INSTRUCTION MANUAL

SPECIFICATIONS

- **Wingspan:** 69 in [1753mm]
- **Length:** 47-3/4 in [1213mm]
- **Weight:** 7.5–8.25 lb [3400–3740 g]
- **Wing Area:** 493 in² [31.8 dm²]
- **Wing Loading:** 35–39 oz/ft² [107–119 g/dm²]

- **Engine:** .46–.55 [7.5–8.9cc] two-stroke glow engine or .70–.72 [11.5–11.8cc] four-stroke glow engine
- **Electric:** RimFire .55, O.S. 50 Motor
- **Radio:** 6-channel

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 send the defective part or item to Hobby Services at the address below:

**Hobby Services**
3002 N. Apollo Dr.  Suite 1
Champaign IL  61822  USA

Include a letter stating your name, return shipping address, as much contact information as possible (daytime telephone number, fax number, e-mail address), a detailed description of the problem and a photocopy of the purchase receipt. Upon receipt of the package the problem will be evaluated as quickly as possible.

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

Congratulations on the purchase of your Cirrus SR22 ARF. This is one of the finest fiberglass ARF aircraft we have ever produced. This plane will get everyone’s attention at the club field. The quality of the fiberglass finish and attention to detail is great. This plane is within the capability of the average to intermediate pilot. Assembly is quick and easy. We are sure the Cirrus SR22 ARF will bring you many hours of flying enjoyment.

For the latest technical updates or manual corrections to the “Cirrus SR22 ARF” visit the Great Planes web site at www.greatplanes.com. Open the “Airplanes” link, then select the “Cirrus SR22 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

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:

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.
SAFETY PRECAUTIONS

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

1. Your Cirrus SR22 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 Cirrus SR22 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.

5. You must correctly install all R/C and other components so that the model operates correctly on the ground and in the air.

6. 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.

7. 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.

8. While this kit 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.

9. WARNING: The fuselage, cowl, wheel pants and landing gear included in this kit are made of fiberglass, the fibers of which may cause eye, skin and respiratory tract irritation. Never blow into a part (wheel pant, cowl) to remove fiberglass dust, as the dust will blow back into your eyes. Always wear safety goggles, a particle mask and rubber gloves when grinding, drilling and sanding fiberglass parts. Vacuum the parts and the work area thoroughly after working with fiberglass parts.

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 that is straight and true.

DECISIONS YOU MUST MAKE

This is a partial list of items required to finish the Cirrus SR22 ARF that may require planning or decision making before starting to build. Order numbers are provided in parentheses.

Engine Recommendations

The recommended engine size range for the Cirrus SR22 ARF is .46 to .55 two-stroke and .70 to .72 four-strokes. The stock muffler that comes with the engine will work.

- OSMG0548 .46AXII ABL
- OSMG0557 .55AX ABL
- OSMG0877 FS72-a Ring

Motor Recommendations

The Cirrus SR22 ARF comes with a motor box for the ElectriFly RimFire .55 and the O.S. .50 Brushless Motor.

- GPMG4715 RimFire .55 42-60-480 Brushless Motor with
- APCQ1409 14x10 Thin Electric
- OSMG9550 O.S. .50 Brushless Motor with
- GPMQ4610 6mm Propeller Adapter

Flight Battery Recommendations

The Cirrus SR22 ARF has been flown with the Flight Power EONX30 6S 22.2V 3350mAh and the Flight Power PRO50 6S 22.2V 3600mAh LiPo Battery.

- FPWP6358 EONX30 6S 22.2V 3350mAh
- FPWP5083 PRO50 6S 22.2V 3600mAh

Electronic Speed Control

A brushless ESC (electronic speed control) is required for the recommended motor set-up. We recommend using the ElectriFly Silver Series SS-60 Brushless ESC 60A Hi Voltage or Flight Power 60A LiPo Brushless ESC

- GPMM1850 ElectriFly SS-60 Brushless ESC 60A Hi Voltage
- FPWM0234 Flight Power 60A LiPo Brushless ESC
- Optional Voltage Regulator (CSEM0005) eliminates the need for a receiver battery.

Recommended Charger

A LiPo compatible charger is required to charge the LiPo battery. The Great Planes ElectriFly Triton2 EQ AC/DC Charger is designed for LiPo packs, but is also capable of charging NiCd, NiMH, Pb acid and LiFe batteries.

- GPMM3156 Great Planes ElectriFly Triton2 EQ AC/DC Charger
Radio Equipment

The Cirrus SR22 ARF requires a 5-channel (6-channel if using the optional lights) radio system with three standard servos with 44 oz-in of torque and four micro servos with 39 oz-in of torque.

- (1) FUTM0004 S3004 Standard BB Servo (Rudder)
- (1) FUTM0004 S3004 Standard BB Servo (Elevator)
- (1) FUTM0004 S3004 Standard BB Servo (Throttle)
- (2) FUTM0415 S3115 Micro Precision Servo (Aileron)
- (2) FUTM0415 S3115 Micro Precision Servo (Flap)
- (1) HCAM2000 Servo Extension 6" (152mm, Electric only)
- (2) FUTM3955 Servo Extension 16" (406mm)
- (2) FUTM3910 Y-Harness
- (1) HCAM6308 1600mAh Receiver Battery
- (1) FUTM4370 Switch Harness
- (1) FUTM4010 Mini Battery Box (if battery is not to be mounted in the fuselage)
- (1) ERNM3001 Charge Receptacle
- (1) R/C Foam Rubber 1/4" [6mm] (HCAQ1000) or 1/2" [13mm] (HCAQ1050)
- (1) Pilot (WBRQ1140)
- (1) Standard Silicone Fuel Tubing (GPMQ4131)
- (1) R/C Foam Rubber 1/4" [6mm] (HCAQ1000) or 1/2" [13mm] (HCAQ1050)
- (1) Pilot (WBRQ1140)
- Stick-on segmented lead weights (GPMQ4485)
- 36" Metal Ruler (HCAR0475)
- Pliers with wire cutter (HCAR0625)
- Dremel® Moto Tool and cutting bits

