

TOP SPEED™



INSTRUCTION MANUAL

CONGRATULATIONS!

Thank you for choosing the Top Speed Tunnel Hull. This boat has been designed for the intermediate to advanced boater looking for an easy to assemble, yet high performance tunnel hull. The assembly is quick and easy, with no special tools or modeling skills required. The Top Speed is a fast, high performance boat that can be adjusted to differing water conditions to perform at its peak potential.

Please read through this instruction manual in its entirety before beginning assembly. It contains important instructions and warnings concerning the assembly and use of this model.

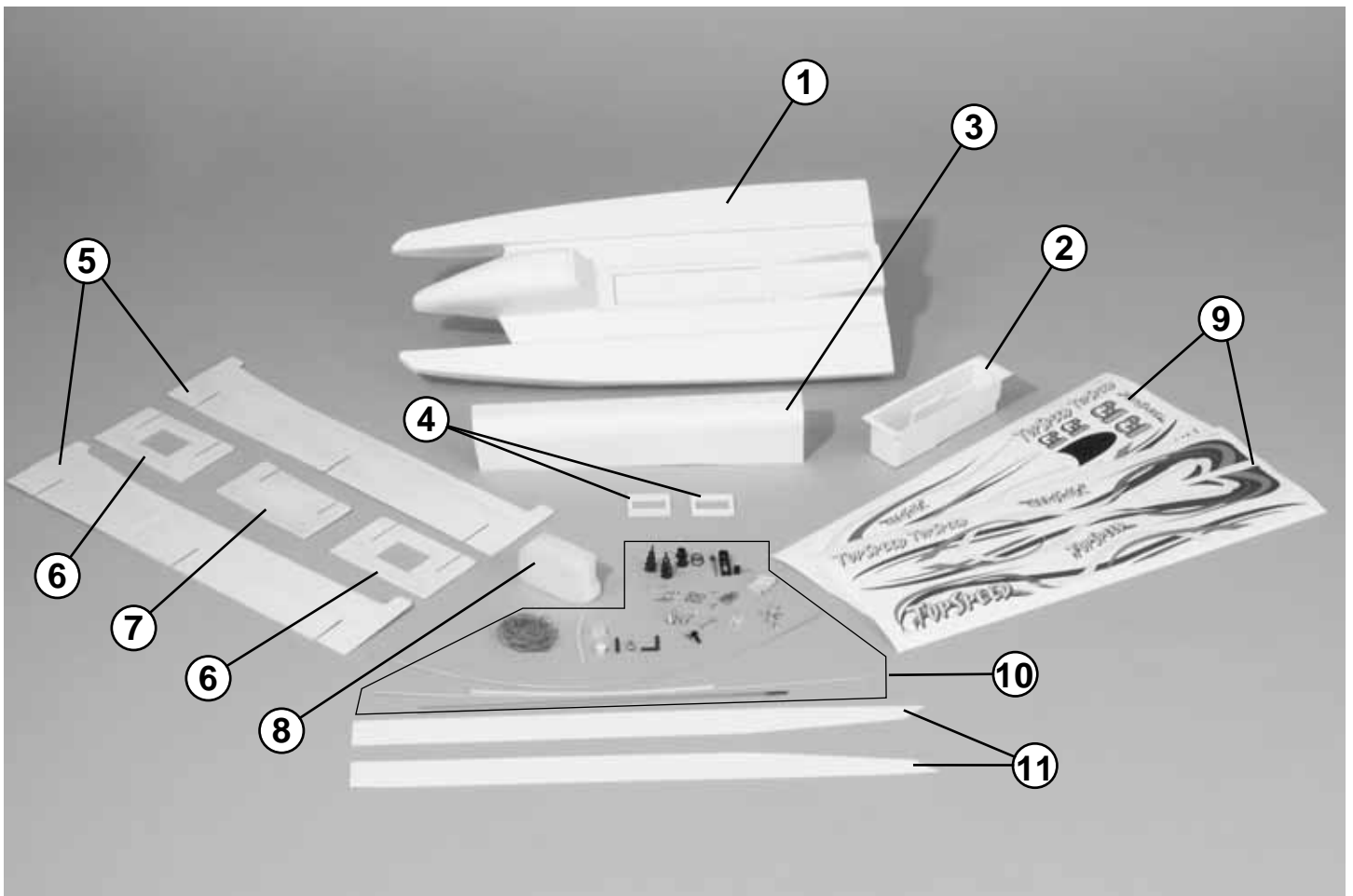
Warning! THIS MODEL IS NOT A TOY!

Assembly and operation of this boat must be done by or under the direct supervision of a responsible adult. If not handled correctly, this model is capable of inflicting serious bodily harm. It is your responsibility and yours alone to assemble this boat correctly, properly install all R/C components and test and operate it in a safe and responsible manner.

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PARTS IDENTIFICATION



- | | | |
|-----------------|-----------------------------|------------------|
| 1. Hull | 5. Stand Sides | 9. Decals |
| 2. Radio Box | 6. Stand Cross Member Large | 10. Hardware |
| 3. Upper Tunnel | 7. Stand Cross Member Small | 11. Speed Strips |
| 4. Servo Tray | 8. Fuel Tank | |

SAFETY WARNINGS

WARNING!

The engine is very powerful and spins the propeller with great torque. Read the instructions manual included with you engine for proper operating procedures and safety precautions.

WARNING!

Because of the speed and mass of this boat, it is capable of inflicting property damage and severe personal injury if a collision occurs. **Never run this boat in the presence of swimmers** or where the possibility of collision with people or property exists.

WARNING!

This boat is controlled by radio control, which is subject to possible interference from other R/C transmitters, paging systems and many other sources of RF or electrical noise. When operating this boat, allow a "safety margin" to avoid an accident in the event you experience a brief loss of control. Before turning your radio on, make sure no one else in the area is operating a radio on the same frequency (channel).

PRECAUTIONS

Keep in mind that it is impossible for us to guide you specifically as to every possible matter that might come up as you assemble the model. The fun and challenge is to tackle the problem, using the instructions and photos for resources, as well as the assistance and advice of fellow modelers and your local hobby dealer.

The instructions are the basic guide to assembly. Do not alter or modify the model. Follow the step-by-step instructions carefully. Read and obey cautions, warnings and directions on such items as glues, paints and other materials. These are often TOXIC to the human body in terms of breathing and/or touch. Be especially cautious of cyanoacrylate glues (also known as CA glues) that dry almost instantly and bond with great strength. They require special care since they can be extremely dangerous if they get into the eyes or on the human skin. Keep small children and pets away from all building and finishing materials. Keep your building area safe and clean.

We'll try to make your boating experience as enjoyable and "snag-free" as possible. If you find that your kit has any missing or defective parts, or if you have any questions about building or operating this model, please call us at (217) 398-8970 and we'll be glad to help. If you have problems with or questions about any accessory items not included in the parts list (batteries, chargers, radios, fuel, starting equipment, etc.) please contact the hobby supplier that sold you those items.

ADDITIONAL ITEMS REQUIRED

- 2-channel radio system with two (2) servos*. The radio system you use must be on a "surface only" frequency. Watertight servos are recommended, but not required.

***NOTE: It is recommended one of the servos have at least 65 Oz. In. of torque for use as the steering servo.**

- Waterproof bag for receiver, such as the Kyosho TR-12 waterproof rubber bag (KYOB6055)
- Small bottle of CA* glue (GPMR6007)
- Rubbing alcohol
- Clear tape
- Pro thread locking compound (GPMR6060)
- Shoe-Goo (DTXC2460)
- 6-Minute epoxy (GPMR6045)
- Weights (GPMQ4485)
- Mixing sticks (GPMR8055)

***NOTE:** In several places, the instructions call for the use of "CA glue." The glue used in the Top Speed instruction manual is GREAT PLANES PRO® CA+ MEDIUM (GPMR6007) and is available from your local hobby shop).

