. We believe you will be very pleased with the ease of assembly and flight performance of the 55cc Big Stik ARF.

For the latest technical updates or manual corrections to the 55cc Big Stik ARF, visit the Great Planes web site at www.greatplanes.com. Open the "Airplanes" link, then select the "55cc Big Stik ARF." If there is new technical information or changes to this model, a "tech notice" box will appear in the upper left corner of the page.

Academy of Model Aeronautics

If you are not already a member of the AMA, please join! The AMA is the governing body of model aviation and membership provides liability insurance coverage, protects modelers' rights and interests and is required to fly at most R/C sites.

Academy of Model Aeronautics

5151 East Memorial Drive
Muncie, IN 47302-9252

Tele. (800) 435-9262
Fax (765) 741-0057



Or via the Internet at: <http://www.modelaircraft.org>

IMPORTANT!!! Two of the most important things you can do to preserve the radio controlled aircraft hobby are to avoid flying near full-scale aircraft and avoid flying near or over groups of people.

FAA Information

As a new owner of an unmanned aircraft system (UAS), it is your responsibility to operate this vehicle safely following the FAA rules. Please contact your local authorities to find out the latest rules and regulations. As of this printing, the FAA does not require an FAA number on your plane.



Federal Aviation
Administration

In the United States, please visit:
knowbeforeyoufly.org faa.gov/uas

SAFETY PRECAUTIONS

**Protect Your Model, Yourself & Others...
Follow These Important Safety Precautions**

1. Your 55cc Big Stik ARF should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. Because of its performance capabilities, the 55cc Big Stik ARF, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage to property.

2. You must assemble the model **according to the instructions**. Do not alter or modify the model, as doing so may result in an unsafe or unflyable model. In a few cases, the instructions may differ slightly from the photos. In those instances, the written instructions should be considered as correct.
3. You must take time to **build straight, true and strong**.
4. You must use an R/C radio system that is in good condition, a correctly sized engine, and other components as specified in this instruction manual. All components must be correctly installed so that the model operates correctly on the ground and in the air. You must check the operation of the model and all components before **every** flight.
5. If you are not an experienced pilot or have not flown this type of model before, we recommend that you get the assistance of an experienced pilot in your R/C club for your first flights. If you're not a member of a club, your local hobby shop has information about clubs in your area whose membership includes experienced pilots.
6. While this ARF has been flight-tested to exceed normal use, if the plane will be used for extremely high-stress flying, such as racing, or if an engine larger than one in the recommended range is used, the modeler is responsible for taking steps to reinforce the high stress points and/or substituting hardware more suitable for the increased stress.
7. **WARNING:** If you are powering this plane with an electric motor, set the fail-safe on your transmitter so that the motor is off if the signal is lost and follow the safety precautions in the back of the manual.

We, as the ARF manufacturer, provide you with a top-quality, thoroughly tested ARF and instructions, but ultimately the quality and flyability of your finished model depends on how you assemble it; therefore, we cannot in any way guarantee the performance of your completed model, and no representations are expressed or implied as to the performance or safety of your completed model.

REMEMBER: Take your time and follow the instructions to end up with a well-built model that is straight and true.

DECISIONS YOU MUST MAKE

This is a partial list of items required to finish the 55cc Big Stik ARF that may require planning or decision-making before starting to build. Order numbers are provided in parentheses.

Gas Engine Recommendations

The recommended engine size range for the 55cc Big Stik ARF is a 55 – 61cc [3.4 – 3.7 ci.] two-stroke gasoline engine. We used the DLE-55RA, DLE-61 and O.S. GT60 engines. Other engines can also be used, but you may need to make modifications for mounting those engines.

- DLE-55RA (DLEG0455)
- DLE-61 (DLEG0061)
- O.S. GT60 (OSMG1560)

The stock mufflers for DLE engines can be used.

The O.S. GT60 (OSMG1560) requires (4) 2" (51mm) standoffs (OSMG8962) An aftermarket muffler will also be required for the O.S. GT60 engine.

ELECTRIC MOTOR RECOMMENDATIONS

- Great Planes RimFire 65 [80-85-160] Outrunner Brushless Motor (GPMG4805)
- Castle Creations Phoenix Edge 160HV 50V 160 Amp ESC (CSEM0300)
- Male Star Plug (HCAM4010) (for the ESC)
- Series Battery Connector (GPMM3143)
- Two FlightPower LiPo FP50 5000mAh 22.2V Batteries (FPWP5506)
- Great Planes Standoff Brushless Motor Mount XX Large (GPMG1275)
- Propeller 24x12E

RADIO EQUIPMENT

The radio installation for the 55cc Big Stik ARF can be achieved using three different radio set-ups: a basic Radio Set-up, an Advanced Set-up and the S.Bus System Set-up.

Basic Radio Set-Up

The Basic Radio Set-up requires a 5-channel receiver. A Y-harness is used to connect the two aileron servos together and the two flap servos together. The Y-harnesses are then plugged into the receiver. The rudder, elevator and throttle are also plugged into the appropriate channels in the receiver.

- Futaba R617FS 7-Channel FASST Receiver (FUTL7627)

RECOMMENDED SERVOS: All control surfaces require the use of a high-quality servo of at least 100 oz-in of torque. A servo of 40 oz-in of torque can be used for the throttle.

Function	Servos required
Elevator	○ 1 (min. 100 oz-in torque) (Futaba S9452 FUTM0662)
OR	○ Tactic TSX47 (TACM0247)
Rudder	○ 1 (min. 100 oz-in torque) (Futaba S9452 FUTM0662)
OR	○ Tactic TSX47 (TACM0247)
Ailerons	○ 2 (min. 100 oz-in torque) (Futaba S9452 FUTM0662)
OR	○ Tactic TSX47 (TACM0247)

Flap

- 2 (min. 100 oz-in torque) (Futaba S9452 **FUTM0662**)

OR

- Tactic TSX47 (**TACM0247**)

Throttle

- 1 (standard) (Futaba S9001 **FUTM0075**)

Total 7 servos

- (2) 40" Servo Extension (FUTM4148) (for aileron servos)

OR

- (2) 36" Servo Extension (TACM2726)
- (2) 16" Futaba Heavy-Duty Servo Extension (FUTM4145) (for flap servos)

OR

- (2) 12" Tactic Servo Extension (TACM2093)
- (2) Y-Harness (FUTM4135) (TACM2751) (for connecting the aileron servos and flap servos)
- (1) Heavy-Duty On/Off Switch (FUTM4390) (TACM2761)

Additional Items for Electric Motor Installation

- (1) 16" Futaba Heavy-Duty Servo Extension (FUTM4145) (for ESC)

OR

- (1) 12" Tactic Servo Extension (TACM2093)
- (1) 3200mAh LiFe Receiver Battery (HCAM6446)

OR

- (1) Castle Creations BEC 2.0 20A Max (CSEM1540)
- (1) 1" x 6" Adhesive-Backed Velcro (GPMQ4480)

Additional Items for Gas Engine Installation

- (1) 8" Futaba Servo Extension (FUTM4140) (for the throttle servo)

OR

- (1) 6" Tactic Servo Extension (TACM2700)
- (1) Heavy-Duty On/Off Switches (FUTM4390) (TACM2761) for ignition
- (1) 1300mAh LiFe Ignition Battery (HCAM6411)
- (1) 3200mAh LiFe Receiver Battery (HCAM6446)

Advanced Radio Set-Up

The Advanced Set-up has each servo plugged into the receiver on its own channel. The channels can then be mixed together using the transmitter. This method will require a 7-channel receiver.

Futaba R617FS 7-channel FASST receiver (FUTL7627)

The same servos used in the Basic Radio Set-up.

- (2) 40" Servo Extension (FUTM4148) (for aileron servos)

OR

- (2) 36" Servo Extension (TACM2726)
- (2) 16" Futaba Heavy-Duty Servo Extension (FUTM4145) (for flap servos)

OR

- (2) 12" Tactic Servo Extension (TACM2093)
- (1) Heavy-Duty On/Off Switch (FUTM4390) (TACM2761)

Additional Items for Electric Motor Installation

- (1) 16" Futaba Heavy-Duty Servo Extension (FUTM4145) (for ESC)

OR

- (1) 12" Tactic Servo Extension (TACM2093)
- (1) 3200mAh LiFe Receiver Battery (HCAM6446)

OR

- (1) Castle Creations BEC 2.0 20A Max (CSEM1540)
- (1) 1" x 6" Adhesive-Backed Velcro (GPMQ4480)

Additional Items for Gas Engine Installation

- (1) 8" Futaba Servo Extension (FUTM4140) (for the throttle servo)

OR

- (1) 6" Tactic Servo Extension (TACM2700)
- (1) Heavy-Duty On/Off Switches (FUTM4390) (TACM2761) for ignition
- (1) 1300mAh LiFe Ignition Battery (HCAM6411)
- (1) 3200mAh LiFe Receiver Battery (HCAM6446)

S.BUS System

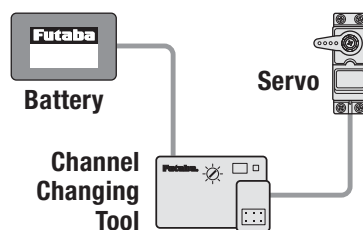
A Cutting-Edge Alternative to Standard Servo Installation!

The innovative Futaba S.Bus system lets you unleash your flight system's full potential and cut down on cable clutter at the same time. It uses digital serial data communication technology to transmit control signals between your receiver and servos. A single S.Bus cable can carry signals to as many channels as your transmitter can handle. You no longer have to worry about plugging in the wrong servo to the wrong channel, because each servo knows what channel it is dedicated to in advance.

SBD-1 S.Bus Decoder Cables allow the use of existing analog and digital servos, too. By providing today's pilots with tomorrow's technology, the Futaba S.Bus system is nothing short of revolutionary.

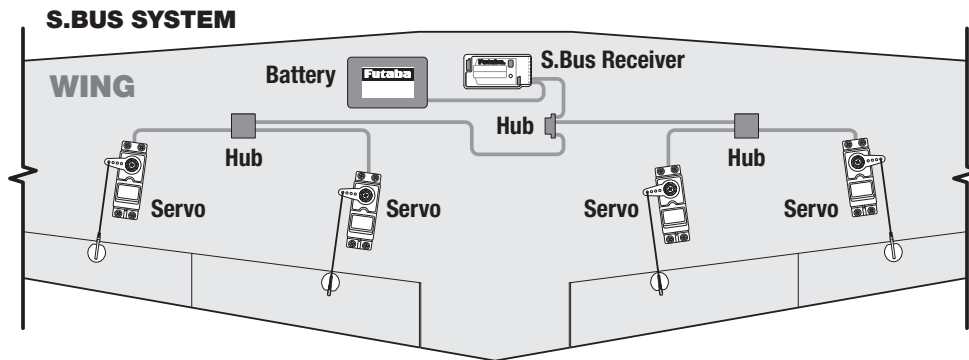
Installing the S.Bus System

Installation is actually simplified as compared to your normal system installation. Using the S.Bus system you plug a battery into the SBC-1 channel changing tool, using it to program which channel you want the servo to operate on.



Once programmed, the servo will operate as required, regardless of which lead it is plugged into. Do this for all of the servos that you want to operate on the S.Bus system. Install the servos in the airplane

and plug them into the S.Bus lead, piggybacking them one onto another. Once completed, you plug one lead into the receiver for all of the servos and all of the servos will function as programmed. One lead operates up to 16 servos!



S.Bus leads are available in a number of different lengths to accommodate installation into any size airplane, regardless of its complexity.

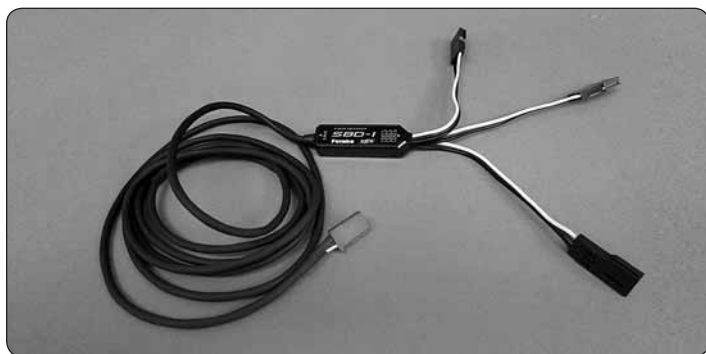


There are many choices for the S. Bus receivers; some are tiny 3-port receivers with others being up to 18 channels. The 8 PWM outputs can be used as you would normally set up a model, allowing you to split the

model and have some of it set up as S.Bus while other servos are not using the S. Bus system. Something else to note is that some of the S. Bus servos and receivers are HV, or High Voltage, meaning that you could run a straight 2S LiPo for your receiver battery.



Many servo choices are available for use in a wide variety of aircraft from micros to the largest models.



Your system is not limited to programming only through the SBC-1 channel changing tool and your transmitter. Utilizing the USB interface, the CIU-2, you can do all of the programming using your PC. Programming with this interface gives more flexibility and programming options than can be achieved

with any other radio system. To utilize standard, non-S.Bus servos, you simply use the S.Bus decoder instead of the S.Bus lead.

S.BUS System Set-Up

S.Bus Radio Equipment Recommendations

The S.Bus Setup will make the radio installation easier and cleaner. It will also allow the servos to be powered directly from the receiver battery, reducing any voltage drop through the receiver. This manual will show the installation of the S.Bus Set-up in the 55cc Big Stik ARF.

The following is required if using S.Bus servos.

- (1) S.Bus Receiver Futaba R7006SB (FUTL7673)
- OR**
- (1) S.Bus Receiver Futaba R7008SB (FUTL7675)
- OR**
- (1) S.Bus Receiver Futaba R6208SB (FUTL7668)
- (6) Futaba S3071HV S.Bus Servos (FUTM0717)
- (1) Futaba 6-Way Terminal Box (FUTM4199)
- (1) FSH-64 200mm Extension S.Bus Male to Male (FUTM4664)
- (3) S.Bus Hub w/Cable 12" (300mm) (FUTM4195) (S.Bus servo installation only)
- (2) Futaba Heavy-Duty Servo Extension 16" (FUTM4145) (for aileron servos)
- (1) Heavy-Duty On/Off Switch (FUTM4390) (TACM2761)

Additional Items Required for Electric Motor Installation

- (1) 16" Futaba Heavy-Duty Servo Extension (FUTM4145) (for ESC)
- OR**
- (1) 12" Servo Extension (TACM2093)
- (1) 3200mAh LiFe Receiver Battery (HCAM6446)
- OR**
- (1) Castle Creations BEC 2.0 20A Max (CSEM1540)
- (1) 1" x 6" Adhesive-Backed Velcro (GPMQ4480)

Additional Items for Gas Engine Installation

- (1) 8" Futaba Servo Extension (FUTM4140) (for the throttle servo)
- OR**
- (1) 6" Tactic Servo Extension (TACM2700)
- (1) Heavy-Duty On/Off Switches (FUTM4390) (TACM2761) for ignition

- (1) 1300mAh LiFe Ignition Battery (HCAM6411)
- (1) 3200mAh LiFe Receiver Battery (HCAM6446)

The following are additional items required if using the recommended Futaba S9452 servos from the Basic Set-up (non S.Bus servos).

- (6) Futaba S9452 Digital Servos (FUTM0662)
- (1) S.Bus Hub w/Cable 12" (300mm) (FUTM4195)
- (3) S.Bus Decoder (400mm) (FUTM4193)
- (1) S.Bus Channel Changer (FUTM4190) Required if your transmitter does not have an S.Bus Connector (check your transmitter instruction manual).

ADDITIONAL ITEMS REQUIRED

Required Hardware and Accessories for Gas Engine Installation

- (2) Dubro #813 1/8" Fuel Line Barb (DUBQ0670)
- (1) Dubro #800 Large Tygon Fuel Line (DUBQ0493)
- (1) Propeller Drill Guide (DLEQ0551)
- Propeller and spare propellers suitable for your engine.

Adhesives and Building Supplies

This is the list of Adhesives and Building Supplies that are required to finish the 55cc Big Stik ARF.

- 1 oz. [28g] Thin CA (GPMR6002)
- 2 oz. [57g] Spray CA Activator (GPMR6035)
- Pro 30-Minute epoxy (GPMR6043)
- Pro 6-Minute Epoxy (GPMR6042)
- Threadlocker thread-locking compound (GPMR6060)
- Mixing Sticks (GPMR8055)
- Mixing Cups (GPMR8056)
- Epoxy Brushes (GPMR8060)
- Denatured Alcohol (for epoxy clean up)
- #64 Rubber Bands
- Masking Tape
- Paper Towels
- Drill
- Drill Bits: 1/16" [1.5mm], 3/32" [2.5mm], 7/64" [2.8mm], 1/8" [3mm], 3/16" [4.5mm], 13/64" [5mm], 5/16" [8mm]
- Small Metal File
- Stick-On Segmented Lead Weights (GPMQ4485)
- Silver Solder w/Flux (STAR2000)
- Hobbico 60-Watt Soldering Iron (HCAR0776)
- #1 Hobby knife (RMXR6903)
- #11 Blades (5-pack, RMXR6930)
- Rotary Tool such as Dremel
- Rotary Tool Reinforced Cut-Off Wheel (GPMR8200)
- R/C Foam Rubber (1/4" [6mm] (HCAQ1000) or 1/2" [13mm] (HCAQ1050)

Covering Tools

- Top Flite MonoKote Sealing Iron (TOPR2100)
- Top Flite Hot Sock Iron Cover (TOPR2175)
- Top Flite MonoKote Trim Seal Iron (TOPR2200)
- Top Flite MonoKote Heat Gun (TOPR2000)
- Coverite 21st Century Sealing Iron (COVR2700)
- Coverite 21st Century Cover Sock (COVR2702)
- Coverite 21st Century Trim Sealing Iron (COVR2750)

Optional Supplies and Tools

Here is a list of optional tools mentioned in the manual that will help you build the 55cc Big Stik ARF

- CA applicator tips (HCAR3780)
- CA debonder (GPMR6039)
- 36" metal ruler
- Pliers with wire cutter
- Robart Super Stand II (ROBP1402)
- Servo horn drill (HCAR0698)
- AccuThrow Deflection Gauge (GPMR2405)
- CG Machine™ (GPMR2400)

IMPORTANT BUILDING NOTES

You will see this symbol anytime a threaded screw or nut is installed. We recommend that a drop of threadlocker be applied to the threads. An exception, do not use threadlocker on the screws installed in the nylon control horns.



You will see this symbol anytime epoxy is recommend. A paper towel dampened with denatured alcohol is great for cleaning epoxy from surfaces before the epoxy cures.



Anytime a hole needs to be drilled you will see this symbol with the recommended size drill bit.



Replacement MonoKote Colors

- Jet White (TOPQ0204)
- Black (TOPQ0208)
- True Red (TOPQ0227)

MODEL INSPECTION

Before starting to build, inspect the parts to make sure they are of acceptable quality. If any parts are missing or are damaged, or if you need assistance with assembly, contact greatplanes.com/support. When reporting defective or missing parts, use the part names exactly as they are written in the instruction manual.

