

.40 TO .60-SIZE FIBERGLASS FLOAT SET V2 INSTRUCTION MANUAL



Congratulations on your acquisition of Maxford USA's .40 to .60-size Fiberglass Float Set V2.

This new fiberglass float set allows you to convert your favorite airplane from grass or pavement to pond, just the ticket for flying from water: Another great way to enjoy your radio-controlled model aircraft.

With this fiberglass float set you can combine the joys of flying from water with a refreshing day at your favorite lake, with its smooth water, sandy beach or dock, unobstructed overflight areas, and the fun of boating (or any other safe method you and your co-pilot friends devise to meet the occasional need to rescue an aircraft from its water-bound landing zone!)

Enjoy the pride of ownership and the joy of flying with this high-quality fiberglass float set!

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Maxford USA

IMPORTANT SAFETY PRECAUTIONS TO PROTECT YOUR MODEL, YOURSELF & OTHERS

1. This product should not be considered a toy, but rather part of a sophisticated working model that functions much like a full-scale airplane. Because of the performance capabilities of this product and of the radio-controlled airplane to which it is attached, if it is not assembled, attached and operated correctly, it could cause injury to you or spectators and damage to property. Maxford USA provides you with a high-quality, thoroughly tested model-airplane fiberglass float kit with assembly instructions. However, the quality and capabilities of your model airplane and this float set ultimately depends on how you assemble them, and your safety depends on how you use and fly them. Any testing or flying of the model airplane and this fiberglass float set is done entirely at your own risk.
2. Attach the fiberglass float set to your model airplane according to the instructions. We recommend that you do not alter or modify the model airplane or this fiberglass float set beyond what is covered in the instructions, as doing so may result in an unsafe or unworkable model. In a few cases the instructions may differ slightly from the photos. In those instances the written instructions should be considered as correct. If you have any question about the instructions, before you proceed with assembly of this product, contact us at (562) 529-3988, Monday through Friday, except national holidays, between 8:30 AM to 5 PM Pacific time.
3. After installing this fiberglass float set, test the R/C system and all other components of the model airplane to confirm that your model passes all ground safety and range tests and that all controls operate smoothly and correctly.
4. Check the operation of your model airplane before every flight to ensure that all equipment is still operating correctly and that the model and this fiberglass float set remain structurally sound. Also before every flight, check the struts, clevises, other connectors, each float and the water rudder; replace any item(s) found damaged or defective.
5. If you are not an experienced R/C pilot or have not flown this type of model airplane with floats before, we recommend that you get the assistance of an experienced R/C pilot.
6. Throughout the lifetime of the model airplane to which you install these floats, use only the supplied or same-sized motor and electronic speed control recommended by the model airplane's manufacturer, and a new or well-maintained R/C radio system and the recommended Li-Po battery if the airplane uses an electric motor.
7. This fiberglass float set has been rigorously flight-tested on various model airplanes and found to meet or exceed our rigid performance and reliability standards in normal use. Nonetheless, if you plan to perform any extremely high-stress flying, such as racing or advanced aerobatics, or if you plan to install a larger motor than included or recommended by your airplane's manufacturer, then you (the buyer or user of this product) are solely responsible for taking steps to reinforce all high-stress points and/or substitute hardware that is more suitable for such increased stresses.
8. **LITHIUM BATTERY HANDLING & USAGE: WARNING!!** If you are using an electric motor to power your model airplane, read the entire instruction sheet included with the battery. Failure to follow all instructions could result in permanent damage to the battery, its surroundings, and bodily harm! If you crash this model airplane, check whether the Li-Po battery is damaged. Do NOT use or charge a damaged Li-Po battery.

