

Seamaster

Assembly Manual

Specifications:

Wing Span: 59.5"
Wing Area: 725 in²
Length: 54"
Weight: 7 lbs.
Engine: .40-.46 2 cycle
.54-.60 4 cycle
Radio: 4 channel



Ace R/C Seamaster ARF Airplane (ACE4527)

Distributed in North America by Ace Hobby Distributors, Inc. • 116 W 19th ST, Higginsville, MO 64037
Phone: 660-584-7121 • www.acehobby.com • E-mail: service@acehobby.com

Warranty

This kit is guaranteed to be free from defects in material and workmanship at the date of purchase. It does not cover any damage caused by use or modification. The warranty does not extend beyond the product itself and is limited only to the original cost of the kit. By the act of building this user-assembled kit, the user accepts all resulting liability for damage caused by the final product. If the buyer is not prepared to accept this liability, it can be returned new and unused to the place of purchase for a refund.

Notice: Adult Supervision Required

This is not a toy. Assembly and flying of this product requires adult supervision.

Read through this book completely and become familiar with the assembly and flight of this airplane. Inspect all parts for completeness and damage. If you encounter any problems, call 660-584-6724 for help.



INTRODUCTION



Initially introduced to the hobby market in the 1980's, the Seamaster 40 has remained the most recognizable amphibious model airplane in the world. Many thousands of these models have been flown over the years, so rest assured you have obtained the best flying amphibian on the market.

Although the plane looks bigger, a good .40-.45 two cycle or .54-.60 four cycle flies the plane nicely; don't be tempted to put a bigger engine on it; the airframe is not stressed for it. Realize the Seamaster is not a pattern ship; it is a mildly aerobatic sport ship designed for pleasing, predictable performance off both land and water.

PRE-ASSEMBLY NOTES

Before beginning the assembly read the instructions thoroughly to give an understanding of the sequence of steps and a general awareness of the recommended assembly procedures.

By following these instructions carefully and referring to the corresponding pictures, the assembly of your model will be both enjoyable and rewarding. The result will be a well built, easy to assemble A.R.F. model, which you will be proud to display and also provide you considerable enjoyment.

If you are not an experienced R/C pilot, plan to have a fully competent pilot check your completed model and help you with your first flights. Even though we have tried to provide you with a very thorough instruction manual, R/C models are rather complicated and an experienced modeler can quickly check over your model to help make sure your first flights are successful. Your Seamaster is designed for intermediate to advanced pilots.

Before you begin, check the entire contents of your kit against the parts list and photos to make sure that no parts are missing or damaged. This will also help you to become familiar with each component of your plane. If you find that any of the parts are either missing or damaged, please contact Ace Hobby Distributors, Inc., Customer Service (660-584-6704) immediately for replacements.

Trial fit each part before gluing it in place. Make sure you are using the correct part and that it fits well before assembling. No amount of glue can make up for a poor-fitting part.



RECOMMENDED TOOLS & MATERIALS

Adhesives:

- Instant setting Cyanoacrylate adhesive (thin CA)
- Slow setting Cyanoacrylate adhesive (thick CA)
- 10 Minute Epoxy (fast)
- 20-30 Minute Epoxy (slow)
- Zap-a-dap-a-goo, Shoe-goo or equivalent
- Clear silicone seal

Tools:

- Model knife, T-Pins
- Small screwdrivers, Medium screwdrivers
- Scissors
- Steel straight edge
- Long nose pliers and diagonal cutting pliers
- Drill and drill bits
- Fine felt tip pen and soft lead pencil
- Straight building board
- Heat sealing iron
- Z-Bend pliers (optional)

R/C System:

- 4 Channel radio with 4 servos

Engine:

- 2 cycle: .40 to .46 CID
- 4 cycle: .50 to .60 CID

Propeller (appropriate for engine type and preferred performance)



Radio - A 4-channel radio with four standard servos is required.



Adhesives - You will need two types of adhesives for the Seamaster - Epoxy and Instant (cyanoacrylate) adhesives. We recommend that you purchase both 5-minute and 30-minute epoxy to cut down on assembly time, but you can get by with only 30-minute epoxy if time is not important. You will also need a small bottle of both "Thick" and "Thin" instant adhesive. Zap-a-dap-a-goo, Shoe-Goo, or equivalent will also be needed.

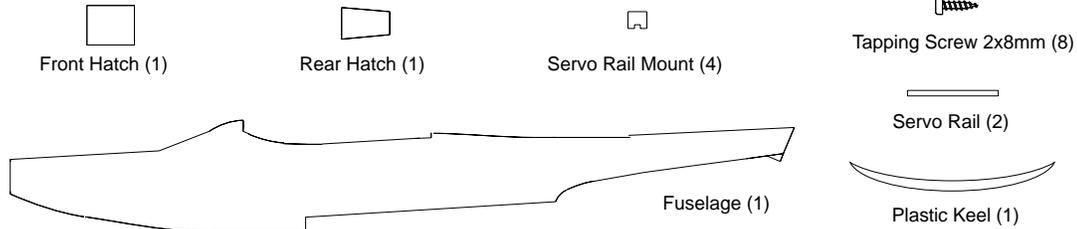


Tools - Model assembly can be much easier if the proper tools are used. Therefore, we have included in our checklist to the left, a complete listing of all the tools we used to assemble our prototype models. As you will notice, many household tools can be utilized during construction.