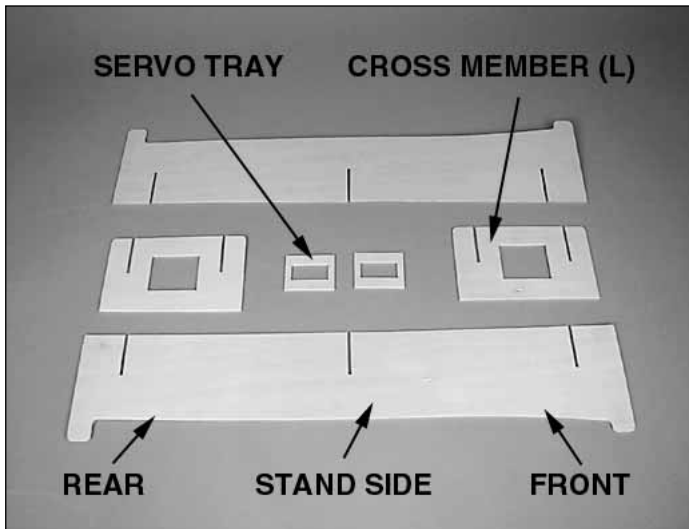
TOOLS REQUIRED

- Electric or hand drill
- Drill Bits: 1/16" [1.6mm], 5/64" [2mm], 1/8" [3mm], 5/32" [4mm], 3/16" [4.8mm], 1/4" [6mm], 7/16" [11mm]
- Small screwdrivers (regular and phillips)
- Pliers
- Sandpaper (180, 320 and 400 grit)
- Flat file
- Hobby knife
- Scissors
- Masking tape
- Clear tape
- Paper towels

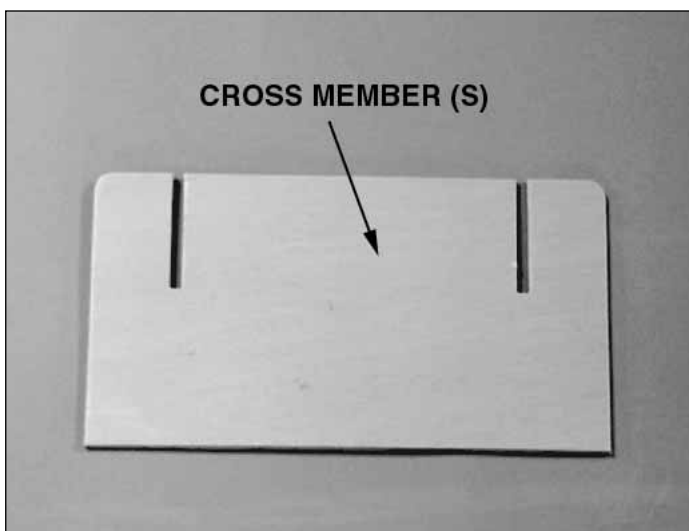
ASSEMBLY

Assemble the Test Stand

NOTE: Notice that the outboard engine protrudes from the bottom of the hull and is very susceptible to damage. Therefore, you must use care to avoid setting the boat down on any surface. In the following steps you will assemble the "test stand." **Always** keep your boat on this stand when it is not in the water.

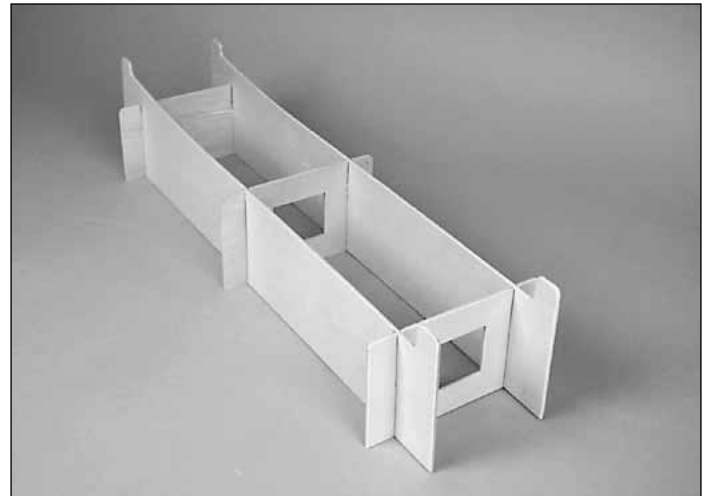


□ 1. From the two die-cut plywood sheets, remove the **Stand Sides** and **Cross Members (Large)**. Save the **Servo Trays** from the center of the cross members (L) for use later in the manual.



□ 2. From the remaining die-cut plywood sheet, remove the **Cross Member (Small)**.

□ 3. Sand the outer edges of all the parts to remove any sharp corners.



□ 4. Slide the two cross members (L) onto the sides as shown in the photo. Slide the cross member (S) onto the front of the sides (there is a slight upward curve at the front).

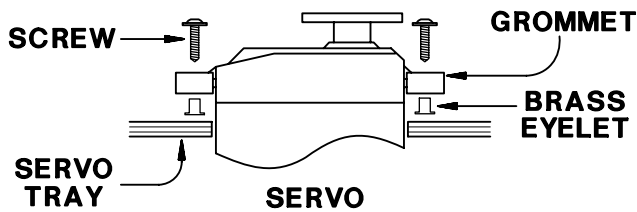
□ 5. Apply a few drops of medium CA glue to the joints where the cross members meet the sides. The glue will penetrate the wood and form a bond within a few minutes.

□ 6. Once the CA has fully cured, it is suggested to apply a coat of clear sealer onto the stand. Top Flite® LustreKote™ Clear (TOPR7200) works extremely well for this purpose. Applying a coat of clear will prevent water and fuel from entering the wood, which will weaken the stand prematurely.

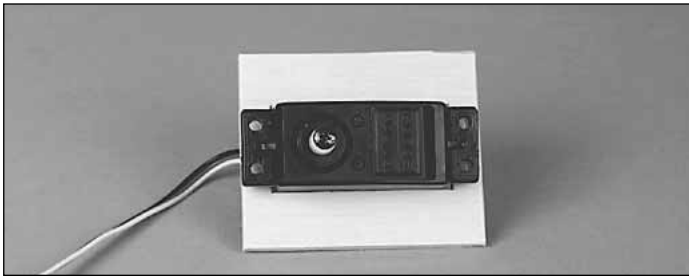
Install the Radio System



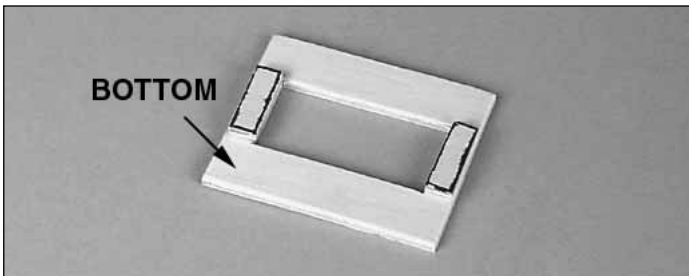
□ 1. Sand the inside and outside edges of the die-cut plywood servo trays using 320-grit sandpaper. Test fit the servo trays in the radio box, sanding the edges of the trays as necessary for a good fit. The servo trays rest on the ledges molded into the **Radio Box**.



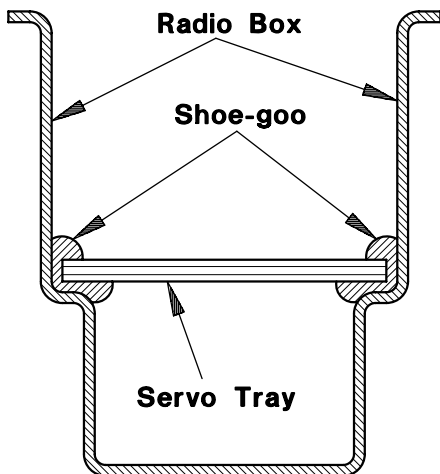
□ 2. Install the rubber grommets and brass eyelets in the servos using the provided sketch. Do not attach the servo to the tray yet.



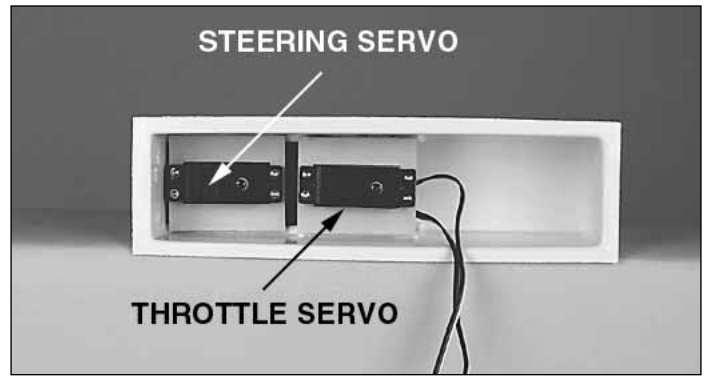
□ 3. Test fit your servos into the openings in the servo trays. If the openings are too small, enlarge the openings with file or 180-grit sandpaper until there is a 1/32" [.8mm] gap around the servo.



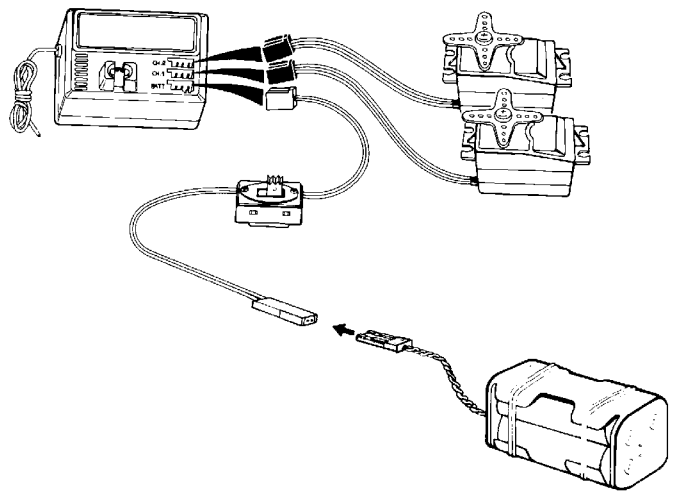
□ 4. Cut four 1/4" x 3/4" servo tray doublers using leftover plywood from the die-cut sheets. Glue the doublers onto the servo trays using Medium CA.