ONLY use a Li-Po approved charger. (NEVER use a NiCd/NiMH charger!)	NEVER charge in excess of 4.2V per cell.
ALWAYS set the charger's output to match the battery's voltage and mAh ratings.	NEVER discharge below 2.5V per cell.
ALWAYS charge through the battery's "charge" connector. (NEVER charge through the "discharge" leads.)	NEVER allow battery temp. to exceed 150° F (65° C).
ALWAYS charge in a fireproof location.	NEVER charge at currents greater than 1C (for example, in the case of a 1,300 mAh battery, that's 1.3 amps).
NEVER place on combustible materials or leave unattended during charge or discharge.	NEVER trickle charge.
	NEVER disassemble or modify pack wiring in any way or puncture cells.
	<u>ALWAYS KEEP OUT OF REACH OF CHILDREN.</u>
9. This fiberglass float set includes fiberglass parts. Be warned that fiberglass dust may cause eye, skin and respiratory tract irritation. So whenever you drill, grind, or sand these parts, always wear safety goggles, a particle mask and rubber gloves, and never blow into such a part to remove carbon-fiber or fiberglass dust, as the dust may blow back into your eyes.

SPECIAL FEATURES OF THIS FIBERGLASS FLOAT SET

- Lightweight wooden former construction with a strong fiberglass skin that is beautifully finished in white and blue.
- Internal hard-points for secure strut and water rudder mounting, strength and durability.
- Includes preformed metal strap struts with predrilled ends, predrilled and slotted offset adjustment straps, and predrilled front and rear spreader bars that feature a rugged white fuelproof and waterproof finish.
- Includes a water rudder and all related control hardware, linkages, and mounting hardware, plus the ability to safely retract if it strikes floating debris or other obstacles.
- Suitable for most .40 to .60 size airplanes with up to 7 pounds flying weight (with landing gear, before installation of this fiberglass float set).

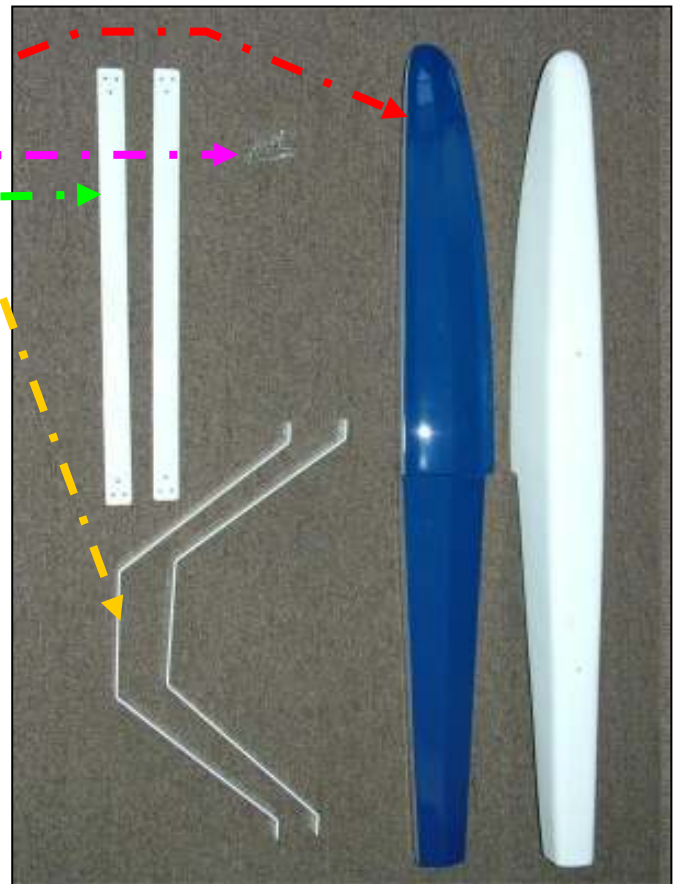
PARTS LIST

1. Items included in the fiberglass float set package:

- Fiberglass floats. — — — — —
- Preformed metal strap struts with predrilled ends.
- Bag with screws, bolts and nuts. — — — — —
- Predrilled metal spreader bars. — — — — —
- This illustrated instruction manual.