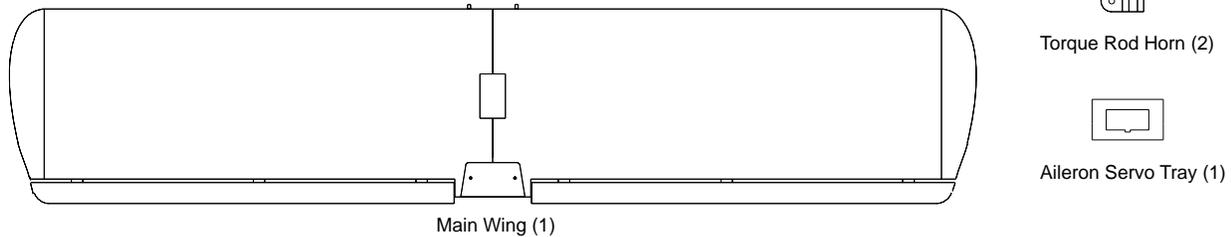


Engine - The Thunder Tiger PRO-46 and F-54S are the ideal engines for this airplane. These quiet-running engines are easy to start, require no special break-in periods, are very easy to maintain and will last for years.

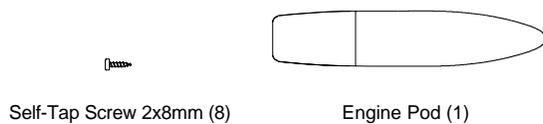
AS6058 Fuselage Set



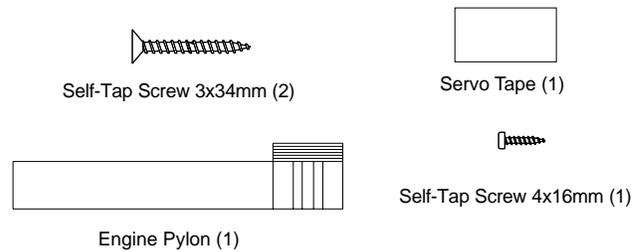
AS6059 Main Wing Set



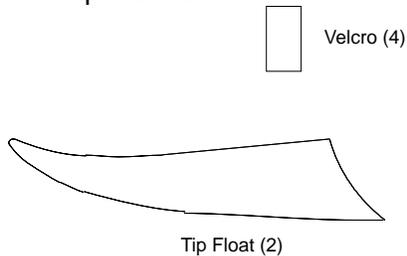
AS6064 Engine Pod Set



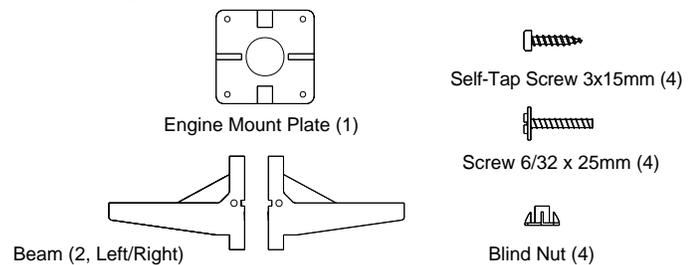
AS6071 Engine Pylon Set



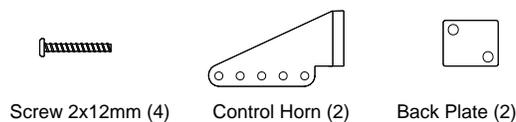
AS6068 Tip Float Set



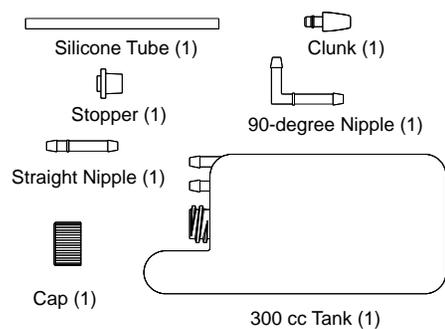
AS6069 Adjustable Engine Mount



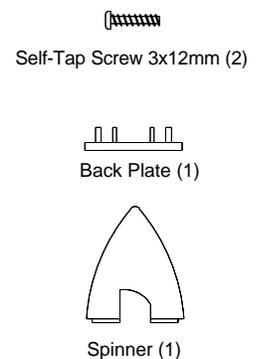
AS6023 Control Horn Set



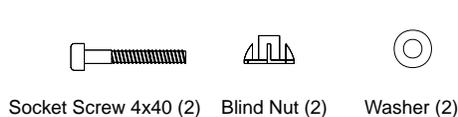
3263 Fuel Tank Set



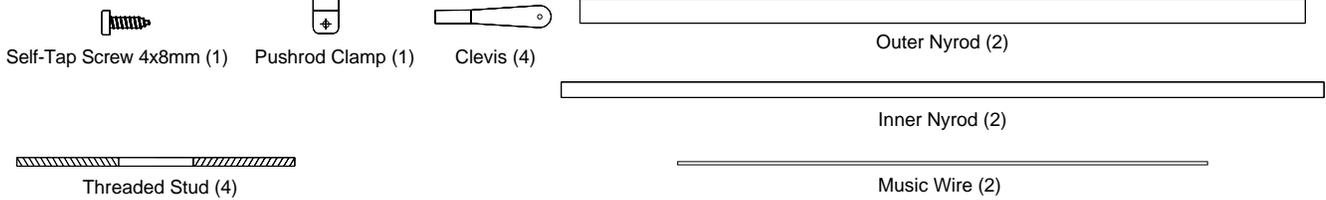
3282B Spinner Set



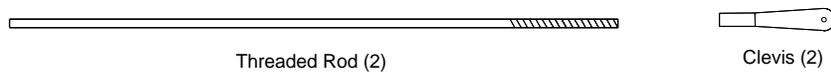
AS6066 Wing Bolt Set



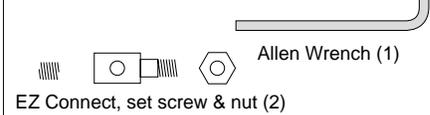
AS6062 Linkage Set



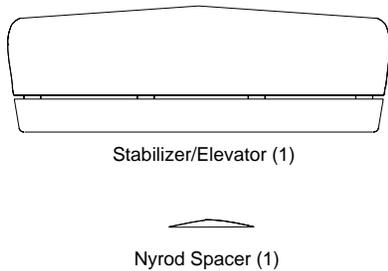
3152 Aileron Pushrods Set



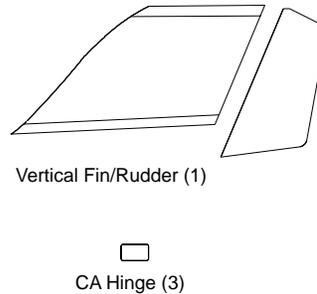
PE0009 Hardware Set



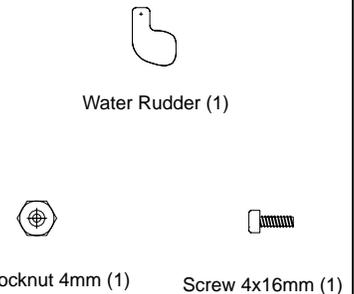
AS6060 Horizontal Tail Set



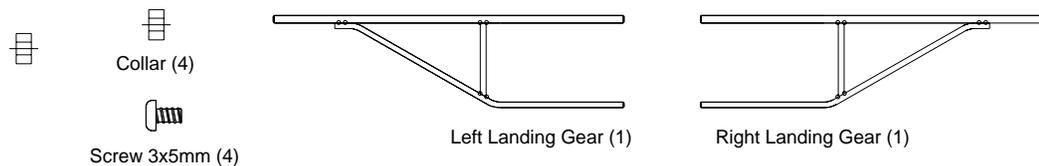
AS6061 Vertical Tail Set



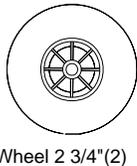
AS6070 Water Rudder Set



AS6063 Main Landing Gear Set