ORDERING REPLACEMENT PARTS

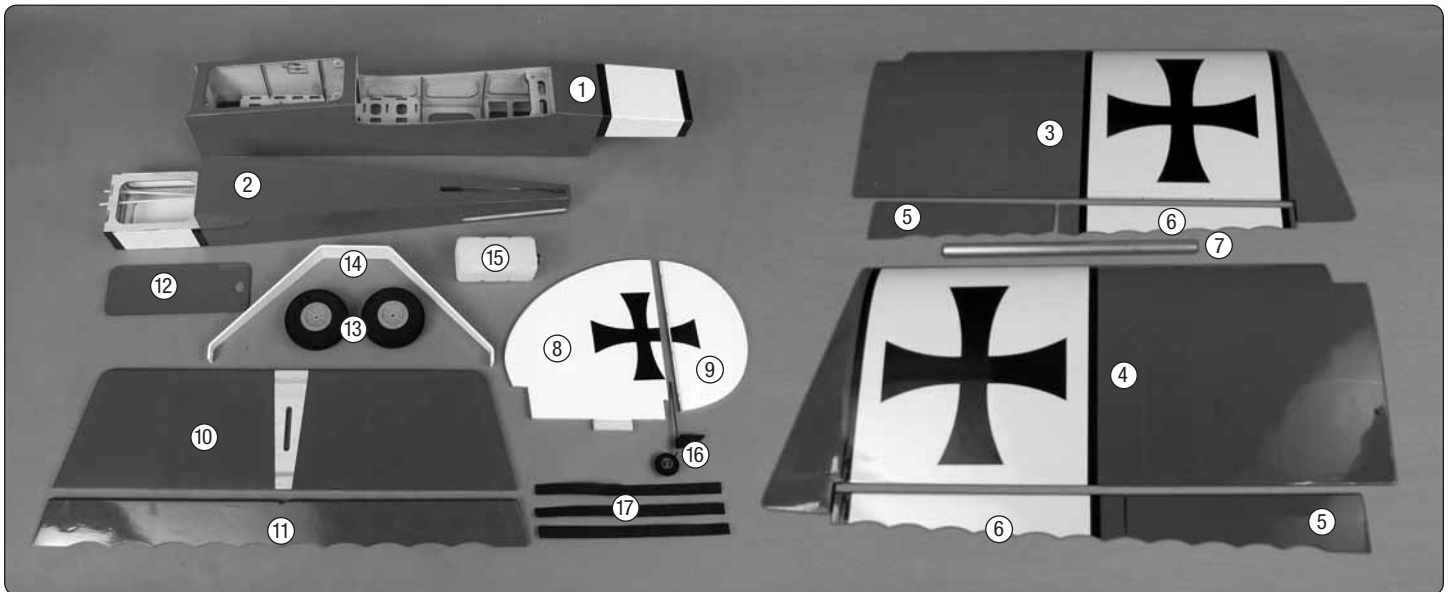
Replacement parts for the Great Planes 55cc Big Stik ARF are available using the order numbers in the **Replacement Parts List** that follows. The fastest, most economical service can be provided by your hobby dealer or mail-order company. Not all parts are available separately (an aileron cannot be purchased separately, but is only available with the wing kit). Replacement parts are not available from Product Support, but can be purchased from hobby shops or mail order/Internet order firms. Hardware items (screws, nuts, bolts) are also available from these outlets.

To locate a hobby dealer, visit www.greatplanes.com and click on "Where to Buy". Follow the instructions provided on the page to locate a U.S., Canadian or International dealer.

REPLACEMENT PARTS LIST

Order No.	Description
GPMA4290	Fuselage Set
GPMA4291	Wing Set
GPMA4292	Tail Surfaces
GPMA4293	Landing Gear
GPMA4294	Wing Joiner Tube
GPMA4295	Tailwheel Assembly
GPMA4296	Hatch
DUBQ0847	Dubro Treaded Lightweight Wheel 5"
DUBQ0224	Dubro S24 Square Fuel Tank 24 oz
DUBP3362	Fuel Tank Gas Conversion

KIT CONTENTS



- | | | | |
|--------------------------|---------------------------|-----------------------------|--------------------------|
| 1. Forward Fuselage Half | 6. Aileron | 11. Elevator | 16. Tail Gear |
| 2. Aft Fuselage Half | 7. Wing Joiner Tube | 12. Fuel Tank/Battery Hatch | 17. Hook & Loop Material |
| 3. Right Wing | 8. Fin | 13. Main Wheels | |
| 4. Left Wing | 9. Rudder | 14. Main Landing Gears | |
| 5. Flap | 10. Horizontal Stabilizer | 15. Fuel Tank | |

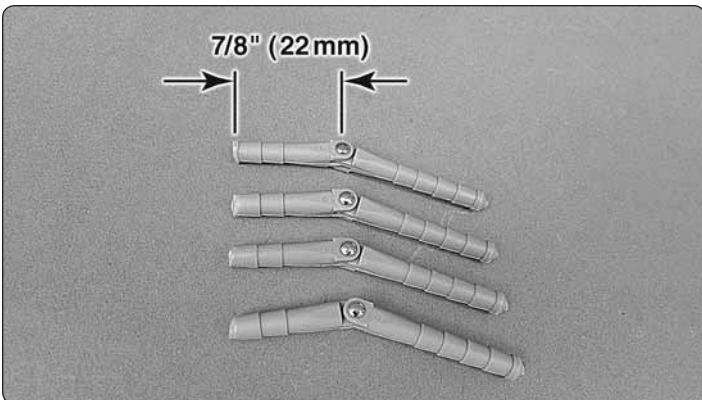
PREPARATIONS



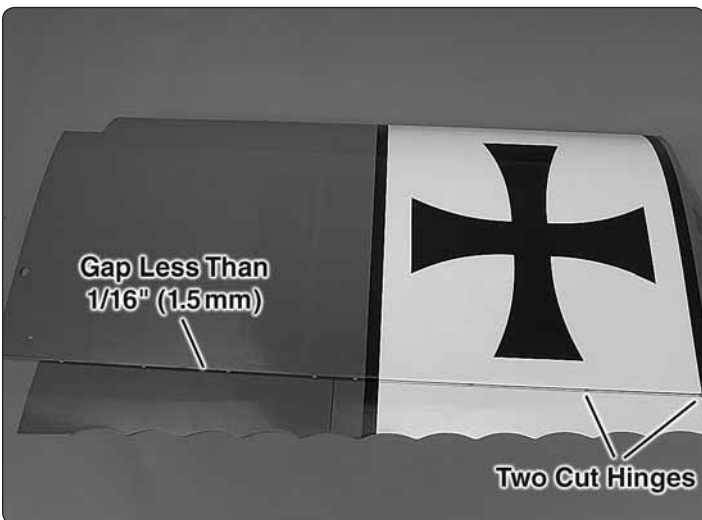
- ❑ 1. Tighten the covering using a covering iron.

ASSEMBLE THE WING

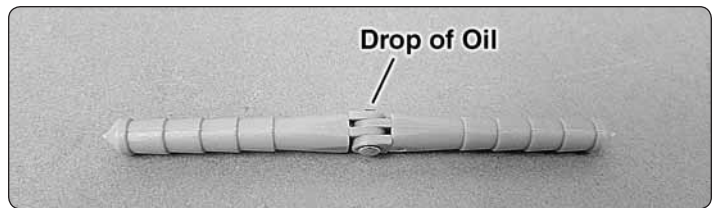
Install the Aileron and Flap Hinges



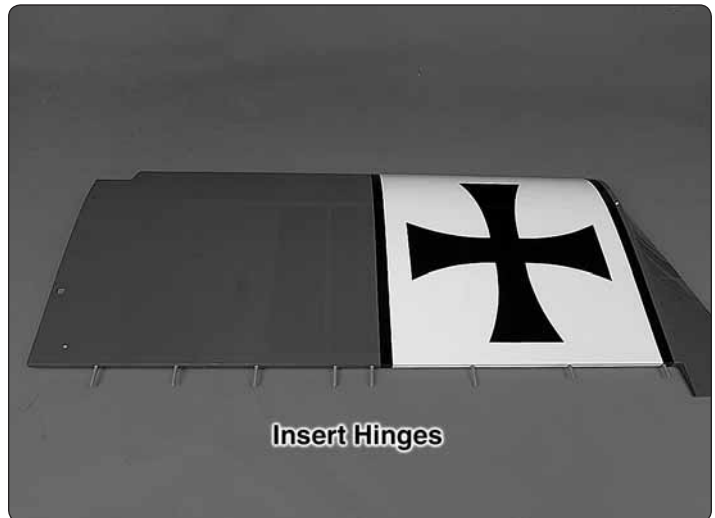
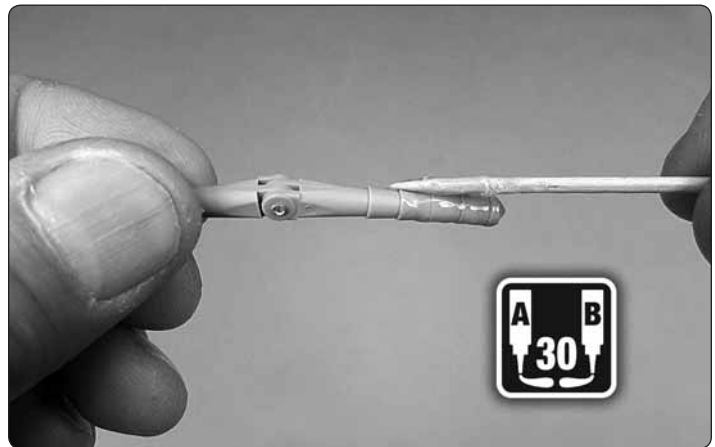
- ❑ 1. Cut the end off of 4 pivot point hinges to be used on the 2 outside hinge locations for each aileron.

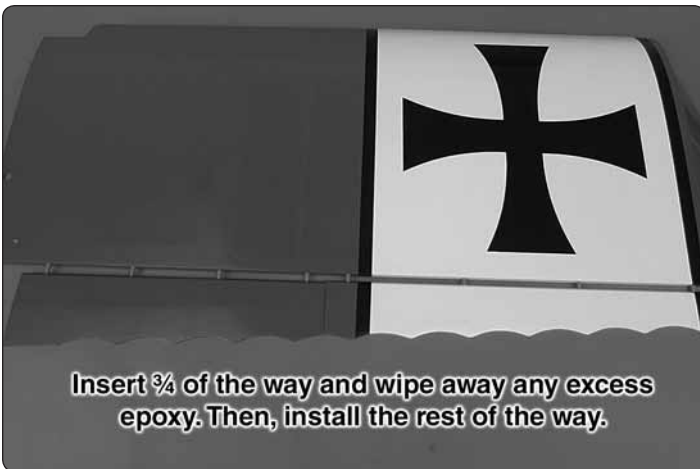
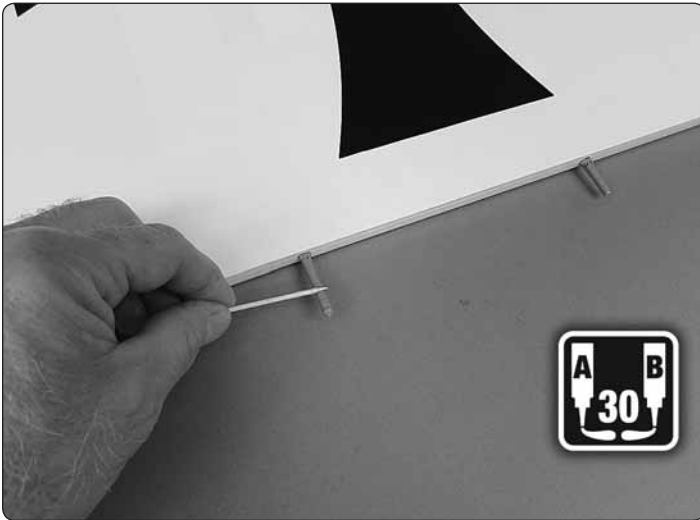
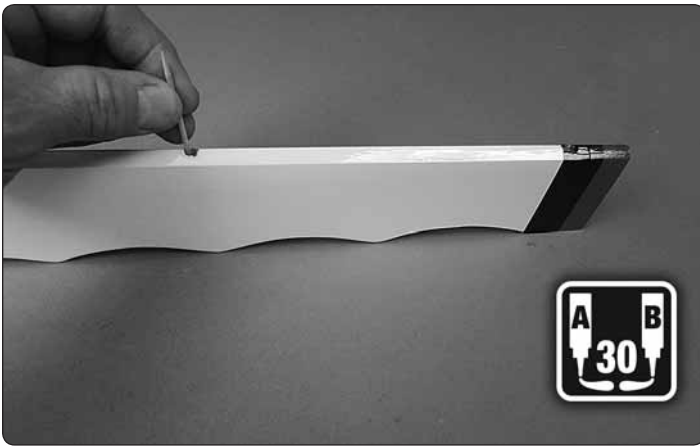


- ❑ 2. Check the fit of the pivot point hinges in the flaps, ailerons and wing halves. The cut end of the hinges go in the aileron.



- ❑ 3. Add a small drop of oil to the pivot point on each hinge. The oil will prevent the epoxy from adhering to the pivot point. Makes sure the oil does not get on the gluing surface of the hinge. If it does, clean the oil off with a paper towel dampened with denatured alcohol.



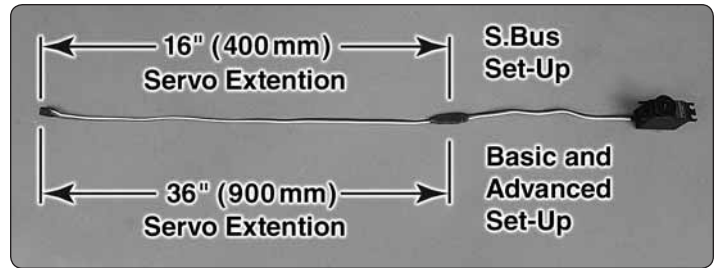


- 4. Install the aileron and flaps—with final gap less than 1/16" [1.5mm].
- 5. Move the ailerons and flaps a few times to align the hinges. Allow the epoxy to fully cure.
- 6. Return to Step 1 and install the hinges in the other wing panel.

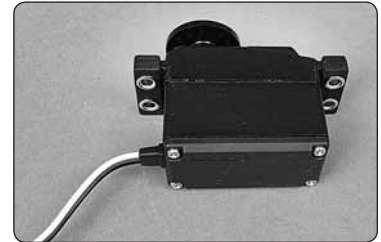
Install the Aileron Servo

Begin with the left wing panel.

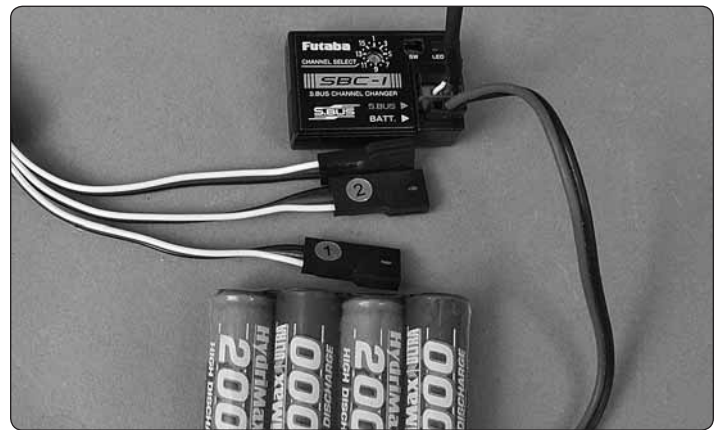
We will show the installation of the S.Bus Set-up using non-S.Bus digital servos.



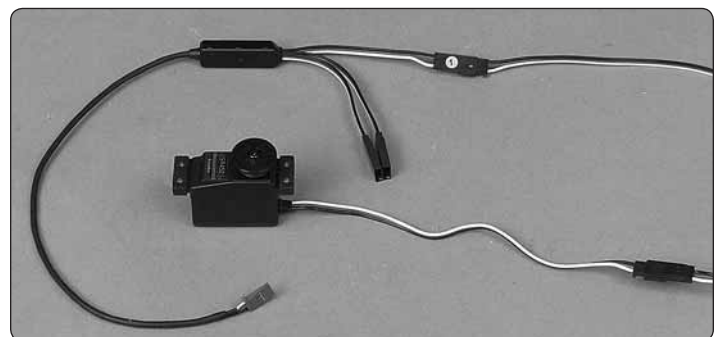
- 1. Install a servo lead extension (not included). Secure the connection with tape or shrink tubing (not included).



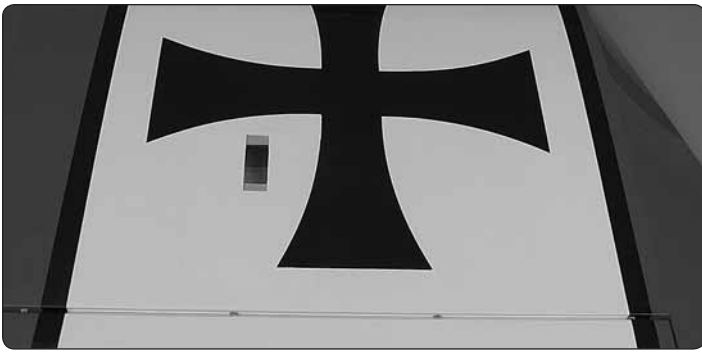
- 2. Install rubber grommets and metal eyelets on both aileron and flap servos.



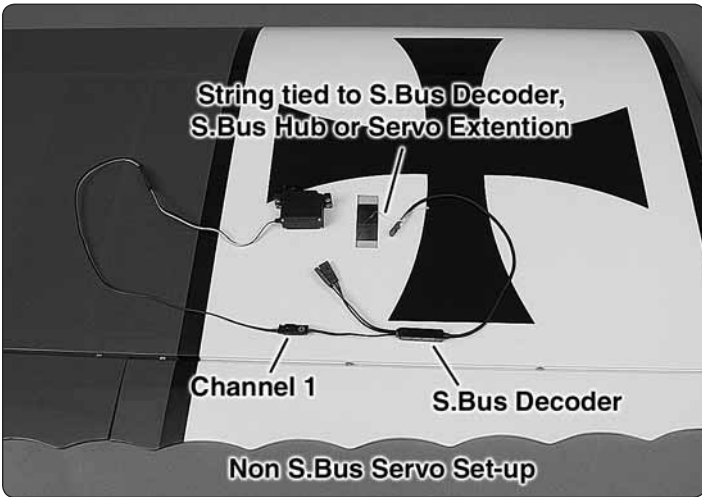
- 3. **S.Bus Only:** If using a non-S.Bus servo, the **Decoder** will need to be programmed. If using an S.Bus servo the **servo** will need to be programmed. With S.Bus any servo can be programmed to any channel. The left aileron servo in this wing is going to be set to channel 1. Follow the manual included with your transmitter if it has a port for programming S.Bus servos. If not, follow the instructions included with the Futaba Channel Changer to set the S.Bus servo or the connector on the Futaba Decoder to channel 1. While programming the Decoder, set a second connector on the decoder to channel 6 for the left flap. Place a number decal on both connectors.



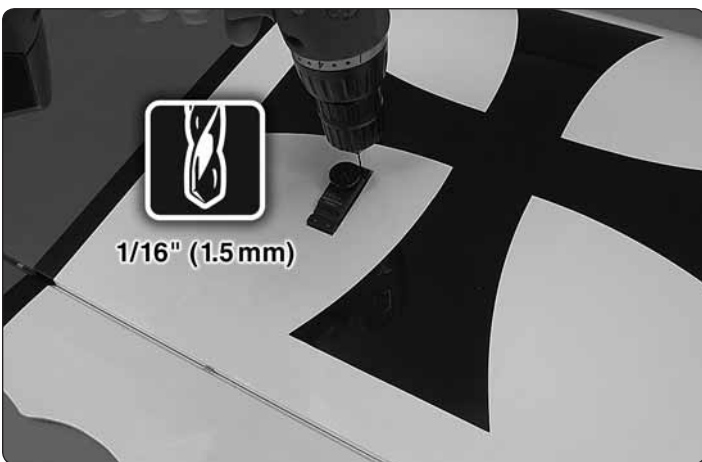
- 4. **S.Bus Only:** Connect the non-S.bus aileron servo to channel 1 on the Decoder. Or, connect the S.Bus servo to a 300mm S.Bus Hub.



5. Trim the covering from over the aileron servo opening.



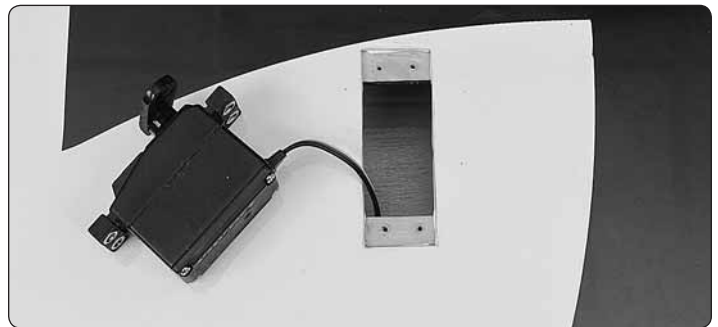
6. Route the servo extension, S.Bus Hub or S.Bus Decoder through the wing.