Optional Supplies and Tools

Here is a list of optional tools that will help you build the Cirrus SR22 ARF:

- 2 oz. [57g] spray CA activator (GPMR6035)
- CA applicator tips (HCAR3780)
- CA debonder (GPMR6039)
- Robart Super Stand II (ROBP1402)
- Servo Horn Drill (HCAR0698)
- AccuThrow Deflection Gauge (GPMR2405)
- CG Machine™ (GPMR2400)
- Precision Magnetic Prop Balancer (TOPQ5700)
- 21st Century® sealing iron [COVR2700]
- 21st Century iron cover [COVR2702]

IMPORTANT BUILDING NOTES

- When you see the term test fit in the instructions, it means that you should first position the part on the assembly without using any glue, then slightly modify or custom fit the part as necessary for the best fit.
- Whenever the term glue is written you should rely upon your experience to decide what type of glue to use. When a specific type of adhesive works best for that step, the instructions will make a recommendation.
- Whenever just epoxy is specified you may use either 30-minute epoxy or 6-minute epoxy. When 30-minute epoxy is specified it is highly recommended that you use only 30-minute epoxy, because you will need the working time and/or the additional strength.
- Photos and sketches are placed before the step they refer to. Frequently you can study photos in following steps to get another view of the same parts.
- The stabilizer and wing incidences and engine thrust angles have been factory-built into this model. However, some technically-minded modelers may wish to check these measurements anyway. To view this information visit the web site at www.greatplanes.com and click on “Technical Data.” Due to manufacturing tolerances which will have little or no effect on the way your model will fly, please expect slight deviations between your model and the published values.

ADDITIONAL ITEMS REQUIRED

Required Hardware & Accessories

In addition to the items listed in the “Decisions You Must Make” section, following is the list of hardware and accessories required to finish the Cirrus SR22 ARF. Order numbers are provided in parentheses.

- (1) Standard Silicone Fuel Tubing (GPMQ4131)
- (1) R/C Foam Rubber 1/4" [6mm] (HCAQ1000) or 1/2" [13mm] (HCAQ1050)
- (1) Pilot (WBRQ1140)
- Propeller and spare propellers suitable for your engine or motor.

Adhesives and Building Supplies

This is the list of adhesives and building supplies required to finish the Cirrus SR22 ARF. Order numbers are provided in parentheses:

- 1/2 oz. [15g] Thin Pro CA (GPMR6001)
- Pro 30-minute epoxy (GPMR6047)
- Threadlocker thread locking cement (GPMR6060)
- Epoxy brushes (GPMR8060)
- Mixing sticks (GPMR8055)
- Mixing cups (GPMR8056)
- Denatured alcohol (for epoxy clean up)
- Paper Towels
- Masking Tape
- Drill bits: 1/16" [1.6mm], 3/32" [2.4mm], 7/64" [2.7mm], 5/16" [8mm]
- 6-32 tap
- Tap handle
- #1 Hobby knife (RMXR6903)
- #11 blades (5-pack, RMXR6930)
- Small T-pins (100, HCAR5100)
- Fine Line Marker
- Photos and sketches are placed before the step they refer to. Frequently you can study photos in following steps to get another view of the same parts.
- The stabilizer and wing incidences and engine thrust angles have been factory-built into this model. However, some technically-minded modelers may wish to check these measurements anyway. To view this information visit the web site at www.greatplanes.com and click on “Technical Data.” Due to manufacturing tolerances which will have little or no effect on the way your model will fly, please expect slight deviations between your model and the published values.
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.

Great Planes Product Support
3002 N Apollo Drive, Suite 1  Ph: (217) 398-8970, ext. 5
Champaign, IL 61822  Fax: (217) 398-7721
E-mail: airsupport@greatplanes.com

ORDERING REPLACEMENT PARTS

Replacement parts for the Great Planes Cirrus SR22 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.

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@greatplanes.com, or by telephone at (217) 398-8970.

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<tr>
<th>Order No.</th>
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<td>Main Landing Gear Set</td>
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<td>Nose Gear/Pant Set</td>
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<td>Main Gear Wheel Pants</td>
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<td>Light Control Unit</td>
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KIT CONTENTS

1. Fuselage
2. Cabin / Hatch
3. Wing / Ailerons
4. Wing Joiner
5. Horizontal Stabilizer
6. Stabilizer Joiner
7. Landing Gear
8. Wheels
9. Wheel Pants
10. Fuel Tank
11. Cabin Floor
12. Motor Box Parts
13. Antenna
14. Engine Mount
15. Spinner
16. Cowl
PREPARATIONS

1. If you have not done so already, remove the major parts of the kit from the box and inspect for damage. If any parts are damaged or missing, contact Product Support at the address or telephone number listed in the “Kit Inspection” section.

2. Remove the tape and separate the aileron and flap servo covers from the wing. Use a covering iron with a covering sock on medium heat to tighten the covering if necessary. Apply pressure over sheeted areas to thoroughly bond the covering to the wood. If any adhesive from the tape is left behind, a paper towel dampened with lighter fluid can be used to remove the adhesive.

3. Give the ailerons and flaps a pull to check that the hinges are securely glued. This should also be done between each flight.

ASSEMBLE THE WINGS

Start the assembly with the left wing so that the pictures match your assembly.

Install the Aileron Servo

1. Connect a 16” [406mm] servo extension to one of the aileron servos. Cut a piece of black heat shrink tubing in half. Slide the heat shrink tubing over the connector. Shrink the tubing by heating it.

2. Install the eyelets and grommets in the servos. Position the aileron servo on the bottom of the aileron servo cover so that the servo arm output shaft is centered in the opening.

3. Noting the grain direction, use 6-minute epoxy to glue the two 3/16” x 3/8” x 1/2” [4.8 x 9.5 x 12.7mm] hardwood blocks to the bottom of the aileron servo cover.