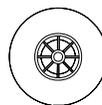


3257 Wheel



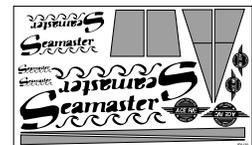
Wheel 2 3/4" (2)

3254 Wheel



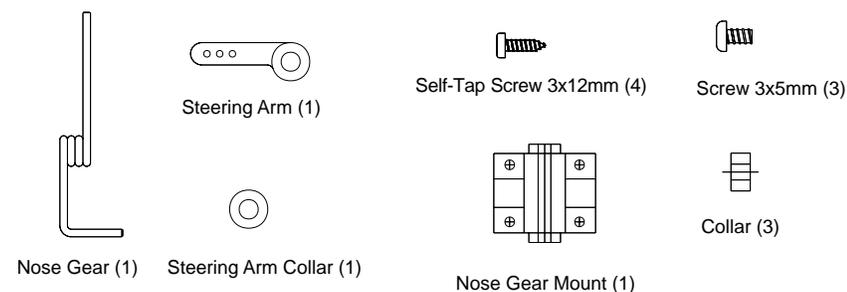
Wheel 2" (1 / Sold in Pair)

AS6067 Decal

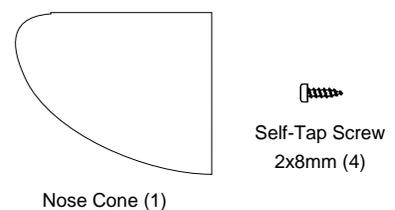


Decal

AS6065 Nose Gear Set



AS6072 Nose Cone Set



WING ASSEMBLY/ENGINE POD ASSEMBLY

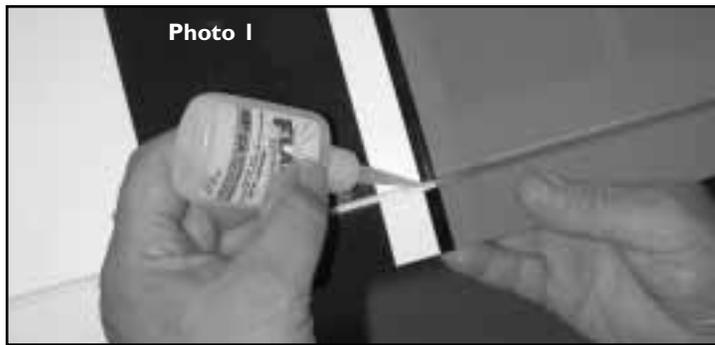


Photo 1

The ailerons are in place with hinges already in their slots.

Remove any tape that may be holding things in place. Hinge the ailerons by securing the "CA" hinges in place. Begin by making sure the CA hinges are in proper position and the ailerons have minimal gap between them and the trailing edge of the wing. (Have a paper towel ready in case you have to mop up excess glue.) Hold the wing up on the leading edge and, working from the bottom of the wing, carefully put a few drops of THIN CA where each hinge goes into the wing. It should wick down into the wing. Do the same, working from the top of the wing. Turn the wing over so it is resting on the trailing edge and repeat where the hinges go into the ailerons. When done, you should have applied thin CA to all surfaces of each hinge. After the glue has "fired", make sure the ailerons are free to move by flexing back and forth. Also make sure the glue joint is secure by tugging on the ailerons.