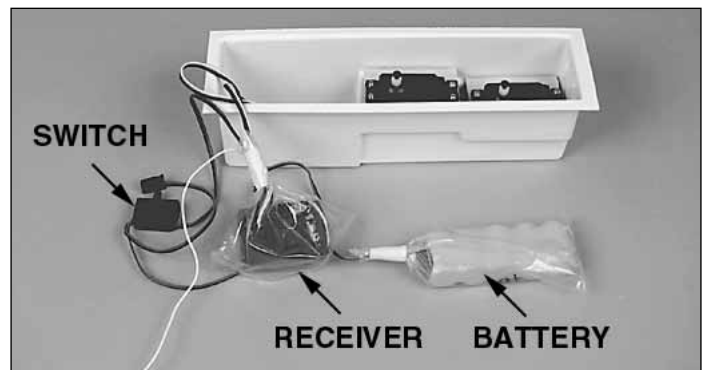
□ 5. Glue the servo trays into the radio box using Shoe-goo. Use enough Shoe-goo so it oozes out and slightly onto the top of the servo tray. The trays are installed so the doubler is on the bottom of the tray.



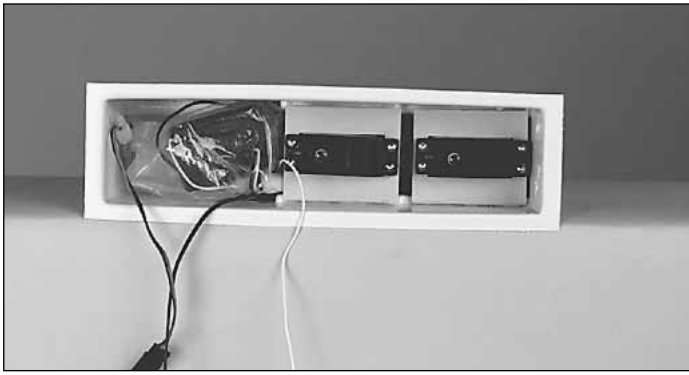
□ 6. Note the direction of the servo output shafts shown in the photo. While holding the servos in place, mark the locations for the servo mounting screws onto the tray. Remove the servos and drill 1/16" [1.6mm] pilot holes through each mark. Mount the servos with the screws provided with the servos.



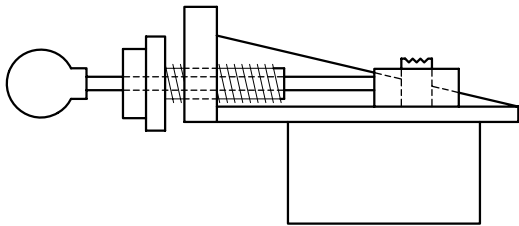
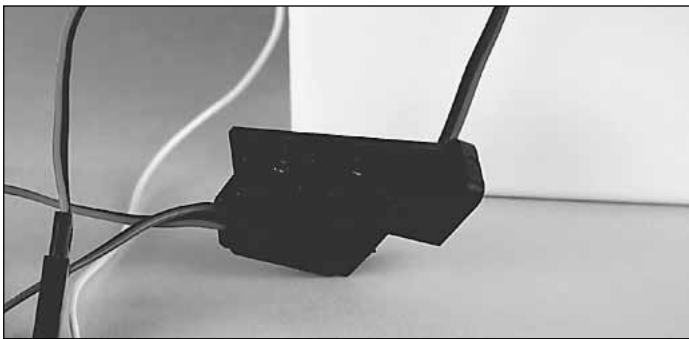
□ 7. Read the instructions included with your radio system and plug together the receiver, servos, on/off switch and receiver battery. If your system does not come with a NiCd receiver battery, install batteries in the battery holder supplied with your radio system. Switch on the transmitter and receiver (in that order) and check the operation of your radio system. Center the trims on the transmitter. Switch off the receiver and transmitter (in that order) when finished.



□ 8. Enclose your receiver and receiver battery in waterproof plastic bags of rubber balloons (the Kyosho TR-12 Waterproof Rubber Bag (KYOB6055) is an excellent choice). Close the end of the bag where the wires exit using a twist tie or tape.



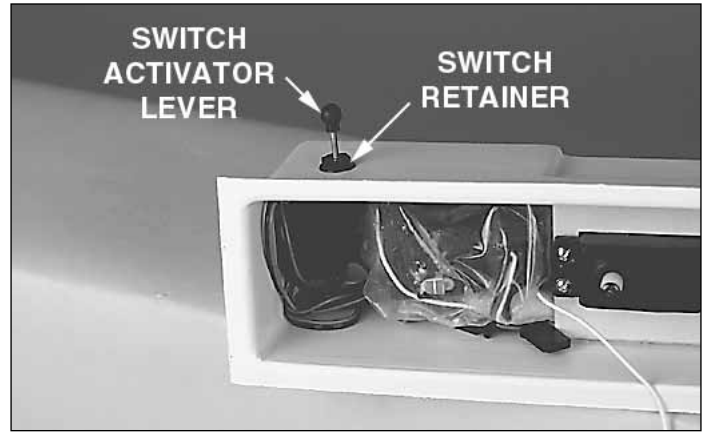
□ 9. Place a wad of paper towels in the bottom of the radio box (to absorb any moisture that may enter), then position the receiver battery and receiver into the radio box in the front of the servos.



□ 10. Remove the switch plate from the receiver switch. Attach the switch to the **Switch Mounting Plate** using the two screws that were provided with the switch.



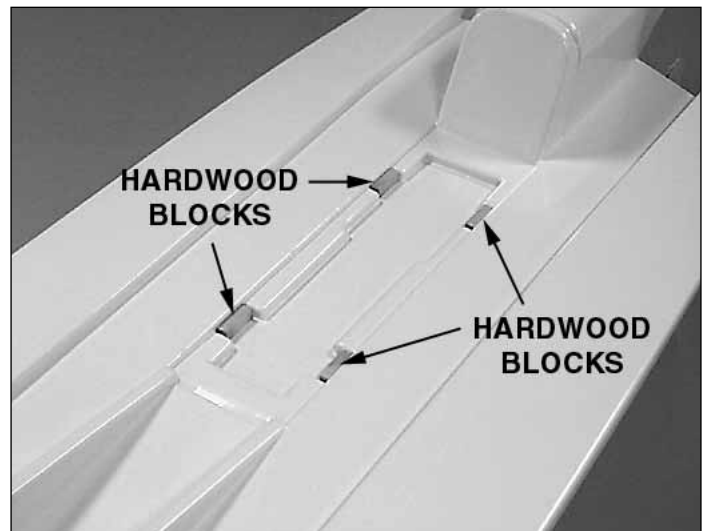
□ 11. Position the switch assembly in the radio box. Depending on your choice of radio, the switch may mount differently than shown. Approximate the location of where the switch will attach and drill a hole using a 3/16" [4.8mm] drill bit. Secure the switch using the **Switch Retainer**.



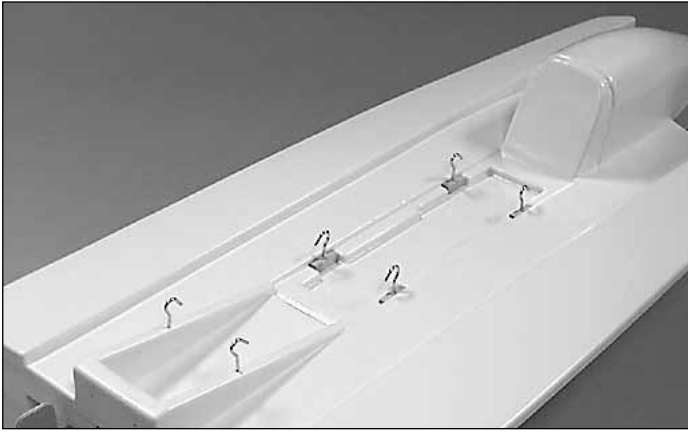
□ 12. Place the **Switch Actuator** onto the switch with the hole in the actuator facing towards the radio box side. Slide the **Switch Actuator Lever** into the hole in the switch retainer and thread the lever into the actuator.

Prepare the Hull

Note: Inspect the joint between the upper and lower hull. If there are any areas that are not securely glued, use medium CA to glue them together. If there are any large gaps where water could enter the hull, use Shoe-goo to fill these gaps.

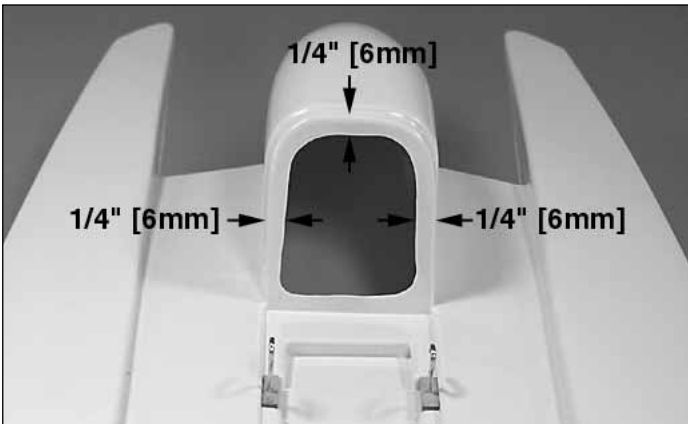


□ 1. Locate the four 7/8" x 1/4" x 1/4" [22mm x 6mm x 6mm] **Hardwood Blocks**. Use 6-minute epoxy to glue the blocks in the locations shown in the photo.