EXPERT TIP

Use a T-pin to prick small holes in the bottom of the blocks and the servo cover to help the glue hold more securely. Be careful to not poke the T-pin through the servo cover.

4. Once the epoxy has cured, place a 1/32” [.8mm] spacer such as a piece of cardstock from a header card or a piece of paper folded several times, under the servo, between each mounting block. After the servo is installed the spacer will be removed providing adequate spacing for vibration isolation.

5. Drill 1/16” [1.6mm] holes through the blocks for the servo mounting screws. Mount the servo to the blocks with the screws that came with the servo. Remove the servo mounting screws and apply a couple of drops of thin CA in each hole to harden the threads. Allow the CA to fully harden. Then, reinstall the servo and remove the spacer.
6. Use the string in the wing to pull the aileron servo wire through the wing.

7. Plug the aileron servo into your receiver, switch on the transmitter and receiver and center the aileron servo trim. Position a servo arm on the aileron servo so that it is perpendicular to the aileron servo.

8. Place the aileron servo cover with the servo in the wing. Be certain that the cover is positioned correctly as shown. Use the servo cover as a guide to drill 1/16" [1.6mm] holes through the plate in the wing. Secure the cover using four #2 x 3/8" [9.5mm] sheet metal screws and four #2 flat washers. Use thin CA to harden the screw threads.

9. Thread a nylon clevis 20 turns onto the end of a 2-56 x 4" [102mm] metal pushrod. Slide a silicone clevis retainer over the clevis. Install the clevis in the outer most hole of a nylon control horn.

10. Position the control horn so that it is inline with the aileron servo horn and the clevis pin is aligned with the aileron hinge line. On the aileron, mark the two mounting holes. Remove the control horn and drill a 1/16" [1.6mm] pilot hole at each mark. Do not drill completely through the aileron. Attach the control horn using two #2 x 3/8" [9.5mm] sheet metal screws. Use thin CA to harden the holes.

11. Center the aileron servo and aileron. Mark the pushrod where it meets the outer hole of the servo arm. Remove the pushrod from the aileron control horn and make a 90° bend at the mark. Reinstall the pushrod on the aileron control horn. Insert the L-bend in the aileron servo arm and secure it with a nylon Faslink. Cut the pushrod 1/32" [.8mm] past the Faslink and slide the clevis retainer over the clevis.
Install the Flap Servo

1. Connect a 9" [229mm] servo extension to one of the flap servos. Cut a piece of black heat shrink tubing in half. Slide the heat shrink tubing over the connector. Shrink the tubing by heating it.

2. Install the flap servo on the flap servo cover following the same procedure used to install the aileron servo.

3. Use the string in the wing to pull the flap servo wire through the wing.

4. Plug the flap servo into your receiver. Position the flap dial or slider on the transmitter to the flap up position. Position a servo arm on the flap servo so that it is rotated towards the trailing edge of the wing. Move the flap control to check that the servo arm does not hit the flap servo cover.

5. Place the flap servo cover with the servo in the wing. Be certain that the cover is positioned correctly as shown.

6. Thread a nylon clevis 20 turns onto the end of a 2-56 x 4" [102mm] metal pushrod. Slide a silicone clevis retainer over the clevis. Install the clevis in the outer most hole of a nylon control horn.

7. Position the control horn so that it is inline with the flap servo horn and the base of the control horn is 1/4" [6.4mm] from the trailing edge of the wing. On the flap, mark the two mounting holes. Remove the control horn and drill a 1/16" [1.6mm] pilot hole at each mark. Do not drill completely through the flap. Attach the control horn using two #2 x 3/8" [9.5mm] sheet metal screws. Use thin CA to harden the holes.

8. With the flap in the up position and the servo arm rotated back, mark the pushrod where it meets the hole 11/16" [17.5mm] from the center of the servo arm. Remove the pushrod from the flap control horn and make a 90° bend at the mark. Reinstall the pushrod on the flap control horn. Insert the L-bend in the flap servo arm and secure it with a nylon Faslink. Cut the pushrod 1/32" [.8mm] past the Faslink and slide the clevis retainer over the clevis.

9. Return to step one of Install the Aileron Servo and install the aileron and flap servos in the right wing panel (page 6).
Install the Main Landing Gear

1. Locate the fiberglass **left main landing gear** by fitting the main gear in the recess in the left wing. If a glow engine will be installed, fuelproof the main landing gear recess with thin CA or epoxy thinned with denatured alcohol.

2. File a 1/4" [6.3mm] long flat spot on the end of the main landing gear axle.

3. Insert the axle through the main landing gear and the left wheel pant. Slide an axle nut onto the axle followed by a 2" [51mm] foam wheel. Tighten the axle nut on the axle.

4. Apply a drop of thread locker to the threads of a 6-32 x 1/4" [6mm] socket head cap screw. Slide a 4mm wheel collar onto the axle. Thread the 6-32 x 1/4" [6mm] socket head cap screw into the wheel collar and tighten it on the flat at the end of the axle.

5. Apply a drop of thread locker to the threads of four 6-32 x 1/2" [12.7mm] socket head cap screws. Secure the main landing gear to the wing with the cap head screws.

6. Use epoxy to glue the nylon wing dowel in the root of the wing. Position the dowel so that 1/2" [12.7mm] of the dowel is protruding from the wing.

7. Go back to step 1 of Install The Main Landing Gear and install the **right main landing gear**.
ASSEMBLE THE FUSELAGE

Install the Stabilizer

1. Insert the **carbon fiber wing joiner tube** in the fuselage. Slide the two wing halves onto the tube and secure the wing halves to the fuselage with two **1/4-20 nylon wing bolts**.

2. Test fit the **elevator halves** on the **stabilizer halves** using the six **pivot point hinges**. The two hinges that are inserted in the elevator halves at the tip need to be shortened 1/8" [3mm]. Note on one side of the elevator halves there is a hardwood plate under the covering for the elevator control horn screws. This side should be face downward.