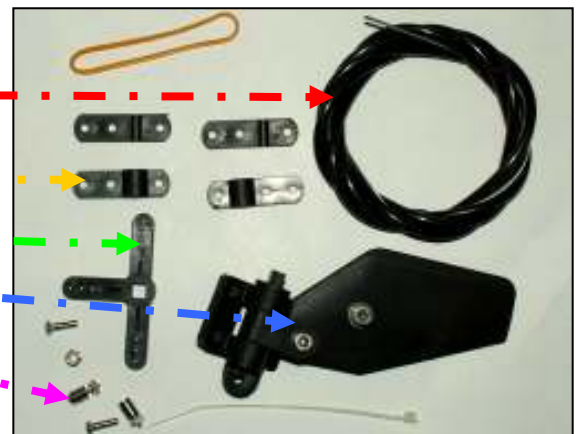
2. Items you need to supply to complete the installation of this fiberglass float set:

- 5-minute epoxy, thin cyanoacrylate (CA) adhesive and Loctite Screw Lock or equivalent compound.
- 1/8-inch drill bit and drill-motor.
- Masking tape and common hand tools.
- Your particular airplane and decisions made during installation might also cause you to buy:
 - a) A piece of aircraft plywood, 3-inch by 5-inch by 1/8-inch thick (actual dimensions will depend on the width of your airplane's fuselage and the distance between the fuselage formers);
 - b) Hard wood, plywood, nuts and bolts or screws;
 - c) Covering material and/or paint to cover any exposed wood and match the bottom of your airplane's fuselage.



3. Included Water Rudder Items:

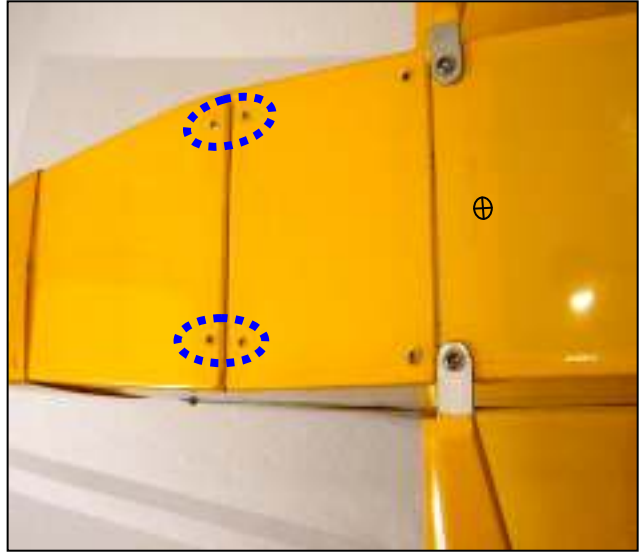
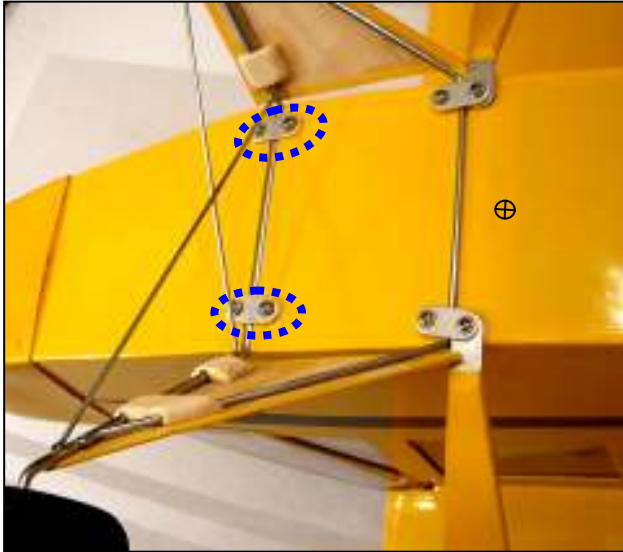
- Rubber band.
- Control cable and housing. — — — — —
- Predrilled plastic brackets (2 sets) for securing each end of the control-cable's housing. — — — — —
- Control horn. — — — — —
- Water rudder on hinged mounting bracket. — — — — —
- Control cable's servo-arm connectors. — — — — —
- Misc. screws, bolts, nuts, and nylon wire tie.