7. Drill servo screw mounting holes.



8. Install the servo screws.

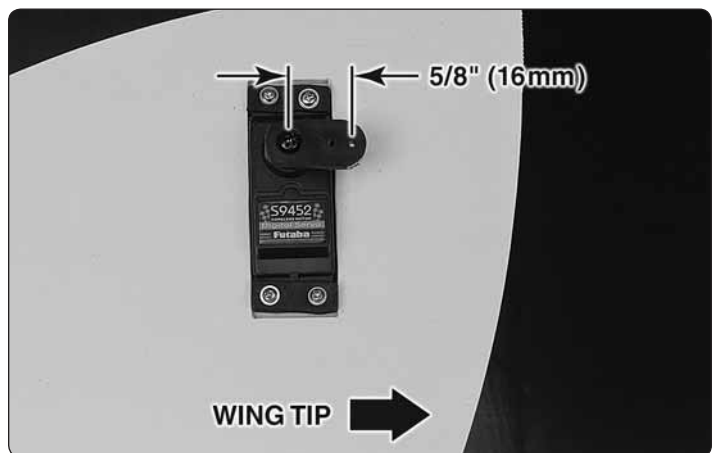


9. Remove the servo screws and servo.

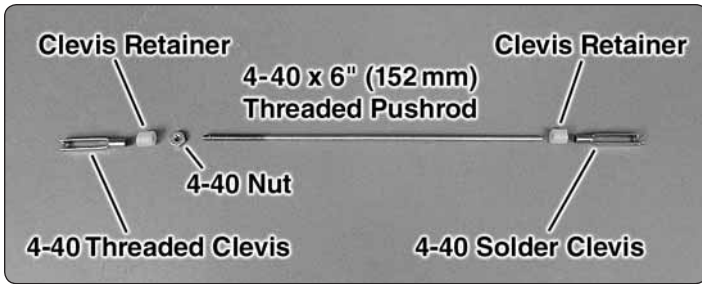


10. Apply a drop of thin CA in each hole to harden wood. After the CA has cured, reinstall the servo and servo screws.

11. Plug the aileron servo into the receiver or plug the S.Bus servo or Decoder into the S.Bus port of the receiver. Switch on the transmitter and plug the receiver battery into the receiver. Center the trims on the transmitter.



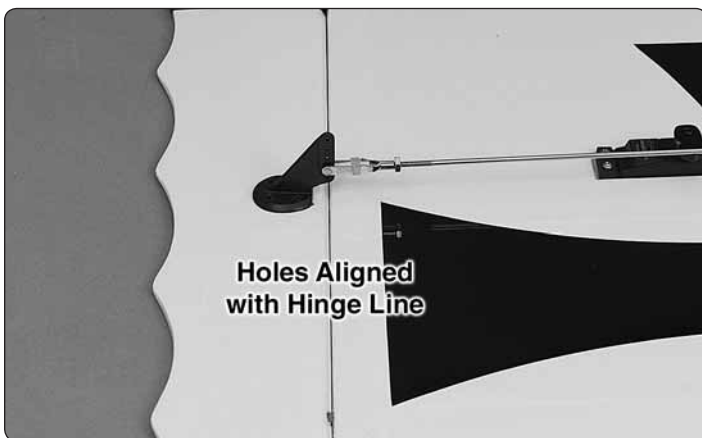
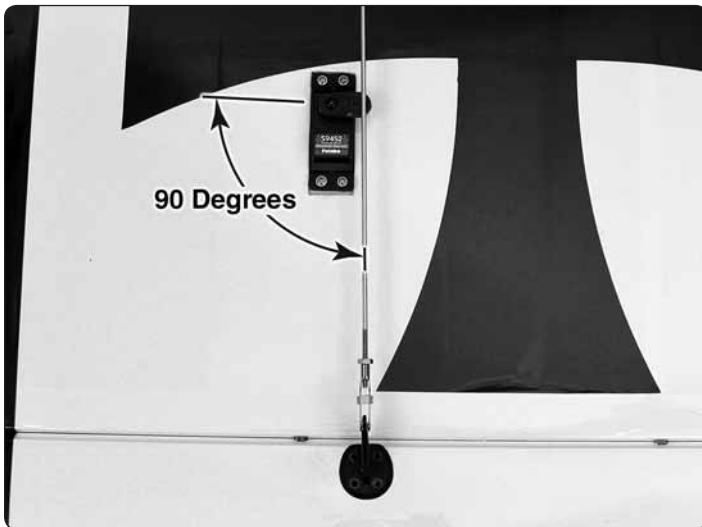
12. Install servo horn.



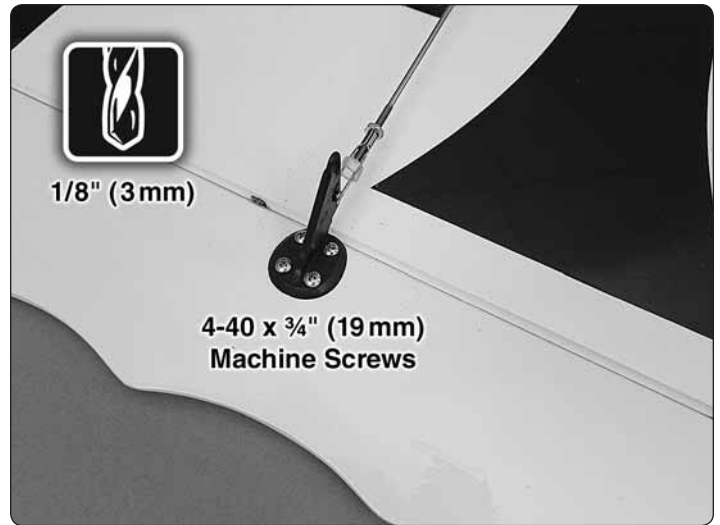
- 13. Aileron pushrod components.
- 14. Thread the 4-40 threaded clevis and nut 16 turns onto the 4-40 x 6" (152mm) threaded pushrod.



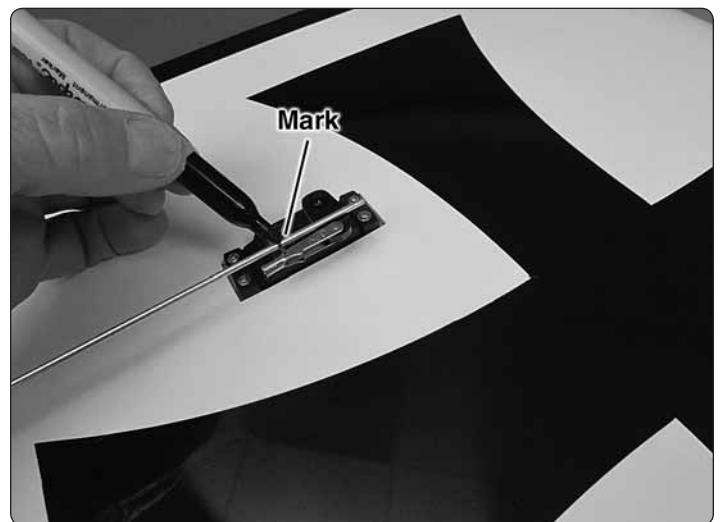
- 15. Attach clevis and clevis retainer to the control horn.



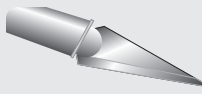
- 16. Position control horn on aileron.



- 17. Mount the control horn.

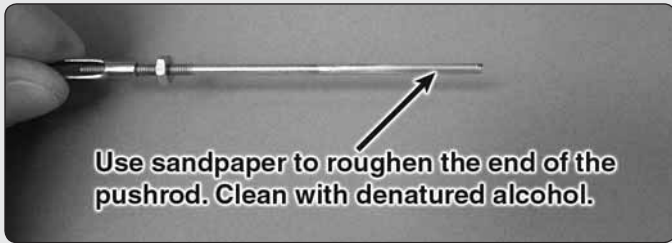


- 18. Center the control surfaces and servo arm. Mark the pushrod.
- 19. Cut the pushrod at the mark.
- 20. Solder the clevis on the pushrod.



EXPERT TIP

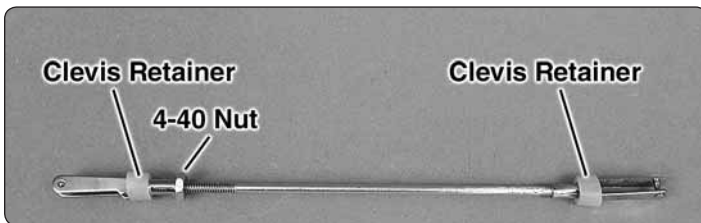
HOW TO SOLDER



Apply a few drops of soldering flux to the end of the pushrod. "Tin" the end of the pushrod by applying heat. Apply silver solder to the heated area. The pushrod should melt the solder, not the soldering iron. The end of the pushrod should be tinned all the way around.

Position the solder clevis on the pushrod and apply a drop of flux to the joint. Apply heat and add solder. Again, the heat of the part should melt the solder, not the soldering iron. Allow the part to cool naturally. Make sure the joint is thoroughly soldered. It should be shiny, not rough. Reheat if necessary.

Wipe off the flux residue with denatured alcohol. Coat the joint with oil to prevent rust.



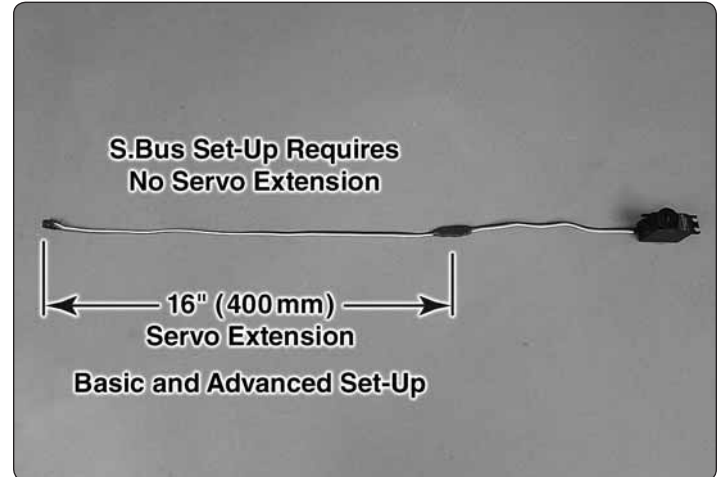
- □ 21. Install the nut and retainers.



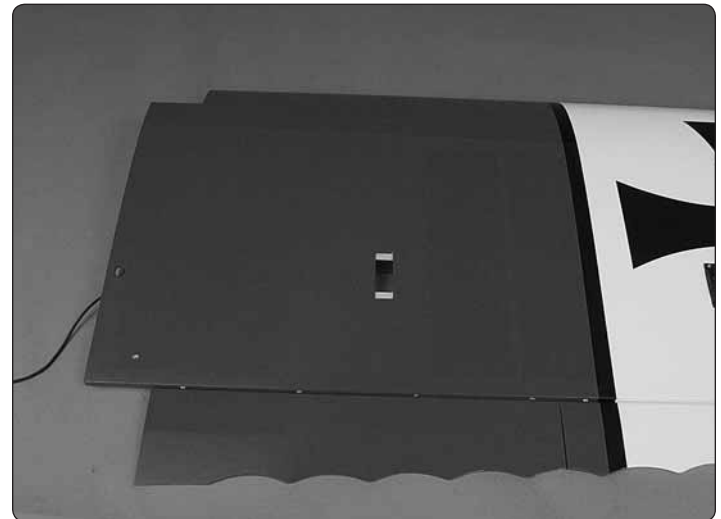
- □ 22. Reinstall the aileron pushrod and slide the retainers over the clevises.

- 23. Repeat steps 1 – 22 to install the aileron servo in the right wing. The two aileron servos can be connected with a Y-harness and plugged into the aileron channel on the receiver. Each aileron can be plugged into a separate channel or as shown, set-up with S.Bus. We set up the aileron in the **right wing half** on channel 5 and the flap on channel 7.

Install the Flap Servo

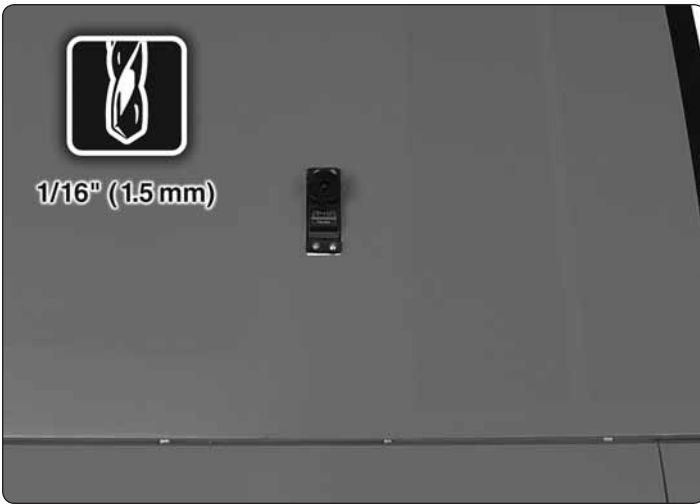


- 1. Install a servo lead extension (not included). Secure the connection with tape or shrink tubing (not included).



- 2. Trim the covering from over the flap servo opening in the left wing panel.

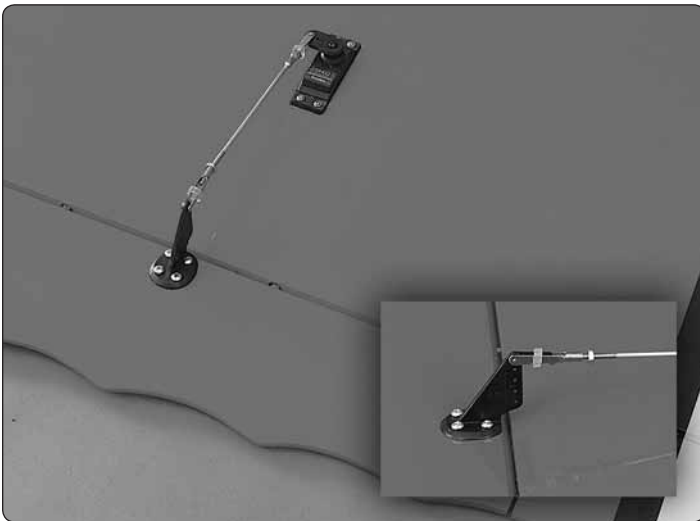
- 3. Route the flap servo lead out the wing root. Or connect the flap servo to the S.Bus Hub or channel 6 on the S.Bus Decoder.



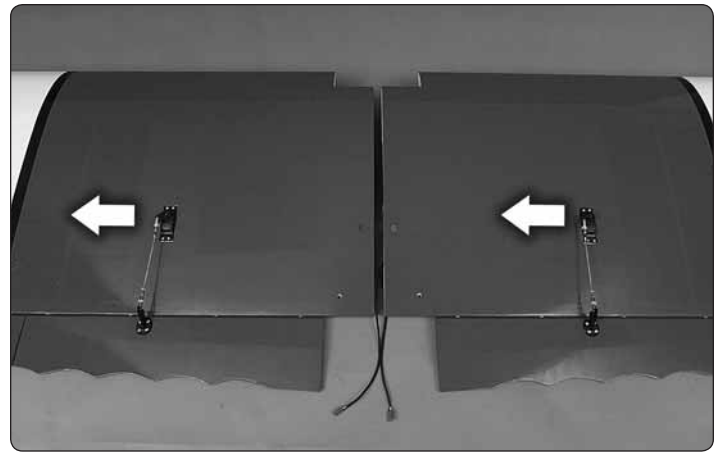
❑ 4. Mount the flap servo in the wing. Remove the servo screws and harden the holes with thin CA. Then, reinstall the servo screws.



❑ 5. We used a two-position switch with the end points or travel set 50% in both directions. Switch on the transmitter and receiver. Set the flap control switch to the “flap up” position. Install the flap servo arm as shown.

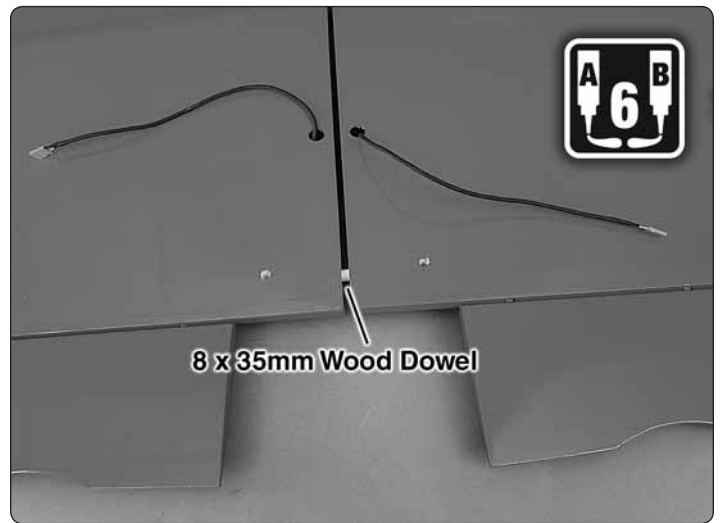


❑ 6. Align the flap with the aileron and install the flap pushrod, following the same procedure used to install the aileron pushrods.

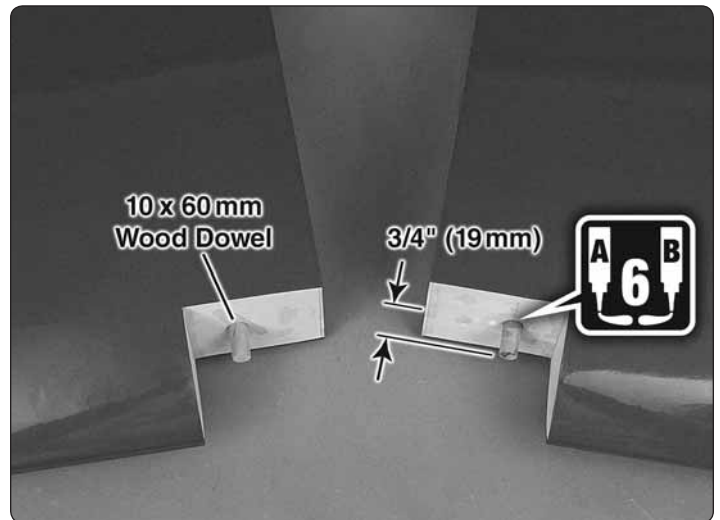


❑ 7. Return to step 1 and install the flap servo in the right wing. **Note:** If a Y-harness will be used to connect the two flap servos, the servo arms must be pointing in the same direction.

Install the Wing Dowels



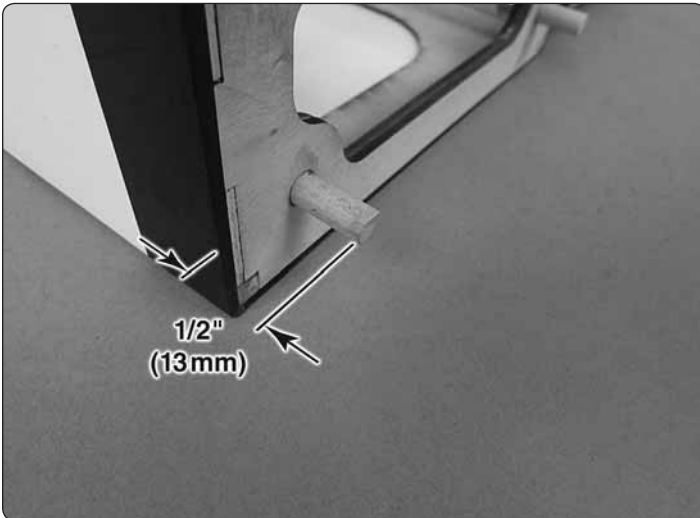
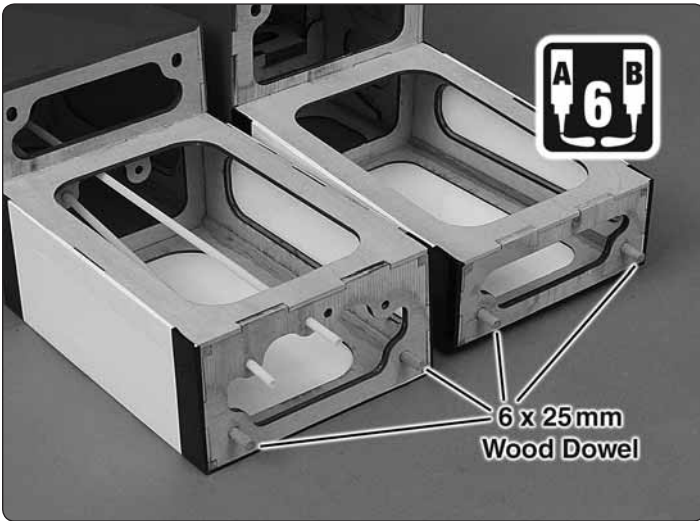
❑ 1. Glue the wing joiner dowel into one wing panel. Slide both wing halves together slightly to align the pin. Don't glue the wing panels together.