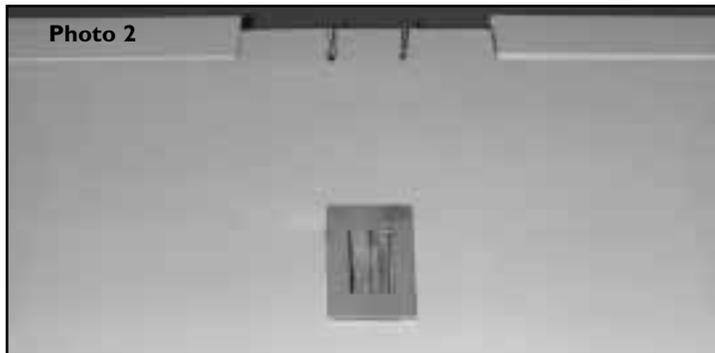


Photo 2

Cut the covering material away from the aileron servo cutout hole. Put the plywood aileron servo tray in position and mark the outer edges of the plate on the covering material. Being careful not to cut into the balsa, remove the covering material where the aileron servo tray will glue to the wing. Glue the aileron servo tray into position.



Photo 3

Mount the aileron servo in place. Screw the nylon horns onto the torque rods until the top of the horn is flush with the top of the threaded portion of the torque rod. Link the servo to the aileron torque rods using the threaded rods furnished. Use a clevis on the torque rod (threaded) end and a "Z" bend on the servo arm end (non-threaded). Adjust for neutral with the servo centered.

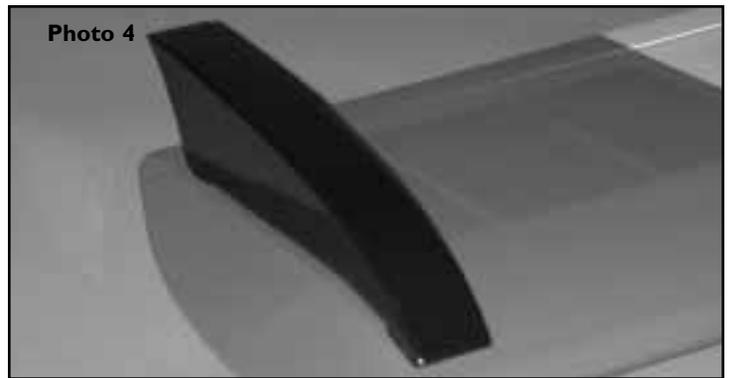


Photo 4

The tip floats are attached to the wing with the furnished sticky backed Velcro. Use a square on both the front and back of each tip float. Position the tip floats on the outer bay of each wing with the front of the float about 1/2" back from the leading edge of the wing. Set the wing aside for now.

Engine Pod Assembly



Photo 5

The firewall and firewall braces should be glued to the engine pylon. Also, holes for the engine mount, reinforcing screws, fuel lines, and throttle should be pre-drilled. If any of these holes are not drilled in your firewall, you will have to drill them accordingly.

Screw the two 4 X 35mm self tapping screws through the firewall into the pylon to reinforce the joint. It is suggested that you use epoxy to coat the entire firewall, front and back. This will fuelproof it plus reinforce the glue joints. If you get epoxy in the holes, wipe it out while the glue is wet, or drill it out when the glue is set.



Photo 6

Secure the engine mount assembly on the firewall using the four screws and blind nuts furnished. (Normally, the engine is side-mounted with the cylinder head on the right.)

Photo 7



The engine pod is blowmolded plastic. To cut this material, score a few times with a sharp utility knife. Once a cut-out is made, you can whittle away the rest or use a Dremel tool with a sanding drum. Work carefully. It is easy to cut too much away; it is also easy to cut yourself.

Begin by separating the front from the rear by cutting along the line indicated. Also make the rectangular cutout in the bottom of the rear of the pod, extending the cut to the front edge of the part.

Test fit the parts onto the engine mount assembly so both halves meet in the middle of the firewall.

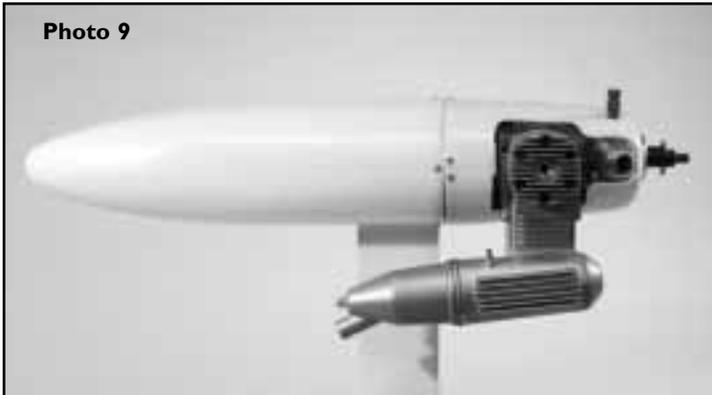
Photo 8



Position your engine on the engine mount (note that the mount's beam width is adjustable to accommodate your engine). Locate the engine on the mount so the front of the prop's thrust washer is $4\frac{1}{4}$ " from the front surface of the firewall. Double check that this set-up gives you $\frac{1}{8}$ "- $\frac{1}{4}$ " of spinner clearance from the front of the engine pod. Mark then drill pilot holes using a $\frac{3}{32}$ " bit. Mount your engine using the four M3 X 15mm screws.

NOTE: A bench vise makes a handy holding fixture while you are working on your engine pylon assembly.

Photo 9



Trim the front engine pod to clear the cylinder head, muffler, needle valve, and carb. A utility knife and Dremel tool with a sanding drum makes easy work of this task.

Both the front and rear engine pod are secured with the furnished 2X8mm self tap screws. (Four for the front and four for the rear.) Drill $\frac{1}{16}$ " pilot holes for the screws.