3. Place a piece of tape on the left elevator half and the left stabilizer half to identify that they go together. Remove the elevator halves from the stabilizer halves. Insert the **elevator joiner wire** in the elevator halves and place the assembly on a flat surface. Check that both trailing edges of the elevators are flat on the surface. If they are not, remove and bend the elevator joiner wire slightly and check again. Also mark the left side of the elevator joiner wire.

4. Use epoxy to glue the two **1/8" x 5/8" [3 x 16mm] nylon stabilizer dowels** 5/16" [8mm] into the root of the stabilizers.

5. Slide the **5/16" x 9-3/4" [8 x 248mm] aluminum stabilizer joiner tube** through the fuselage. Temporarily install the two stabilizer halves on the aluminum stabilizer joiner tube.

6. View the plane from the aft end. Check that the stabilizer and wing are parallel to each other.

7. Remove the stabilizer halves and tube. Use sandpaper to roughen the aluminum tube. Clean the tube with a paper towel dampened with denatured alcohol. Reinstall the aluminum tube, centering it in the fuselage. Mark the aluminum tube on both sides of the fuselage where they meet. Pull the tube out one side so that glue can be applied between the lines (do not apply the glue yet).
8. Gather together a couple of sheets of paper towel, denatured alcohol, mixing cup, mixing stick, epoxy brush, 8” [203mm] or longer wire (not included) and 30-minute epoxy.

9. Mix together 1/2 oz. [15cc] of 30-minute epoxy. Apply epoxy between the lines on the aluminum tube. Center the tube. Use a paper towel dampened with denatured alcohol to wipe away any epoxy before it runs down the fuselage. Apply epoxy to the rest of the aluminum tube. Using the long wire apply epoxy inside the tube in both stabilizer halves and to the root of both stabilizer halves. Slide the stabilizer halves onto the aluminum tubes so that they are tight against the fuselage. Use masking tape to hold the stabilizer halves in position. Wipe off any excess epoxy.

10. After the epoxy has cured, insert the elevator joiner wire, making sure that the marked left side of the wire is on the left side of the fuselage.

11. Remove the six pivot point hinges. Apply a small drop of oil to the pivot point on the hinges. This will prevent the epoxy from adhering to the pivot point. Make sure 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.

12. Mix approximately 1/4 oz. [7.4cc] of 30-minute epoxy. Use a toothpick to thoroughly apply the epoxy in the holes for the hinges in the stabilizer and elevator halves. Also apply epoxy in the holes for the elevator joiner wire in the elevator halves. Wipe off any excess epoxy around the outside of the holes with a paper towel dampened with denatured alcohol. Use the toothpick to apply epoxy to the ends of the hinges that go into the stabilizer. Insert the hinges into the stabilizer and wipe away any excess epoxy that squeezes out of the hole. Apply epoxy to the other end of the hinges. Join the elevator halves to the stabilizer, pushing the hinges only about 3/4 of the way into the elevator halves. Use a toothpick to remove any excess epoxy that squeezes out. Then, fit the elevator halves the rest of the way on.

Move the elevator up and down a few times to help align the hinges and make certain that the elevator halves deflect up and down enough. Allow the epoxy to cure, checking it a couple of times while it cures.

**Install the Elevator and Rudder Servos**

1. Insert a 2-56 x 36” [914mm] metal pushrod in the hole on the aft left side of the fuselage.

2. Mount the elevator servo in the radio tray. Remember to harden the screw holes with thin CA.

3. Thread a nylon clevis 20 turns onto the end of the elevator pushrod. Slide a silicone clevis retainer over the clevis. Install the clevis in the outer most hole of a nylon control horn.
4. Position the control horn on the elevator so that the four holes on the control horn are inline with the elevator hinge line. Mark the two control horn mounting holes on the elevator. Remove the control horn and drill a 1/16" [1.6mm] pilot hole at each mark. Do not drill completely through the elevator. Attach the control horn using two #2 x 3/8" [9.5mm] sheet metal screws. Use thin CA to harden the holes.

5. Center the elevator servo and elevator. Mark the pushrod where it meets the hole 7/16" [11mm] from the center of the servo arm. Remove the pushrod from the elevator control horn and make a 90° bend at the mark. Reinstall the pushrod on the elevator control horn. Insert the L-bend in the elevator servo arm and secure it with a nylon Faslink. Cut the pushrod 1/32" [.8mm] past the Faslink and slide the clevis retainer over the clevis.

6. Install the rudder servo following the same procedure used to install the elevator servo. Note: Position the rudder servo so that the rudder pushrod is aligned with the hole 11/16" [17.6mm] from the center of the servo arm.
3. Use sandpaper to roughen the **nose gear wire** (where shown) and the slot in the **wheel pant**. Then clean both areas with a paper towel dampened with denatured alcohol.

4. Insert the nose gear wire in the wheel pant. Apply a drop of thread locker to a 6-32 x 1/4" [6mm] socket head cap screw. Thread the cap screw into a 4mm wheel collar. Slide the wheel collar on the nose gear wire and tighten the cap screw on the lower flat spot.

5. Apply a drop of thread locker to a **3x4mm set screw**. Install the set screw in the nose gear axle, opposite the cap screw in the wheel collar.

6. Install the nose gear axle assembly on the nose gear wire. Tighten the set screw on the flat spot at the end of the nose gear wire.

7. Use epoxy or RTV Silicone glue to glue the nose gear wire in the slot of the wheel pant. Make sure the foam wheel is aligned in the wheel pant and the wheel collar is next to the top of the wheel pant.

8. Center the nosegear decal on the front of the nosegear and wrap around the sides.
9. Install the nylon **nose gear steering block** to the front of the fuselage with four 6-32 x 5/8" [16mm] socket head cap screws, #6 flat washers and #6 lock washers. Apply a drop of thread locker on the threads of the cap screws before installing.

10. Cut a 2-56 x 36" [914mm] **metal pushrod** in half. Save the piece with the threads on it for the throttle pushrod. Make a bend 3/8" [9.5mm] from the end of the non-threaded 18" [457mm] metal pushrod.