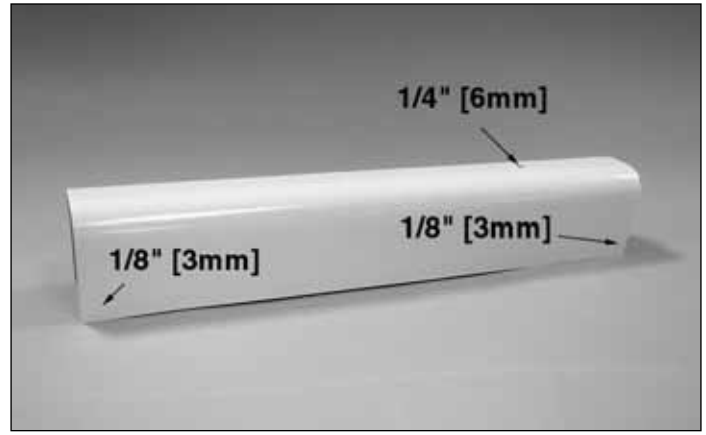


□ 2. Use a 5/64" [2mm] drill bit to drill holes in the center of the hardwood blocks. Use caution not to drill through the bottom of the hull. Also, there are two indentations in the hull towards the transom. Drill these locations using a 5/64" [2mm] drill bit.

□ 3. Thread the **Retaining Hooks** into the blocks and hull as shown in the photo above. Screw them in until the threads are barely visible.



□ 4. Trim the front of the hull 1/4" [6mm] inside the outer edge. This is where the weight to balance the hull will be placed.

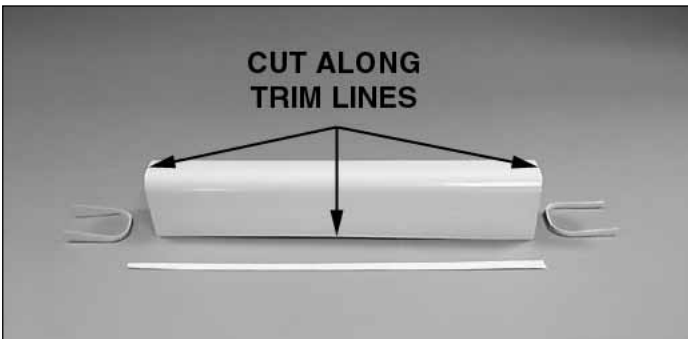


□ 2. Use a 1/8" [3mm] drill bit to drill four holes into the upper tunnel at the indentations. Use a 1/4" [6mm] drill to drill the location for the antenna exit.

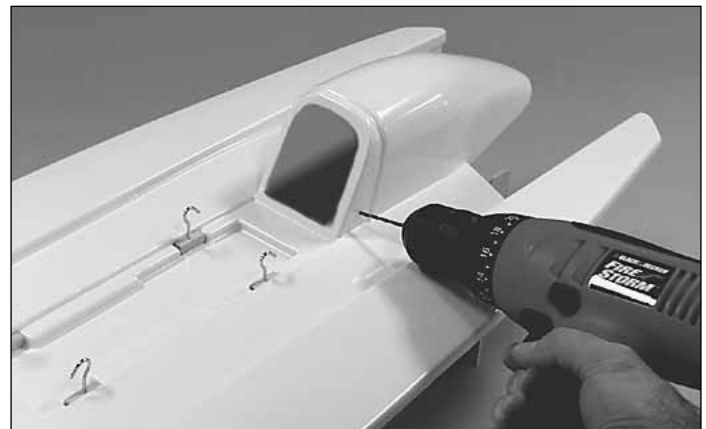


□ 3. Position the upper tunnel onto the hull. The angled end of the tunnel faces the bow, or front, of the boat. Hold the tunnel in position and mark the locations for the tunnel hold down screws through the 1/8" [3mm] holes in the tunnel.

Prepare the Upper Tunnel



□ 1. Locate the **Upper Tunnel**. Trim the upper tunnel along the lines scribed onto the tunnel.

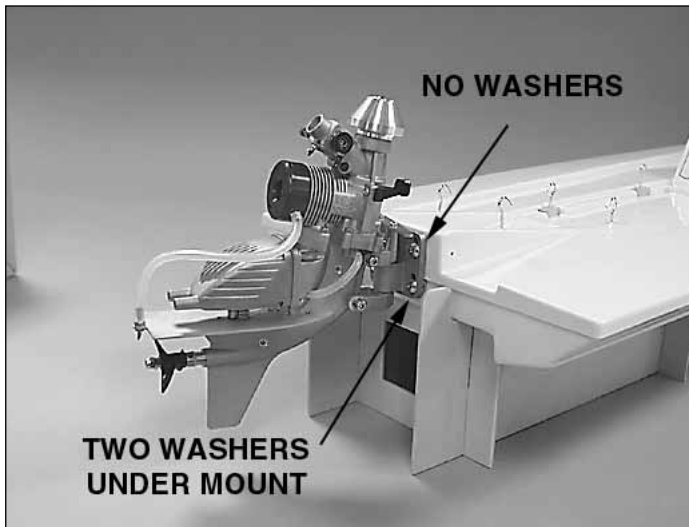


□ 4. Use a 5/64" [2mm] drill bit to drill the four locations for the tunnel hold down screws.

Engine Installation

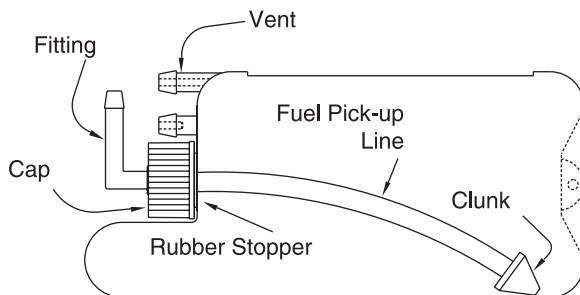
□ 1. Prepare your engine for installation using the instructions provided with the engine.

Note: It may be necessary to purchase an engine mount for your particular engine. The hull has been predrilled to use either the O.S. .21 XM. or the Du-Bro 3.5cc engine mount.

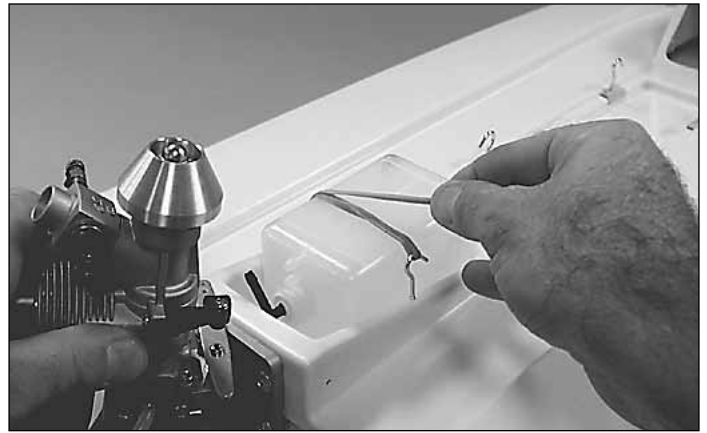


□ 2. Attach your engine to the transom using four #8 x 5/8" **Sheet Metal Screws** and four #8 **Washers**. The washers are placed between the hull and engine mount, two on each of the lower screws. This is done to accommodate the seam where the top and bottom hull are joined.

Fuel Tank Installation

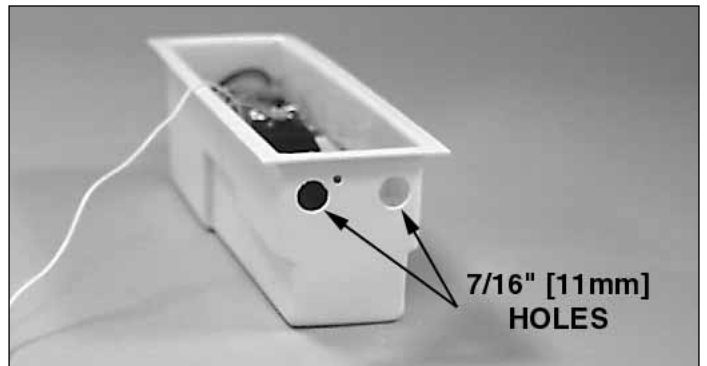


□ 1. Assemble the **Fuel Tank** using the instructions included with the tank. Use the 90-degree tube when assembling the fuel tank.



□ 2. Position the fuel tank as shown in the photo. Use one **Rubber Band** to secure the position of the tank. Attach the rubber band to one of the hooks. Stretch the rubber band to the other hook, then attach the end to the starting hook.