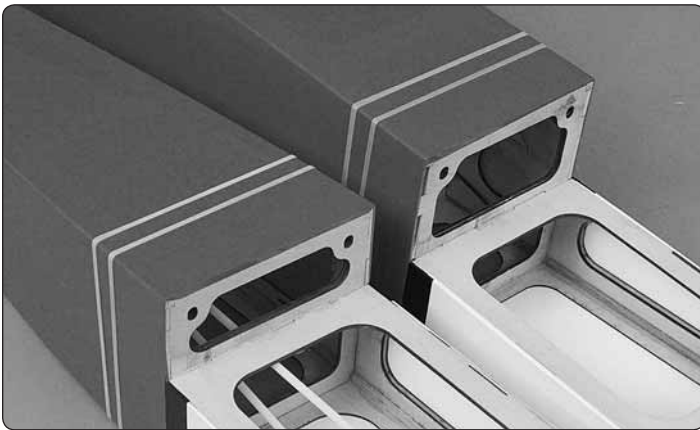
❑ 2. Install the two wing dowels.

ASSEMBLE THE FUSELAGE

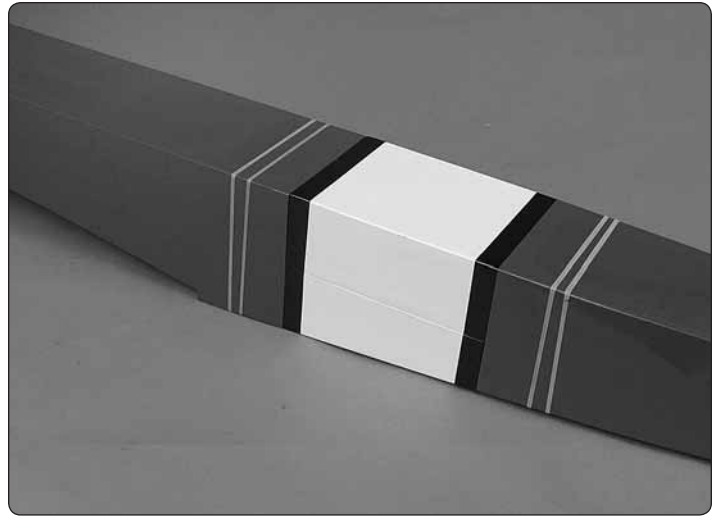
Join the Fuselage Halves



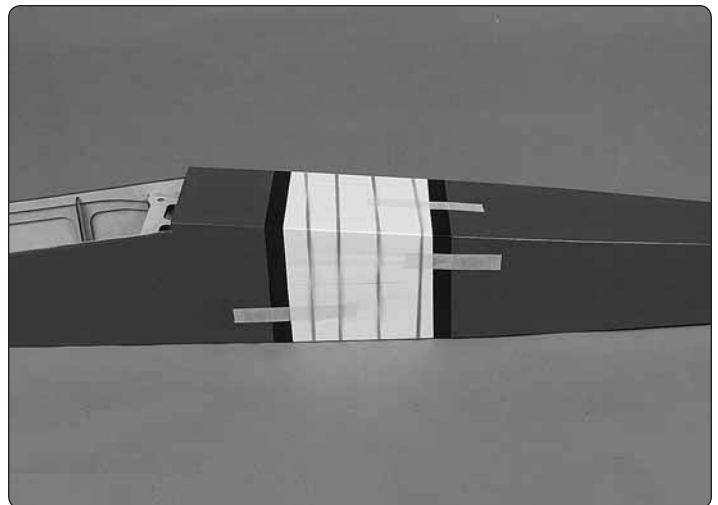
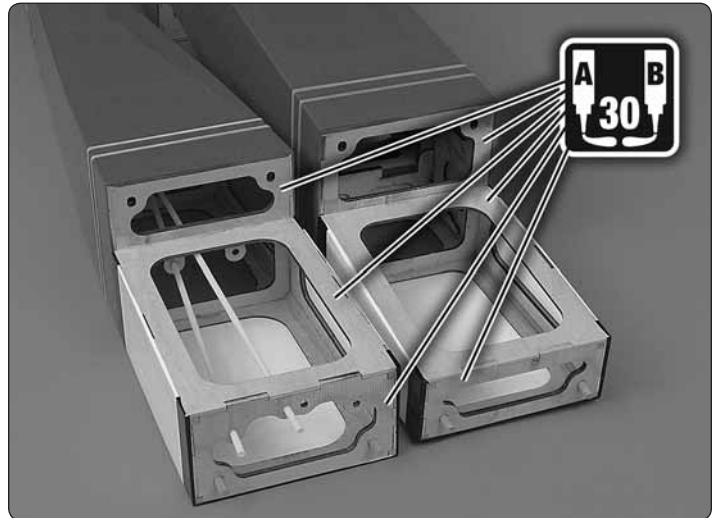
- ❑ 1. Install the fuselage alignment dowels.



- ❑ 2. Position two #64 rubber bands on each fuselage half.



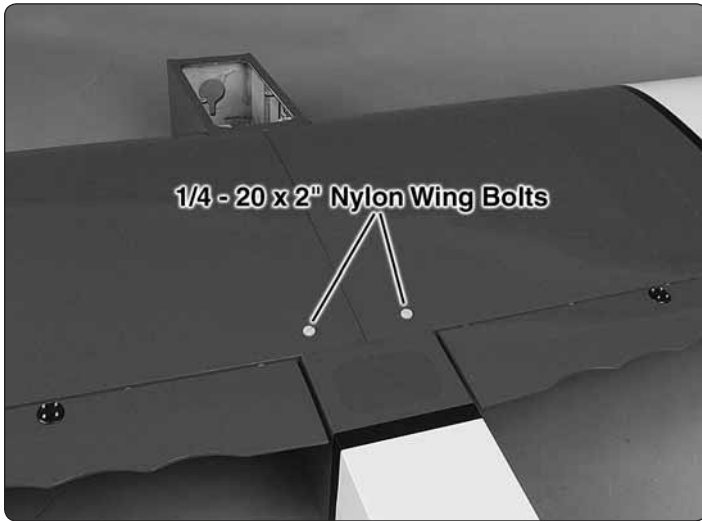
- ❑ 3. Test fit the fuselage halves together. Make sure they fit together well.



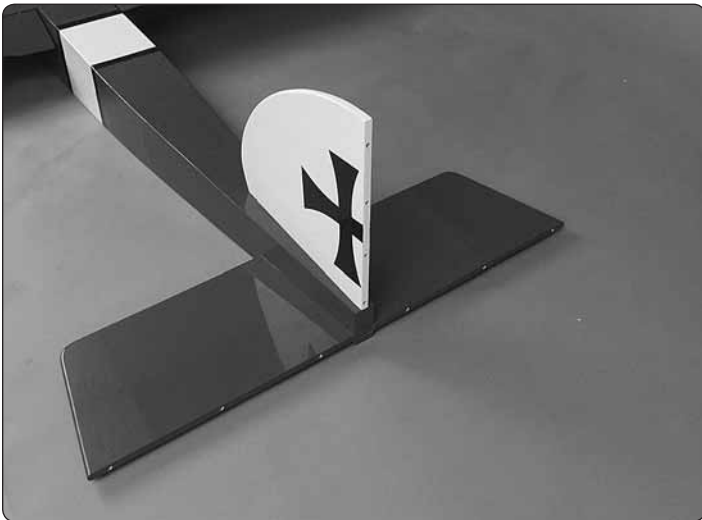
- ❑ 4. Glue the fuselage halves together. Use masking tape and the rubber bands to tightly hold the fuselage halves together until the epoxy cures. Wipe away any excess epoxy before it cures with a paper towel dampened with denatured alcohol.

Install the Tail

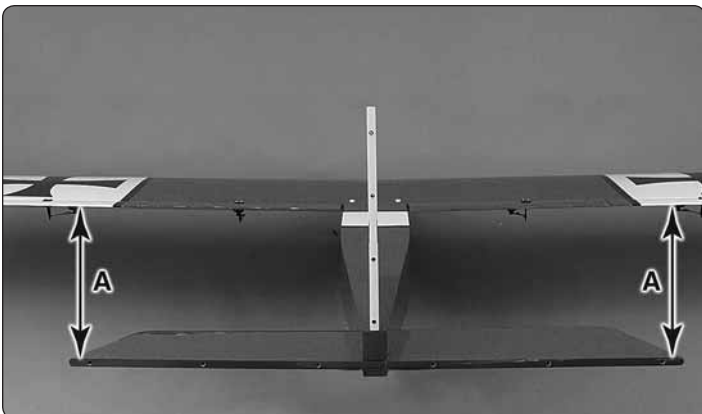
- ❑ 1. Join the wing halves together with the aluminum wing tube.



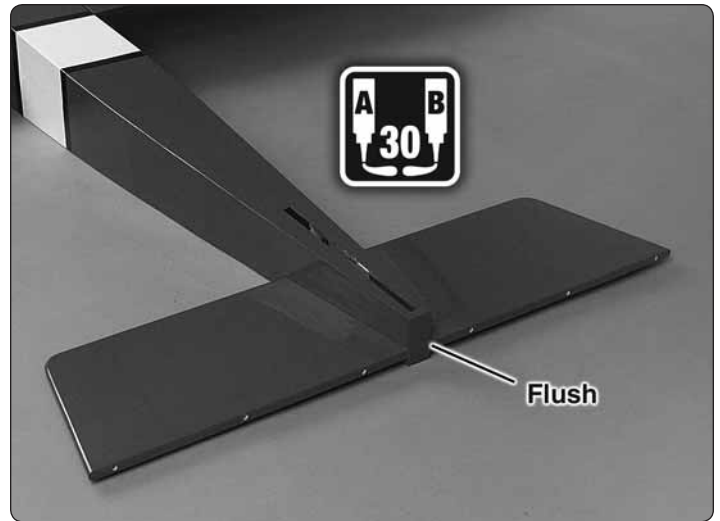
- ❑ 2. Install the wing on the fuselage.
- ❑ 3. Remove the balsa block in the horizontal stabilizer slot.



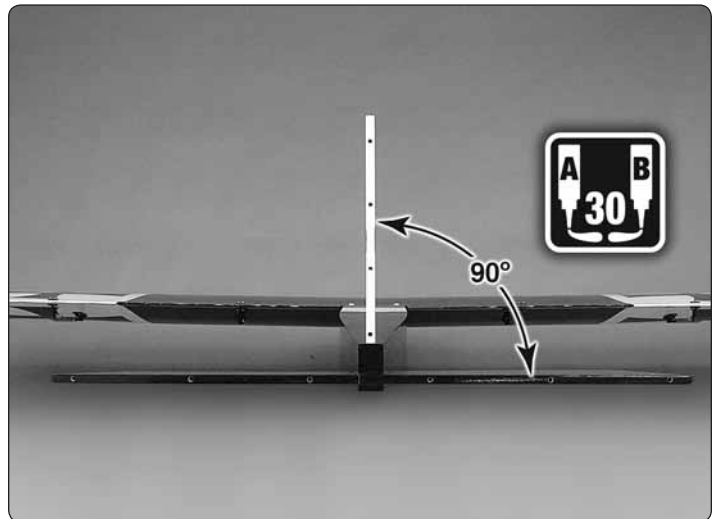
- ❑ 4. Temporarily install the horizontal stabilizer using the vertical fin to align it.



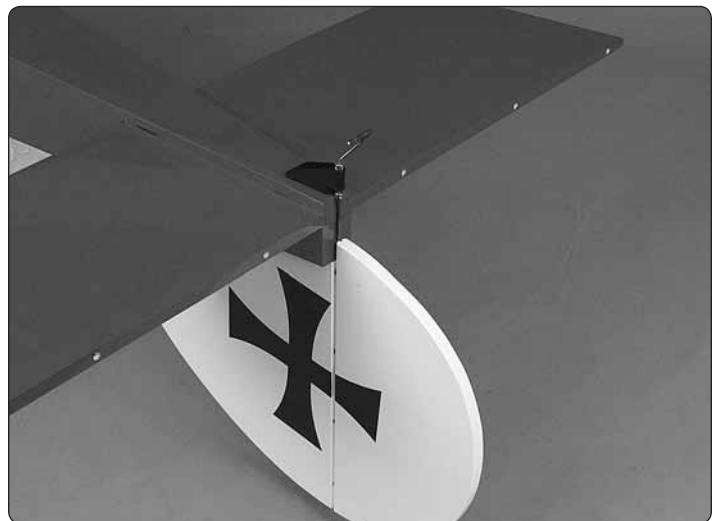
- ❑ 5. The wing and stabilizer should be parallel. If they are not, lightly sand the stabilizer slot.



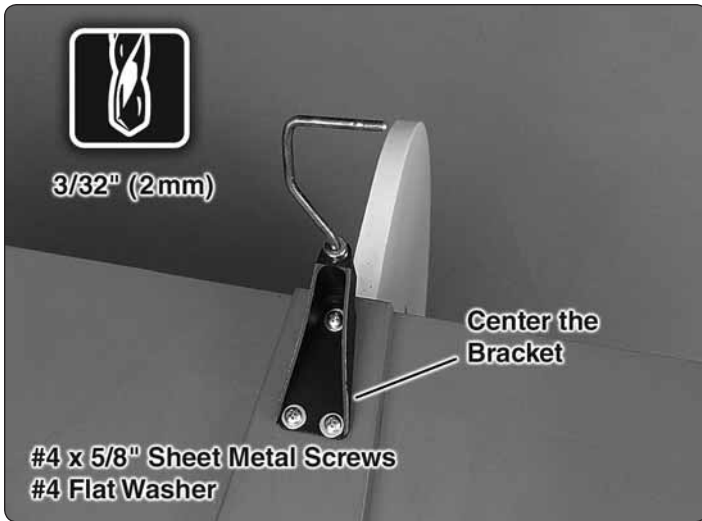
- ❑ 6. Glue the stabilizer in the fuselage. Use the vertical fin to temporarily position the stabilizer. Wipe off any excess epoxy with a paper towel and denatured alcohol. Remove the fin before the epoxy cures.



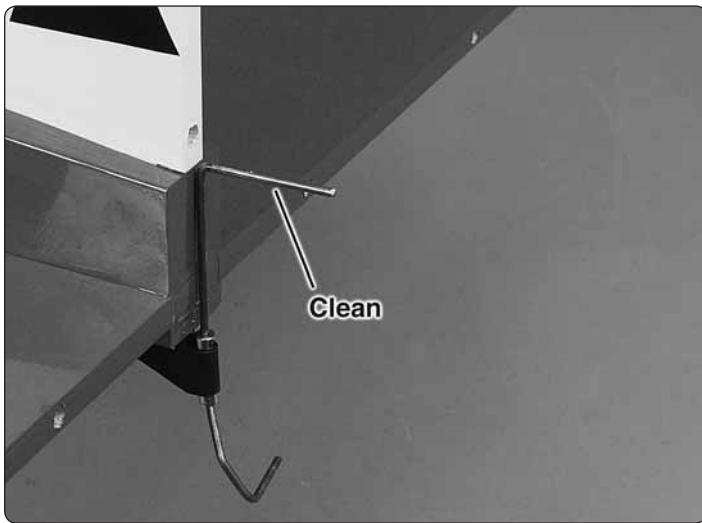
- ❑ 7. Glue the vertical fin in the fuselage.



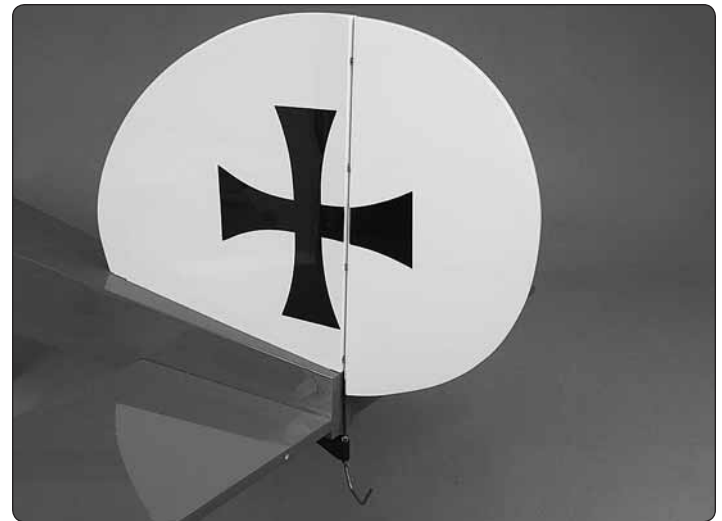
- ❑ 8. Temporarily install the rudder and the tail gear.



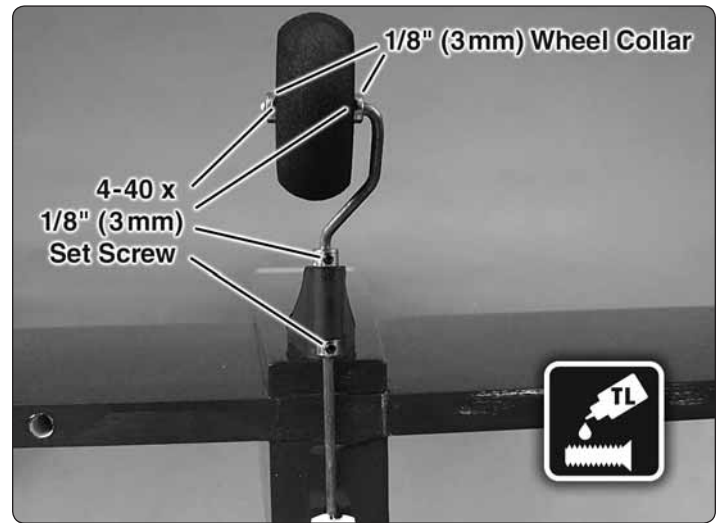
☐ 9. Mount the tail gear. Remove the screws and harden the screw holes with thin CA. Reinstall the tail gear.



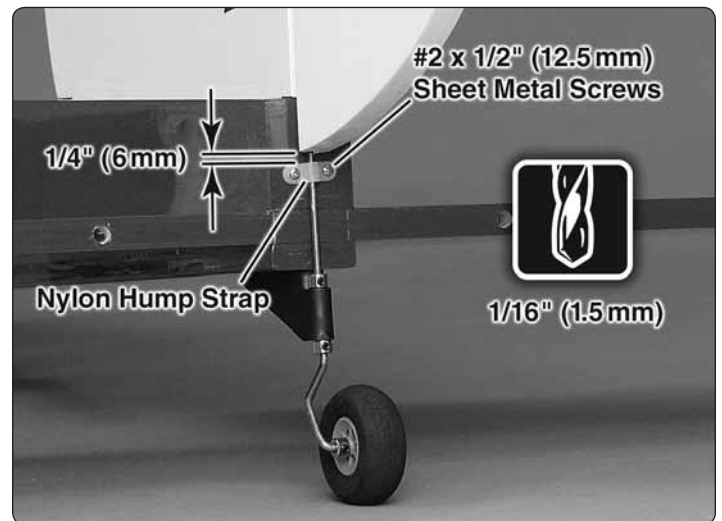
☐ 10. Clean the tail gear wire with denatured alcohol.



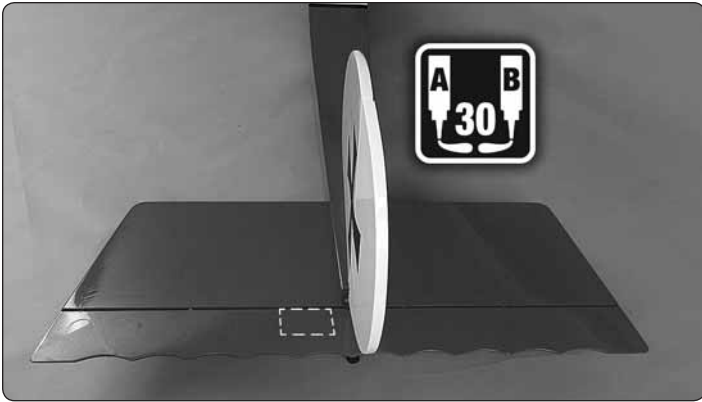
☐ 11. Install the rudder with hinges following the same procedure used to install the ailerons.



