HOBBISTAR 60™ Select

ASSEMBLY INSTRUCTIONS

HOBBICO®

Wingspan: 71 in [1805mm]
Weight: 7–8 lb [3180–3630 g]
Length: 55 in [1400mm]
Wing Area: 888 sq in [57 dm^2]
Radio: Futaba® Skysport 6
Engine: O.S.® 65LA
Wing Loading: 18–21 oz/sq ft [55–64 g/dm^2]

WARRANTY

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

HOBBICO®

1610 Interstate Drive
Champaign, Illinois
(217) 398-8970 ext. 2
airsupport@hobbico.com

Table of Contents

Introduction

Congratulations and thank you for purchasing the Hobbistar .60 Select. You have made the right decision by purchasing a "real" model airplane with an O.S.® .65 LA engine and a genuine Futaba® 6-channel radio.

There are two parts to this manual. The first part is a short, easy-to-follow assembly section. The second part, Setup, takes you through the initial adjustments and flight preparation. Do not overlook any of the important setup procedures and be sure to follow the instructions all the way to the end of this manual.

AMA

We urge you to join the AMA (Academy of Model Aeronautics) and a local R/C club. The AMA is the governing body of model aviation and membership is required to fly at AMA clubs. Though joining the AMA provides many benefits, one of the primary reasons to join is liability protection. Coverage is not limited to flying at contests or on the club field. It even applies to flying at public demonstrations and air shows. Failure to comply with the Safety Code (excerpts printed in the back of the manual) may endanger insurance coverage. Additionally, training programs and instructors are available at AMA club sites to help you get started the right way. There are over 2,500 AMA chartered clubs across the country. Contact the AMA at the address or toll-free phone number below:

AMA
SINCE 1936

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.

Protect your model, yourself & others... Follow these Important Safety Precautions

1. Your Hobbistar .60 Select 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 Hobbistar .60, 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 check the operation of the model before **every** flight to insure that all equipment is operating and that the model has remained structurally sound. Be sure to check clevises or other connectors often and replace them if they show any signs of wear or fatigue.

4. 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.

We, as the kit manufacturer, provide you with a top quality, thoroughly tested kit and instructions, but ultimately the quality and flyability of your finished model depends on how you build 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.

Kit Inspection

Before starting to build, take an inventory of this kit to make sure it is complete, and inspect the parts to make sure they are of acceptable quality. If any parts are missing or are not of acceptable quality, or if you need assistance with assembly, contact **Product Support**. When reporting defective or missing parts, use the part names exactly as they are written in the Kit Contents list.

Hobbico Product Support • 3002 N Apollo Drive, Suite 1 • Champaign, IL 61822
Telephone: (217) 398-8970, ext. 2 • Fax: (217) 398-7721
E-mail: airsupport@hobbico.com

Kit Contents
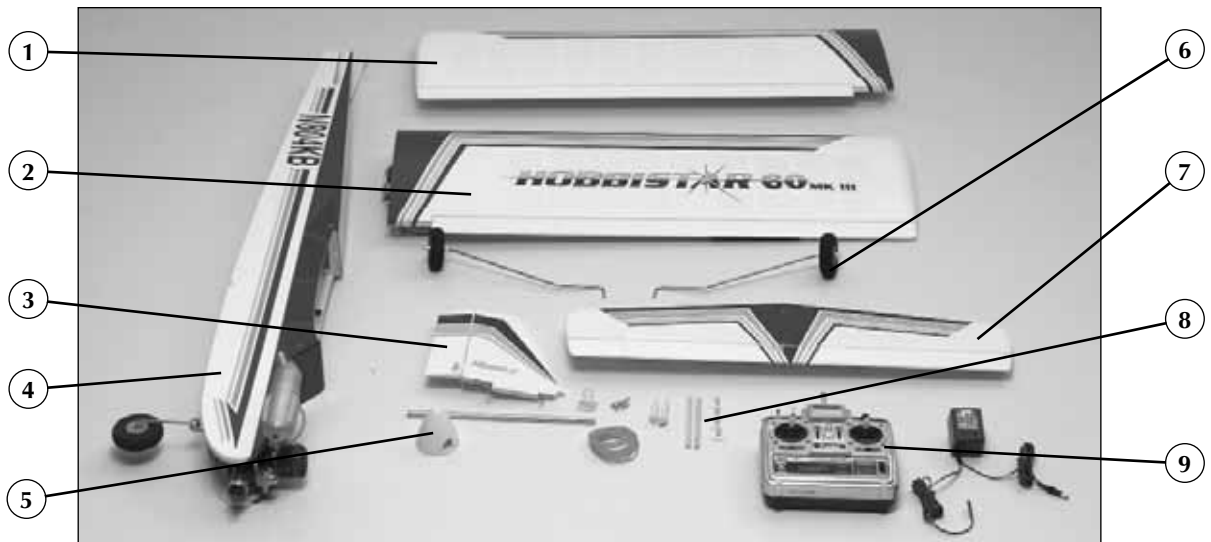
Items photographed

1. Left wing
2. Right wing
3. Fin & rudder
4. Fuselage (servos, receiver & engine preinstalled
5. Spinner
6. Langing gear
7. Stab with elevators

8. Misc. hardware (Itemized after this list)
9. Radio system & charger.

Miscellaneous hardware list
(1) 9 x 207mm metal wing joiner
(2) 56mm plastic stab bolts
(2) Metal wing joiner straps
(2) Nylon landing gear straps
(4) Plastic wing dowel plates

(2) 7 x120mm wood dowels
(8) 2.5 x 8mm screws for mounting the plastic wing dowel shrouds
(4) 3 x 12mm screws for mounting the landing gear straps
(8) Rubber bands
(4) Nylon clevises *(These threaded clevises are in addition to the clevises already installed on the pushrods. These are provided as extras.)*

Ordering Replacement Parts

Replacement parts for the Hobbistar .60 Select 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.