11. Insert a 4mm wheel collar into the nylon **steering arm**. Align the hole in the side of the steering arm with the threaded hole in the side of the wheel collar. Apply a drop of thread locker to a 6-32 x 1/4" [6mm] socket head cap screw and thread it into the wheel collar. Use a 5/64" [2mm] drill bit to enlarge the outer hole in the steering arm.

12. Insert the bent end of the pushrod in the outer hole of the steering arm. Slide the pushrod in the hole in the firewall. Insert the nose gear wire in the nose gear block and through the steering arm. Tighten the cap screw in the steering arm against the flat spot on the nose gear wire. Adjust the steering arm and the lower wheel collar so that the end of the nose gear wire does not hit the bottom of the firewall. Bend the pushrod as necessary to allow the steering arm to rotate freely.

13. Install the **Screw-lock Pushrod Connector** in the hole 7/16" [11mm] from the center of the rudder servo arm. Secure the connector with the nylon **retainer**.
14. Make a bend in the steering pushrod so that it is aligned with the screw-lock pushrod connector. Center the servo arm and nose wheel. Cut the steering pushrod 1/4" [6mm] past the pushrod connector. Insert the steering pushrod in the pushrod connector. Apply a drop of thread locker to the threads of a 4-40 x 1/4" socket head cap screw. Secure the steering pushrod in the pushrod connector with the cap screw.

15. Make a strap by overlapping a piece of hook material with a piece of loop material by 1" [25.4mm].

16. Place the receiver on a piece of R/C foam. Secure the receiver and foam to the radio tray with the hook and loop material. Trim off the excess material. Plug in the rudder and elevator servos.

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**Install the Motor**

Note: If you are installing a glow engine, proceed to page 17, *Install The Engine.*

1. The motor box can be assembled for the RimFire .55 motor or the O.S. .50 motor. Use epoxy to glue the two plywood motor box back plates together and the motor box front plates. Note that the front plates are embossed RimFire or O.S. (see picture above).

2. Install four 6-32 blind nuts in the back of the motor box front plate. Use epoxy or CA to glue the blind nuts in the front plate. Be careful to not get glue on the threads of the blind nuts.
3. Use epoxy to securely glue the motor box together.

4. Attach the motor box to the firewall with four 6-32 x 5/8" [16mm] socket head cap screws, #6 flat washers and #6 lock washers. Be sure to apply a drop of thread locker to the threads of the cap screws.

5. Assemble the motor following the instructions included with the motor. Attach the motor to the motor box with four 6-32 x 1/2" [13mm] socket head cap screws, #6 flat washers and #6 lock washers. Be sure to apply a drop of thread locker to the threads of the cap screws. **Note:** First insert all four cap screws in the motor X-mount before threading them into the motor box.

6. Use three #4 x 3/8" [9.5mm] sheet metal screws to install the ECS to the bottom plate of the motor box. Harden the screw holes with thin CA.
7. Make a hole in the front of the fuselage to route the battery plug and ESC control wire into the fuselage. Plug the ESC into the receiver. Connect the three motor wires to the ESC. See page 21, step 5 for hole location.

8. Cut three 1" [25.4mm] long pieces of hook material (the rough material) and glue it to the battery tray using CA glue.

9. Glue a strip of loop material to the side of the motor battery.

10. Make a battery strap and secure the battery to the battery tray. The receiver battery and switch will be installed once everything else is installed and the C.G. is checked. This will determine their location.

Proceed to step 2 of Install The Cowl (page 20).

Install the Engine

1. Side mount the nylon engine mount on the firewall with four 6-32 x 1" [25.4mm] socket head cap screws, #6 flat washers and #6 lock washers. Position the engine between the engine mount halves before tightening the cap screws. Be sure to apply a drop of thread locker to the threads of the cap screws. Note: The top of the engine mount has two lines on it. Position the engine mount so that the center line on the firewall is between the two lines on the engine mount.

2. Position the engine so that the front of the drive washer is 4-3/8" [111mm] from the front of the firewall. Use the engine mounting holes as a guide to drill 7/64 [2.7mm] pilot holes in the nylon engine mount. Use a 6-32 tap to thread the holes in the nylon engine mount.
3. Install the engine on the engine mount with four 6-32 x 1" [25.4mm] socket head cap screws, #6 flat washers and #6 lock washers.

4. Drill a 3/16" [4.7mm] hole through the firewall, in line with the throttle arm.

5. Use sandpaper to roughen the 10" [254mm] outer pushrod tube. Wipe the tube off with a paper towel dampened with denatured alcohol.

6. Glue the throttle outer pushrod tube in the firewall and the plywood fuselage former. Trim the hole in the firewall to allow the tube to be glued straight.

7. Make the throttle pushrod by threading a nylon clevis 20 turns onto the leftover 2-56 x 17-1/2" [444mm] metal pushrod (previously cut from the 36" [914mm] metal pushrod). Slide a silicone clevis retainer over the clevis.

8. Insert the throttle pushrod into the outer pushrod tube in the firewall. Make any bends required to allow the clevis to snap into the outer hole of the throttle arm.

9. Install the throttle servo in the servo tray. Be sure to harden the screw holes with thin CA. Plug the throttle servo into the receiver.

10. Install a screw-lock pushrod connector in the hole 7/16" [11mm] from the center of the servo arm. Secure the
connector with a nylon retainer. Switch on the radio system. Center the throttle stick on the transmitter and install a servo arm on the throttle servo perpendicular to the centerline of the servo.

11. Make the bends necessary to align the pushrod with the pushrod connector. Insert the pushrod in the connector. Apply a drop of thread locker to the threads of a 4-40 x 1/4" [6mm] socket head cap screw. Install the cap screw in the pushrod connector. With the radio system switch on and the throttle stick centered, center the barrel of the carb, then tighten the cap screw in the pushrod connector.

Setting the throttle up this way will only require a small amount of end point adjustment, if any. We also recommend that a throttle-cut be set up on a switch on your transmitter.