☐ 12. Install the tail wheel.

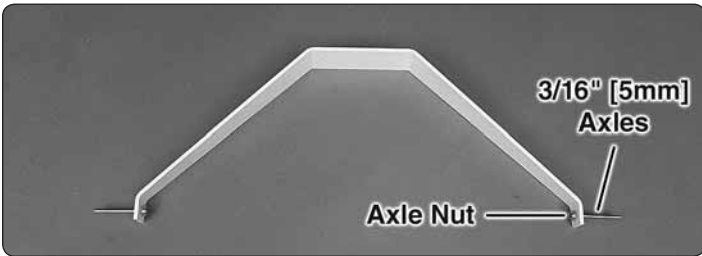


☐ 13. Install the nylon hump strap. After installing the hump strap screws, remove them and apply thin CA to the screw holes. Reinstall the hump strap.

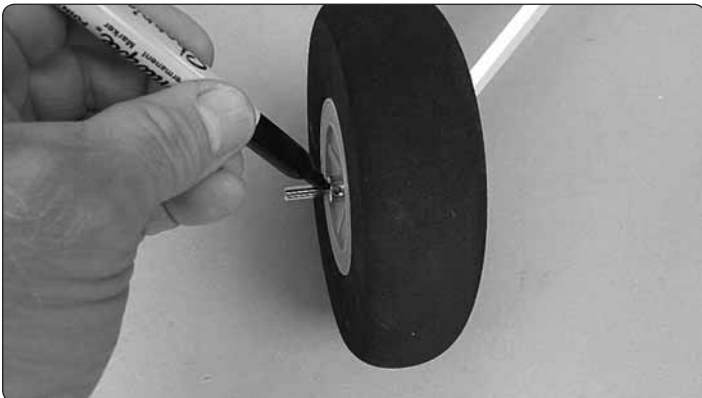
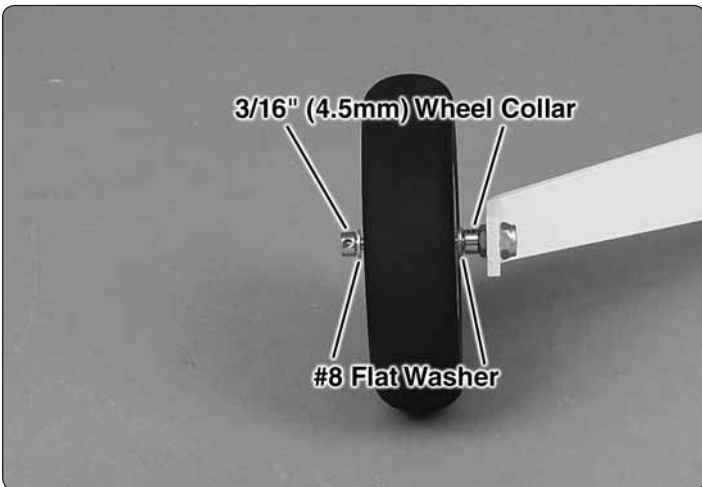


❑ 14. Install the elevator and hinges following the same procedure used for installing the ailerons. **Make sure the hardwood block is on the left side of the fuselage.**

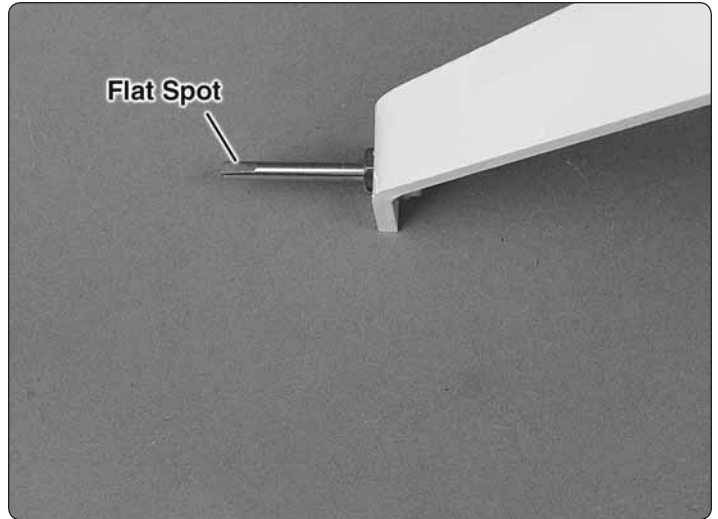
Install the Main Landing Gear



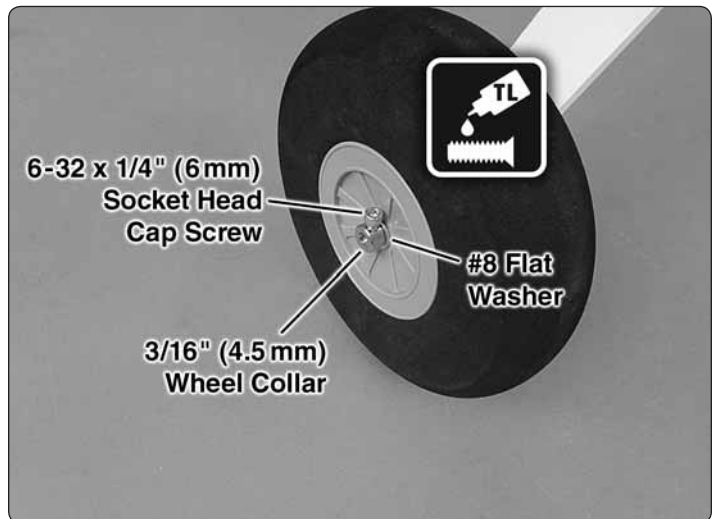
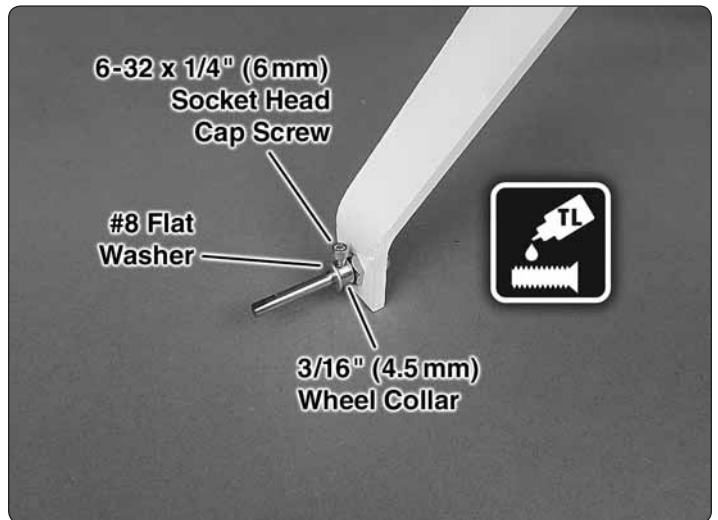
❑ 1. Install the 3/16" [5 mm] axles.



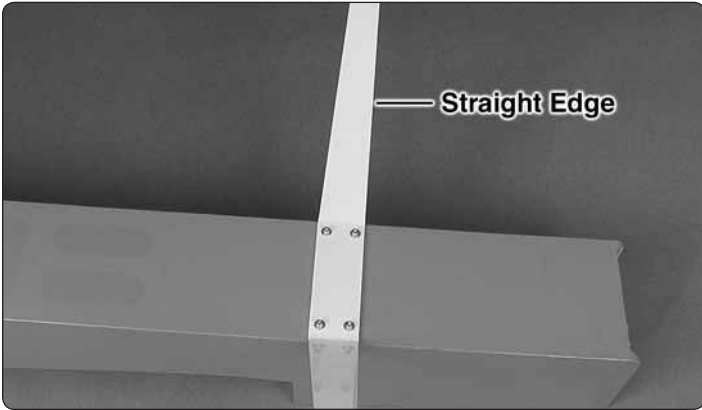
❑ 2. Mark the axles and cut them to length.



❑ 3. File a flat spot at the end of the axles.

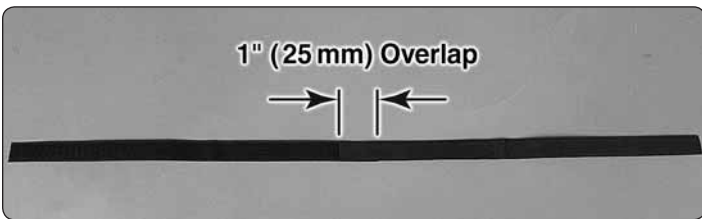


❑ 4. Install the main wheels.



□ 5. Install the main landing gear on the fuselage.

Install the Rudder and Elevator Servos

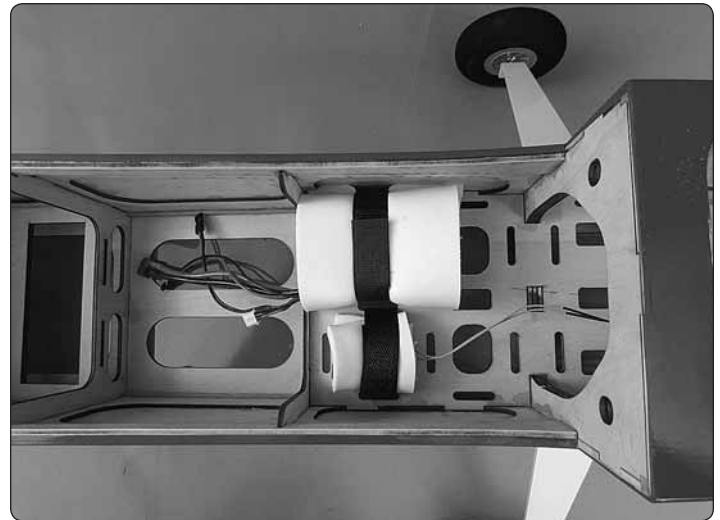


□ 1. Make a battery strap from the supplied hook-and-loop material.

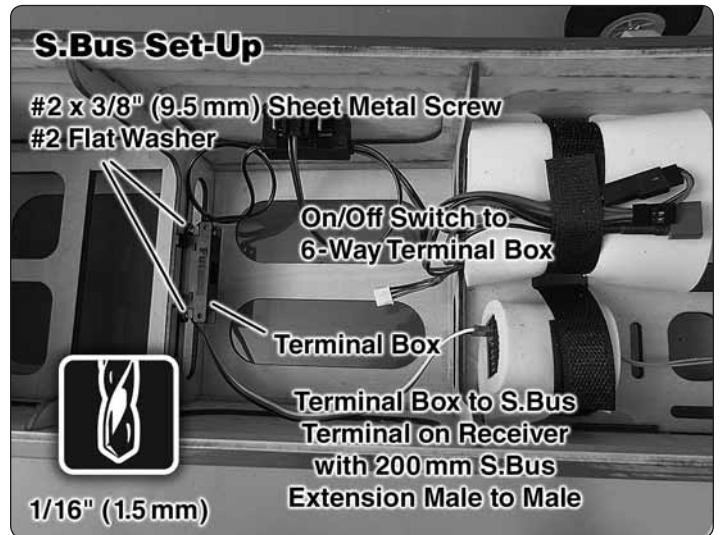
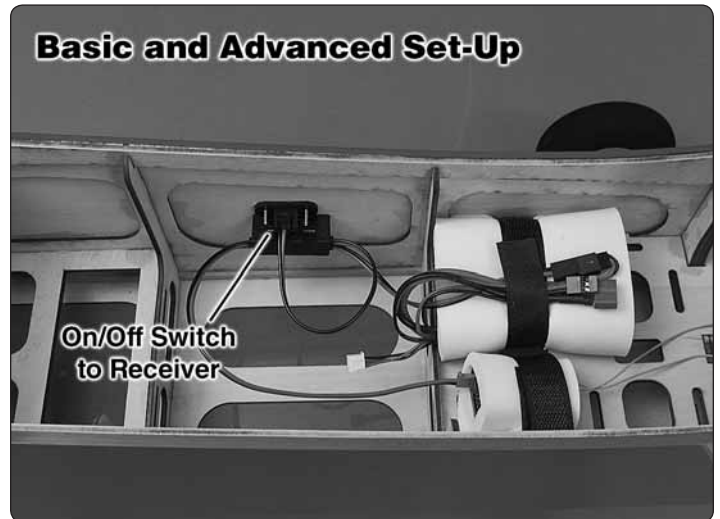


□ 2. Wrap the receiver battery in foam and secure it to the battery tray with the hook-and-loop strap.

Note: If the plane will be powered with an electric motor a Castle Creations BEC 2.0 20A MAX can be used instead of the receiver battery. The BEC 2.0 20A MAX powers the receiver from the 12S motor battery.



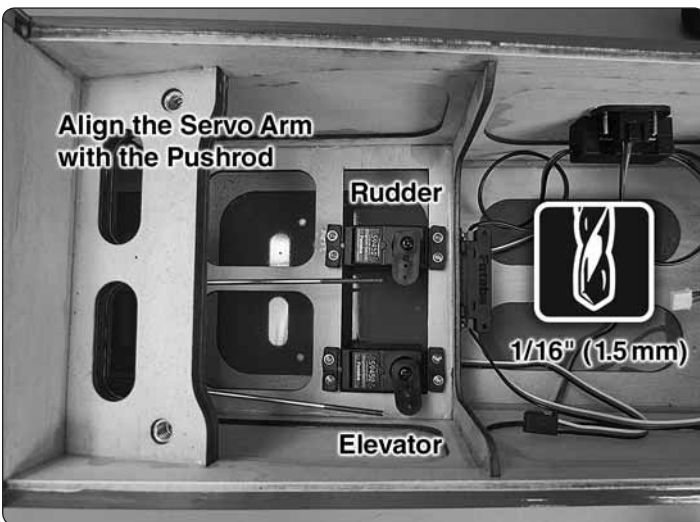
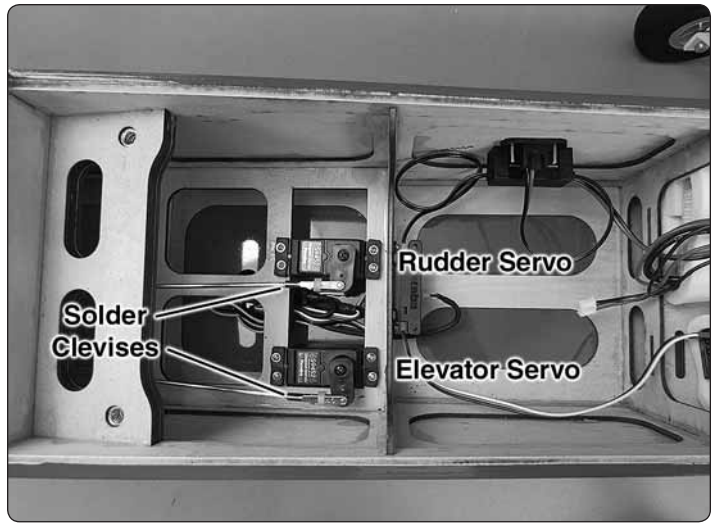
□ 3. Wrap the receiver in foam and secure it to the battery tray using the remaining pieces of hook-and-loop material cut for the receiver battery.



□ 4. Install the on/off switch and the optional charge receptacle.



☐ 5. Insert the rudder and elevator pushrods.



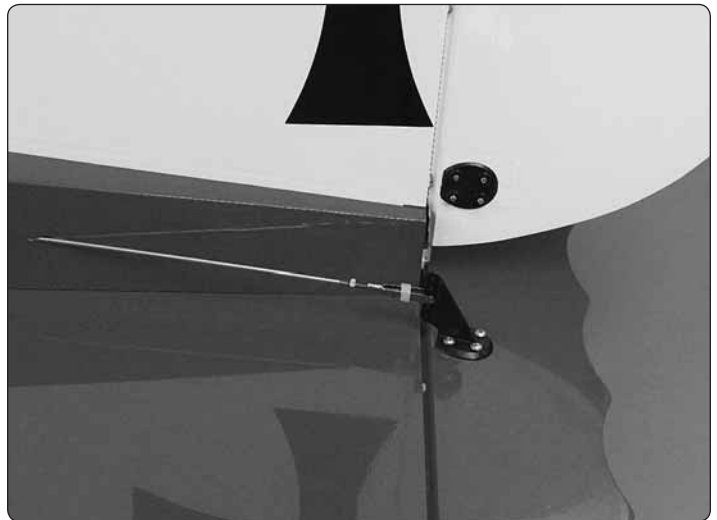
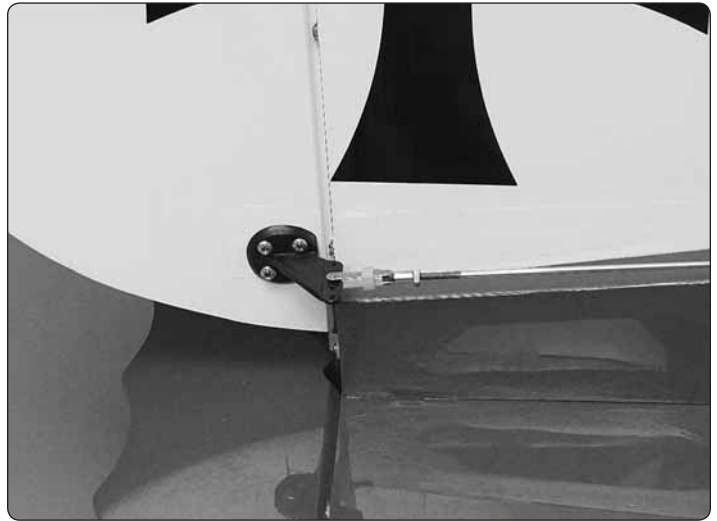
☐ 6. Install the rudder and elevator servos. After installing the servo screws, remove them and apply a drop of thin CA in each hole. After the CA cures, reinstall the screws.

☐ 7. Connect the servos to the receiver and center the servos.

Basic and Advanced Set-up: Plug the servos directly into the receiver.

S.Bus with non S.Bus servos: Set the channels to 2 and 4 on a 400mm Decoder. Connect the elevator to channel 2 and the rudder to channel 4. Plug the Decoder into the Terminal box.

S.Bus with S.Bus servos: Program the servos and plug both servos into the Terminal box.

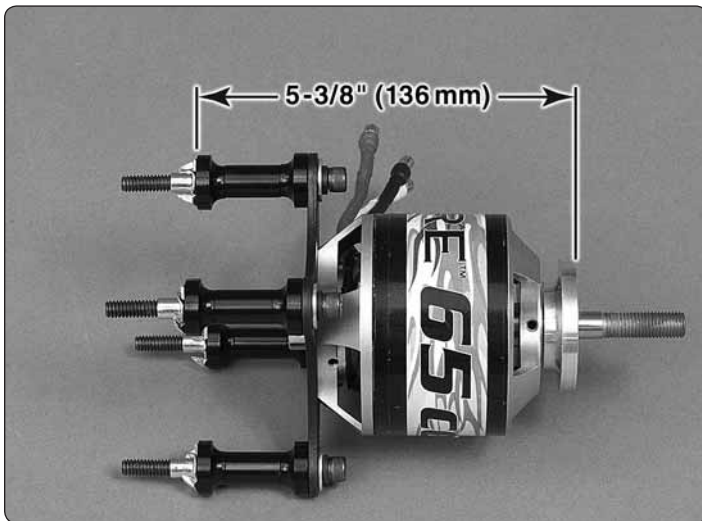


☐ 8. Install the rudder and elevator control horns and clevises following the same procedure used to install the aileron pushrods.

POWER SYSTEM INSTALLATION

Electric Motor Installation

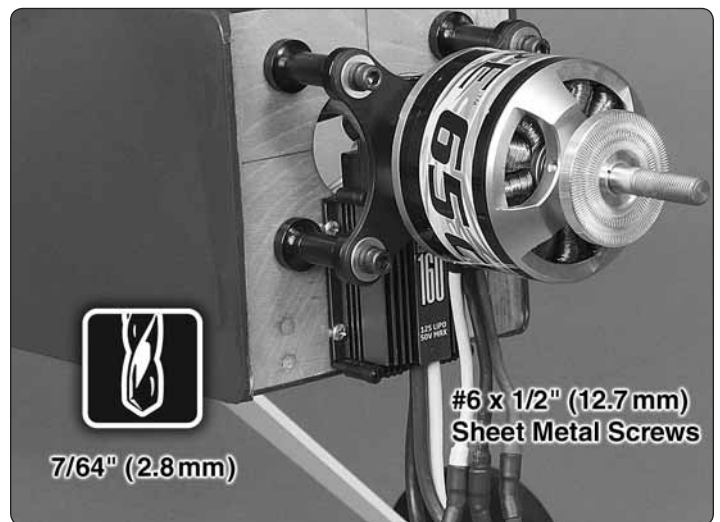
Proceed to *Engine and Fuel Tank Installation* (page 21) if a gas engine will be installed.