To locate a hobby dealer, visit the Hobbico web site at **www.hobbico.com**. Choose "Where to Buy" at the bottom of the menu on the left side of the page. Follow the instructions provided on the page to locate a U.S., Canadian or International dealer. If a hobby shop is not available, replacement parts may also be ordered from Tower Hobbies at **www.towerhobbies.com** or by calling toll free (800) 637-6050.

Parts may also be ordered directly from Hobby Services by calling (217) 398-0007, or via facsimile at (217) 398-7721, but full retail prices and shipping and handling charges will apply. Illinois and Nevada residents will also be charged sales tax. If ordering via fax, include a Visa® or MasterCard® number and expiration date for payment.

Mail parts orders and payments by personal check to:

Hobby Services
3002 N Apollo Drive, Suite 1
Champaign IL 61822

Be certain to specify the order number exactly as listed in the **Replacement Parts List**. Payment by credit card or personal check only; no C.O.D.

If additional assistance is required for any reason contact Product Support by e-mail at **productsupport@hobbico.com**, or by telephone at (217) 398-8970.

Replacement Parts List

Order Number	Description	How to purchase
HCAA3120	Fuselage Set	Hobby Supplier
HCAA3121	Wing Set	Hobby Supplier
HCAA3122	Tail Set	Hobby Supplier
HCAA3123	Landing Gear	Hobby Supplier
HCAA3124	Decal Set	Hobby Supplier
Missing pieces		Product Support
Instruction manual		Product Support
Full-size plans		Not available

Field Equipment

When ready to fly, you'll need some additional equipment to fuel the plane and start the engine. The most important items include an electric starter, 12 volt battery, or chicken stick, fuel pump (electric or hand-crank), fueling lines and fittings and a 1.5 volt glow plug igniter. Your flight instructor will probably let you share his equipment for a while, but eventually you'll need your own. Visit your local hobby dealer or see the Hobbico catalog for a full selection, descriptions and pricing.

Upon inspection of your airplane you may find that the covering has a few wrinkles. These can be easily removed with a modeling iron. Set the iron at a medium to medium/high heat setting. Work the iron slowly over the wrinkles allowing the heat to shrink the film. As the film begins to shrink, lightly apply pressure with the iron to bond the film to the wood under the covering.

Assemble the Fuselage

❏ 1. Insert the landing gear into the holes in the landing gear plate.

❏ 2. Secure the landing gear to the fuselage with two nylon landing gear straps and four 3 x12mm screws.
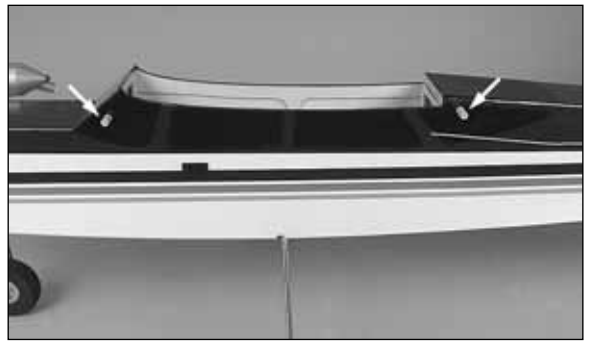
❏ 3. Insert the 7 x 120mm hardwood dowels into the holes at the front and rear of the fuselage center.
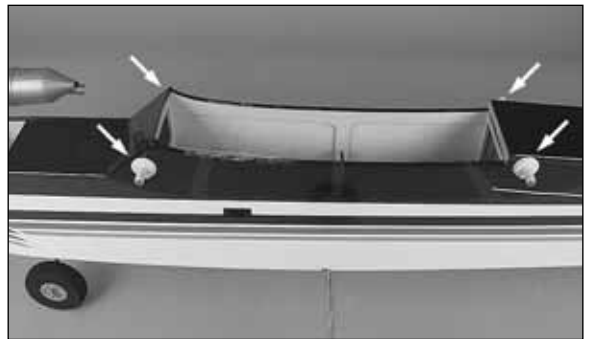
❏ 4. Install four plastic wing dowel plates over the ends of the dowels. Secure the plates to the dowels with 2.5 x 8mm screws.
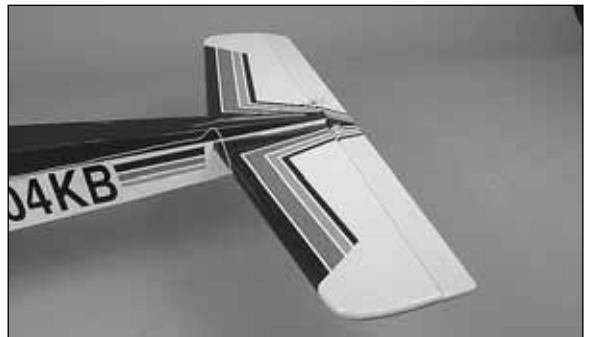
❏ 5. Slide the horizontal stab into position at the back of the fuselage aligning the holes in the center of the stab with the holes in the bottom of the fuselage.

❑ 6. Insert the vertical fin into the slot in the back of the fuselage. The metal rods should pass through the holes in the stab and fuselage.

CLEVIS KEEPER

CLEVIS KEEPER

❑ 8. Install the nylon clevis into the **outer** hole of the control horn and secure it by sliding the silicone clevis keeper over the clevis. Do the same for the rudder clevis.

❑ 7 Install both of the 56mm plastic stab bolts into the holes, threading them onto the wires from the stab. Tighten both of the bolts snugly against the fuselage. **Do not** over tighten the bolts or they could strip.

IMPORTANT!