Photo 10



Remove the front and rear pod halves. The throttle servo is mounted on the right side of the engine pylon behind the firewall using servo tape. The throttle linkage consists of a length of music wire with a "Z" bend on the throttle arm end and an EZ connect on the servo arm end. The servo cable goes into the slot that is machined in the rear of the engine pylon.

Photo 11



Assemble the fuel tank as shown. The fuel tank is housed in the rear engine pod and held in place with lightly wrapped foam rubber.

Fuselage Assembly

Photo 12

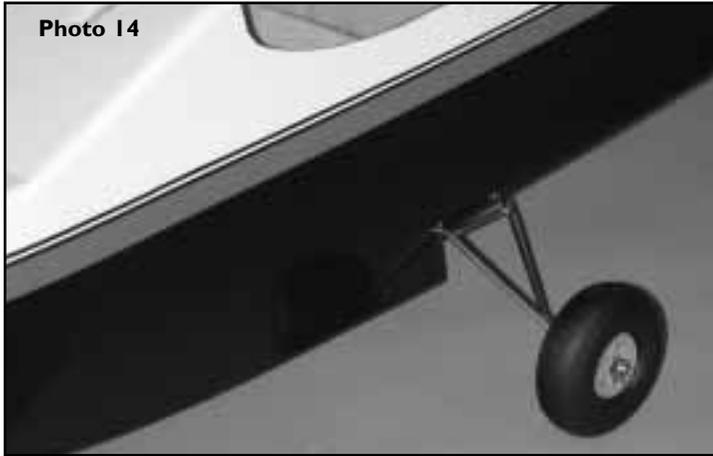


To prevent damage, have a piece of foam over your work surface to rest the hull of the fuselage upon as you work on it. Cut away the covering film that is over the slot for the engine pylon, leaving $\frac{1}{4}$ " excess all along the slot. Cut the film diagonally to each corner and then use a heat sealing iron to seal the edges along the inside surfaces of the slot.

FUSELAGE ASSEMBLY



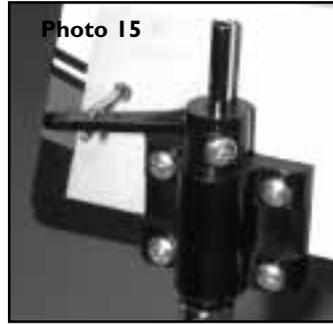
Slide the engine pod assembly down into the slot until it bottoms out. Note that there is a rectangular cutout in the rear edge of the pylon; it is to house the servo connector as you slide the assembly down the slot. The cable exits into the fuselage via a hole in the fuselage bulkhead. The engine pod assembly is secured into the fuselage with a 4X16mm self tap screw. To locate the hole for this screw, there is a "tic" mark on the fuselage bulkhead BELOW the servo cable exit hole. Use a 3/32" drill for a pilot hole for this screw. Now the engine pod assembly can be installed or removed at will. Remove it for now; then it won't be in the way as you proceed.



Installation of the landing gear is optional. If you are never going to fly off of land, disregard the following steps that cover installation of the nose gear and the main gear.

Look inside the fuselage and note that there are two brass tubes pre-installed. These will accommodate the main gear. Cut away the covering material to expose the inside of the tubes. Both the right and the left main gear assemblies slide into these tubes. We suggest you lube the music wire with WD40 before insertion to prevent rust later.

The wheels are held on with the wheel collars and screws furnished. In operation, the main gear is simply held in place with a rubber band across them to keep them from working out of the brass tubes. Friction holds them in more than anything.



The nosegear is configured as shown in the above photo. The linkage is a piece of music wire that goes through an inner nyrod that has already been installed in the fuselage. Use a "Z" bend at the steering arm end (center hole in the arm). With the music wire linkage installed, mount the nosegear bracket to the nose of the plane using the 3x12mm self tap screws furnished (drill 1/16" pilot holes.) The bottom of the nose gear bracket should line up with the bottom of the nose of the plane.

The plastic nose cone is held in place with the small self tap screws furnished. Drill 1/16" pilot holes. You will have to cut away to clear the nosegear. Obviously, when you fly off of water, the main gear and nosegear will be removed. To remove the nosegear, simply remove the nose cone, loosen the collar and steering arm, and the nosegear will drop out. Take the steering arm off of the music wire linkage and reinstall the nose cone.

Hatches



There are two access hatches. One in the front in case you have to put your batteries in the nose of the plane for proper balance, and one in the rear for installation and maintenance of the rudder and elevator linkage.

Cut a diagonal "X" through the covering material that is over both hatch openings. Use a heat sealing iron to stick the covering down to inside edges and the lips of the openings.

The furnished hatch covers are secured with 4 small self tap screws; once again drill 1/16" pilot holes. As an alternative, you can simply cover the joints with clear tape after all assembly and installation is complete and delete the screws.

Tail Assembly

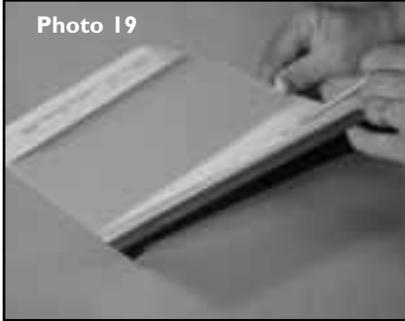


Photo 19

On the top of the fuselage, about 10" from the rear, there is a pre-drilled hole for the elevator's outer nyrod to exit. Cut away the covering material from this hole. By the same token, there is a slot in the left side of the fuselage, about 3" from the rear. Cut away the covering from this slot.