❑ 1. Assemble the XX-Large motor mount (not included) following the instructions included with the mount and install the RimFire 65 motor. The motor mounted at this distance from the firewall should allow the plane to balance within the C.G. range without any additional weight on the nose or tail. However, if the plane requires nose weight, the motor mount can be extended to 6-3/4" [171 mm] to move the motor farther forward of the firewall.

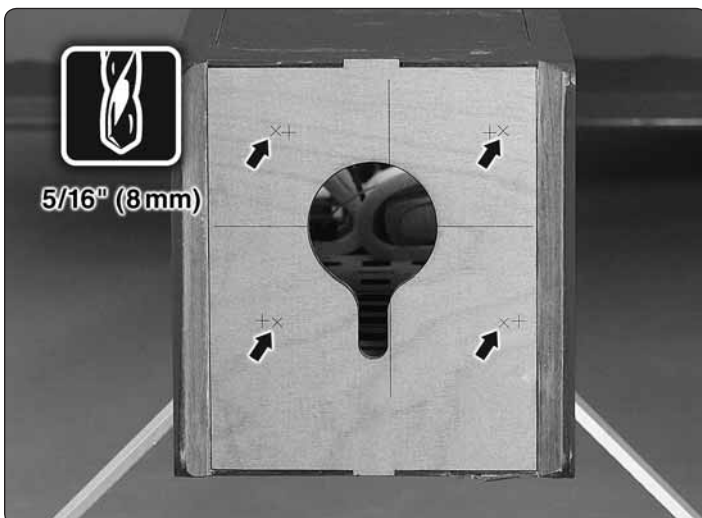


❑ 2. Follow the instructions included with the Stand Off Motor Mount to install the motor on the firewall. The RimFire 65 motor uses the embossed "x" pattern on the front of the firewall.



❑ 3. Attach the ESC to the firewall. After installing the ECS, remove the screws and apply a drop of thin CA in each hole. After the CA cures, reinstall the ESC.

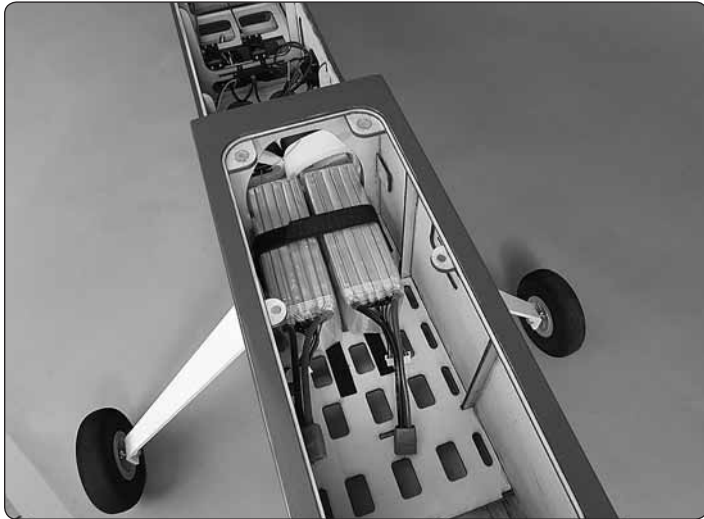
❑ 4. Connect a 12" (305mm) servo extension to the ESC lead and secure it with tape or heat shrink tubing. Plug the ESC into the throttle channel in the receiver.



❑ 5. Trim the covering from over the two cooling air exits in the bottom of the fuselage.

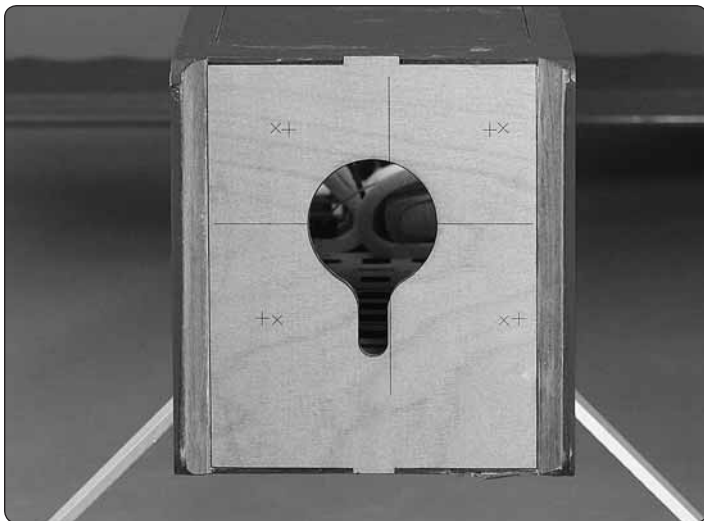
❑ 6. **WARNING:** Check the rotation of the motor **without** the propeller or propeller nut installed. Switch on the transmitter and then receiver. Connect the motor batteries to the ESC. Slowly advance the throttle and make sure it rotates counterclockwise when viewed from the front. Follow the instructions included with the ESC to change the direction if needed.

❑ 7. While the prop is removed, set up the throttle fail-safe in your radio system.

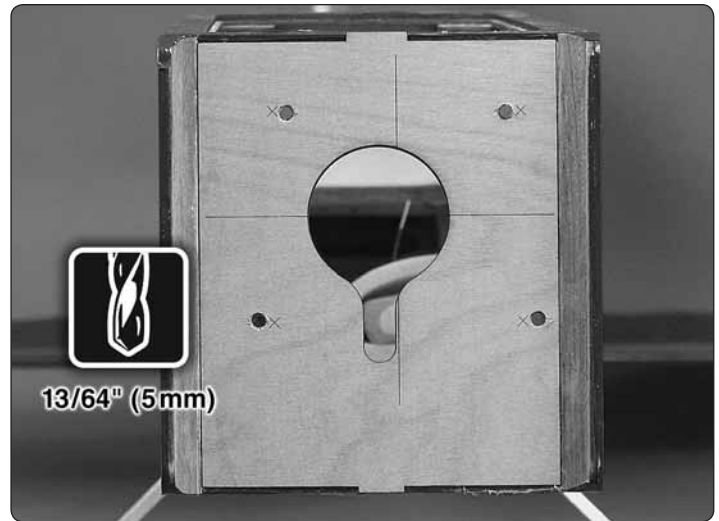


❑ 8. Make a hook-and-loop strap to secure the motor batteries on the battery tray. We recommend that a couple of pieces of adhesive backed Velcro (not included) be attached to the battery tray and the bottom of the batteries.

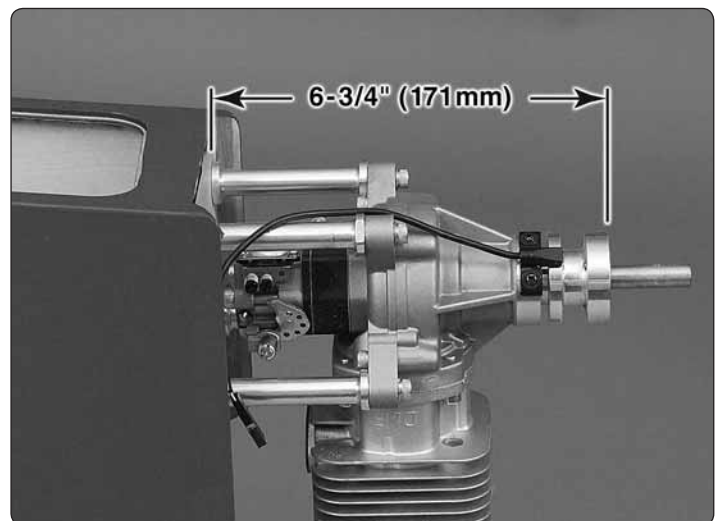
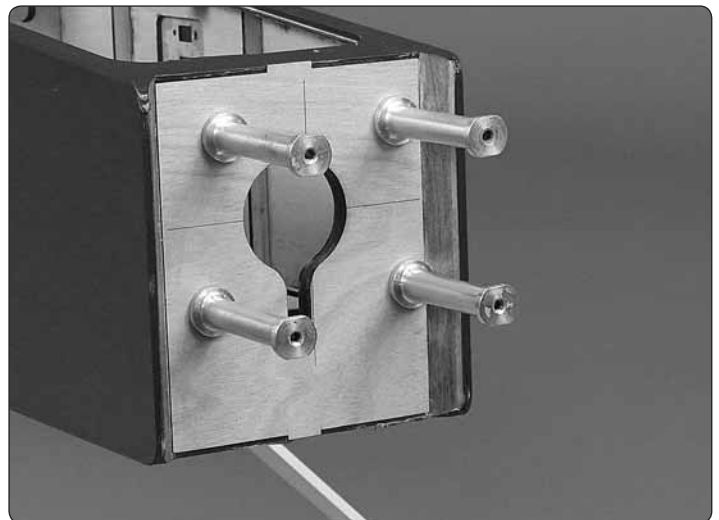
Gas Engine Installation



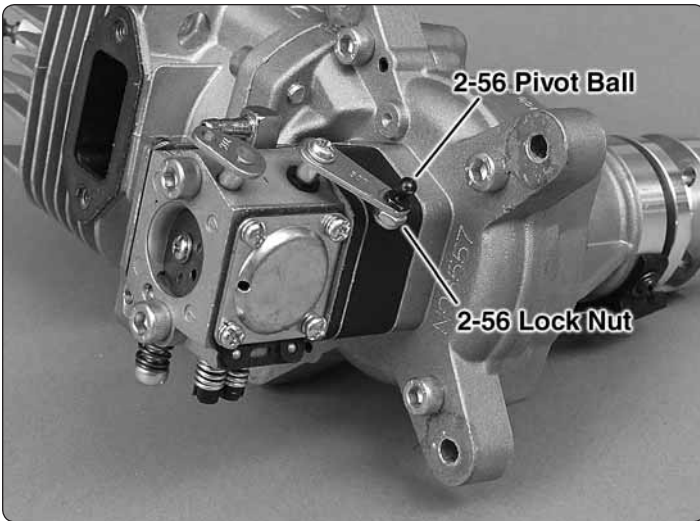
❑ 1. The firewall has two sets of engine mounting bolt patterns embossed on it. The "+" are for the DLE-55 Rear Exhaust and the DLE-61 Side Exhaust gas engine. The "x" are for the DLE-55 Side Exhaust and RimFire 65 Electric Motor. In the back of this manual we provide a paper template for mounting the O.S. GT 60 gas engine. If you are installing an engine with a different mounting bolt pattern, the firewall has crosshairs embossed on it to help locate the correct mounting locations. The crosshairs are offset for right thrust.



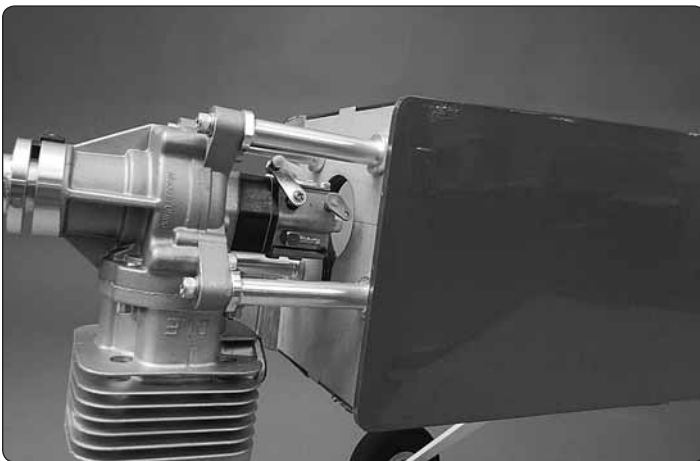
❑ 2. Drill through the firewall at each appropriate mark.



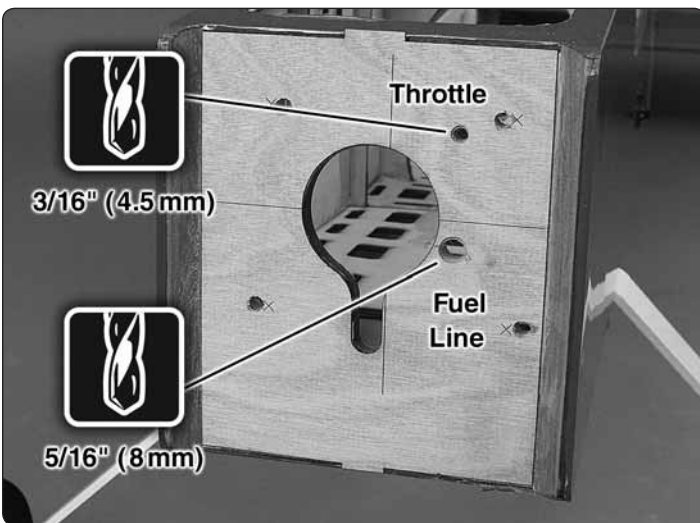
❑ 3. Install the engine using the standoffs included with the DLE engine. The O.S. engine requires the 2" (51mm) Standoffs (OSMG8962) (not included). We recommend using fender washers (not included) under the bolts on the backside of the firewall. The larger washers will help distribute the load from the engine.



- 4. Install the pivot ball on the throttle arm.
- 5. Temporarily mount the engine inverted using the hardware included with the engine.

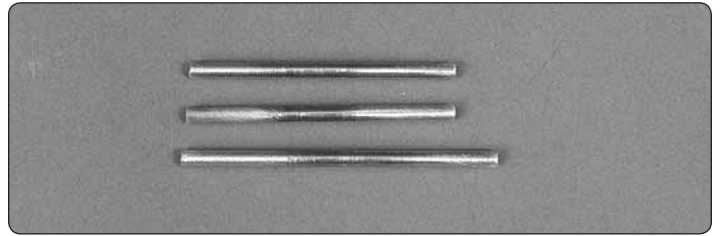


- 6. Snap a nylon ball socket onto the pivot ball. Mark the fuel line and throttle pushrod locations on the firewall. Remove the engine.



- 7. Drill the firewall for the throttle and fuel line.
- 8. Install the muffler on the engine and reinstall the engine on the fuselage. Be sure to use Threadlocker on all the bolts.

Assemble the Fuel Tank



- 1. Clean both ends of the brass tubes with fine sandpaper.



- 2. Solder fuel line barbs (not included) onto one end of the brass tubes.



- 3. Insert the brass tubes in the fuel tank stopper and stopper plates. Loosely install the fuel tank stopper screw.



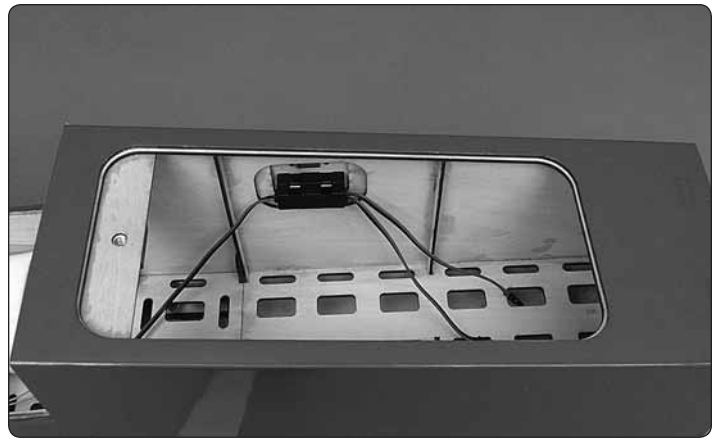
- 4. Solder barbs on the other end of the two shorter brass tubes.



- 5. Carefully bend the vent tube.

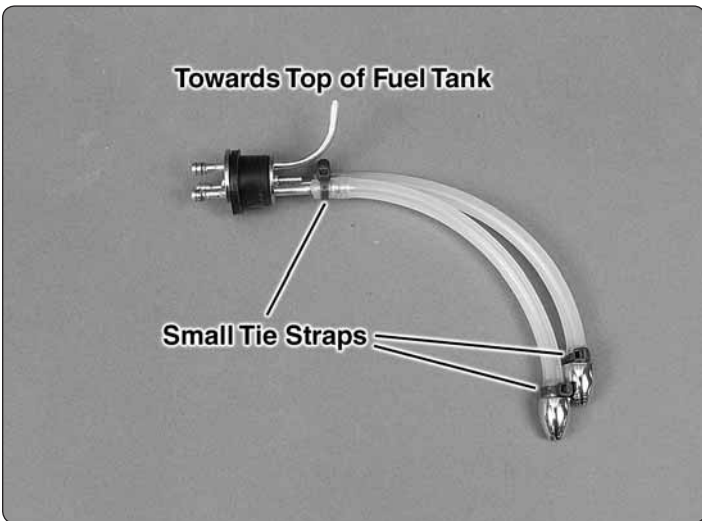


❑ 6. Install the two fuel pickup lines (not included), gasoline compatible, and two clunks.



❑ 9. Install the ignition switch. A charge receptacle can also be installed.

❑ 10. Wrap the ignition module and ignition battery in foam rubber.



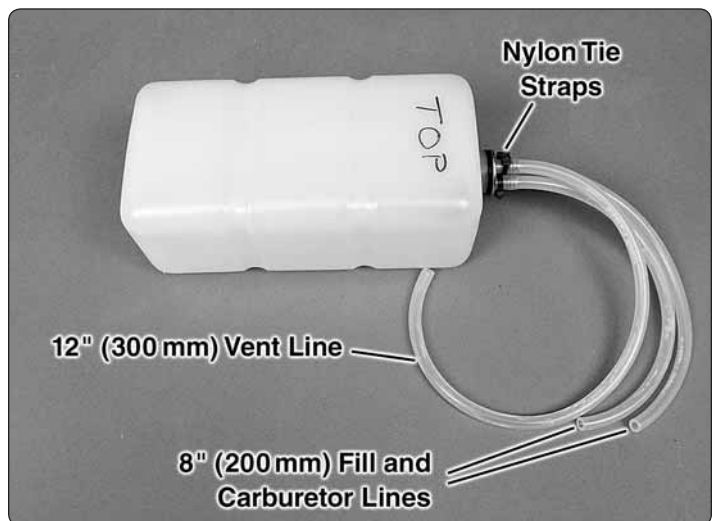
❑ 7. Secure the fuel line to the pickup tubes and the clunks with small tie straps.



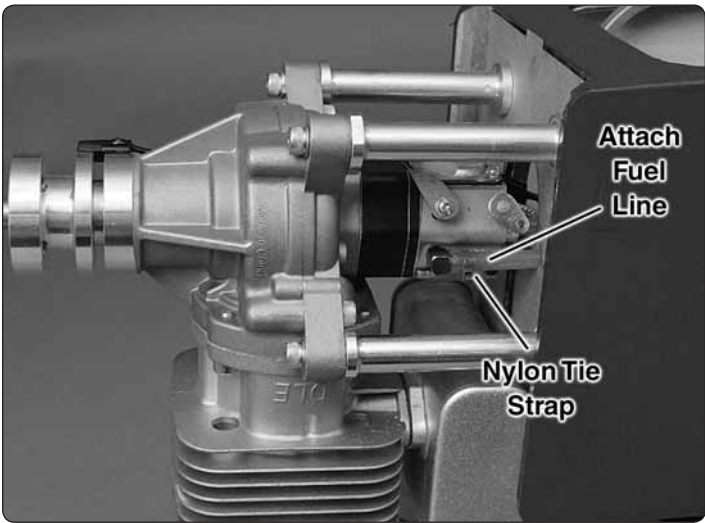
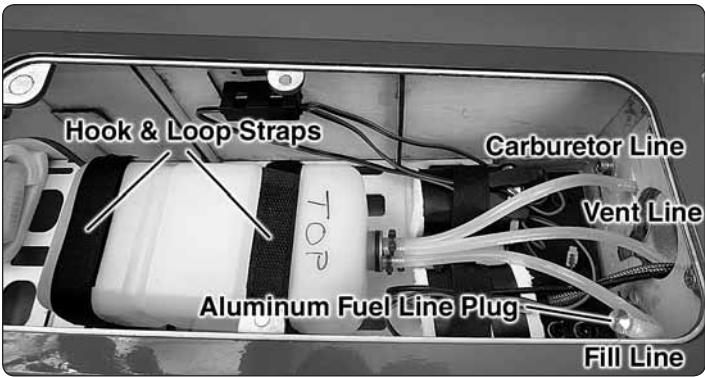
❑ 11. Make two hook-and-loop straps and secure the ignition module and ignition battery to the front of the fuel tank tray. Plug the ignition battery into the ignition switch and the ignition switch into the ignition module.