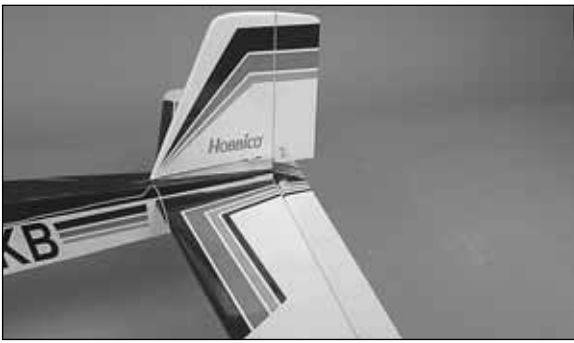*Do not fly the airplane without the silicone clevis keepers on the clevises. Flying without silicone clevis keepers could cause the clevises to fail, possibly resulting in a crash. Inspect the silicone clevis keepers and if they show any signs of wear, replace them with new ones. These can be made by cutting 1/4" lengths of silicone fuel tubing.*

Assemble the Wing
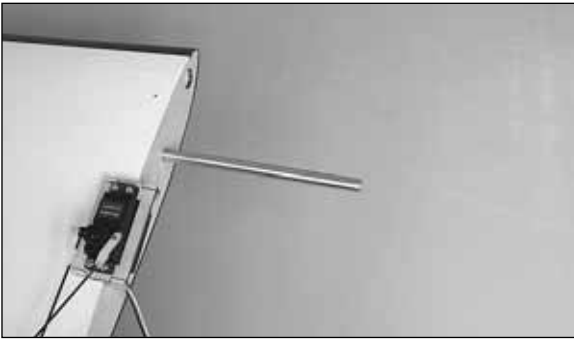
❏ 1. Slide the 9 x 207mm metal wing joiner into the hole in the right wing panel.

WING JOINER   ALIGNMENT PIN

❏ 2. Slide the left wing panel onto the metal wing joiner. Slide the wings together, making sure the alignment pin in the wing fits into the hole in the opposite wing panel.

❏ 3. Be sure the wings are tight against each other. Place the two metal wing joiner straps over the pre-drilled holes in the bottom of the wing. Secure the straps to the wing panels with 2.5 x 8mm screws.

Hot Tip

Here are two things you might consider to make a stronger, longer-lasting wing assembly. Both are very easy but do require the use of glue.

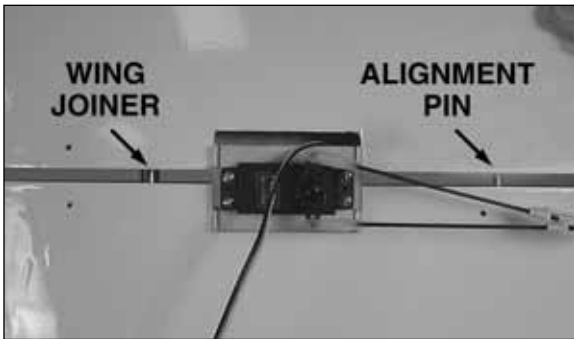1. Apply epoxy glue to the root rib of each wing half before sliding the wings together. Once the wings are pushed tightly against each other, install the metal wing joiner straps and 2.5 x 8mm screws. Clean any excess epoxy from the wing with a paper towel and rubbing alcohol.

2. Put some aliphatic glue (any typical white glue such as Elmers®) into the screw holes, then install the screws. When the glue dries it will be difficult for the screws to come loose from vibration or wear.
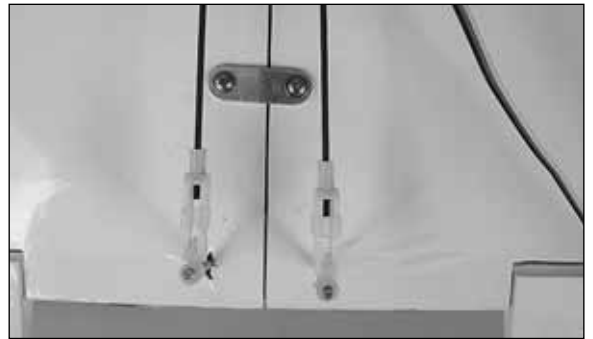
❏ 4. Install the aileron clevis to the control horn. Slide the silicone clevis keeper over the clevis.

CHECK THE SCREWS

Your Hobbistar .60 Select is nearly a fully assembled airplane when you remove it from the box. However, it is a good idea to check the tightness of all of the screws. Systematically go through the airplane and be sure all bolts and screws are tight. Start with the engine compartment followed by the landing gear, radio compartment, tail surfaces and then the wing. Remove the spinner and check the propeller nut to be sure it is tight; then, re-install the spinner.

CHARGE THE BATTERIES

If you have not yet charged the batteries, you may still proceed. However, as the batteries have not been fully charged, they may not provide enough power to make it all the way through the setup procedures. If the batteries quit working, charge the batteries as described in the instruction manual for the Futaba radio system that came with this kit. **After you complete the setup and before flying the airplane be sure to follow the next charging steps!**

IMPORTANT!

Your Hobbistar .60 Select uses NiCd batteries in the transmitter and receiver. NiCd batteries need to be exercised or "cycled" to get full capacity from the batteries before using them. There are several good electronic cyclers available. The Hobbico Accu-Cycle™ (HCAP0260) and the Accu-Cycle Elite (HCAP0280) are two good choices. If you have a battery cycler or if your instructor has one, it is recommended that you cycle the batteries at least three times before you fly. If you do not have access to a battery cycler, we recommend you use the following procedure to help assure you are getting full capacity from you batteries.

❏ 1. Charge the transmitter and receiver battery overnight following the instructions with the radio system.

❏ 2. Extend the transmitter antenna; turn on the transmitter and receiver. Using the transmitter, move the control surfaces. Continue moving the control surfaces until the servos slow down or quit functioning. This will take approximately an hour.

