

INSTRUCTIONS

SEADUCER MODEL GAS 45 inch

This Basic Hardware Kit itemized below includes the initial components necessary to assemble the Model Gas 45. Other major components needed to complete the total task are ordered separately and include the Boat Package, a Motor Package, R/C Radio Package, and an optional Total Hardware Kit. These instructions assume that you have all the packages including the Total Hardware Kit, or have access to all comparable THK parts.

We suggest you read the entire instructions before starting the assembly. Drawings & photos on the back pages will help in the assembly procedure. Carefully follow each step to ensure proper assembly and avoid any costly mistake. Total assembly time for a semi-experienced hobbyist is approximately 10-12 hours. Use normal safety precautions during the assembly.

1. BASIC TOOLS & SUPPLIES NEEDED

- a. Propane Torch
- b. Allen Wrench Set
- c. Drill & Bits 1/16, 1/4, 9/64, 5/32, 11/64, 8/32, 1/2
- d. Boat Cradle (see step 12.4)
- e. Scrap wood, 1/4 x 3 x 5
- f. Dremel Drill with 90-degree adapter (optional)
- g. Solder Gun
- h. Loctite (Red or comparable)
- i. Crazy Glue (or comparable)
- j. Fiberglass & Polyester Resin (Bondo brand or ?), or 2-Hr Epoxy
- k. Silicone sealer (for all boat mounting holes not using grommets)
- l. 2 #6 self-tapping screws, 1/2"
- m. 2 Rubber Bands, #64
- n. 3M Clear Tape, 3/4-inch HD

2. BASIC HARDWARE KIT INCLUDES:

- a. Drop down Motor Mount Assembly
- b. Strut Assembly
- c. Rudder Assembly with water pick up
- d. Pipe Mount Assembly
- e. R/C Antenna
- f. Trim Tabs
- g. Large Turn Fin

3. BOAT PACKAGE INCLUDES:

- a. Finished Hull with glassed-in stringers
- b. Cowling
- c. Fiberglass Radio Box & Lid

4. MOTOR PACKAGE INCLUDES:

- a. Motor
- b. Flex-Hex Coupler
- c. Header Pipe
- d. Tuned Pipe

Recommendation: Using the supplied drop down motor- mount (2a) will set the motor near the bottom of the Deep-Vee hull and thus provide optimum boat performance. We do not advise using any other type of motor mount kit with this custom Seaducer Hull,

5. TOTAL HARDWARE KIT

(One each item unless otherwise specified)

- a. Gas Bag 16 oz
- b. 1/4-inch brass tubing, 12 inches
- c. 5/16-inch brass tubing, 36 inches
- d. 5/32-inch brass tubing, 12 inches
- e. 2-pack brass hooks, 1/2-inch
- f. Large Gas line, 3/16-inch, 12 inches
- g. X Large fuel line, 48 inches
- h. .250 dia. flex -shaft (18 inch)
- i. 1/4-inch drive dog
- j. Prop (Seaducer balanced):
- k. 1/4 Prop Locknut
- l. 440-push rods, 36-inch
- m. 440-push rods, 12-inch
- o. Pkg. 440-push rod threaded ends
- p. Pkg. 440-push rod solder-on ends
- q. Pkg. 440-push rod seals
- r. Hardwood Mount, 1/4 x 1-1/2 x 3 (Steering Servo Holder base)
- s. Hardwood Mount, 1/4 x 1 x 2 (Throttle Servo front)
- t. Hardwood Mount, 1/2 x 1/2 x 1 (Throttle Servo aft)
- u. Switch Mount, Radio On-Off
- v. 2- Water Outlet Fitting
- w. Floatation, 6 feet Noodles. (Kids pool Toy)

Note: Most items in paragraph 5. Can be obtained from your hobby supply source

PROP INFO

The prop for this boat is very critical for top performance and the model used depends on the customer's plan of operation (i.e., sport, competition racing, etc.), plus his or her experience. Regardless, when buying a replacement prop, purchase only a high quality, comparable prop. And remember, bigger is not always better; more torque will not improve this boat's overall performance. Also, any replacement prop should be pre-balanced to obtain peak performance from craft. Use a local prop expert for this service or contact Seaducer Boats.

STEP 1 – Boat Stand

Construct a boat cradle using 3/4-inch ID PVC pipe with 1 8-inch long horizontal bars wrapped in cushioning tape . This cradle will be useful in the transporting and general operation of the boat, and if built early would assist in the initial assembly of the boat.

STEP 2 - Fuel Tank Assembly

Use a IV Bag and put the Gas Tygon fuel line in the neck of the bag and use a little ty-wrap to scure the neck to the hose. Cut the hose so it sticks out about 2 inches from the bag and install a T fitting. Put the rest of the hose on the other side of the T fitting and that will connect to the carb fuel inlet fitting. Put the rest of the hose you have on the last port of the T fitting and this is how you will fuel up the boat. When your done use the Fuel Dot to plug the end of the fill hose.