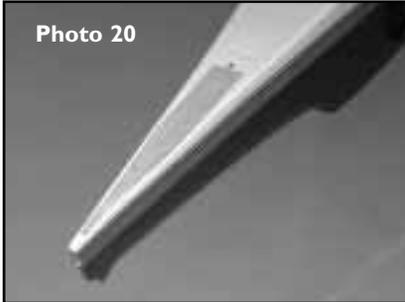


Photo 20

Position the vertical fin on the top rear of the fuselage so it is flush with the rear and centered on the fuselage. With a pencil, mark the outline of the base of the fin on the top of the fuselage.



Photo 21

Cut away the covering film from the top of the fuselage about 1/16" INSIDE the mark.

Epoxy the fin onto the fuselage, making sure it remains vertical.

Install the rudder using the three furnished hinges in the pre-cut slots. CA the hinges in the same manner as you did for the ailerons. Repeat the process and hinge the elevator to the stabilizer.

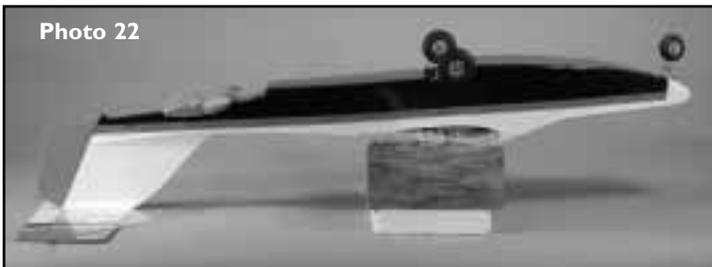


Photo 22



Photo 23

Mark the center on the bottom of the stabilizer at both the leading edge and trailing edge.

Turn the fuselage over and block up the wing saddle so the top of the fin will rest on the bottom of the stabilizer. Make sure the wing saddle remains parallel with your work surface. The trailing edge of the fin should line up with the trailing edge of the stabilizer (hinge

lines). Making sure the stabilizer is in proper alignment (use your center marks plus a triangle to make sure it is perpendicular to the fin),

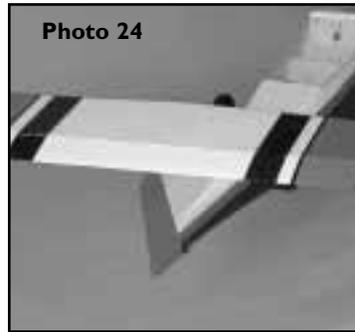


Photo 24

use a pencil to mark where the fin meets the stabilizer. Being very careful NOT to cut into the balsa wood, score and remove the covering material 1/16" inside your marks. Epoxy the stabilizer to the fin, maintaining proper alignment.

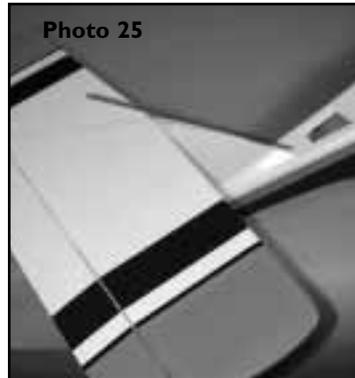


Photo 25



Photo 26

Install the two outer nyrods. They will be for the elevator and rudder linkage. To do so, work from the rear to the front. Start with the longest one which is for the elevator. Cut off one end at about 45 degrees. Thread the angled end through the hole in the top rear of the fuselage, then through the hole in the LEFT side of the rearmost fuselage bulkhead. Continue the nyrod forward and thread it through the hole on the LEFT side of the next bulkhead. Leave about 4" of nyrod behind the leading edge of the stab.

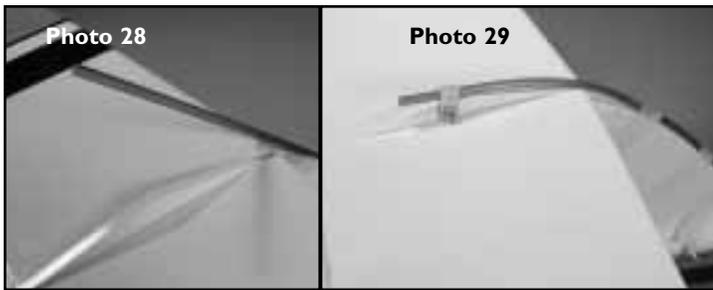


Photo 27

Repeat for the rudder nyrod. It goes through the slot in the side of the fuselage. It is tricky to hit the large hole that is in the bulkhead behind the access hatch. Use a piece of .045 or 1/16" music wire first to "fish" through the hole then follow it with the nyrod. Continue the nyrod on through the holes in the RIGHT side of the next bulkhead. Continue it forward, threading it through the hole in the RIGHT side of the next bulkhead. Leave about 1" sticking out of the fuselage side. When done, the rudder's nyrod should be on the right side of the fuselage so it corresponds to the nosegear linkage.

Reminder: before gluing, make sure the rudder nyrod ends up on the RIGHT side of the fuselage and corresponds with the nosegear linkage.

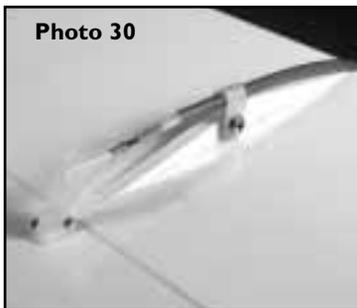
FUSELAGE ASSEMBLY



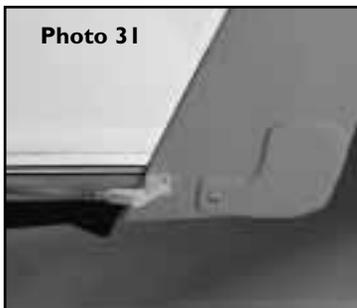
Cut a groove in the top of the leading edge of the stab to accommodate the nyrod. Glue the nyrod triangular spacer onto the top of the stab (cut away a strip of covering material first).