❏ 3. Re-charge the batteries and repeat this procedure. Normally doing this two or three times will cycle the batteries adequately for safe flying. If, after repeating this a few times, you are not getting approximately an hour or more of operating time, repeat the procedure until you do.

CENTER THE CONTROL SURFACES

Even though the trim levers on the transmitter may be used to center the control surfaces, you should start out with the trims centered.

Do the elevator first.

Stabilizer   Elevator
Elevator NOT Centered With Stab

Elevator Centered With Stab

❏ 1. With the transmitter and receiver on, view the elevator and stab from the end. If the elevator is not centered, disconnect the clevis from the control horn on the elevator. Holding the end of the pushrod with pliers, screw or unscrew the clevis as necessary until the elevator will be centered when reconnected to the pushrod. **Note:** Be sure not to unscrew the clevis too far. It must remain securely fastened to the end of the pushrod.

❏ 2. Center the rudder and both ailerons the same way.

❏ 3. Now that the rudder is centered, center the nose wheel by adjusting the pushrod in the threaded connector on the steering arm. Roll the fuselage along a flat surface (such as your garage, basement or kitchen floor) to make certain it rolls straight. This should be done with the transmitter and receiver on. Make adjustments if necessary. Add a small drop of threadlocker to the screw and securely tighten to lock the pushrod into position.
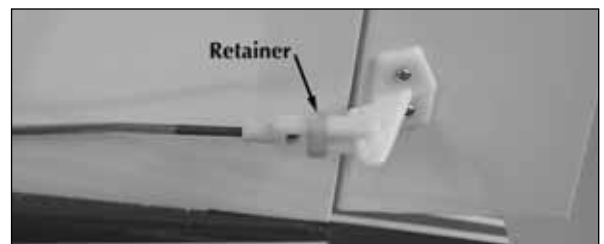
Retainer

❏ 4. Install a silicone retainer on all the clevises (elevator, rudder, ailerons, throttle). If you've misplaced the retainers that came with the model, use 1/4" [6mm] pieces cut from leftover fuel tubing.

CHECK THE CONTROL DIRECTIONS

Pull Stick Back (Down)

Elevator Moves Up

Move Stick Right

Right Aileron Goes Up

Left Aileron Goes Down

Move Stick Right

Rudder (and Nosewheel) Move Right
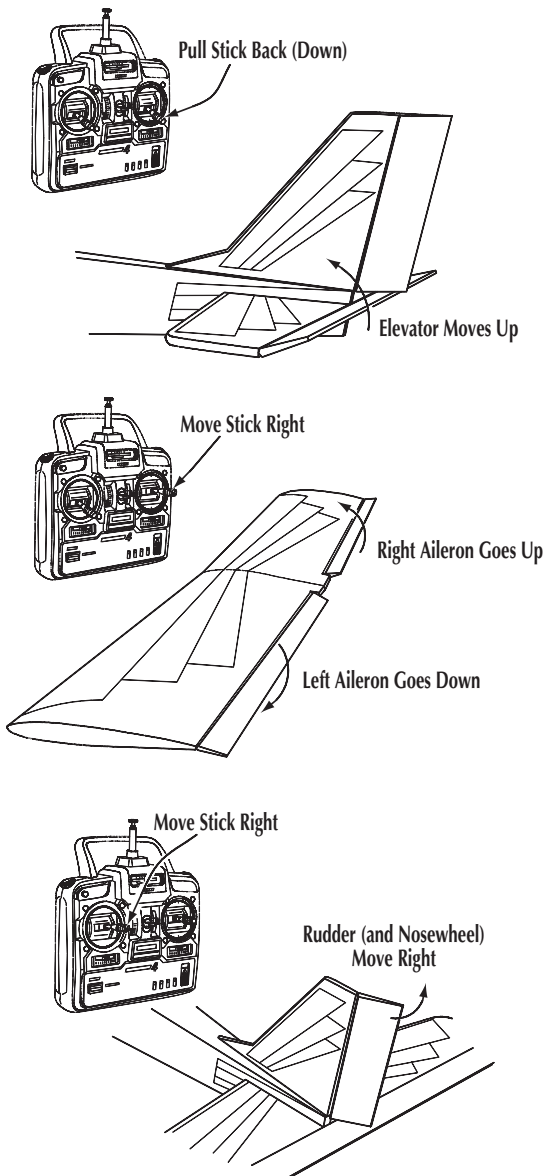
Move the control sticks on the transmitter as shown to be certain the controls on the airplane respond in the correct direction. If any of the controls move the wrong way, use the servo reversing switches on the transmitter to make the controls respond correctly. If necessary, refer to the instructions in the instruction manual that came with your radio to identify and operate the reversing switches.

Note that pulling the elevator stick back moves the elevator up (which, in flight, pushes the tail down, thus raising the nose of the plane to climb). The best way to keep this in mind is to think in terms of a pilot in an actual airplane. He pulls the control stick back to raise the nose of the plane.

SET THE CONTROL THROWS

The control throws are a measure of how far the flight controls (elevator, ailerons, rudder) move up and down (or from side to side). If the controls move too much, the plane will respond too quickly and be difficult to control. If the controls do not move enough, there will not be enough control to fly or land the model. Due to the **great** effect the control throws have on the way a model flies, the control throws **must** be set according to the measurements provided in this manual.