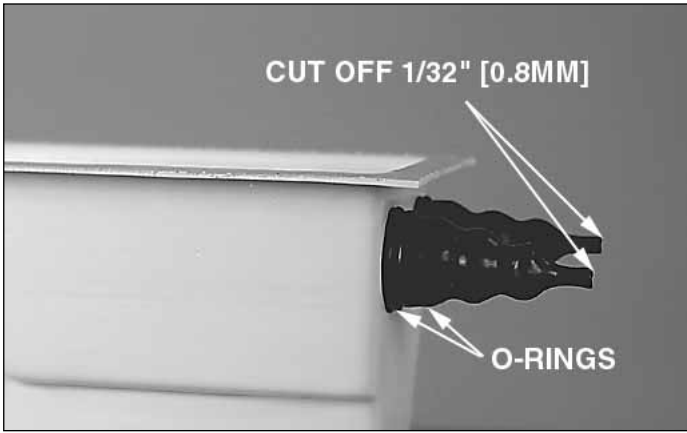
Linkage Installation



□ 1. Use a 7/16" [11mm] drill bit to enlarge the holes for the pushrod seal mounts.

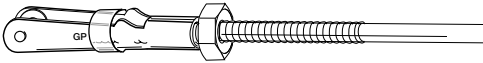


□ 2. Press the **Pushrod Seal Mounts** into the holes from the outside of the radio box. Place two or three drops of medium CA inside the radio box to secure the mounts to the radio box.

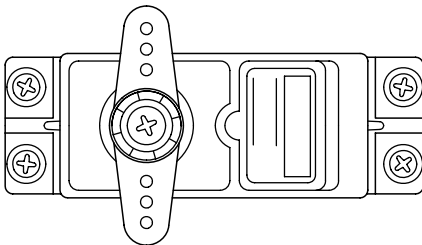


□ 3. Slide the **Pushrod Seals** onto the mounts. Use scissors to trim the end of the seal $1/32"$ [$.8\text{mm}$] so the pushrod can exit. Use the rubber **O-Rings** to secure the seals onto the mounts.

□ 4. Temporarily install the radio box using two rubber bands as shown in step 7.



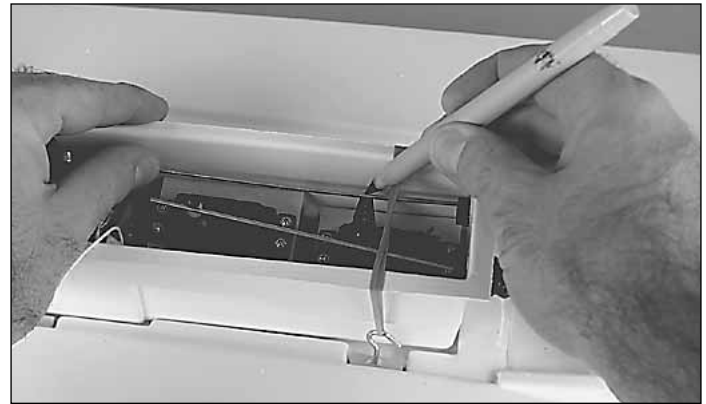
□ 5. Thread a 2-56 **Nut** onto each of the 17- $1/2"$ **Pushrods**. Add a **Silicone Retainer** to a **Threaded Metal Clevis** and thread the clevis onto the pushrod about 14 turns.



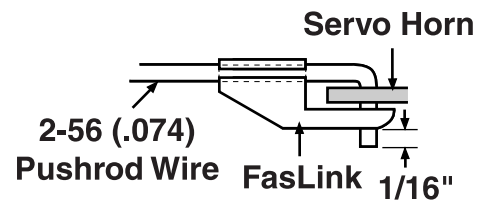
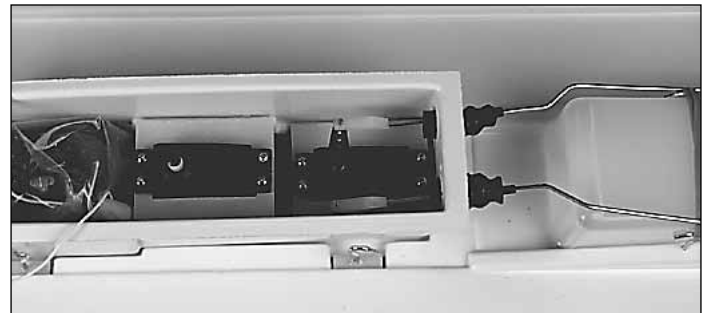
□ 6. Remove two of the four arms from a cross servo arm. Switch your radio system on and center the steering trim. (See your radio manual for details.) Install the servo arm so it is 90-degrees to the centerline of the servo. Switch your radio system off and proceed to the next step.



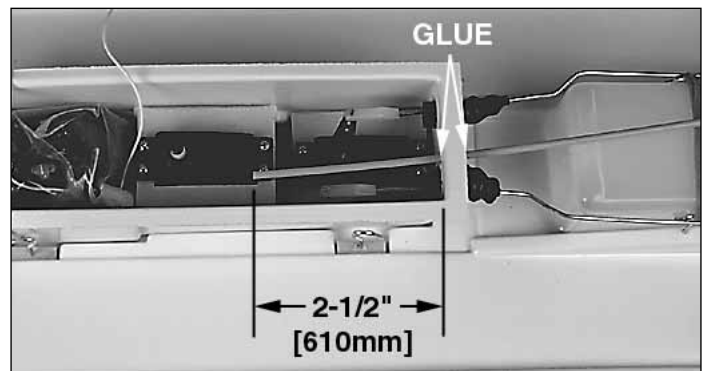
□ 7. Slide a pushrod through one of the pushrod seals in the radio box. Attach the clevis to the steering arm of the engine.



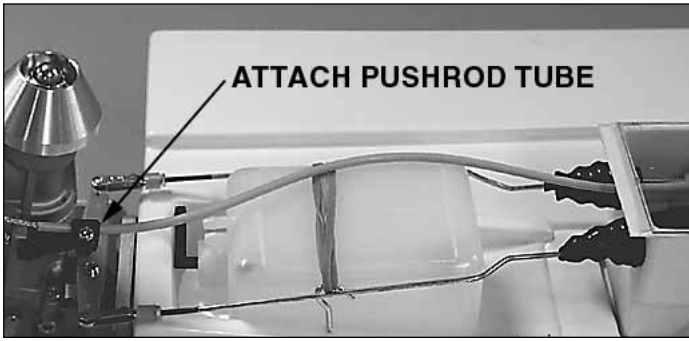
□ 8. Position the engine so it is 90-degrees to the transom. Enlarge the outer most hole in the servo arm using a $5/64"$ [2mm] drill bit. Mark one of the pushrods where it crosses the servo arm. (Make sure the radio box is fully seated against the hull before marking the pushrod.)



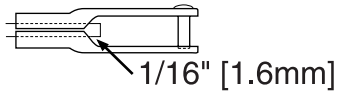
□ 9. Make a 90-degree bend in the pushrod on your mark, then cut off the excess wire $3/8"$ [9.5mm] above the bend. Insert the bent wire into the servo arm, then secure the linkage using a **Nylon FasLink**® as shown in the sketch. Bend the pushrod if necessary to provide clearance around the fuel tank.



□ 10. Locate the 24" [610mm] **Pushrod Tube** and cut it to a length of 11- $1/2"$ [293mm]. Roughen the outside of the tube using 180-grit sandpaper. Slide the tube 2- $1/2"$ [64mm] into the remaining hole in the radio box as shown. Use medium CA to glue the tube to the radio box.

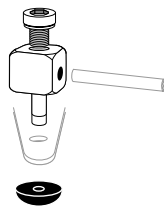
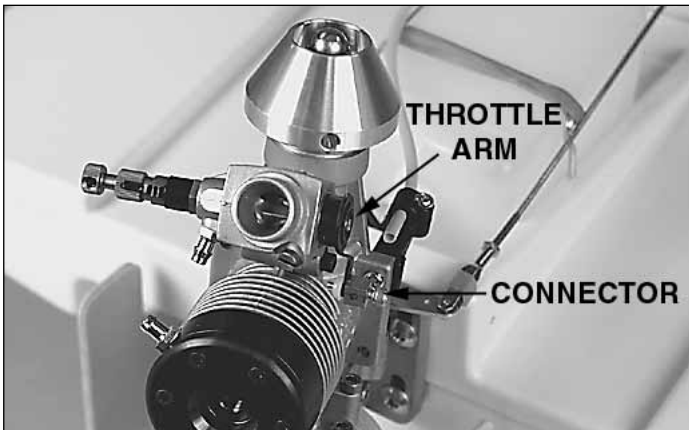


□ 11. Attach the pushrod tube to the pushrod mount on your particular engine. It is necessary to have the tube bend as shown. This will allow for full movement for steering and reduce the amount of throttle change during steering.