Install the Fuel Tank

1. Insert the one long and two short aluminum tubes through the large fuel tank stopper plate, rubber fuel tank stopper and the small fuel tank stopper plate. Thread the fuel tank stopper screw into the small fuel stopper plate. Do not tighten the screw.

2. Make a 90° bend in the long aluminum tube (pressure tube). Do not kink the tube. Install the two silicone fuel tubes on the short aluminum tubes. Trim the fuel tubing so that the metal clunks are able to move in the fuel tank. Install the metal clunks on the fuel tubing.

3. Insert the fuel tank stopper in the fuel tank. Make sure that the pressure tube is toward the top of the fuel tank. Tighten the fuel tank stopper screw.
4. Place the plywood fuel tank spacer over the neck of the fuel tank.

5. Install three pieces of fuel tubing (not included) on the aluminum tubes exiting the fuel tank. Mark the pressure tubing. Glue a piece of RC foam to the fuel tank tray. This will keep the fuel tank from sliding around. Route the fuel tubing and the neck of the fuel tank through the hole in the firewall.

6. Make a hook and loop strap (as you did for the receiver) and secure the fuel tank to the fuel tank tray. Connect one of the fuel lines from the clunk to the carburetor. The second line from the clunk will be routed out the bottom of the cowl and used to fill and drain the fuel tank.

7. Install the muffler and connect the fuel line from the pressure tube to the muffler. The end of the muffler screw may need to be filed down if the screw is hitting the fuselage.

Install the Cowl

1. Tape a piece of card stock to the bottom of the fuselage. Trim the card stock around the muffler.
2. Remove the muffler. Install the cabin/hatch on the fuselage. Slide the cowl over the engine or motor. Trim the bottom of the cowl to fit around the nose gear.

Electric Only: Also open the intake on the left side of the cowl for better motor cooling. Then, proceed to step 5.

3. Use the card stock method to locate the needle valve.

4. Remove the needle valve, position the cowl on the front of the fuselage and use the card stock templates to mark the cowl for the muffler and needle valve and trim the openings. An opening will also need to be cut for the glow starter using the card stock method. Reinstall the muffler and adjust the openings so that the cowl fits well and the graphics on the fuselage align with the ones on the cowl.

5. On the left front side of the fuselage, cut a hole to route the landing light wires into the fuselage.

Electric Only: Route the landing light wires through the same hole the ESC wires pass through.

6. Tape pieces of card stock to the outside of the fuselage to mark the location of the cowl mounting blocks.
7. Insert the landing light wires through the hole in the front of the fuselage. Position the cowl on the fuselage, Install the **spinner backplate** on the prop shaft. Position the cowl so that it is centered on the spinner backplate. Tape the cowl in position.

**Electric Only:** With the RimFire .55 or O.S. .50 motor, the center of the spinner backplate will need to be enlarged to 5/16" [8mm].

8. Drill a 1/16" [1.6mm] pilot hole through the cowl and cowl blocks. Remove the cowl and enlarge the holes in the cowl with a 3/32" [2.4mm] drill bit.

9. As you install the cowl, route the fill line out the bottom of the cowl and install the **fuel line plug** (glow powered only). Attach the cowl to the fuselage with four #2 x 3/8" 9.5mm] sheet metal screws and #2 flat washers. Be sure to harden the screw holes with thin CA.

10. Install a suitable propeller for the power system being used. Secure it with the prop washer (included with the engine) and the appropriate spinner adapter. Carefully balance the propeller and any spare propellers before installation. An unbalanced propeller can be the single most significant cause of vibration that can damage the model. Not only will engine mounting bolts loosen, possibly with disastrous effect, but vibration may also damage the receiver and receiver batteries. Vibration can also cause the fuel to foam, which will, in turn, cause the engine to run hot and quit.

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.

11. Install the **spinner nose cone** and secure it with 4 x 45mm socket head cap screw.
Install the Receiver Battery

1. Secure the cabin to the fuselage with two 4-40 x 3/8'' [9.5mm] machine screws and #4 flat washers.

2. Place a mark on the top of both wing halves 2-1/4'' [56mm] from the leading edge of the wing.

3. Turn the plane upside-down. Try balancing the plane on your finger tips at the marks. If the plane is electric powered, try moving the motor battery forward or aft to get it to balance.

4. If the plane is nose heavy, wrap the receiver battery in R/C foam and secure it between the servos with a hook and loop strap. If the plane is tail heavy, the receiver battery can be mounted under the front of the battery tray.

5. Once the location of the receiver battery has been determined, the receiver switch and charge jack can be installed in the side of the fuselage.

Electric Options: Since the cabin will need to be removed to connect the motor battery, the receiver switch and charge jack could be installed inside the fuselage. Another option is a voltage regulator (CSEM0005) could be installed, eliminating the receiver battery. The voltage regulator connects between the motor battery and receiver using the motor battery to power the receiver.

FINISH THE MODEL

1. Plug two Y-harnesses into the aileron and the flap channels on the receiver. Plug the light controller into an open channel on the receiver. Connect one of the three connectors from the light controller to the wire from the light in the cowl. Use a piece of shrink tubing to secure it.

2. Connect the wing tip lights into the light controller. Switch on the transmitter and receiver. The landing light and wing tip lights can be switched on and off from the transmitter.
3. Now is a good time to organize the wires in the fuselage. Connect the aileron and flap servos to the Y-harnesses. Straps to hold the wires in position can be made from #64 rubber bands (not included) cut into strips. The strips can be glued over the wires. Remember, the wires from the wings cannot be strapped down if the wings are to be removable.

4. The pilot busts (not included, WBRQ1140) that we installed had to be raised about 1/2" [12.7mm]. A piece of balsa wood or foam (not included) can be used. Insert the pilots from the bottom of the cabin and glue them in position.

5. We recommend that a screw be installed through the bottom of the cabin to help secure the pilots.

6. Glue the cabin bottom cover in place.

7. Clean the recess in the top of the cabin and the post on the antenna with a paper towel dampened with denatured alcohol. Glue the antenna post in the recess with epoxy or silicone RTV.