Start with the elevator…
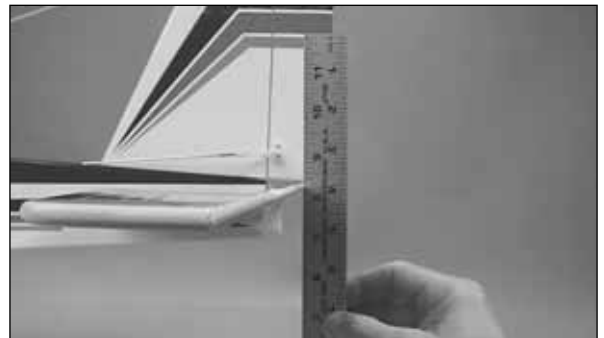
❑ 1. Turn on the transmitter and receiver. Holding a ruler up to the trailing edge of the elevator, move the elevator all the way up using the control stick on the transmitter. Measure the distance the elevator moves up. Also move the elevator down and measure the distance. As shown in the chart that follows, the elevator should move up 1/2" [13mm] and down 1/2" [13mm]. If the elevator moves up or down more than 1/2" [13mm], the control throw must be **decreased** by connecting the pushrod to a hole **further out** on the elevator control horn, or by connecting the pushrod to a hole **further in** on the elevator servo arm (as shown in the sketches below). If the elevator moves up and down less than 1/2" [13mm], the control throw must be **increased** by relocating the pushrods the opposite as described.

Control Throws

Elevator: 1/2" [13mm] up   1/2" [13mm] down
Ailerons: 3/8" [10mm] up   3/8" [10mm] down
Rudder: 1" [25mm] right   1" [25mm] left
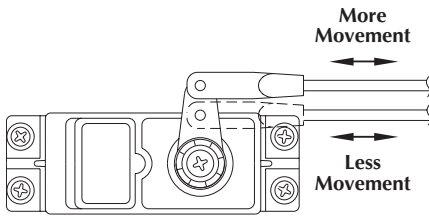
Moving the pushrod outward on the servo arm results in more pushrod movement.
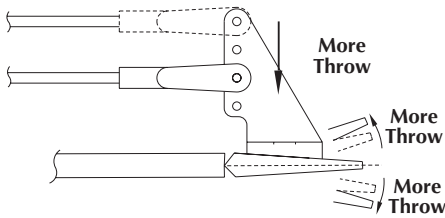
To get more control surface movement, move the pushrod farther out on the servo arm. Moving the pushrod farther inward yields less control surface throw

.

Moving the pushrod inward on the control horn results in more throw.

To get more control surface movement, move the pushrod farther in on the control horn. Moving the pushrod farther out yields less control surface throw.

❑ 2. Measure and if necessary, adjust the aileron and rudder control throws the same way.

ADJUST THE THROTTLE

The throttle is to be set up so that, when the throttle stick is all the way **down** and the throttle trim lever is all the way **up**, the carburetor will be slightly open (so the engine will idle at a low RPM). When the engine is to be shut off, the trim lever is moved down to close the carburetor the rest of the way.
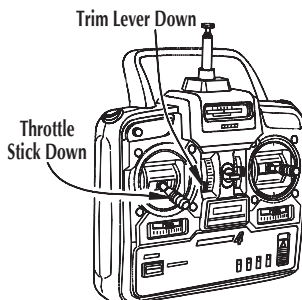
❑ 1. With the transmitter and receiver on, move the throttle trim lever and the throttle stick all the way down.
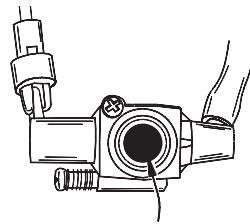
Carburetor Fully Closed   Carburetor Partially Open
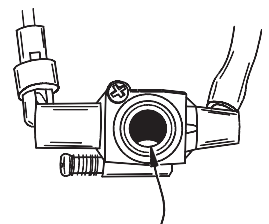
❑ 2. Observe the opening in the carburetor. If the carburetor is fully closed, proceed to step 3. If the carburetor is not fully closed, adjust the pushrod at the connector on the carburetor arm or at the clevis on the servo arm until the carburetor is closed.
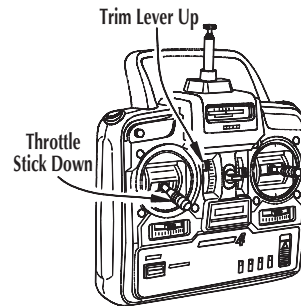
❑ 3. Move the throttle trim lever all the way up, but leave the throttle stick all the way down. Now the carburetor should be partially open (about 1/32" to 1/16" [1 to 1.5mm]).
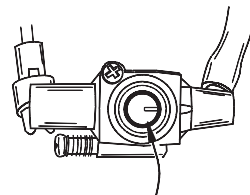
Carburetor Fully Open

❑ 4. Move the throttle stick all the way up. The carburetor should be fully open. If the carb is not fully open, the pushrod travel may have to be increased. This is done by moving the clevis further out on the servo arm (or by moving the pushrod connector closer in on the carburetor arm). Adjust the pushrod as necessary to achieve the correct setup.

BALANCE THE MODEL

More than any other factor, the **C.G.** (center of gravity, also referred to as the balance point) can have the **greatest** effect on how a model flies and may determine whether or not the first flight will be successful. If the plane is nose heavy it could be difficult to takeoff and land and lose some of its self-recovery capabilities. If the plane is tail heavy the controls may be too sensitive, making the model overreact to control inputs. If you value this model and wish to enjoy it for many flights, **DO NOT OVERLOOK THIS IMPORTANT PROCEDURE.** A model that is not properly balanced will be unstable and possibly unflyable.