❑ 8. Insert the fuel tank stopper in the fuel tank with the vent tube towards the top and tighten the stopper screw. Mark the top of the tank.

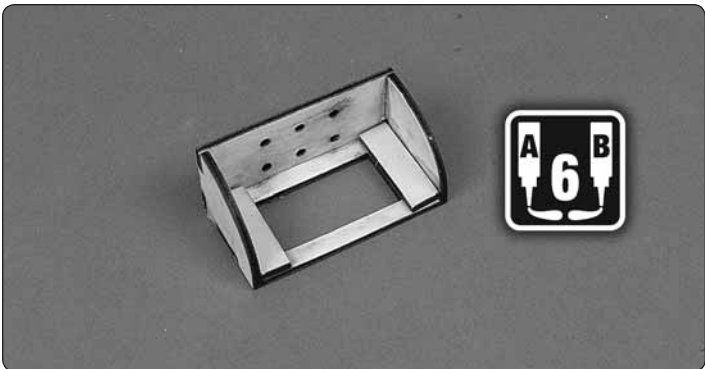
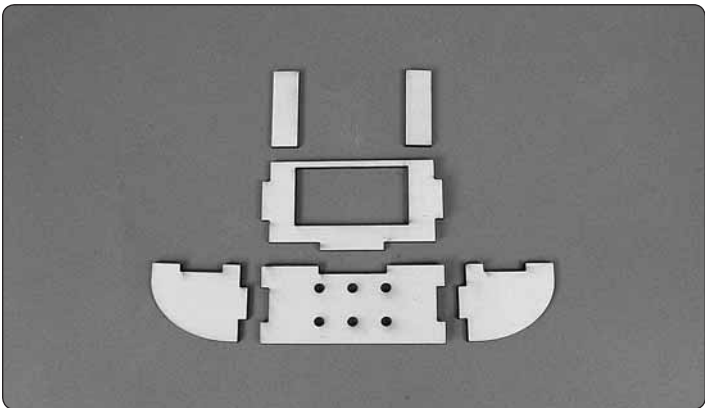


❑ 12. Install the gasoline compatible fuel line (not included) on the tank.

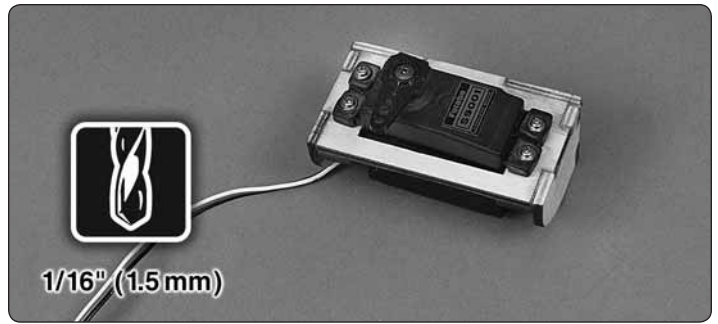


❑ 13. Secure the fuel tank in the fuselage.

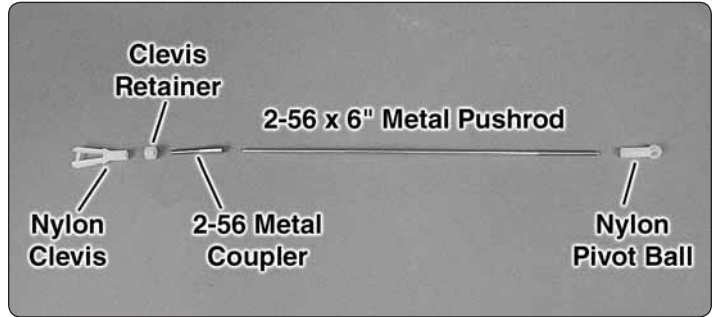
Install the Throttle Servo



❑ 1. Glue the throttle servo tray together.

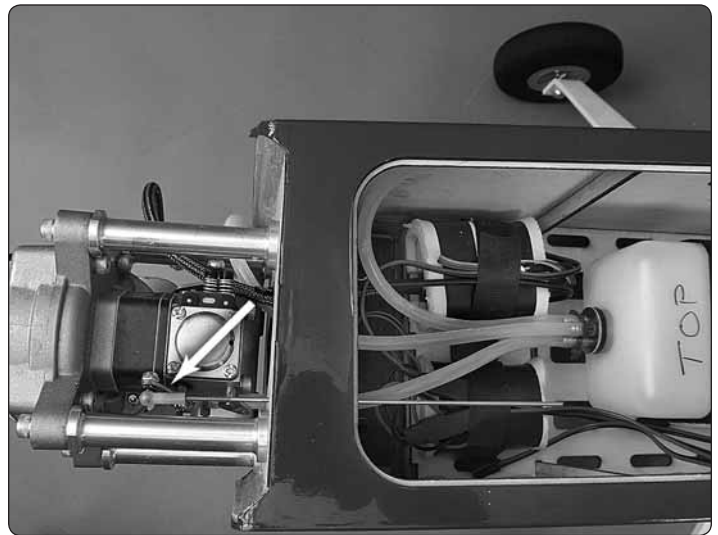


❑ 2. Install the throttle servo. After installing the servo, remove the servo and apply a drop of thin CA screw holes. After the CA cures, reinstall the servo.

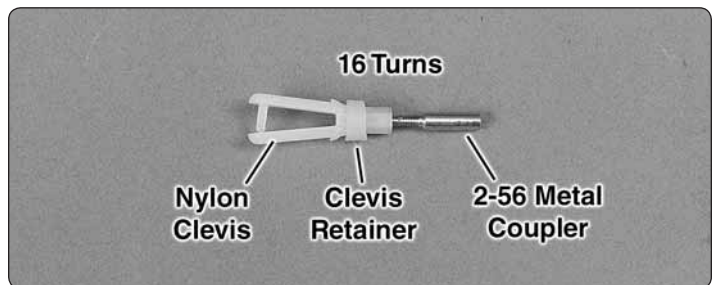


Thread Nylon Pivot Ball onto Pushrod Completely

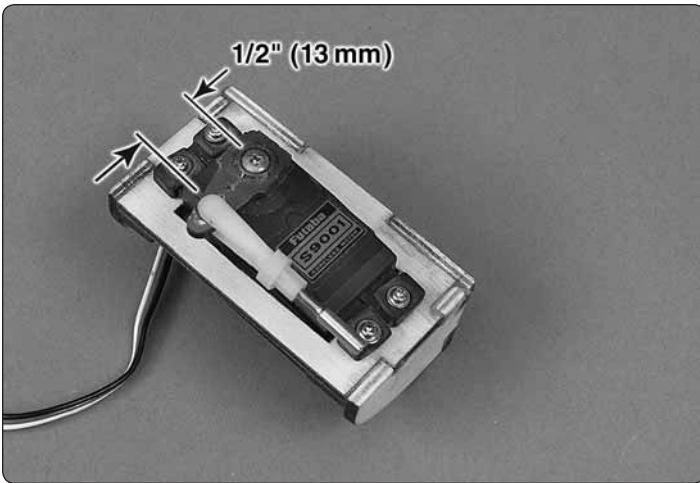
❑ 3. Assemble the throttle pushrod.



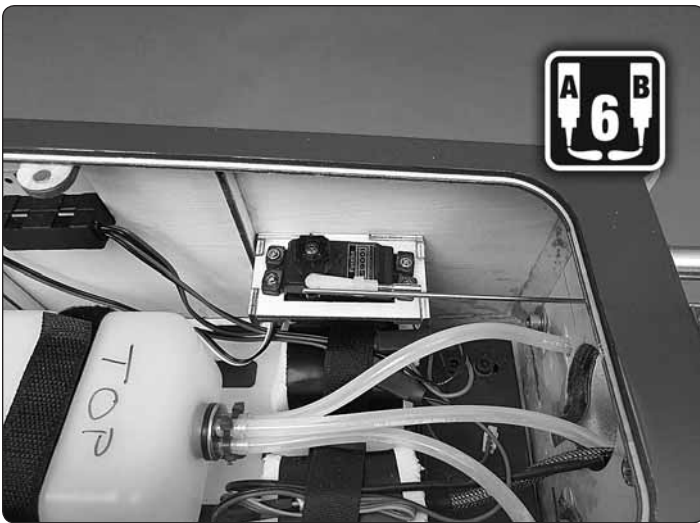
❑ 4. Install the throttle pushrod.



❑ 5. Assemble the throttle clevis.

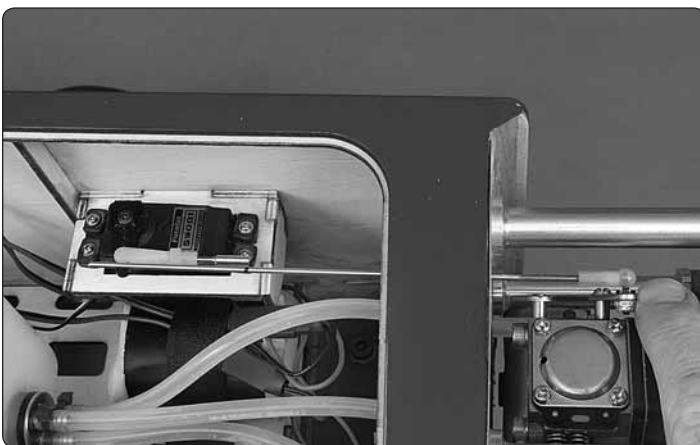


❑ 6. Install the clevis on the throttle servo.

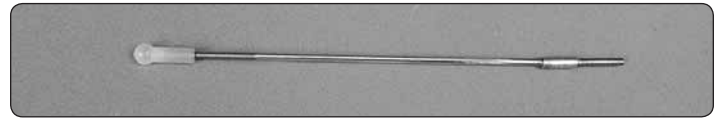


❑ 7. Position the throttle servo in line with the throttle pushrod. Mark the location on the side of the fuselage. Glue the servo tray to the fuselage side.

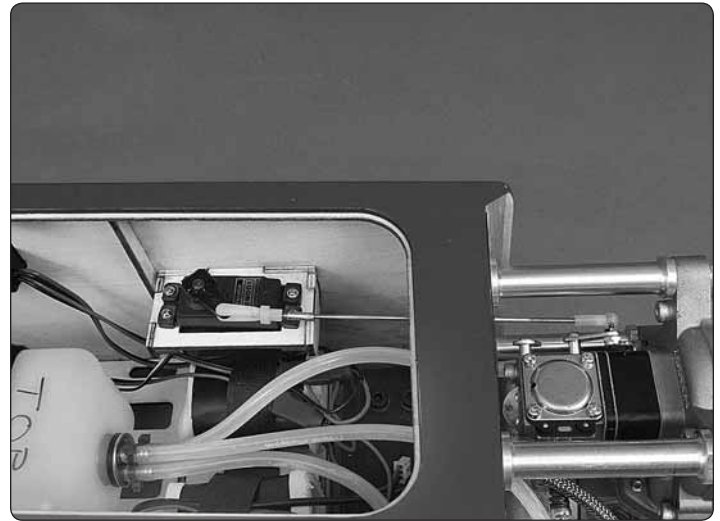
❑ 8. Connect an 8" (203mm) servo extension to the throttle servo. Plug the throttle servo into the throttle channel on the receiver.



❑ 9. Center the throttle stick on the transmitter. Position the throttle arm on the carburetor so that it is centered (at least close to centered). Mark the throttle pushrod at the end of the 2-56 metal coupler.



❑ 10. Remove the throttle pushrod from the fuselage. Cut the pushrod 1/4" (6mm) past the mark. Remove the nylon clevis from the 2-56 coupler and solder the coupler to the throttle pushrod.



❑ 11. Insert the throttle pushrod through the firewall and reinstall the nylon clevis. Adjust the clevis so that the throttle is fully open at full throttle and almost completely closed at idle. We recommend that a throttle cut be set up on the transmitter to stop the engine.

Apply the Decals

❑ 1. Be certain the model is clean and free from oily fingerprints and dust. Prepare a dishpan or small bucket with a mixture of liquid dish soap and warm water – about 1/2 teaspoon of soap per gallon of water. Submerge one of the decals in the solution and peel off the paper backing. Note: Even though the decals have a "sticky-back" and are not the water transfer type, submersing them in soap and water allows accurate positioning and reduces air bubbles underneath.

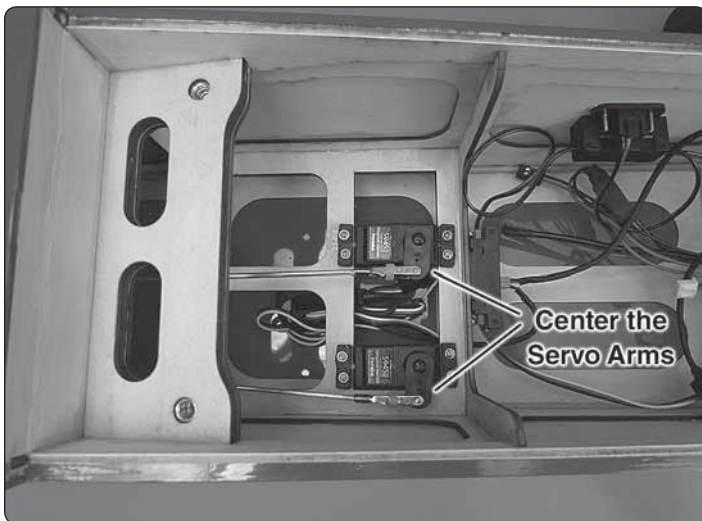
❑ 2. Position the decal on the side of the model. Holding the decal down, use a paper towel to wipe most of the water away.

❑ 3. Use piece of soft balsa or something similar to squeegee the remaining water from under the decal. Apply the other decal using the same method.

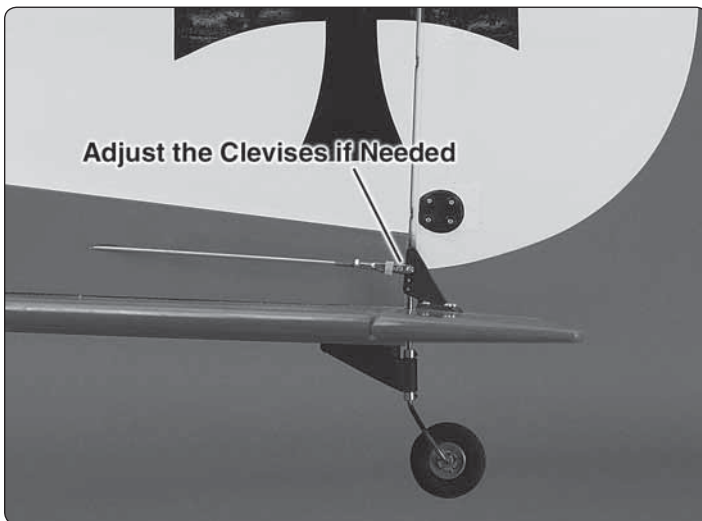
GET THE MODEL READY TO FLY

Check the Control Throws

WARNING: The propeller should not be installed on the electric motor at this time!



- ❑ 1. Switch on the transmitter and receiver.

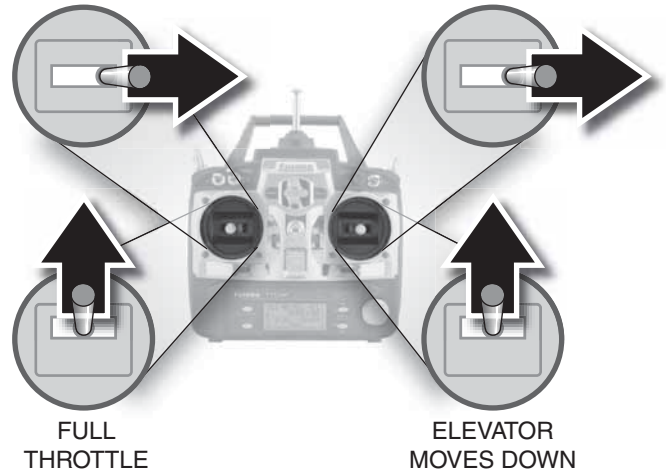


- ❑ 2. Center the control surfaces.

RADIO SET UP (STANDARD MODE 2)

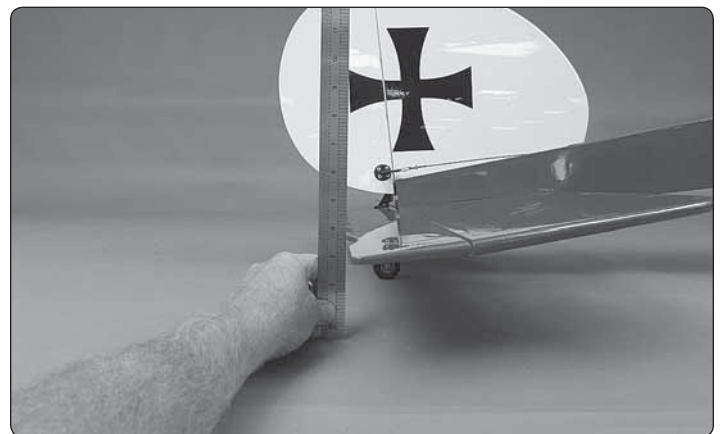
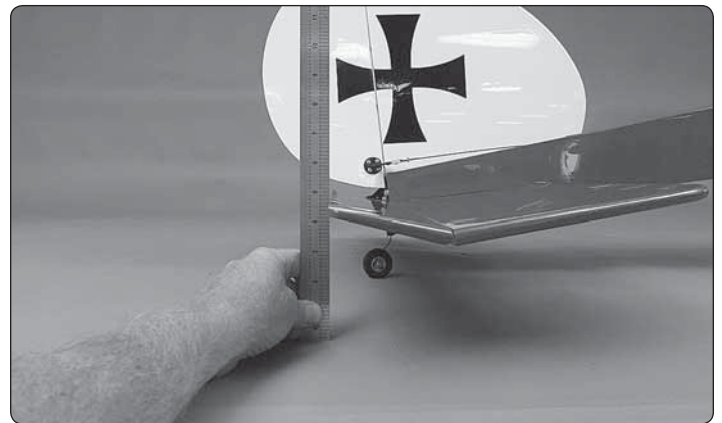
RUDDER
MOVES
RIGHT

RIGHT AILERON
MOVES UP
LEFT AILERON
MOVES DOWN



- ❑ 3. Make certain that the control surfaces and the carburetor or motor respond in the correct direction as shown in the diagram. If any of the controls respond in the wrong direction, use the servo reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have remained centered. Adjust if necessary.

Set the Control Throws



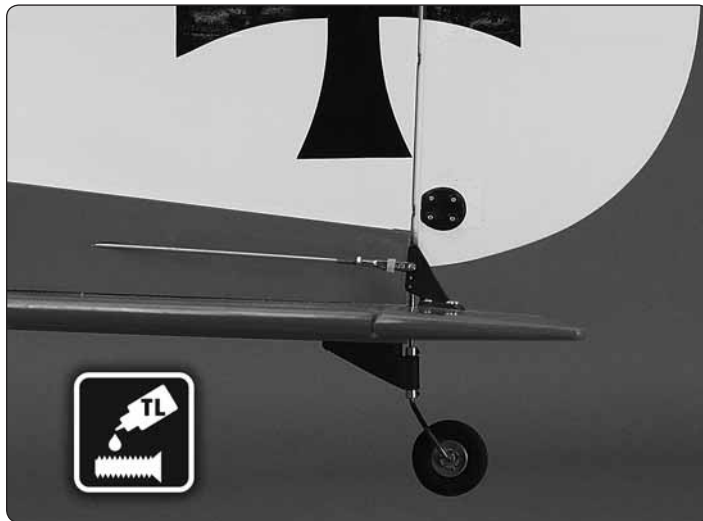
- ❑ 1. Hold a ruler against the widest part of the control surface and measure the high rate throw first.