The outer nyrod is secured to the spacer with the nylon clamp and wood screw furnished. It should also be glued along the leading edge of the fin. We prefer "Zap-a-dap-a-goo", Shoe-goo", or equivalent for this operation. CA will not stick well to the nyrod. Use masking tape to hold while the glue dries. Also glue the outer nyrod where it exits the fuselage and where it passes through the bulkheads.

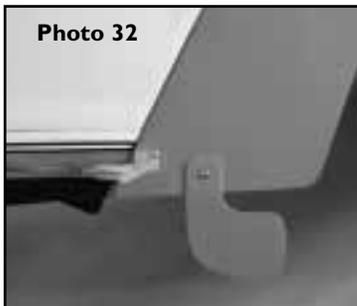
When the glue is dry, a white covering material is furnished to cover the exposed nyrod, if desired.



Hookup on both ends of the inner nyrod is done via a threaded stud and nylon clevis. Thread a clevis onto one of the studs so some of the threads are exposed on the inside of the clevis. Then thread this assembly into one end of the long inner nyrod. Insert the other end into the outer nyrod starting at the stabilizer end. Determine the proper position for the elevator control horn and mount it using the bolts and backplate furnished. Repeat for the rudder.



Locate the plastic water rudder. Place it on the rudder so it is in the "kicked-up" mode; i.e., flush with the bottom and rear of the rudder. Drill a 1/8" hole through both the water rudder and the rudder, using the location that is marked on the water rudder as a guide. Secure with the furnished 4mm screw and locking nut. Tighten until the water rudder is held firmly in the down position, yet can be kicked-up when it hits something harder than water.



Radio Installation



Photo 33

Installation of the rudder and elevator servos are next.

The servo rails are laminated from two pieces of 1/8" ply to form a part that is 1/4" x 3/8". They rest on top of the doubler that is supporting the landing gear tubes. One rail fits all the way to the rear of the doubler, and the other is spaced forward to fit the servos being used. Plywood "U" shaped mounts further secure the rail in place. Go ahead and install the servo rails at this time.

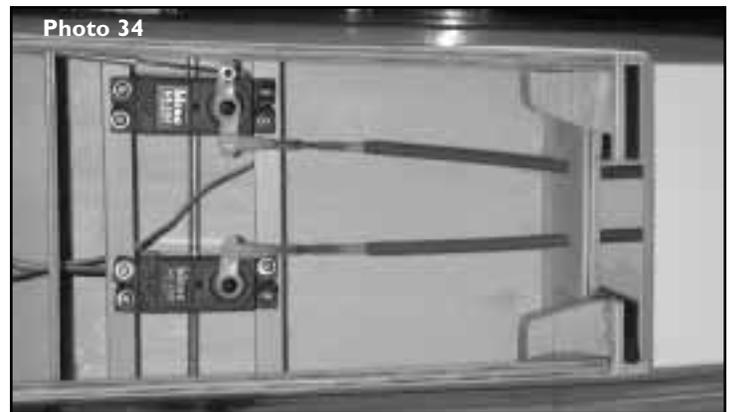


Photo 34

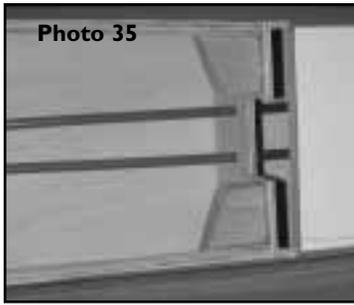
Install the servos next. The nosegear is linked via an EZ connect and the inner nyrods are hooked to the servo arms with a threaded stud and nylon clevis. Trim the nyrods to length as needed.

The receiver and battery pack should be foam mounted in the compartment ahead of the servos. It is suggested that the receiver be protected from water by putting it in a plastic bag or balloon. It is also suggested to build a platform to rest the receiver on. That way if water does get into the hull, the receiver will stay up out of the water. Also note that you may need a servo extension cable for the throttle servo as well as the aileron servo.

You may find it necessary to move the battery pack into the forward compartment of the fuselage to achieve proper balance. If so, an access hatch is furnished plus there is already a hole in the bulkhead for the cable to pass through.

A good way to mount the switch is with a Dubro Kwik Switch Mount. It is easy to install and relatively water tight. Mount it up high in the fuselage, right under the wing saddle doubler.

Center of Gravity



The wing is secured to the fuselage with 4X40mm socket head bolts and blind nuts. If the hardwood wing hold down blocks are not already glued in, epoxy them in dropping the top surface 1/8" below the top edge of the fuselage side; this will allow for the dihedral angle.

Your Seamaster should balance 3 to 3-1/2" back from the leading edge of the wing. We advise you use an indelible marker to indicate this area on the bottom side of the wing, close to the fuselage; or, you can make a mark on both sides of the fuselage right below the wing.

With the airplane suspended at this point with your fingertips, the plane should balance level.

If nose weight is needed, move your battery into the forward compartment using the access hatch provided. Move it as far forward as needed for proper balance. Only use additional weight if absolutely necessary.