FIBERGLASS FLOAT SET ASSEMBLY INSTRUCTIONS

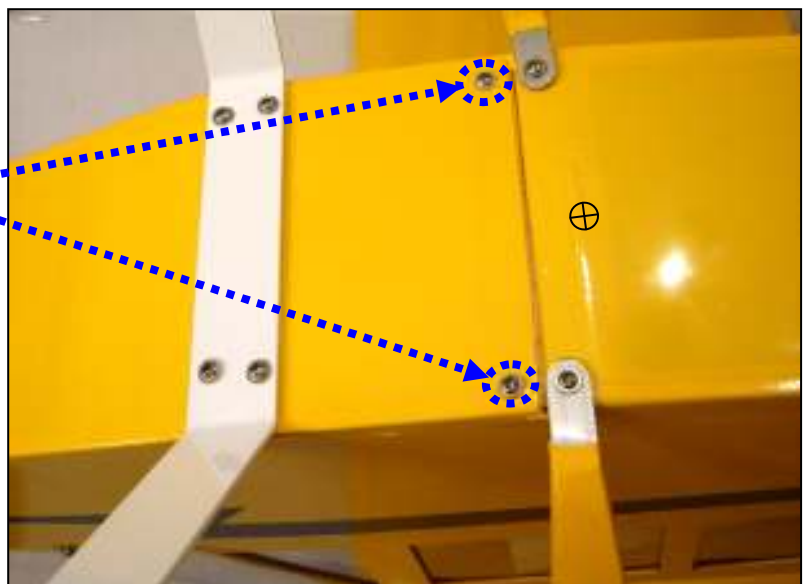
Step 1: Attach the struts to the airplane's fuselage.

1. Make a small mark ("⊕") on the bottom-center of the fuselage to identify the location of the airplane's center of gravity (CG). Also make a small mark at the CG on the wing on each side of the airplane near the fuselage.
2. Remove the existing, wheeled landing gear; set it and its related mounting hardware aside for future use.
3. The front and rear preformed metal strap struts are identical; neither has any holes drilled in its center-section. To attach the front metal strap strut to the fuselage you will ideally re-use some of the old, wheeled landing gear's mounting holes and screws or bolts by drilling holes in the front metal strap strut to match the existing holes. (As a worst case, you need to install new hard wood or plywood hard-points in your fuselage to mount the front metal strap strut.) For the sample-airplane we have chosen a 1/6 scale Piper Cub J3 from Maxford USA.



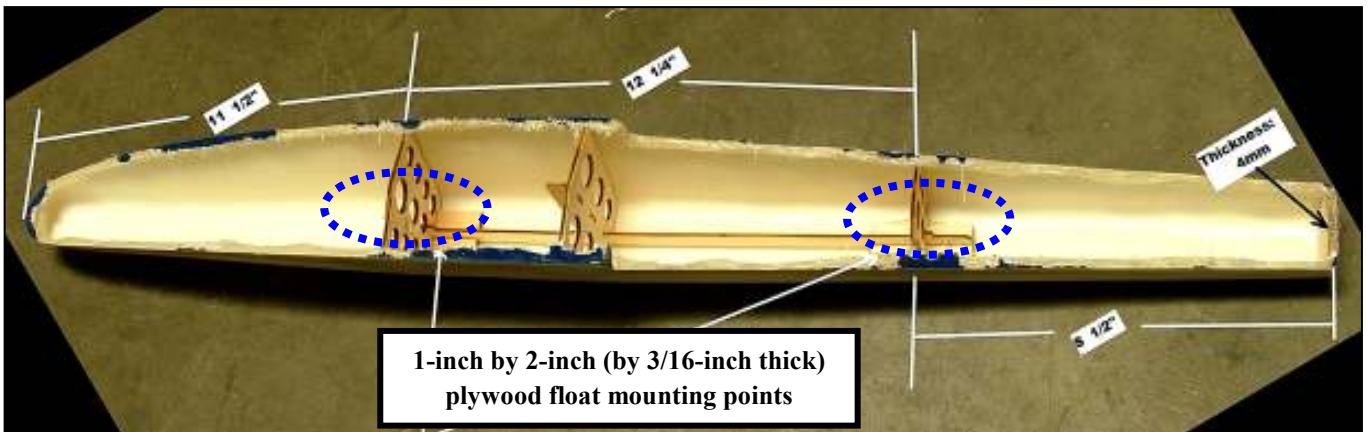
(Re-use the front four existing holes and screws to attach the front metal strap strut.)