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**Apply the Decals**

1. The decals are die-cut from the factory.

2. 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, submerging them in soap & water allows accurate positioning and reduces air bubbles underneath.

3. Position decal on the model where desired. Holding the decal down, use a paper towel to wipe most of the water away.

4. Use a piece of soft balsa or something similar to squeegee remaining water from under the decal. Apply the rest of the decals the same way.
Please use the following pictures and box top as a guide for the decal placement.

**GET THE MODEL READY TO FLY**

**Balance the Model Laterally**

- 1. With the wing level, have an assistant help you lift the model by the 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.**

**Check the Control Directions**

- 1. Switch on the transmitter and receiver and center the trims. If necessary, remove the servo arms from the servos and reposition them so they are centered. Reinstall the screws that hold on the servo arms.

**CAUTION ELECTRIC ONLY:** If the receiver is powered by the motor battery, REMOVE the propeller before checking the control directions. Once the motor battery is connected, the motor is live and could cause serious injury if it should start.

- 2. With the transmitter and receiver still on, check all the control surfaces to see if they are centered. If necessary, adjust the clevises on the pushrods to center the control surfaces.

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

- 3. Make certain that the control surfaces and the carburetor (glow powered) 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

To ensure a successful first flight, set up your Cirrus SR22 ARF according to the control throws specified in this manual. The throws have been determined through actual flight testing and accurate record-keeping, allowing the model to perform in the manner in which it was intended. If, after you have become accustomed to the way the Cirrus SR22 ARF flies, you would like to change the throws to suit your taste, that is fine. However, too much control throw could make the model too responsive and difficult to control, so remember, “more is not always better.”

1. Hold a ruler vertically on your workbench against the widest part (front to back) of the trailing edge of the elevator. Note the measurement on the ruler.

2. Measure the high rate elevator throw first. Move the elevator up with your transmitter and move the ruler forward so it will remain contacting the trailing edge. The distance the elevator moves up from center is the “up” elevator throw. Measure the down elevator throw the same way.

These are the recommended control surface throws:

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<th>LOW RATE</th>
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At the Servos

The pushrod farther out means More Throw
The pushrod closer in means Less Throw

At the Control Surfaces

The pushrod farther out means Less Throw
The pushrod closer in means More Throw

3. If necessary, adjust the location of the pushrod on the servo arm or on the elevator horn, or program the ATVs in your transmitter to increase or decrease the throw according to the measurements in the control throws chart.

4. Measure and set the low rate elevator throws and the high and low rate throws for the rest of the control surfaces the same way. If your radio does not have dual rates, we recommend setting the throws at the high rate settings.

NOTE: The throws are measured at the widest part of the elevators, rudder and ailerons.
**Balance the Model (C.G.)**

More than any other factor, the C.G. (center of gravity/balance point) can have the greatest effect on how a model flies and could determine whether or not your first flight will be successful. If you value your model and wish to enjoy it for many flights, **DO NOT OVERLOOK THIS IMPORTANT PROCEDURE**. A model that is not properly balanced may be unstable and possibly unflyable.

At this stage the model should be in ready-to-fly condition with all of the components in place including the complete radio system, engine or motor, muffler, propeller, spinner and pilot. The fuel tank should be empty or on the electric powered version, the motor battery should be installed.

1. If using a Great Planes C.G. Machine, set the rulers to 2-1/4" [57mm]. If not using a C.G. Machine, use a fine-point felt tip pen to mark lines on the top of the wing on both sides of the fuselage 2-1/4" [57mm] back from the leading edge. Apply narrow (1/16" [2mm]) strips of tape over the lines so you will be able to feel them when lifting the model with your fingers. This is where your model should balance for the first flights. Later, you may experiment by shifting the C.G. 1/8" [3mm] forward or 1/8" [3mm] back to change the flying characteristics. Moving the C.G. forward will improve the smoothness and stability, but the model will then be less aerobatic (which may be fine for less-experienced pilots). Moving the C.G. aft makes the model more maneuverable and aerobatic for experienced pilots. In any case, **start at the recommended balance point** and do not at any time balance the model outside the specified range.

2. With the wing attached to the fuselage, all parts of the model installed (ready to fly) and an empty fuel tank, place the model upside-down on a Great Planes CG Machine, or lift it upside-down at the balance point you marked.

3. If the tail drops, the model is “tail heavy.” If the nose drops, the model is “nose heavy.” Use Great Planes “stick-on” lead (GPMQ4485) to balance the plane. To find out how much weight is required, 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 stick-on nose weight is to the firewall. Do not attach weight to the cowl—this will cause stress on the cowl and could cause the cowl to crack at the screw holes. Once you have determined if additional weight needs to be installed, it can be permanently attached. Do not rely upon the adhesive on the back of the lead weight to permanently hold it in place. Over time, fuel, vibration and exhaust residue may soften the adhesive and cause the weight to fall off. Instead, permanently attach the weight with glue or screws.

**Note:** On the electric powered version move the motor battery forward or aft before adding additional weight to the nose or tail.

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**

No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, 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 30 and place it on or inside your model.

**Charge the Batteries**

Follow the battery charging instructions that came with your radio control system to charge the batteries. You should always charge your transmitter and receiver batteries the night before you go flying, and at other times as recommended by the radio manufacturer.
Afterward, shut the engine off and inspect the model closely. Get help from an experienced pilot when learning to operate glow engines and electric motors. Use a "chicken stick" or electric starter to start the engine. Use safety glasses when starting or running engines. Run the engine for a few minutes to make sure it idles reliably, transitions smoothly and maintains full power indefinitely. Afterward, shut the engine off and inspect the model closely, making sure all fasteners, pushrods and connections have remained tight and the hinges are secure. Always ground check the operational range of your radio before the first flight of the day following the manufacturer's instructions that came with your radio. 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 cell, or a damaged receiver crystal from a previous crash.