At this time the model must be in "ready-to-fly" condition with all components installed including the complete radio system, landing gear, engine, prop and spinner. The model is to be balanced with the fuel tank empty.
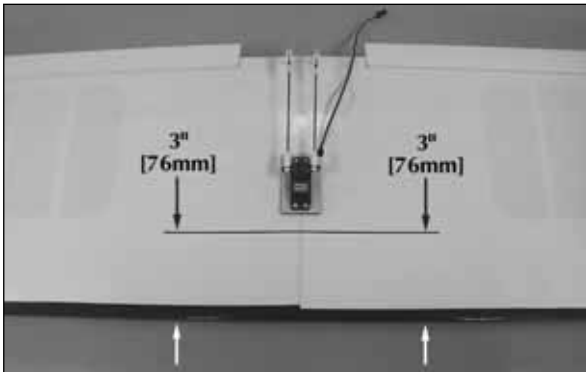

❏ 1. If using a Great Planes® C.G. Machine™ to balance the model, set the rulers to 3" [76mm]. If you do not have a Great Planes C.G. Machine, use a felt-tip pen or 1/16" to 1/8" [1.5 to 3mm] tape to accurately mark the C.G. 3" [76mm] from the leading edge on the bottom of the wing.

This is where the model should balance for the first flights. Later, you may wish to experiment by shifting the C.G. up to 1/2" [13mm] forward or 1/2" [13mm] back to change the flying characteristics. Moving the C.G. forward will increase stability, but will decrease the model's aerobatic capabilities by decreasing maneuverability. Moving the C.G. aft will have the opposite effect. In any case, as long as the model is balanced **within the recommended range** it will not display any bad tendencies. Do not at any time balance the model outside the recommended range.
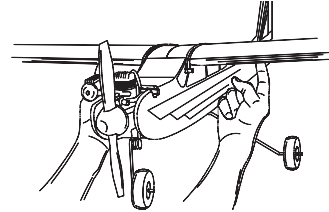
❏ 2. Mount the wing to the fuselage with at least four #64 rubber bands. If using a C.G. Machine, place the model on the machine. If not using a C.G. Machine, use the tip of your middle fingers on both hands to lift the model by the wing on both sides of the fuselage at the balance point you marked on the bottom of the wing.

❏ 3. If the fuselage is level when lifting the model the C.G. is correct. If the nose drops the model is nose-heavy and will require weight on the tail to balance. However, if the tail drops, the model is tail heavy and the model will require weight on the nose to balance. Determine how much weight will be required by **temporarily** placing varying amounts of Great Planes "stick-on" lead weight (GPMQ4485) over the nose or tail until the correct amount is determined. Our prototypes required about 2-1/2 oz. [70g] of lead on the tail to balance so it is likely that your model will require some amount of tail weight as well. Don't be alarmed if your model requires more or less tail weight than ours did. There are several factors that can determine the amount of weight required such as the exact position and weight of the engine, density of wood the model was constructed from, etc.

Nose Weight

Pin Holes

Tail Weight
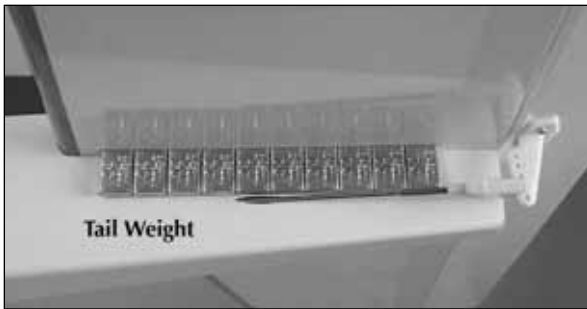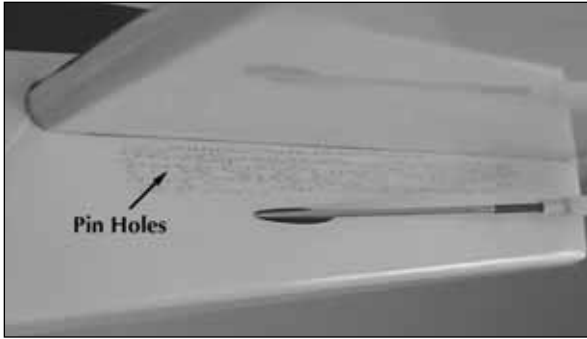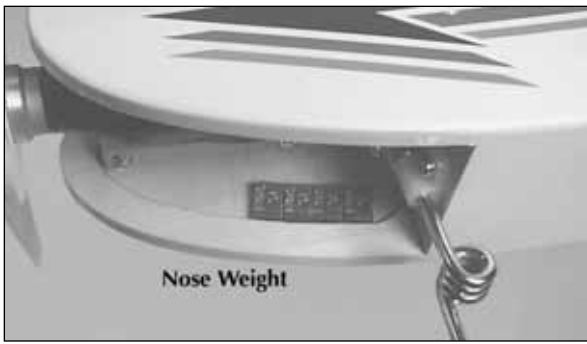
❑ 4. Attach weight to the model where required. If nose weight is required it should be adhered to the firewall or the inside of one of the fuselage sides in front of the firewall. Due to the likelihood of fuel coming into contact with the double-sided foam tape that holds the lead in place, the best way to secure nose weight is to scrape off the foam tape and permanently glue the lead into place with epoxy. If tail weight is required, do not simply adhere the lead to the covering. Instead, use a pin to poke several holes in the covering over the left side of the fuselage (opposite the engine exhaust) under the stabilizer. Add several drops of thin CA to the area to thoroughly bond the covering to the wood. Now the lead may be stuck to the fuselage. Be certain any weight stuck to the tail does not interfere with the pushrods.

Note: An optional way to add nose weight, if required, is to use a "spinner weight" (GPMQ4645 for 1 oz. [29g] weight, or GPMQ4646 for 2 oz. [57g] weight). Spinner weights are used in place of the prop washer.

❑ 5. **IMPORTANT:** If you found it necessary to add any weight, recheck the C.G. after the weight has been added.

IDENTIFY YOUR MODEL

Whether you fly at an R/C club or somewhere on your own, you should have your name, telephone number and address in or on your model so it can be identified and returned in case it lands somewhere away from the flying site. Fill out the I.D. tag found at the end of the manual and place it on or inside the model.