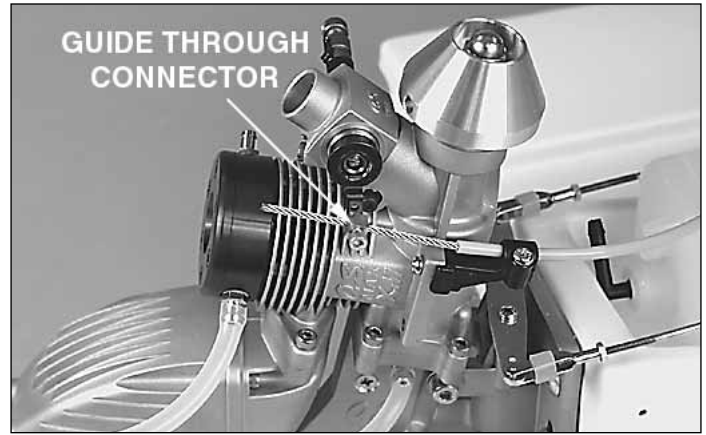


□ 12. Locate the 24" [610mm] braided pushrod cable and the solder clevis. Use the following sequence to solder the clevis to the braided pushrod cable:

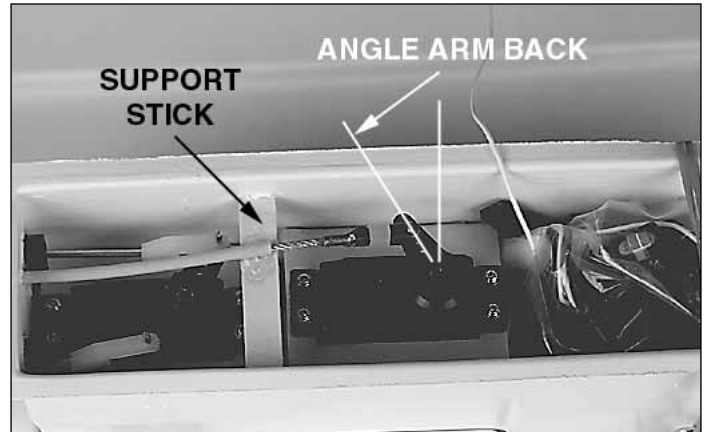
- A. Lightly sand the pushrod cable and clean it with alcohol.
- B. Insert the pushrod cable into the non-threaded clevis. The wire should protrude 1/16" [1.6mm] into the fork of the clevis.
- C. Apply a small amount of soldering flux to the joint.
- D. Apply heat evenly to the pushrod cable and the clevis and then touch the solder to the joint and allow it to flow.
- E. Allow the pushrod and clevis to cool before continuing.



□ 13. Install a brass **Screw-lock Connector** with the 4-40 x 1/8" **Cap Screw** on the throttle arm. Snap the **Nylon Retainer** onto the screw-lock connector post on the opposite side of the throttle arm.



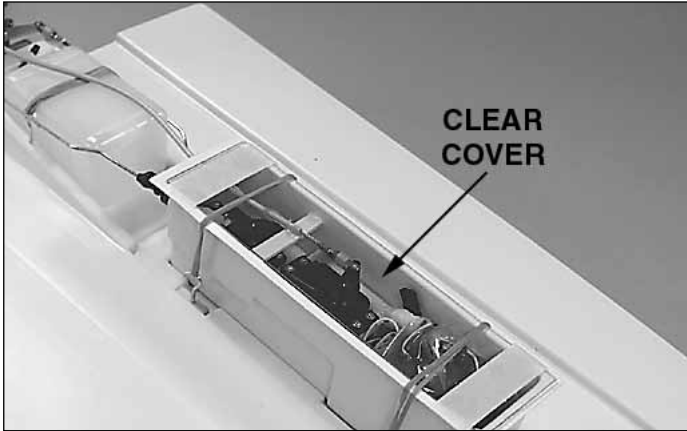
□ 14. Slide a silicone clevis retainer onto the clevis. Slide the cable into the pushrod housing, starting from inside the radio box. As the cable exits the tube, guide it through the pushrod connector on the throttle arm.



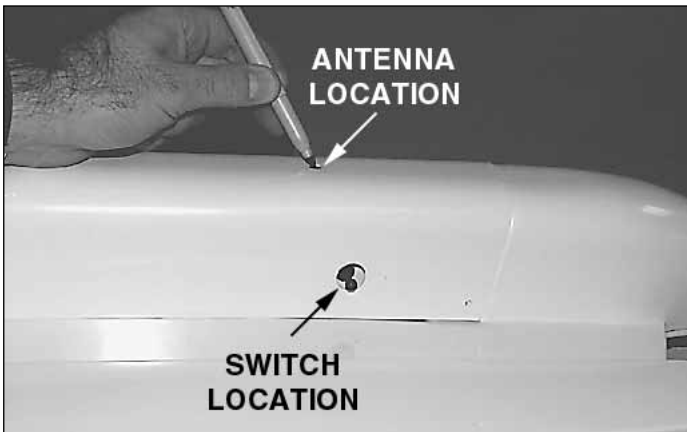
□ 15. With the radio switched on, install the servo arm onto the throttle servo as shown in the photo. Manually close the throttle on the carburetor completely. Tighten the cap screw on the screw-lock pushrod connector. Check the throttle operation with the radio and make adjustments to the linkages as necessary for smooth operation. Use the appropriate holes in the throttle servo arm to provide the correct amount of throttle movement and to prevent the servo from binding at its end points.

□ 16. Once the throttle has been adjusted, slide the silicone clevis retainer in position. Cut a mixing stick to fit inside the radio box as shown. Use medium CA to glue the stick in position. Glue the throttle tube to the stick, being careful not to get any glue inside the pushrod tube.

Radio Box Cover Installation



- ❑ 1. Temporarily tape the **Radio Box Cover** to the radio box.

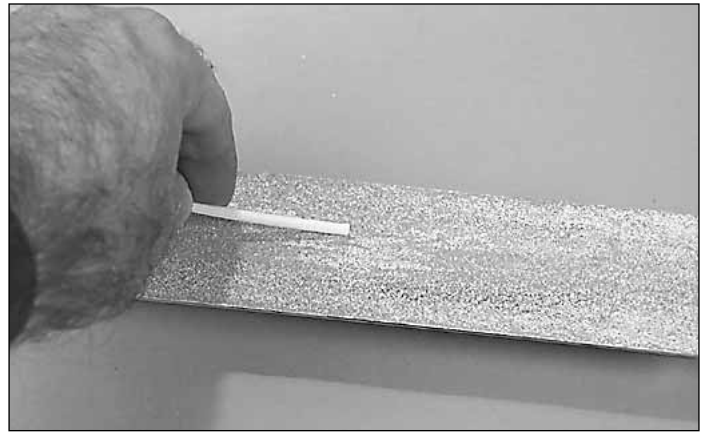


- ❑ 2. Measure and record the position of the switch. Transfer this measurement onto the upper tunnel and drill a 3/16" [4.8mm] hole at the location. Use a hobby knife to "fine tune" the location of the hole if necessary.

- ❑ 3. Place the tunnel in position. Using a pen or leftover from the steering pushrod, mark the location of the antenna exit through the hole in the upper tunnel onto the radio box cover.



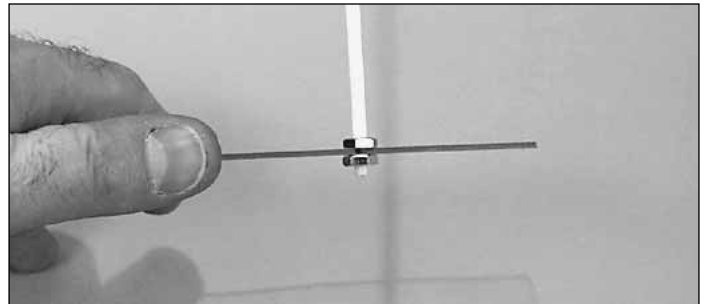
- ❑ 4. Remove the radio box cover and use a 5/32" [4mm] drill bit to drill a hole for the antenna in the radio box cover.



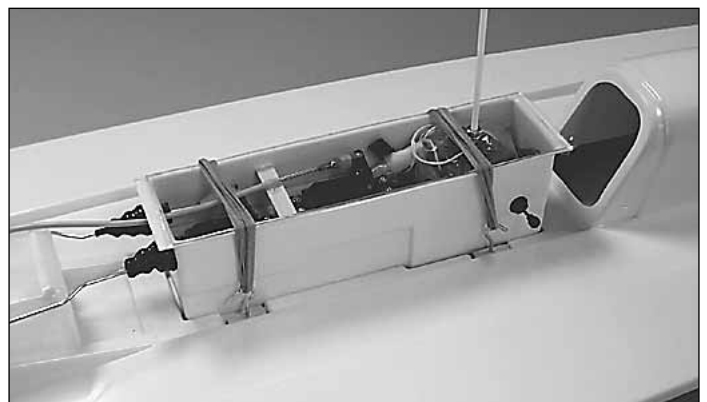
- ❑ 5. Sand the end of the **Antenna Tube** to a slight taper (this will permit you to thread the hex nut on).



- ❑ 6. Grasp the antenna tube firmly and thread one of the 6-32 **Hex Nuts** 1/4" [6mm] onto the tube with a pliers. **HINT:** If you find it difficult to turn the nut, try holding the tube with another pliers, locking the tube in a vise (use light pressure to avoid crushing the tube), or having someone else hold the antenna tube with two hands while you turn the nut.



- ❑ 7. Insert the antenna tube into the hole drilled in the radio box cover and secure it with another 6-32 hex nut.