4. Use a piece of paper and a pencil to prepare a template of the spacing and locations of the fuselage's existing holes. Using this template, carefully mark the center section of the front metal strap strut. Then drill four 1/8-inch diameter holes at the marked locations in the front metal strap strut.
5. Use the original landing gear's mounting screws to secure the front metal strap strut to the fuselage. Close any remaining openings in the bottom of the fuselage to protect them from being exposed to water by inserting the originally installed screws securely. (How creative you decide to get with the installation of any required new hard-points in your fuselage will determine how much wood or hardware you may need to supply, over and above the items included in the fiberglass float kit.)



6. With the airplane bottom-side up, identify which two fuselage formers are in front of and behind a point approximately 12-inches back from the center of the front metal strap strut. Then measure from the front surface of the former in front of the 12-inch point to the back surface of the next former nearer the airplane's tail. (In the example of our 1/6 scale Piper Cub J3 the distance between formers is 4½ -inches.) Cut the length of a piece of 1/8-inch thick plywood to the distance between formers plus approx. 1/2-inch (for the Piper Cub J3, the plywood's length needs to be 5-inches). Make a final cut in this piece of plywood so it has a width of approx. 3-inches, and waterproof the plywood with covering material and/or paint to match the bottom of your airplane's fuselage.
7. Temporarily position the piece of plywood at the edges of the two fuselage formers identified above, and place the rear preformed metal strap strut on top of the plywood approximately 12-inches from the front metal strap strut. Measure between the drilled ends of the front and rear preformed metal strap struts, and adjust the position of the rear preformed metal strap strut on top of the plywood so there is no less than 11-inches or more than 14-inches

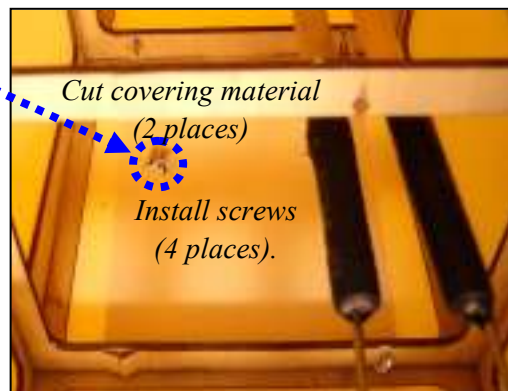
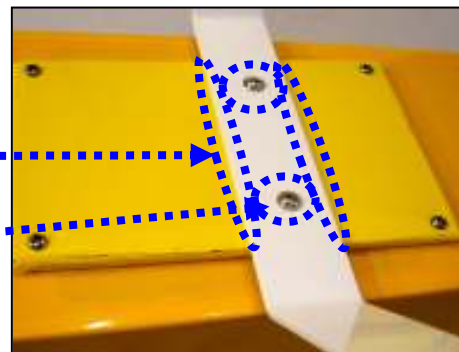
between the front and rear struts' predrilled holes. The approximate position of each 1-inch by 2-inch plywood float mounting point is shown below in the cutaway view of a fiberglass float (with its bottom-surface removed).



- Note:
- a. There is a black mark on the top of each float near the center of each of the two 1-inch by 2-inch (by 3/16-inch thick) plywood float mounting points.
 - b. The predrilled end of each preformed metal strap strut (or a predrilled and slotted offset adjustment straps) must be positioned above a 1-inch by 2-inch plywood float mounting point.
 - c. The fuselage's curvature between the front and rear mounting points determines where the rear preformed metal strap struts (and predrilled and slotted offset adjustment straps) must be mounted.
8. Hold the black mark at the front of the float next to the front struts' predrilled holes, then position the rear preformed metal strap strut to align its predrilled holes with the float's rear black mark.



9. Confirm the float's step is aligned with or behind the airplane's CG by no more than 3/4-inch.
10. Mark the piece of plywood where the rear preformed metal strap strut will be mounted and set the float aside.
11. Secure the rear preformed metal strap strut to the piece of plywood at the location marked in #10, above, by drilling two 1/8-inch holes approx. 2-inches apart through the rear preformed metal strap strut and the plywood, and bolting them together using two 1/2-inch bolts and self-locking nuts. Allow the two 1/2-inch bolts and their self-locking nuts to slightly protrude into the fuselage by cutting two small "X" openings in the covering material at their contact points. Secure the piece of plywood and the rear preformed metal strap strut to the fuselage at each corner of the plywood by driving wood screws supplied in the fiberglass float kit into the edges of the fuselage formers identified in #6. (Depending on your airplane, mounting the rear metal strap strut solidly to the fuselage may require a more 'creative' installation of new hard-points than can be covered in these instructions. In any event, secure the rear metal strap strut to the fuselage with at least two 1/2-inch bolts and self-locking nuts.)