BALANCE PROPELLERS
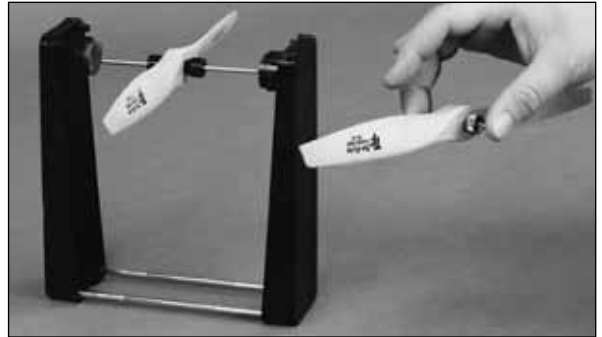
To inexperienced modelers balancing propellers may seem unnecessary. Balancing propellers could be equated to changing the oil in your car every 3000 miles. If not done regularly, the car keeps running, but over time poor maintenance will take its toll. Similarly, the engine will run and the plane will fly even if the propeller is not balanced. But over time, not only may an unbalanced propeller cause engine mounting screws and bolts to loosen, possibly with disastrous effect, but vibration may also damage the radio receiver and battery. Vibration can also cause fuel to foam, which will, in turn, cause the engine to run hot or quit.

If you do not yet have a propeller balancer, ask your flight instructor or another club member if they will help you balance your propellers. We use a Top Flite Precision Magnetic Prop Balancer™ (TOPQ5700) in the workshop and keep a Great Planes Fingertip Prop Balancer (GPMQ5000) in our flight box.

CHECKLIST

Now it's time to do a final check before taking the model to the field. Take the time to do these checks to make certain your model is ready to fly.

❏ 1. Make certain the screws on all the wheel collars that hold the wheels on are secure. Threadlocker is recommended on the screws.
❏ 2. Check to see that the screws that hold the servo arms to the servos are present and secure.
❏ 3. Be certain the silicone retainers on all the nylon clevises are in position.
❏ 4. Make certain the throttle, elevator, rudder and ailerons respond in the correct direction.
❏ 5. Make certain the propeller and propeller spinner are secure.
❏ 6. Balance the model according to the instructions.
❏ 7. Fill out and place the I.D. card inside the model.
❏ 8. Balance the propeller and spare propellers.

CHARGE THE BATTERIES

If you haven't already done so, refer to the instruction manual that came with the radio and charge the batteries in the plane and in the transmitter overnight the night before you go flying.

GATHER YOUR TOOLS

In addition to the engine starting equipment mentioned near the beginning of the manual, you should start a collection of tools that may be required for adjustments and maintenance at the flying field. Following is a list of the most suggested items…

Tools:
❏ #1 Phillips screwdriver
❏ #2 Phillips screwdriver
❏ 5/16" (or 8mm) socket wrench (for glow plug)
❏ 1.5mm hex wrench (for wheel collars)
❏ 12mm wrench or crescent wrench (for propeller nut)
❏ Pliers
❏ Hobby knife

Spare parts:
❏ Suitable propellers
❏ Glow plug
❏ #64 rubber bands (stored in container with talcum powder or kitty litter to absorb excess oil after use.)

Flight Preparation

Flight preparation is to be done at the flying field.

IMPORTANT: Your radio control system transmits a signal on a certain frequency. Be certain you know what the frequency is. This is expressed as a two-digit number (42, 56, etc.) and can be found on the container the radio system came in and is also located on the transmitter and receiver. There are many different frequencies, but there is still a chance that someone else at the flying field may be on the same frequency as you. If you turn on your transmitter while that person is flying, a crash will result. **NEVER** turn on your transmitter until you have permission from your instructor and until you have possession of the frequency clip used for frequency control at the flying site.

Be certain your flight instructor performs these following checks with you.

CHECK THE CONTROLS

1. Get the frequency clip from the frequency control board at your flying site.
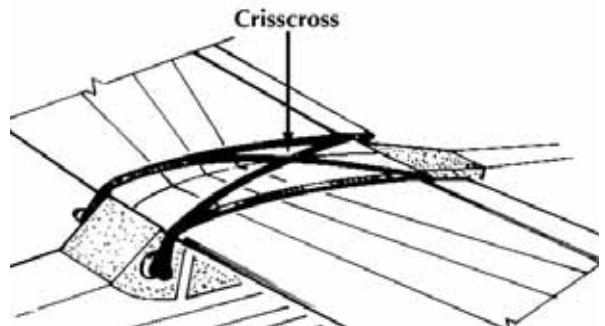
Crisscross

2. Mount the wing to the fuselage with #64 rubber bands. Twelve to fourteen rubber bands are suggested. Be certain the final two are "crisscrossed," thus ensuring that the others remain secure.

3. Turn on the transmitter and receiver. One at a time, operate each control on the airplane using the transmitter. Make certain each control is responding correctly. This **must** be done before **every** flight. There are several types of malfunctions that can be discovered by performing this elementary task, thus saving your model!

RANGE CHECK THE RADIO

A range check **must** be performed before the **first** flight of a new model. It is not necessary to do a range check before every flight (but is not a bad idea to perform a range check before the first flight of each day). A range check is the final opportunity to reveal any radio malfunctions and to be certain the system has adequate operational range.

1. **BE CERTAIN** you have the frequency clip.

2. Turn on the transmitter and receiver. Leave the transmitter antenna all the way down. Walk away from the model while simultaneously operating the controls. Have an assistant stand by the model and tell you what the controls are doing to confirm that they operate correctly. You should be able to walk approximately 100 feet from the model and still have control without any "glitching" or inadvertent servo operation.