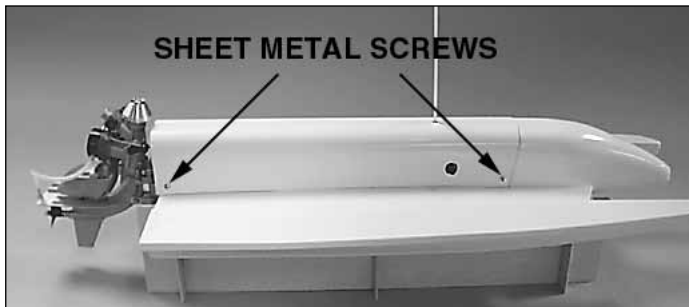


- ❑ 8. Route the receiver antenna through the antenna tube so approximately 2" of the antenna protrudes out the top of the tube. **Do not cut off any excess antenna length.** Wrap the excess together and place it inside the radio box.

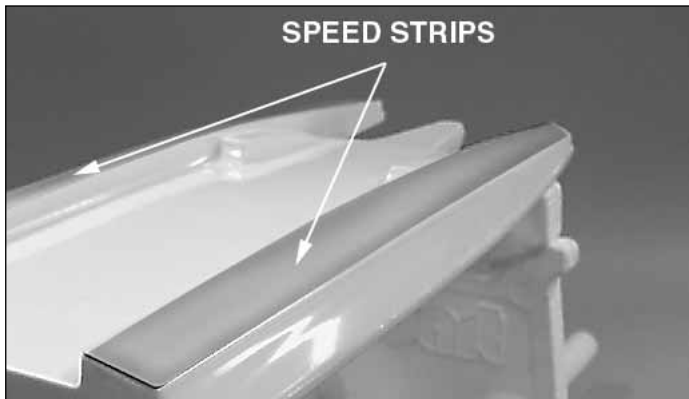
❑ 9. Install the radio box cover onto the radio box using clear tape. Make sure the tape fully seals the radio box cover so water does not enter the radio box.

❑ 10. Secure the radio box to the hull using a total of eight rubber bands.

❑ 11. Attach the fuel lines from the fuel tank to the engine. (See the instructions that came with your engine for more details.) Allow enough slack in the lines to allow the engine to move fully to the right and left without pulling on the lines, possibly causing them to come off during operation. The fuel tank is filled using the line connected to the carburetor. When the tank is full, the excess fuel will come out of the fuel line connected to the muffler.



❑ 12. Attach the upper tunnel to the hull using four #4 x 1/2" Sheet Metal Screws and four #4 Washers.



❑ 13. Using 400-grit sandpaper, lightly sand the bottom of the sponson and one side of the **Speed Strip**. Use a paper towel and rubbing alcohol to remove any dirt or oil from the sponson and speed strip. Position the speed strip so it slightly overhangs the edges of the sponson. Glue the speed strip onto the bottom of the sponson using medium CA. Use the photos on the box for further positioning of the speed strips.

NOTE: DO NOT reshape the speed strips. They are designed to slightly overhang the edges of the sponson. The sharp edge on the speed strip forces the water to “break free” of the sponson, rather than cling to it during operation. This reduces the amount of water friction, allowing the boat to “get up on plane” faster and operate at a higher speed than without the speed strips. The **only** modification to the speed strip would be to lightly sand the edges to re-sharpen them if your Top Speed encounters anything that damages the edges of the speed strip.

FINISHING

Apply the Decals & Trim

❑ 1. Using a scissors or a hobby knife, cut out the **Decals**.

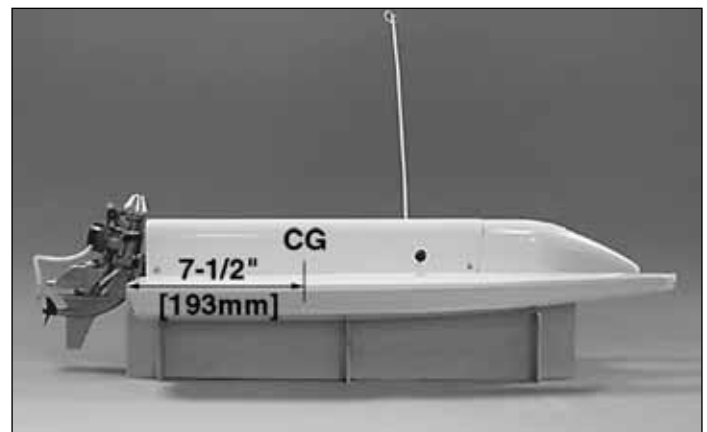
❑ 2. Clean the exterior of your boat thoroughly with warm, soapy water. Rinse and dry thoroughly.

❑ 3. Peel off the protective backing and apply the self-adhesive decals, referring to the photos on the box label. **HINT:** To apply large decals, peel only a small portion of the backing from one end. Cut off the backing with a scissors. Then, position the decal carefully. Press down the exposed portion of the decal and remove the rest of the backing. Working from the attached end, carefully press down the rest of the decal, working any air bubbles out as you go.

FINAL PREPARATIONS

Balancing Your Model

Note: This section is VERY important and must NOT be omitted! A model that is not properly balanced will be unstable and possibly flip over during operation.



❑ 1. The balance point (C.G.) is located 7-1/2" [193mm] forward of the transom. This is the balance point at which your model should balance for your first runs. After initial trim runs and when you become more acquainted with your Top Speed, you may wish to experiment by shifting the balance forward or backward to change its operating characteristics. Changing the location of the CG will change the handling characteristics of your boat. Read the “Operational Trimming” section at the end of the manual thoroughly to “fine tune” the performance of your boat.

❑ 2. With all the parts of the model installed (ready to run) and an empty fuel tank, lift the model at the balance point. If the transom of the boat drops, the model is “tail heavy” and you must add weight to the front to balance the model. If the bow drops, it is “nose heavy” and you must add weight to the rear of the boat to balance the model.

Operation Check

Inspect your radio installation and confirm that all the controls respond correctly to the transmitter inputs. The engine operation must also be checked by confirming that the engine idles reliably, transitions smoothly and rapidly to full power and maintains full power, indefinitely. The engine must be “broken-in” following the engine manufacturer’s recommendations. Make sure that all screws remain tight, that the linkages are secure and that the prop is on tight.

Range Check Your Radio

Whenever you go to the pond, check the operational range of the radio before the first run of the day. First, make sure no one else is on your frequency (channel). With your transmitter and receiver on, you should be able to walk at least 100 feet away from the model and still have control. While you work the controls, have a helper stand by your model and tell you what the control surfaces are doing. If the control surfaces are not always responding correctly, do not run your boat! Find and correct the problem first. Look for loose servo connections or corrosion, loose bolts that may cause vibration, a defective on/off switch, low battery voltage or a defective receiver battery, a damaged receiver antenna, or a receiver crystal that may have been damaged.

Engine Safety Precautions

Note: 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 the engine exhaust gives off a great deal of deadly carbon monoxide. Do not run the engine in a closed room or garage.

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

Use safety glasses when starting or running engines. Do not run the engine in an area of loose gravel or sand; the propeller may throw such material in your face or eyes.

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

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

Use an electric starter to start the engine. Do not use your fingers to flip the flywheel. 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 sure that any wires from your glow plug clip or starter are clear of the propeller before starting the engine.

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

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

Operating Procedures

If you have followed all of the previous instructions and find everything to be operating properly, your Top Speed should now be ready to run! Here is the procedure that should be followed (some of these steps may already be completed):

❑ 1. If your radio system has rechargeable batteries, charge the transmitter and receiver batteries, according to the radio manufacturer’s instructions.

❑ 2. Turn on the transmitter and receiver (in that order).

❑ 3. Check to make sure the throttle and steering are operating properly. **NOTE:** Looking at the boat from the rear, the aft edge of the engine must move to the right when the transmitter steering wheel/stick is turned right (clockwise).

❑ 4. Ask yourself, “If the boat becomes dead in the water, will I be able to retrieve it either by waiting for the wind to blow it in to shore, or by using a retrieval boat?” There is always a chance of something going wrong and the boat going “dead”; therefore, you should always have a plan for retrieval in that event.

Caution: If you go out in a boat to retrieve a model boat, be sure to wear an approved floatation device. **Never swim or wade in the water to retrieve a model boat!**

❑ 5. Start and adjust the engine following the procedures outlined in the instructions included with your particular engine.

❑ 6. Place the boat in water that is at least 8 inches deep and free of debris that may tangle or damage the prop.

❑ 7. Advance the throttle and note if the boat has a tendency to turn right or left. Adjust the steering trim tab on your transmitter until the boat runs in a straight line when the wheel/stick is neutralized.

❑ 8. Try some turns to the right and left. First, make big gentle turn and gradually make tighter turns to see how your Top Speed handles. If your Top Speed “spins out” or is on the verge of flipping over in tight turns, you can reduce the steering movement by making adjustments on your transmitter (if you have a transmitter that allows this type of “endpoint adjustment”.) To prevent swamping, avoid making tight turns in rough water.

❑ 9. Total run time of the Top Speed is approximately 5-6 minutes on a full tank of fuel. It is suggested to use a timer to time your Top Speed to prevent it from stopping while in the middle of your pond or lake.