**Ground Check and Range Check**

Run the engine for a few minutes to make sure it idles reliably, transitions smoothly and maintains full power indefinitely. Afterward, shut the engine off and inspect the model closely, making sure all fasteners, pushrods and connections have remained tight and the hinges are secure. Always ground check the operational range of your radio before the first flight of the day following the manufacturer's instructions that came with your radio. 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 cell, or a damaged receiver crystal from a previous crash.

**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 glow engines and electric motors.

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 and motor get hot! Do not touch 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.

When working on your plane, remove the propeller if the motor battery will be connected.

Always remove the motor battery from the plane when charging.

Follow the charging instructions included with your charger for charging LiPo batteries. LiPo batteries can cause serious damage if misused. DO NOT leave charging batteries unattended!

**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.

**CHECK LIST**

During the last few moments of preparation your mind may be elsewhere anticipating the excitement of the first flight. Because of this, you may be more likely to overlook certain checks and procedures that should be performed before the model is flown. To help avoid this, a check list is provided to make sure these important areas are not overlooked. Many are covered in the instruction manual, so where appropriate, refer to the manual for complete instructions. Be sure to check the items off as they are completed.

1. Fuelproof all areas exposed to fuel or exhaust residue.
2. Check the C.G. according to the measurements provided in the manual.
3. Be certain the battery and receiver are securely mounted in the fuse. Simply stuffing them into place with foam rubber is not sufficient.
4. If you still fly on 72MHz, Extend your receiver antenna and make sure it has a strain relief inside the fuselage to keep tension off the solder joint inside the receiver.
5. Balance your model *laterally* as explained in the instructions.
6. Use threadlocking compound to secure critical fasteners such as the set screws that hold the wheel axles to the struts, screws that hold the carburetor arm (if applicable), engine bolts, etc.
7. Add a drop of oil to the axles so the wheels will turn freely.
8. Give the control surfaces a quick tug before every flight to make sure all hinges are *securely* glued in place.
9. Reinforce holes for wood screws with thin CA where appropriate (servo mounting screws, aileron hatches, etc.).
10. Confirm that all controls operate in the correct direction and the throws are set up according to the manual. Checking the direction should be performed before every flight. With computer radios it is easy to mistakenly change the model.
11. Make sure there are silicone retainers on all the clevises and that all servo arms are secured to the servos with the screws included with your radio.
12. Secure connections between servo wires and Y-connectors or servo extensions, and the connection between your battery pack and the on/off switch with vinyl tape, heat shrink tubing or special clips suitable for that purpose.
13. Make sure any servo extension cords you may have used do not interfere with other systems (servo arms, pushrods, etc.).
14. Make sure the fuel lines are connected and are not kinked.
15. Balance your propeller (and spare propellers).
16. Check that the spinner bolt is tight.
17. Place your name, address, AMA number and telephone number on or inside your model. This is an AMA rule (see page 31 of this manual).
18. Cycle your receiver battery pack (if necessary) and make sure it is fully charged.
19. If you wish to photograph your model, do so before your first flight.
20. Range check your radio when you get to the flying field. Have an assistant hold the plane while running the engine at different throttle settings.

**FLYING**

The Cirrus SR22 ARF is a great-flying model that flies smoothly and predictably. The Cirrus SR22 ARF does not, however, possess the self-recovery characteristics of a primary R/C trainer and should be flown only by experienced R/C pilots.

**Fuel Mixture Adjustments**

A fully cowled engine may run at a higher temperature than an un-cowled engine. For this reason, the fuel mixture should be richened so the engine runs at about 200 rpm below peak speed. By running the engine slightly rich, you will help prevent dead-stick landings caused by overheating. Also, the left opening is closed in the cowl to force cooling air over the head of the engine. If the engine overheats, the opening around the muffler may need to be enlarged slightly to allow more cooling air to exit.

**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. 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.
Takeoff

Before you get ready to takeoff, see how the model handles on the ground by doing a few practice runs at **low speeds** on the runway. If necessary, adjust the nose wheel so the model will roll straight down the runway. If you need to calm your nerves before the maiden flight, shut the engine down and bring the model back into the pits. Top off the fuel, then check all fasteners and control linkages for peace of mind.

Remember to takeoff into the wind. When you’re ready, point the model straight down the runway and then gradually advance the throttle. 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 some 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

For reassurance and to keep an eye on other traffic, it is a good idea to have an assistant on the flight line with you. Tell him to remind you to throttle back once the plane gets to a comfortable altitude. While full throttle is usually desirable for takeoff, most models fly more smoothly at reduced speeds.

Take it easy with the Cirrus SR22 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 and lowering the flaps 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 (or having your assistant write them down) of what trim or C.G. changes may be required to fine tune the model so it flies the way you like. Mind your fuel level or battery power, but use this first flight to become familiar with your model before landing.

Landing

The Cirrus SR22 ARF may be landed with or without flaps. Flaps increase lift and drag, so the plane may be landed slower, thus reducing rollout after touchdown (not as much of a factor on grass runways). The Cirrus SR22 is a clean airplane and does not slow down quickly. 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 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. **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 power, flaps can unexpectedly reduce the model’s range, thus causing you to come up short of the field.

One final note about flying your model. Have a goal or flight plan in mind for **every** flight. This can be learning a new maneuver(s), improving a maneuver(s) you already know, or learning how the model behaves in certain conditions (such as on high or low rates). This is not necessarily to improve your skills (**though it is never a bad idea!**), but more importantly so you do not surprise yourself by impulsively attempting a maneuver and suddenly finding that you’ve run out of time, altitude or airspeed. Every maneuver should be deliberate, not impulsive. For example, if you’re going to do a loop, check your altitude, mind the wind direction (anticipating rudder corrections that will be required to maintain heading), remember to throttle back at the top, and make certain you are on the desired rates (high/low rates). A flight plan greatly reduces the chances of crashing your model just because of poor planning and impulsive moves. **Remember to think.**

**Have a ball!**
**But always stay in control and fly in a safe manner.**
**GOOD LUCK AND GREAT FLYING!**