STEP 3 - Mounting IV Bag

Take the 36 inch 440 rod and you want to bend it like a V with a circle in the middle of the V. Depending on the Gas bag you are using. I normally make the legs about 4 inches longer then the bag. After you have the V bent with the circle in the middle put a 90 degree bend on the end of the V so the ends of the 440 rod will go threw the stringer. Now drill a hole in each stringer at 22 inches from the transom and squeeze the V together and snap in in the holes in the stringers. This will allow you to remove the gas bag easily picture is below

USER'S NOTES MADE DURING FIELD ASSEMBLY:

STEP 4 –Drop Down Motor Mount Assembly (for "surface drive" operation)

1. The Drop Down Motor Mount Assembly package (2a) includes two pre-assembled mounts, plus mounting hardware.
2. Attach the flex-hex coupler (4b) to the motor and temporarily insert a 4-inch straight piece of 1/4 brass tubing (5b) into the flex coupler until it "bottoms" out. Then place the motor assembly in the hull bottom between the stringers. Tilt the motor up with the 4-inch tube until the tip of the tube just touches the hull bottom. Then slide the assembly forward or backward until you measure **14 inches** from the center of the motor's spark plug to the inside of the transom. Holding this angled-position, mark the two mounting holes on each stringer. At this point, mark the hull where the tilt tube "touches" the hull (this hull mark will be used in a later step).

(Suggestion for hole marking on the stringers. break off about 1 inch of a lead pencil and hold the broken piece with pliers to access and mark the mounting holes.)

3. Remove the motor & mounting assembly to allow stringer hole drilling. Also remove and discard the 4-inch "tilt-tube" from the flex coupler. Drill the eight mounting holes in each stringer using the Dremel drill with the 90-degree adapter and a 1/4 bit.
(Note if a Dremel drill or 90-degree adapter is not available: cut a 1 -inch piece of the excess 1/4 brass tubing and hold it with pliers. Use the propane torch to super-heat one end of the 1 -inch tube and then press it tightly against the marked holes to "burn thru" the stringer. Repeat heating of the brass "cutting" tube as necessary to do the four holes.)

Step 5 -Water Outlet and Floatation

1. Drill a 1/4 hole on the port side of the hull by the motor water outlet on the head. Install the water outlet with Loctite. Cut a piece of large fuel line about 5 inches and connect to the inside of the water outlet.
2. Floatation Installation: Cut the supplied noodle in half lengthwise (5x) and tuck a half-piece inside the upper hull on both sides. (Use care around the water outlet line on the port side not to dislodge the line.) This floatation will allow some delay in retrieval of the boat.
Before you run the boat for the first time test the boat in the Lake, Pool or Bathtub to make sure it will float.
3. Make sure you Glue some floatation to the underside of the cowl. Test this the same way you tested the boat

STEP 6 - Mounting the Strut Assembly

1. Place the hull on a work-cradle (1 1.4) to view the stern; draw a vertical centerline on the transom as shown on Figure 1. Mark a point 7/16-inch up from the bottom Vee and drill a 1/2-inch hole at this point thru the transom. (Note the drilled hole should just clear the fiberglass floor on the inside hull.)
2. The Strut Assembly package (2b) includes the strut with adjustment slot, two L-mounting brackets, plus mounting hardware. Refer to Fig. 1, Fig. 2 & Pic. #4 and assemble the strut snugly between the two L-brackets to allow up & down slot movement; note that the L-brackets must be evenly aligned on the bottom. Position this assembly on the transom 1 3/4 inch below the deck as shown on Fig.1. The strut's rear opening should roughly line-up with the 1/2-inch transom hole and be 2 inches away from the transom as shown in Fig. 2.). Mark the 4 L-bracket mounting holes and drill thru the transom with a 5/32 bit. Mount the assembly with the supplied cap screws & locknuts. (Use silicone sealer in these and all later mounting holes to reduce water entry.)
3. Refer to Fig. 2 and move the strut up or down, via the slot, to line-up with the 1/2-inch transom hole. Secure the strut using the cap screws & locknuts included in the package

STEP 7- Installing the Rudder Assembly

1. Use the centerline on the transom and measure 2-9/16 inches to the starboard (right). 3/16 down from the deck lip. to Fig. 1 & Pic. #4 and place the rudder assembly (2c) accordingly on the transom Mark the bracket's 4 mounting holes and a center hole in the bracket slot used for the rudder's push rod. Drill thru the transom the 4 bracket holes with a 11/64 bit and use a 1/4-inch bit for the push rod hole. Fasten the rudder bracket to the transom with the Four 8/32 cap screws & locknuts included in the rudder package.
2. Refer to Fig. 1 again and mark the rudder at the point where it intersects the hull (Point A) Placing a straight edge out horizontally at Point A, measure down 4 inches and mark the rudder again (Point B). Cut the rudder off at Point B for optimum boat control.