3. If everything operates correctly, return to the model and start the engine. Perform the range check with your assistant holding the plane with the engine running at various speeds. If the servos chatter or move inadvertently, there may be a problem. **Do not** fly the plane! With the assistance of your instructor, look for loose servo connections or binding pushrods. Also be certain you are the only one on your frequency and that the battery has been fully charged.

GROUND CHECK

If the engine is new, follow the engine manufacturer's instructions to break-in the engine. After break-in, confirm that the engine idles reliably, transitions smoothly and rapidly to full power and maintains full power—indefinitely. After you run the engine on the model, inspect the model closely to make sure all screws remained tight, the hinges are secure, the prop is secure and all pushrods and connectors are secure.

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.

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.

Use a "chicken stick" or electric starter to start the engine. Do not use your fingers to flip the propeller. Make certain the glow plug clip or connector is secure so that it will not pop off or otherwise get into the running propeller.

Make all engine adjustments from behind the rotating propeller.

The engine gets hot! Do not touch it 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 glow engine, cut off the fuel supply by closing off the fuel line or following the engine manufacturer's recommendations. Do not use hands, fingers or any other body part to try to stop the engine. Do not throw anything into the propeller of a running engine.

AMA Safety Code (excerpt)

Read and abide by the following Academy of Model Aeronautics Official Safety Code:

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 to and avoid flying in the proximity of full scale aircraft. Where necessary an observer shall be used 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.

7. I will not fly my model unless it is identified with my name and address or AMA number, on or in the model.

9. 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. I will perform my initial turn after takeoff away from the pit or spectator areas and I will not thereafter fly over pit or spectator areas, unless beyond my control.

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

Flying

These flying instructions are **not** an endorsement for learning to fly on your own, but are printed so you can know what to expect and what to concentrate on while learning under the tutelage of your instructor. Further, these flight instructions may be referenced once you finally do begin flying on your own.

IMPORTANT: If you do insist on flying on your own, you **must** be aware of your proximity to R/C club sites. If there is an R/C site within six miles of where you are flying and if you are operating your model on the same frequency as somebody else, there is a **strong** possibility that one or both models will crash due to radio interference. There is **great** potential for an out-of-control model to cause property damage and/or severe personal injury. We **strongly** urge you to fly at a R/C club site where frequency control is in effect so you can be confident you will be the only one flying on your channel.

CAUTION (THIS APPLIES TO <u>ALL</u> 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. The best thing to do when flutter is detected is to slow the model **immediately** by reducing power, then 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.

TAXIING

Remember, it is assumed that your instructor is operating the model for you.

Before the model is ready for takeoff, it must first be set up to roll straight down the runway. With the engine running at a low idle, place the plane on the runway and, if your flying field permits, stand behind the model. Advance the throttle just enough to allow the model to roll. If the model does not roll straight down the runway, shut the engine off and adjust the nose gear pushrod as necessary. Do not use the rudder trim to correct the nose wheel because this will also affect the rudder. **Note:** Crosswinds may affect the direction the model rolls, so this test should be done in calm conditions, or with the model facing directly into the wind.

TAKEOFF

If possible, takeoff **directly into** the wind. If you are experienced, taking off in a crosswind is permissible (and sometimes necessary—depending upon the prevailing wind conditions and runway heading). Taking off into the wind will help the model roll on a straight path and also reduces ground speed for takeoff. Taxi the model onto the runway or have an assistant carry it out and set it down, pointing into the wind down the runway. When ready, gradually advance the throttle

while simultaneously using the left stick (rudder/nose wheel) to steer the model. Gain as much speed as the runway and flying site will practically allow before gently applying up elevator, lifting the model into the air. Be ready to make immediate corrections with the ailerons to keep the wings level and be smooth on the elevator stick, allowing the model to establish a gentle climb to a safe altitude before making the first turn (away from yourself). Do not "yank" back the elevator stick, forcing the plane into too steep of a climb which could cause the model to quit flying and stall.

FLIGHT

Once airborne, maintain a steady climb and make the initial turn away from the runway. When at a comfortable, safe altitude throttle back to slow the model, thus giving you time to think and react. The Hobbistar .60 Select should fly well at half or even slightly less than half-throttle. Adjust the trims so the plane flies straight and level at your "cruise" throttle setting. 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 further to see how the model handles when coming in to land. Add power to see how the model climbs as well. Continue to fly around while learning how the model responds. Mind your fuel level, but use this first flight to become familiar with the model before landing.

LANDING

When ready to land, pull back the throttle stick fully while flying downwind just before making the 180-degree turn toward the runway. Allow the nose of the model to pitch downward to gradually bleed off altitude. Continue to lose altitude, but maintain airspeed by keeping the nose down while turning. Apply up elevator to level the plane when it reaches the end of the runway and is about five to ten feet off the ground. If the model is too far away, carefully add a small amount of power to fly the model closer. If going too fast, smoothly advance the throttle and allow the model to gain airspeed. Then, apply elevator to climb-out and go around to make another attempt. When finally ready to touch down, continue to apply up elevator, but not so much that the airplane will climb. Continue to apply up elevator while the plane descends until it gently touches down.

After you have landed and shut the engine off, adjust the pushrods on the ailerons, elevator and rudder as necessary so the trim levers on the transmitter may be returned to center (this will not be required on any of the controls that did not need trim adjustments).

Maintenance Tips

1. After flying for the day, don't forget to use your fuel pump to drain excess fuel from the tank.

2. Do not reuse torn or oily rubber bands. Purchase spare rubber bands (HCAQ2020, 1/4 lb box). After flying, oily rubber bands should be stored in a container with talcum powder or kitty litter. This will absorb oil and keep the rubber bands fresh for the next flying session.

3. After each day's flying, use spray cleaner and paper towels to **thoroughly** clean the model.

This model belongs to:

Name

Address

City, State Zip

Phone number

AMA number