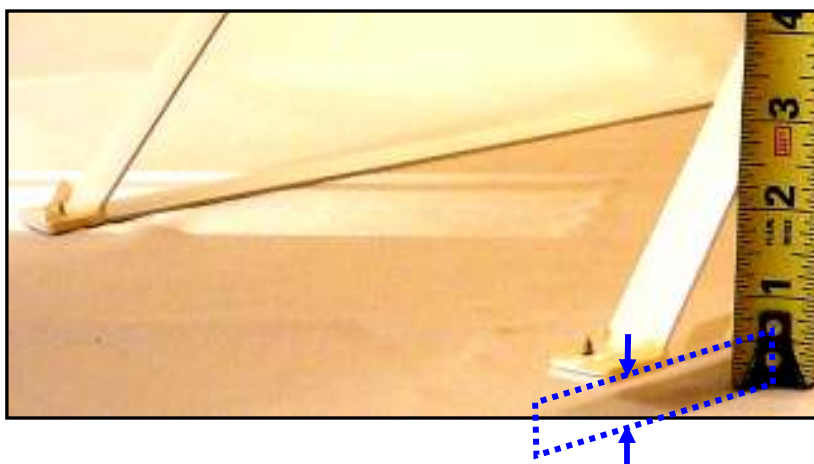
Step 2: Attach the floats to the struts.

12. Temporarily attach the metal spreader bars to the front and rear metal strap struts with screws and masking tape.
13. Turn your airplane right side up and stand it on its four(4) new "feet" on a level surface to simulate positioning the floats at a zero-degree angle of attack.
14. Attach the wing in its normal position on the fuselage and observe its angle of attack relative to the level surface. The wing's angle of attack should be the same as the level surface, or no more than +2 degrees at the leading edge of the wing.



(Note: Some float-plane enthusiasts report superior results by using the horizontal stabilizer rather than the wing for measuring and setting the relative angle of attack. If you are looking at the horizontal stabilizer, the angle of attack should be the same as the level surface or no more than -2 degrees at the horizontal stabilizer's leading edge.)

Once your airplane's angle of attack is correct, remove and set the wing aside.



15. Test-fit the floats and all mounting hardware: Remove the screws and masking tape from the metal spreader bars and front and rear metal strap struts. Position the fuselage on top of both fiberglass floats and align the fuselage's four(4) new "feet" as closely as possible with the black dots at the top-center of each float.

- **IMPORTANT:**

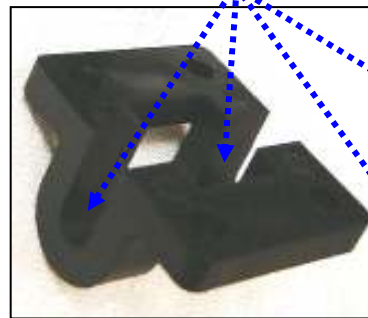
THE SCREWS USED TO CONNECT THE FLOATS TO THE STRUT ASSEMBLIES MUST BE NO MORE THAN 3/4-INCH FROM THE NEAREST BLACK DOT AT THE TOP OF EACH FLOAT.

- 15.1. Forward or aft adjustment may be needed to align the step with the CG or so that it is not more than 3/4-inch behind the CG.
- 15.2. The angle of attack may need adjustment by re-bending the front or rear metal strap strut to achieve the proper angle of attack.
16. Once test-fitting and adjustments are successfully completed and no screw hole needs to be more than 3/4-inch from a black dot, insert a scribe or the tip of a sharp needle through each set of metal-to-float mounting holes and scratch the required screw-hole locations along the top-center of either one of the two floats. Then drill four(4) mounting screw holes at the scratched locations at the top of the first float with a 1/16-inch bit.
17. Measure the distance from the sharp edge at the top of the transom at the rear of the first float to each hole you drilled in the first float. Carefully measure and mark these hole locations onto the top-center of the second float. Then drill the second float's four(4) mounting screw holes with a 1/16-inch bit.
18. With all parts aligned as test-fit above, attach the floats to the struts and spreader bars by driving screws into the floats and by using bolts and nuts to secure the offset adjustment straps to the struts, if offset is used.
19. Make sure no screw or bolt can vibrate loose by applying Loctite Screw Lock or equivalent compound, or CA adhesive, where each screw's and bolt's head touches its mating surface.