Control Throws

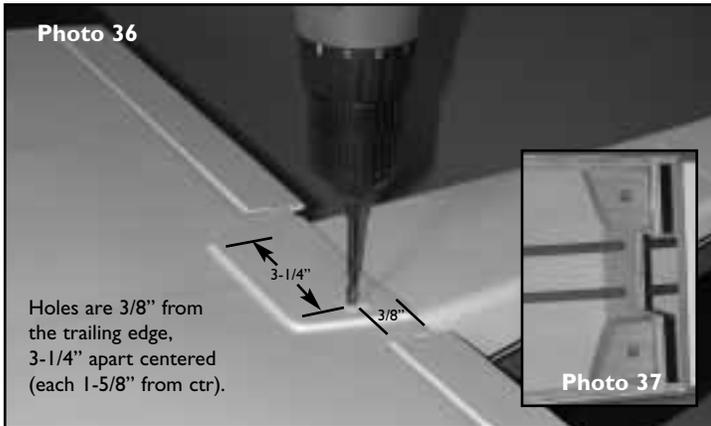
Make sure all your control surfaces are going in the proper direction relative to the transmitter commands. Set the control surface throws as follows for the initial flights. These may be adjusted later for personal preference.

Elevator: 1/2" up, 1/2" down

Ailerons: 3/8" up, 3/8" down

Rudder: 1" left, 1" right

(measured at rear edge of control surface)



Holes are 3/8" from the trailing edge, 3-1/4" apart centered (each 1-5/8" from ctr).

Photo 37

Put the wing into position on the fuselage with the dowels inserted in the front bulkhead. Mark for the bolt holes as shown. Drill a 3/16" hole through the wing and the block, keeping the drill perpendicular to the top surface of the wing.

Remove the wing and drill the holes in the mounting blocks out to 7/32". Install the blind nuts furnished on the bottom side of the blocks and use bolts to draw the prongs of the blind nut firmly into the block. Bolt the wing on and check that it sits down on the wing saddle properly. Fit as needed.



Turn the fuselage over and use "Zap-a-dap-a-goo" to fasten the formed plastic keel to the middle of the bottom of the fuselage, lining the rear edge up with the rear edge of the "step".

Your Seamaster is ready for final assembly. Reinstall the engine pylon assembly and put everything back together. It is time for the CG check.

Since you will be flying off of water, some precautions should be exercised to prevent water going into unwanted places. It is suggested to seal the wing-to-fuselage joint. The easiest and quickest way to do this is to use silicone sealant. Begin by covering the center bottom of the wing with plastic wrap; bring it around the leading and trailing edges and hold it in place with some tape, keeping it as wrinkle-free as possible. Now run a bead of silicone sealant all around the fuselage wing saddle area where the wing contacts it. Install the wing in place immediately, using the bolts and washers. Let dry overnight. Remove the wing and use a sharp razor blade to trim off the excess silicone. You should now have a virtually watertight seal for the wing. If your hatch is not a good tight fit, you may want to do the same for it.

Your receiver and battery pack should be encased in a plastic bag with a rubber band to hold the bag around the wire leads. Then wrap them in foam rubber as usual.

Now go over all your covering material seams and inspect them for integrity.

Flying off water

Unlike most airplanes on floats, when flying the Seamaster off of water there is very little you have to worry about different from flying off of land. One, Murphy's Law will apply. Even though you have your most dependable engine on the Seamaster, it will quit on you in the middle of the pond! Have some way of retrieving your plane.

You will find that with the water rudder deployed, taxiing with the Seamaster is easy even in a moderate wind. As you accelerate for takeoff, just keep neutral elevator until the plane is "on step" and flying speed is attained. A touch of up will break the plane from the water and you are in the air.

Landings, too, are much like on land, except you don't want to land at a full flare stall. Keep a bit of throttle in it and land with the airplane level and with some speed. After touchdown, pull the throttle back to idle and let the plane slow up on its own.

If you are like us, you will find yourself shooting touch-and-go's continuously and enjoying the thrill of flying with the tranquil beauty of the water. We hope the Seamaster provides you many hours of pleasure flying this unique airplane. Your comments are welcome.



PRE-FLIGHT CHECK LIST

- 1. Check all control surfaces for possible looseness or deterioration.
- 2. Check all screws, clevises, nuts and all other connectors to make sure they are securely fastened.
- 3. Check which radio frequencies are being used. Do not turn on your radio until absolutely sure you are the only one operating on that frequency.
- 4. Check for proper operation of all control surfaces.
- 5. Check the level of charge in both the transmitter and receiver batteries before flying.
- 6. Range check the radio both with and without the engine running! Follow the radio manufacturers instructions for this.

POST-FLIGHT CHECK LIST

- 1. Be sure that both the transmitter and receiver switches are turned off.
- 2. Drain all excess fuel from the tank. Fuel left in the tank for extended periods can "gunk up" the tank, fittings and carburetor.
- 3. Clean the plane with paper towels and a light-duty spray cleanser. Keeping your plane clean will make it last longer and keep it looking nice.
- 4. Put a few drops of after-run or light oil in the carburetor and turn the prop over a few times (without the glow plug ignited) to distribute the oil throughout the engine.
- 5. Inspect the prop and replace it if any chips or cracks are found.
- 6. Inspect the entire plane for covering tears, new dings and dents, loose screws and connectors and any other wear and tear.

SAFETY PRECAUTIONS

1. Wear safety glasses when starting and running all model engines.
2. Model engine fuel is very flammable and the flame is very dangerous because it is almost invisible! Do not smoke or allow sparks, high heat or other flames near the fuel.
3. Do not run model engines inside a garage or other closed room as they give off large amounts of deadly carbon monoxide gas.
4. Do not run model engines around gravel, sand or other loose debris. These materials will be ingested through the carburetor and can also be kicked up by the prop.
5. Always stay behind the propeller when the engine is running. Make all engine adjustments from behind the engine.
6. Do not allow loose clothing or other loose objects close to the prop.
7. To stop an engine, cut off the fuel or air supply to the engine. Do not throw rags or other objects into the prop to stop the engine.
8. Do not touch the engine or muffler during or right after it has been running—it gets very hot!