❑ 2. Adjust the location of the pushrod on the servo arm or on the control horn first. Then, use the endpoint adjustment in your transmitter to fine tune the throws.

❑ 3. Measure and set the **low rate** throws. Measure and set the high and low rate throws for the rest of the control surfaces the same way.

These are the recommended control surface throws:

These are the recommended control surface throws:		
	LOW ▼	HIGH ▼
ELEVATOR Up & Down	1/2" [12 mm] 8°	7/8" [22 mm] 14°
RUDDER Right & Left	2-1/2" [63 mm] 24°	4" [102 mm] 41°
AILERONS Up & Down	1-1/8" [28 mm] 21°	1-1/2" [38 mm] 29°
FLAPS	1-1/4" [32 mm] 17°	We also mixed in 3/32" [2.5mm] down elevator with flaps to reduce ballooning.

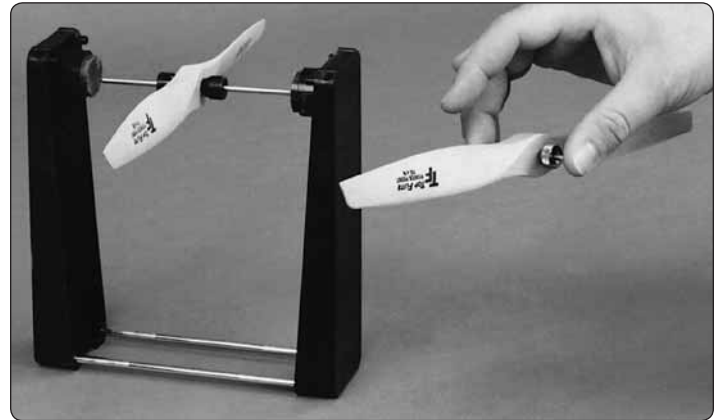


❑ 4. Once the throws are set, apply a drop of threadlocker to the threads and tighten the 4-40 nuts against the clevises. Slide the silicone retainers over the clevises.

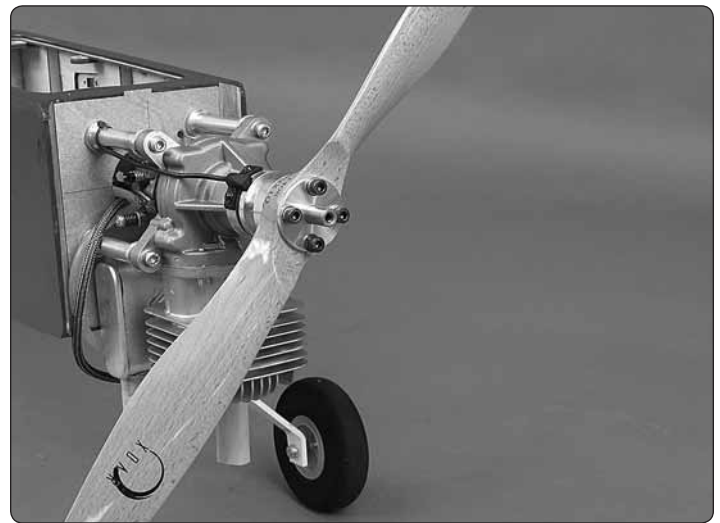
IMPORTANT! IMPORTANT! IMPORTANT!

Now that you have the throws set, be sure to set the fail-safe on the radio.

Install the Propeller



❑ 1. Balance the propeller.



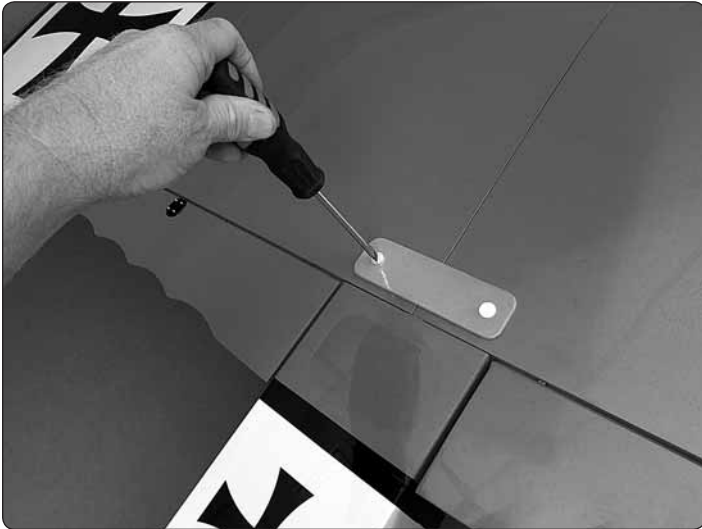
❑ 2. Install the propeller. Drill holes through the propeller as necessary.



❑ 3. Install and secure the hatch cover with the 1/4-20 x 1" thumb screw.

Balance the Model Laterally

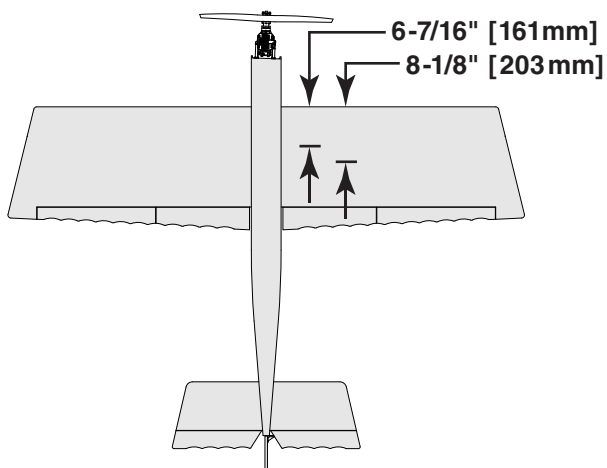
ELECTRIC ONLY: Install the flight batteries, but **do not plug** the batteries into the ESC.



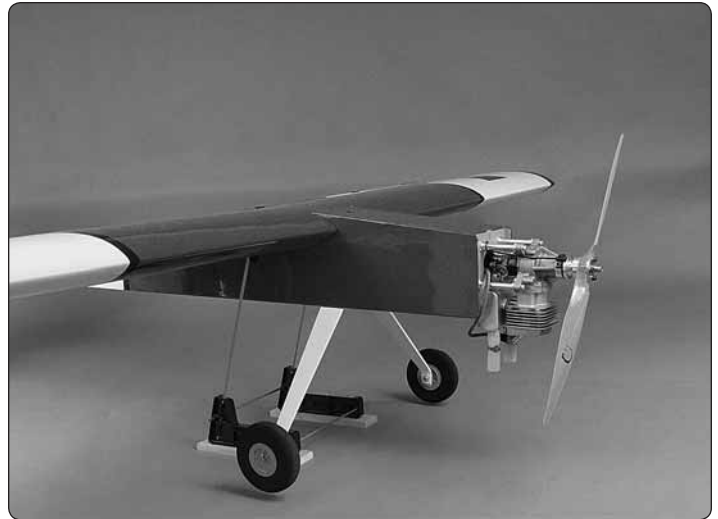
- 1. Install the wing and wing bolt plate. With the wing level, have an assistant help you lift the model by the engine propeller shaft and the bottom of the fuse under the TE of the fin. Do this several times.
- 2. If one wing always drops when you lift the model, it means that side is heavy. Balance the airplane by adding weight to the other wing tip. **An airplane that has been laterally balanced will track better in loops and other maneuvers.**

Balance the Model (C.G.)

DO NOT OVERLOOK THIS IMPORTANT PROCEDURE. A model that is not properly balanced may be unstable and possibly unflyable.



- 1. Mark the C.G. location.



- 2. With the plane **ready to fly**, with an empty fuel tank or motor batteries installed, use a Great Planes C.G. Machine placed on a couple of supports to raise it or apply narrow (1/16" [2mm]) strips of tape at the front and rear C.G. locations so you will be able to feel them when lifting the model with your fingers to check the C.G. location. **Do not at any time balance the model outside this C.G. range.**
- 3. Use Great Planes segmented weights (GPMQ4485) to balance the plane. Place incrementally increasing amounts of weight on the bottom of the fuselage over the location where it would be mounted inside until the model balances. A good place to add nose weight is to the firewall. Once you have determined if additional weight needs to be installed, permanently attach the weight with glue or screws.
- 4. **IMPORTANT:** If you found it necessary to add any weight, recheck the C.G. after the weight has been installed.

PREFLIGHT

Identify Your Model

You should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification tag on page 31 and place it on or inside your model. You must also have your FAA number on your plane and accessible without any tools.

Charge the Batteries

Always charge your transmitter and receiver batteries the night before you go flying, and at other times as recommended by the radio manufacturer.

CAUTION: Unless the instructions that came with your radio system state differently, the **initial** charge on **new NiMH** transmitter and receiver batteries should be charged for 15 hours **using the slow-charger that came with the radio system**. This will “condition” the batteries so that the next charge may be done using the fast-charger of your choice. If the initial charge is done with a fast-charger the batteries may not reach their full capacity and you may be flying with batteries that are only partially charged. If you are using LiFe transmitter and receiver batteries, follow the instructions that came with your batteries and be sure to use a charger that is designed to charge LiFe batteries.

Ground Check and Range Check

Make sure the engine idles reliably, transitions smoothly and maintains full power indefinitely. Shut the engine off and inspect the model closely, making sure all fasteners, pushrods and connections have remained tight and the hinges are secure. Follow the radio manufacturer’s instructions to ground check the operational range of your radio, before the first flight of the day. This should be done once with the engine off and once with the engine running at various speeds. If the control surfaces do not respond correctly, **do not fly!** Find and correct the problem first. Look for loose servo connections or broken wires, corroded wires on old servo connectors, poor solder joints in your battery pack or a defective battery cell.

ENGINE SAFETY PRECAUTIONS

Failure to follow these safety precautions may result in severe injury to yourself and others.

Keep all engine fuel in a safe place, away from high heat, sparks or flames, as fuel is very flammable. Do not smoke near the engine or fuel; and remember that engine exhaust gives off a great deal of deadly carbon monoxide. Therefore **do not run the engine in a closed room or garage.**

Get help from an experienced pilot when learning to operate engines.

Use safety glasses when starting or running engines.

Use a “chicken stick” or electric starter to start the gasoline engine. If you do flip the propeller with your fingers, wear a heavy leather glove, such as a welder’s glove. When hand-starting gas engines, if the engine should backfire, the large prop can cause severe injury to your hand and fingers.

Do not run the engine in an area of loose gravel or sand; the propeller may throw such material in your face or eyes.

Keep your face and body as well as all spectators away from the plane of rotation of the propeller as you start and run the engine.

Keep these items away from the prop: loose clothing, shirt sleeves, ties, scarfs, long hair or loose objects, such as pencils or screwdrivers, that may fall out of shirt or jacket pockets into the prop.

Stop the engine before making any engine adjustments.

The engine and muffler get hot! Do not touch them during or right after operation. Make sure fuel lines are in good condition so fuel will not leak onto a hot engine, causing a fire.

To stop a gasoline-powered engine, an on/off switch must be connected to the engine ignition. Do not throw anything into the propeller of a running engine.

ELECTRIC MOTOR SAFETY PRECAUTIONS

WARNING: Once the motor batteries are connected, the electric motor can start at any time. Make sure the fail-safe is set on your radio to prevent the motor from starting if the signal is lost.

WARNING: Read the entire instruction sheet included with your motor batteries. Failure to follow the instructions could cause permanent damage to the battery and its surroundings and cause bodily harm!

ALWAYS remove the propeller if the motor batteries will be connected when working on your plane.

ALWAYS remove the motor batteries when charging.

ALWAYS follow the charging instructions included with your charger for charging LiPo batteries. LiPo batteries can cause serious damage if misused.

ALWAYS switch on the transmitter before connecting the motor battery.

ALWAYS unplug the motor batteries as soon as your flight is over and **before** turning off your transmitter.

ALWAYS use a LiPo-approved charger.

ALWAYS set the charger’s output volts to match the battery volts.

ALWAYS charge a LiPo battery in a fireproof location.

ALWAYS charge through the “charge” lead.

ALWAYS KEEP OUT OF THE REACH OF CHILDREN.

ALWAYS remove the batteries from the plane after a crash. Set them aside in a safe location for at least 20 minutes. If the batteries are damaged in the crash, they could catch fire. If the battery starts to swell, quickly move the battery to a safe location, preferably outside. Place it in a bucket, covering the battery with sand. Never use water to try and put out a LiPo fire.

NEVER touch the motor during or right after operation. The motor gets HOT!

NEVER switch off the transmitter with the motor batteries plugged in.

NEVER use a NiCd/NiMH peak charger to charge a LiPo battery.

NEVER charge in excess of 4.20V per cell unless the battery is rated for a higher voltage.

NEVER charge through the “discharge” lead.

NEVER charge at currents greater than 1C unless the battery is rated for a higher charge rate.

NEVER trickle-charge a LiPo battery.

NEVER allow the battery temperature to exceed 150 degrees F (65° C).

NEVER disassemble or modify the pack wiring in any way or puncture the cells.

NEVER discharge below 2.7V per cell.

NEVER place the battery or charger on combustible materials or leave it unattended during charge or discharge.

NEVER charge the batteries in the plane.

AMA SAFETY CODE (excerpts)

Read and abide by the following excerpts from the Academy of Model Aeronautics Safety Code. For the complete Safety Code refer to *Model Aviation* magazine, the AMA web site or the Code that came with your AMA license.

General

1) I will not fly my model aircraft in sanctioned events, air shows, or model flying demonstrations until it has been proven to be airworthy by having been previously, successfully flight-tested.

2) I will not fly my model aircraft higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right-of-way and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full-scale aircraft.

3) Where established, I will abide by the safety rules for the flying site I use, and I will not willfully and deliberately fly my models in a careless, reckless and/or dangerous manner.

5) I will not fly my model unless it is identified with my name and address or AMA number, on or in the model. Note: This does not apply to models while being flown indoors.

7) I will not operate models with pyrotechnics (any device that explodes, burns, or propels a projectile of any kind).

Radio Control

1) I will have completed a successful radio equipment ground check before the first flight of a new or repaired model.

2) I will not fly my model aircraft in the presence of spectators until I become a qualified flier, unless assisted by an experienced helper.

3) At all flying sites, a straight or curved line(s) must be established in front of which all flying takes place with the other side for spectators. Only personnel involved with flying the aircraft are allowed at or in the front of the flight line. Intentional flying behind the flight line is prohibited.

4) I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission.

5) **I will not knowingly operate my model within three miles of any pre-existing flying site except in accordance with the frequency sharing agreement listed [in the complete AMA Safety Code].**

9) Under no circumstances may a pilot or other person touch a powered model in flight; **nor should any part of the model other than the landing gear, intentionally touch the ground, except while landing.**

FLYING

The 55cc Big Stik ARF is a great-flying sport model that flies smoothly and predictably. However, it does not possess the self-recovery characteristics of a primary R/C trainer and should be flown only by experienced R/C pilots.

CAUTION (THIS APPLIES TO ALL R/C AIRPLANES): If, while flying, you notice an alarming or unusual sound such as a low-pitched “buzz,” this may indicate control surface *flutter*. Flutter occurs when a control surface (such as an aileron or elevator) or a flying surface (such as a wing or stab) rapidly vibrates up and down (thus causing the noise). In extreme cases, if not detected immediately, flutter can actually cause the control surface to detach or the flying surface to fail, thus causing loss of control followed by an impending crash. If flutter is detected, slow the model **immediately** and land as soon as safely possible. Identify which surface fluttered (so the problem may be resolved) by checking all the servo grommets for deterioration or signs of vibration. Make certain all pushrod linkages are secure and free of play. If it fluttered once, under similar circumstances it will probably flutter again unless the problem is fixed.

Some things which can cause flutter are; Excessive hinge gap; Not mounting control horns solidly; Poor fit of clevis pin in horn; Side-play of wire pushrods caused by large bends; Excessive free play in servo gears; Insecure servo mounting; and one of the most prevalent causes of flutter; Flying an over-powered model at excessive speeds.

Takeoff

Before taking off, see how the model handles on the ground by doing a few practice runs at **low speeds** on the runway. Hold “up” elevator to keep the tail wheel on the ground. If necessary, adjust the tail wheel so the model will roll straight down the runway.

Remember to take off into the wind. When you’re ready, set your rudder control rates to high and point the model straight down the runway, hold a bit of up elevator to keep the tail on the ground to maintain tail wheel steering, then gradually advance the throttle. As the model gains speed, decrease up elevator allowing the tail to come off the ground. One of the most important things to remember with a tail dragger is to always be ready to apply **right** rudder to counteract engine torque. Gain as much speed as your runway and flying site will practically allow before gently applying up elevator, lifting the model into the air. At this moment it is likely that you will need to apply more right rudder to counteract engine torque. Be smooth on the elevator stick, allowing the model to establish a **gentle** climb to a safe altitude before turning into the traffic pattern.

Flight

It is a good idea to have an assistant on the flight line with you to keep an eye on other traffic. Take it easy with the 55cc Big Stik ARF for the first few flights, gradually getting acquainted with it as you gain confidence. Adjust the trims to maintain straight and level flight. After flying around for a while, and while still at a safe altitude with plenty of fuel, practice slow flight and execute practice landing approaches by reducing the throttle to see how the model handles at slower speeds. Add power to see how she climbs as well. Continue to fly around, executing various maneuvers and making mental notes of what trim or C.G. changes may be required to fine tune the model so it flies the way you like. Also, lower the flaps to see how the plane reacts to the flaps. Some down elevator is needed with flaps. Mind your fuel level, but use this first flight to become familiar with your model before landing.

With the electric setup, if using the recommended 5000mAh LiPo batteries, set your transmitter timer to 5 minutes for the first flight. After landing, check the capacity of the batteries and adjust the timer as needed. With good throttle management, 6-to-8 minute flights are possible.

Landing

The 55cc Big Stik ARF is easy to land. It does not require flaps to land, but the flaps will allow the plane to land slower and are great practice for the pilot that has never used flaps. Flaps increase lift and drag, thus reducing rollout after touchdown (not as much of a factor on grass runways). To initiate a landing approach, lower the throttle while on the downwind leg. If using flaps, allow the model to slow before extending them. Continue to lose altitude, but maintain airspeed by keeping

the nose down as you turn onto the crosswind leg. Make your final turn toward the runway (into the wind) keeping the nose down to maintain airspeed and control. If using flaps, keep a few additional “clicks” of power above idle so the model doesn’t slow too much. Level the attitude when the model reaches the runway threshold, modulating the throttle as necessary to maintain your glide path and airspeed. If you are going to overshoot, smoothly advance the throttle (always ready on the right rudder to counteract torque) and retract the flaps when enough airspeed is gained. Climb out to make another attempt. When the model is a foot or so off the deck, smoothly increase up elevator until it gently touches down. Once the model is on the runway and has lost flying speed, hold up elevator to place the tail on the ground, regaining tail wheel control.

NOTE: If ever the occasion arises when a dead-stick landing must be performed, do not extend the flaps until certain the model will be able to reach the landing zone (on dead-stick landings it is common to land with no flaps at all). Without engine power, flaps can unexpectedly reduce the model’s gliding range, thus causing it to come up short of the field.

FINAL NOTE: Have a goal or flight plan in mind each time you fly. This may be learning or improving a maneuver or learning how the model behaves at certain speeds and control rates. Every maneuver should be deliberate, not impulsive. A flight plan reduces the chances of crashing your model because of poor planning and impulsive moves.

Have a ball! But always stay in control and fly in a safe manner.

GOOD LUCK AND GREAT FLYING!

Tape to bottom of battery hatch for reference

	High Rate	Low Rate
Elevator:	7/8"	1/2"
	22mm	12 mm
	14° up/down	8° up/down
Rudder:	4"	2-1/2"
	102mm	63 mm
	41° left/right	24° left/right
Aileron:	1-1/2"	1-1/8"
	38mm	28 mm
	29° up/down	21° up/down
Flap:	1-1/4" [32mm]	17° down
	3/32" [2.5mm]	down elevator mixed with flap
C.G. Forward	6-7/16" [161mm] from leading edge	
Aft	8-1/8" [203mm] from leading edge	
Receiver Battery:	_____	
Ignition Battery:	_____	

Tape inside your plane:

This model belongs to:

Name

Address

City, State, Zip

Phone Number

AMA Number

FAA Number

O.S. GT60 MOUNTING HOLES