Step 3: Water rudder attachment and setup.

20. Prior to installation, apply a drop of light machine oil to the rudder's TILLER (left/right) and LIFT (tilt up) hinge-points. Check for any binding and if detected, check for and lightly scrape or sand away any remaining plastic "flashing" or other minor molding-process imperfection, then re-oil as necessary for free movement of the rudder assembly's hinge points.
21. Securely attach the rudder to the hinge assembly with one hex-bolt and nut, but do not restrict the rudder's ability to LIFT (tilt up) by overtightening this bolt. Apply Loctite Screw Lock or equivalent compound, or CA adhesive to the threads at the outside end of the nut.
22. Insert and tighten a second hex-bolt and nut through the hole at the bottom end of the tiller's shaft. Insert a rubber band through the hole in the rudder and secure it to the end of the bolt. (There are many "right" ways to attach the rubber band. What matters is that the rubber band must normally hold the rudder in the down position, but it must also allow the rudder to safely lift/retract whenever it strikes any floating debris or other obstacle. One method is to use a double knot in the rubber band for tension adjustment, then insert the rubber band through the hole in the rudder with the knot on the same side as the end of the bolt, and pull the loose end of the rubber band across the rudder and onto the end of the bolt, using its tension to help hold it in position on the end of the bolt.)



23. Hold the water-rudder assembly near the top of the transom of the float that is on the same side of your airplane as the rudder's pushrod and control horn. Scratch the screw hole locations by inserting a scribe or the tip of a sharp needle through each set of water-rudder's mounting holes, then drill four(4) mounting screw holes at the scratched locations.

24. Attach the water rudder to the float's transom using four(4) screws provided with the water rudder, and apply Loctite Screw Lock or equivalent compound, or CA adhesive, where each screw's head touches the water rudder's mounting assembly.

25. Cut off two of the three arms on the provided tiller and lightly sand the hub until it is smooth. Attach a screw-lock connector to the middle hole on the arm. Make sure the connector can rotate, then secure the connector's mounting nut to its shaft with a small amount of Loctite Screw Lock or equivalent, or CA adhesive.

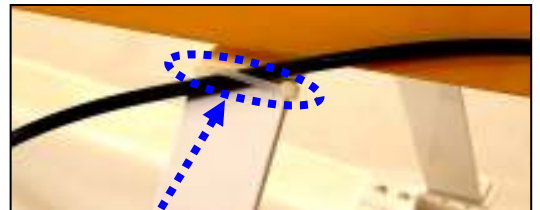


26. Position the tiller's arm on the tiller's shaft with its arm pointed toward the center of the airplane, and firmly press the tiller's arm onto the tiller's shaft. Apply a drop of CA adhesive at the top of the tiller's shaft.

27. Attach the remaining screw-lock connector to the existing control horn on your airplane's rudder. Make sure the connector is free to rotate on the control horn, then secure the connector's mounting nut to its shaft with a small amount of Loctite Screw Lock or equivalent, or CA adhesive.



28. Unwind and straighten the included rudder control cable and housing. Insert and tighten one end of the control cable into the screw-lock connector on your airplane's rudder. Position the length of the control cable and housing straight forward from your airplane's rudder, along the side of the fuselage. Attach the end of the control-cable's housing to your airplane's fuselage with one set of pre-drilled plastic brackets, driving two(2) screws through the bracket and into the edges of the nearest fuselage former.



29. Ensure the control cable and housing are directed straight forward from your the housing so that 1-inch of control cable is exposed and apply a drop or control cable housing passes through the mounting bracket on your

airplane's rudder, then adjust two of CA adhesive where the airplane's fuselage.

30. Guide the control-cable housing into a sweeping, smooth 180-degree arc toward (and aligned with) the screw lock connector on the tiller's arm. Anchor the control-cable housing at the top and bottom of the rear strut with nylon wire ties.