❑ 10. After operating your Top Speed, place it on the stand. Use paper towels to dry off the hull. Remove the upper tunnel and check the radio box to see if any water has entered. If so, remove the radio box cover and dry the inside of the box. Check the propeller for weeds or other debris. Remove any foreign material which may have become entangled. **WARNING:** If, during operation, you notice the boat suddenly slow down or loose power, it probably means that weeds or other debris have tangled around the propeller. This could cause excessive overheating of the engine, therefore, you should immediately bring the boat to shore, shut off the engine and inspect the engine and propeller for any foreign matter and remove it.

❑ 11. When you have finished for the day, dry the boat inside and out and recharge the batteries. Place the boat on its stand for storage. Periodically (and for long term storage) you should also remove the radio box cover, wipe it off and clean out the inside of the radio box. You should also read the instructions included with your engine for any procedures to prepare the engine for long term storage.

IMPORTANT NOTE: If, for whatever reason, your boat takes on a large amount of water, swamps or sinks, causing the radio equipment to get wet, you must do the following: Immediately remove all batteries and radio equipment from the boat. Open the receiver (if water has entered the plastic bag) and servo cases (if not watertight servos) and dry all components completely before reassembling. To dry electrical components, use a paper towel to absorb the water droplets. Then, use a hair dryer to make sure they are completely dry. Dry the inside of the radio box and reinstall the components and check for proper operation before running the boat in water.

Operational Trimming

Because the outboard engine can be adjusted in both vertical positioning and angle, the following trimming guide will give you a rough overview on how to adjust your Top Speed to pick up some additional speed:

ENGINE ANGLE

Changing the angle of the engine in relationship to the transom will change the angle of the hull in relationship to the water. By rotating the engine so the lower end is farther away from the transom will lift the front (bow) of the boat out of the water. By rotating the engine so the lower end is closer to the transom will force the bow of the boat into the water. The angle of the engine should be adjusted so the sponson rides level when cornering.

CENTER OF GRAVITY

Changing the center of gravity will also alter the angle of the hull in the water. Adding weight to the bow of the boat (moving the CG forward) will push the bow into the water. Adding weight to the transom of the boat (moving the CG aft) will lift the bow of the boat out of the water. Adjust the CG as necessary so the boat rides level in the water.

ENGINE HEIGHT

Moving the position of the engine vertically on the transom will change the vertical positioning of the hull in relationship to the water. By moving the engine downward on the transom, the hull will ride higher in the water. Moving the engine upward will cause the hull to ride lower, or more in the water. Begin by positioning the engine so the mounting screws are in the middle of the adjustment range of the engine. On smooth water, run your Top Speed and observe the positioning of the hull in relationship to the water. The best positioning of the Top Speed is to have it “skim” slightly out of the water.

Maintenance

In addition to the items listed under “Top Speed Operating Procedures,” you should also check the following regularly:

❑ 1. Periodically check to see if the engine is securely attached to the transom. Because of the amount of force applied to the hull during operation, it is possible these screws may loosen.

❑ 2. Periodically check the steering linkages for free movement. In time, the engine may accumulate debris between the mount plate and outboard unit. If this happens, remove the outboard unit (following the manufacturers instructions) and clean both the mount plate and outboard unit. Reassemble and check for free movement.

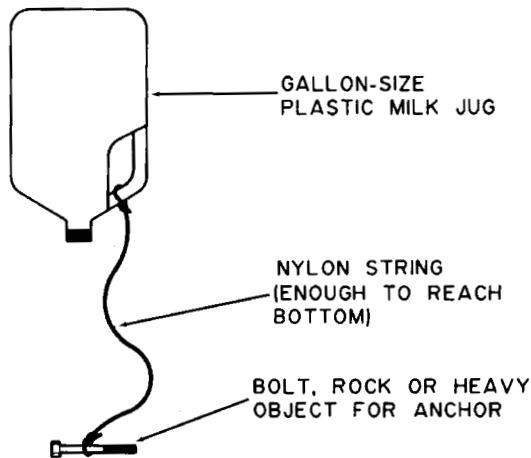
❑ 3. After running in salt water, clean the boat thoroughly with fresh water. Follow the manufacturers instructions on cleaning and maintenance for your particular engine.

RACING FUN WITH YOUR TOP SPEED

Although it is very enjoyable to go out alone and "hot dog" with your Top speed, we think the real fun and excitement is experienced when you get involved in RACING!

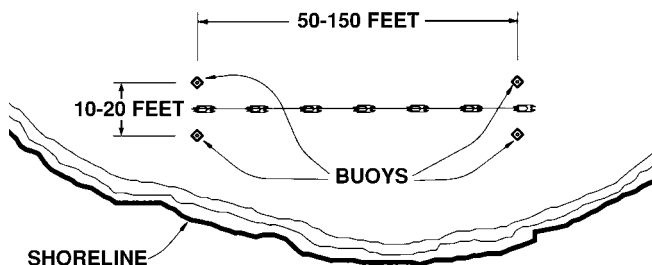
Racing does not have to be an organized and sanctioned competition to be fun. In fact, small, informal races can be very exciting without the stress that comes with the more formal ones.

Following are some suggestions for setting up a simple race course for electric boats:



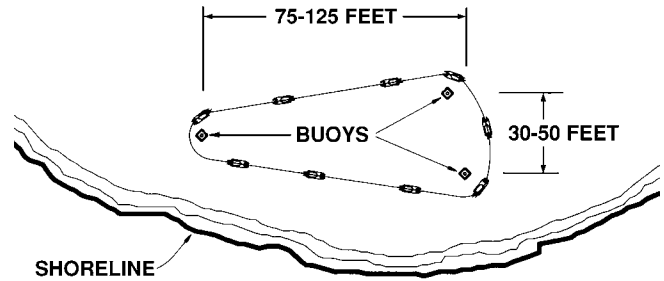
1. Make 2, 3 or 4 simple and inexpensive "marker buoys" with empty milk jugs, string and heavy objects for anchors, similar to the above sketch.

SAMPLE "DRAG RACING" COURSE



2. For "drag racing" place the buoys in a pattern similar to the above sketch.

SAMPLE "OVAL" RACE COURSE



3. For "oval racing" place the buoys in a pattern similar to the above sketch.

NOTE: The above patterns are "about right" for racing electric boats, and they are not based on any official standards; therefore, you can set up courses any way you desire, using your imagination to make the races more interesting. Usually the smaller courses will provide more action and excitement.

Races will be more exciting if the boats are closely matched in performance. Two or three Top speeds in the same race can be a lot of fun, especially if they are all using battery packs having the same number of cells. If you must race boats having large speed differences, try giving the slower boats a "handicap." For instance, give the slower boats a 1/2-lap or 10 second head start (more or less, depending on the speed difference and length of the race).

The length of the race can be determined by a set number of **laps** around the buoys (for example, the first boat to complete 5 laps is the winner); or by **time** (for example, whoever is leading at the end of 2 minutes is the winner).

RECYCLING



The RBRC Battery Recycling Seal on the nickel-cadmium (NiCd) battery that should be used in our product, indicates Hobbico is voluntarily participating in an industry program to collect and recycle these batteries at the end of their useful life, when

taken out of service in the United States or Canada. The RBRC program provides a convenient alternative to placing used NiCd batteries into the trash or the municipal waste system, which is illegal in some areas. Please call 1-800-822-8837 for information on Ni-Cd battery recycling in your area. Hobbico's involvement in this program is part of our commitment to preserving our environment and conserving our natural resources.

PARTS ORDERING INFORMATION

GPMQ4103	1	Fuel tank	PLTB021	3	Clevis retainer
GPMZ0261	1	Instruction manual	PLTB028	1	Fuel tubing
METAL013	2	2-56 Threaded clevis	SCRW004	4	#4x1/2" Sheet metal screw
METAL030	1	Solder clevis	SCRW054	4	#8x5/8" Truss head sheet metal screw
METAL056	1	Quick connector	SCRW100	1	4-40x1/8" Socket head cap screw
METAL076	6	Cup hooks	TPSD001	1	Radio cover
NUTS005	2	2-56 Hex nut	TPSD001	1	Decal 1
NUTS010	2	6-32 Hex nut	TPSD002	1	Decal 2
NYLON177	1	Kwik switch 203-B	TPSPDDC01	2	3x30" Speed strip
NYLON178	1	Waterproof pushrod seal	TPSPDDC02	1	Stand support
NYLON85C	1	Retainer	TPSPDDC03	2	Stand sides
NYLON91	2	Faslink pushrod keeper	WIRES11	2	17-1/2" Pushrod treaded one end
PLTB012	1	11-3/4" Tube white	WIRES73	1	24" Cable
PLTB020	1	24" Pushrod tube	WSHR005	4	#4 Flat washer
			WSHR011	4	#8 Flat washer



HAND-CRANK FUEL PUMP.....HCAP3015

Uniquely geared for smooth, efficient, long-lasting operation, this pump delivers 1/4-oz. of glow fuel with every turn of the handle. It fills or drains with equal ease. The durable nylon case includes flanges for easy field box attachment. Fuel tubing is also included.



HOBBICO® TORQMASTER™ STARTER.....HCAP3200

TorqMasters include easy-press start switch, turned aluminum starter cone w/grooved silicone insert and 5' input cord. *TorqMaster 90* starts engines up to .90; *TorqMaster 180*, engines up to 1.8 cu. in.

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