31. Position the airplane's rudder and the water rudder in their neutral, straight-ahead positions, and align the control-cable housing to pass above the screw-lock connector on the tiller's arm. At 1-inch before the center of the screw-lock connector on the tiller's arm, use a sharp cutting tool to slice through and remove the excess control-cable housing.

32. Insert and tighten the remaining end of the control cable into the screw-lock connector on the water rudder. Secure the end of the control-cable's housing to the float with the remaining set of pre-drilled plastic brackets by scratching the screw-hole locations onto the float, predrilling two(2) mounting screw holes at the scratched locations, and mount the predrilled plastic bracket with two(2) screws. Secure one bolt with a nut at the end of the plastic bracket, and apply a drop or two of CA adhesive where the control cable housing passes through the float-mounted cable mounting bracket.

33. Recommended setups and adjustments:

- 33.1. Turn your airplane right-side up and let it rest on its new floats. Attach the wing in its normal position on the fuselage and confirm the wing's angle of attack relative to the tops of the floats is no more than +2 degrees at the leading edge of the wing (or, if you are looking at the horizontal stabilizer, the angle of attack should be no more than -2 degrees at the horizontal stabilizer's leading edge). If the airplane's angle of attack is wrong, you must correct it by adjusting the angle of the floats.
- 33.2. Check your airplane's center of gravity (CG) and add weight to the nose to bring the CG back to the small marks you made at the CG on the wing on each side of the airplane near the fuselage in #1. What's more, until you have become comfortable with all the flight characteristic changes in your airplane, we recommend you move the CG to the most-forward location recommended by your airplane's manufacturer. Please take the time to get accustomed to the increased weight and drag of the floats, along with the change in weight distribution from the floats hanging under your airplane's fuselage.
- 33.3. Estimate the area above the horizontal stabilizer of your airplane's vertical stabilizer plus its rudder's area above the horizontal stabilizer. Compare this area to your wing's area. If it is less than 10% of the wing's area, we recommend you bring the ratio to at least 10% by adding a ventral fin (*i.e.*, a vertical stabilizer added to the bottom of your fuselage, under your existing vertical fin).
- 33.4. If you are using a computer radio, adjust your airplane's rudder for the maximum amount of possible travel at full throw, then soften your rudder's control around center by adding exponential.
- 33.5. When flying from water, do not use a wooden propeller; splashing water may damage your wooden propeller. Plastic or fiber-reinforced propellers are recommended.

Congratulations, float installation is complete!

FINAL CHECKS BEFORE FLYING:

1. Check that all controls operate smoothly and that screws, linkages and connections are secure.
2. Check the direction of your airplane's rudder and the float's water rudder (*i.e.*, push the left stick left and the airplane's rudder and the water rudder should both deflect to the left as viewed from the rear of the airplane).
3. Before every takeoff, remind yourself to compensate for your float-plane's new weight, drag and balance characteristics.
4. As with all radio-controlled model airplanes, this model must pass the radio range ground check recommended by your radio's manufacturer, or you may not safely fly.

REMEMBER: A ROTATING PROPELLER IS DANGEROUS!

- IF YOUR AIRPLANE USES AN ELECTRIC MOTOR: ALWAYS SWITCH THE TRANSMITTER ON (WITH ITS THROTTLE ALL THE WAY DOWN) BEFORE CONNECTING THE BATTERY TO THE ESC; ALWAYS RETURN THE THROTTLE TO MINIMUM AND DISCONNECT THE BATTERY FROM THE ESC BEFORE SWITCHING THE TRANSMITTER OFF; HANDLE THE MODEL WITH EXTREME CARE WHENEVER THE BATTERY IS CONNECTED TO THE ELECTRONIC SPEED CONTROL.
- ALWAYS STAY CLEAR OF THE PROPELLER AND THE PROPELLER'S ARC.

The model airplane you are flying is NOT a toy.

Any testing or flying of the model airplane with this fiberglass float set is done entirely at your own risk.

For replacement parts, servos, batteries, brushless motors, electronic speed controls, and a wide variety of high-quality RC hobby items, visit us online at – <http://www.maxfordusa.com>

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