Step 9 - Tuned Pipe Mount Assembly

1. This pipe mount assembly package (2d) contains a L-shape mounting bracket with upright bar, a slotted expansion bar, a u-shape mount bar with top ring, a rubber grommet, and associated hardware. The assembly's function is to support the tuned pipe (4d) in a horizontal position as shown in Pic. #5.
2. Refer to Fig. 1 & Pic. #4 and set the L-bracket on the transom directly above the strut's left-mounting bracket. If you are using a wrap to center pipe. If you are using a 100 degree pipe mount the bracket where it will not put any stress on the pipe. (The L-bracket's bar should face aft & up.) Mark the bracket's 2 mounting holes and drill thru the transom using a 9/64 bit. Fasten the L-bracket to the transom with the cap screws & locknuts supplied in the pipe mount package.
3. Position the slotted extension bar horizontal to the vertical bar on the L-bracket (step 7-2) and partially tighten using the supplied hardware. Slide this extension bar horizontally forward or back, depending on length of the pipe being used, and partially tighten. (Note this extension bar may be eliminated if a short-length tuned pipe is used with the boat.)
4. The U-shaped bar with top ring is the final item in this pipe mount assembly. To install, Insert the rubber grommet into the top ring- then fasten the U- bar vertically to the step 7.3horizontally-mounted extension bar using supplied hardware. Slide this extension bar & U-bar combinations forward or backward, depending on length of the pipe being used and then snug all hardware. (For a short-length tuned pipe, the slotted extension bar may be discarded and then this U- bar will fasten directly to the upright bar on the transom-mount L-bracket installed in above step 7.2.)

STEP 10 -Drive Dog and Flex Shaft Bearing

1. Temporarily install the prop (5l) on the non-flex part of the flex shaft (5j) and allow 3/8-inch of thread exposed behind the prop for later addition of the prop Locknut (5m)
1. Place the drive dog (5k) on the top of the flex shaft and position it against the front of the installed prop. Mark the drive dog's set screw position on the shaft and remove the drive dog and the prop.
2. File a flat spot on the flex shaft at the set screw mark
3. Re-mount the drive dog on the flex shaft and use Loctite to securely fasten the setscrew.
5. To make a bearing for the flex shaft at the transom end, cut 5 pieces from the excess 1/4-inch brass tubing. Cut four pieces 1/2-inch long and one piece 1/4-inch long. Insert The four 1/2-inch pieces on the flex shaft up to the drive dog, and follow with the 1/4-inch piece. Then, solder the 1/4-inch piece on the flex shaft just before the weld on the flexing side. (Note this technique is more efficient than using standard lead Teflon bearings, and generally results in a longer bearing life.) Shaft installation occurs in the next major step.

STEP 11 - STUFFING BOX ASSEMBLY

1. The Stuffing Box consists mainly of installing a 5/16-inch brass tube (5d) to serve as a protective casing for the flex shaft (5j). The tube will run from the inside of the boat strut thru the transom and forward along the hull floor to within 1 inch of the flex coupler.
2. Start by measuring the distance from the aft end of the mounted strut opening (step 4.3) to about 1 inch before the motor's flex coupler and cut this length from the 5/16 brass tube. Discard any remaining 5/16 brass tubing.
3. Then, put one end of this brass tube from the inside thru the transom's bottom hole and fully thru the strut opening. If necessary, sand the 2 inches of tubing, which goes inside the strut. (Note the 1/2-inch transom hole allows some desired clearance for the 5/16 tube.)
4. At the point where the motor's 5-inch "tilt tube" touched the hull, (see hull mark done in preceding step 3.5), slightly bend the 5/16 tubing upward to "line-up" with the flex coupler opening. Check the tube for a gradual bend by temporarily installing the flex shaft thru the brass tubing and fully into the coupler - no binding should occur.
5. Cut a piece of scrap 1/4-inch wood (1 p) into a triangular-shape brace 3-inches long to just fit between the 5/16 tubing and the hull floor, and at a point just preceding the tube bend. Tack this brace in-place initially using Crazy Glue (1), and then affix the brace permanently using 2 layers of fiberglass & resin over the braced area plus a 1/2-inch on both ends.
6. Insert the flex shaft thru the strut and brass tubing and fully into the flex coupler. Note the flex shaft will be too long and must be shortened. To shorten, carefully measure the excess flex shaft from the dog drive to the strut, and then subtract 1/4-inch from this measurement. Remove the flex shaft from the boat and cut-off the "extra" shaft from the coupler end. SUGGESTION - redo the excess shaft measurement step before cutting the flex shaft.

Example: 4 inches of excess flex shaft is measured between the dog drive and the aft-end of the strut, minus 1/4-inch = 3-3/4-inches to be cut-off.
7. At this time Grease the shortened flex shaft and pass it thru the strut, thru the 5/16 brass tube casing and fully into the flex coupler; tighten the coupler.
8. Note the 5/16 casing for the flex shaft should have some clearance in the 1/2-inch transom hole. Do not use any sealer in this transom hole as it also serves as a drain hole for any water which may accumulate inside the boat, plus it allows some minor up-down adjustment of the strut (step 4.3).

STEP 1 2 - Radio Housing Box & Servo Mounting

The Radio Housing Box (3d) will accommodate 1/4-scale servos for steering and throttle, A servo holder, the radio on-off switch & holder, plus houses the radio receiver, antenna & battery pack. (Note the major items are obtained separately and the following referenced models are only recommendations for units that have been tested and have operated satisfactorily with Seaducer boats. For a steering servo, use HiTeck's Model HS-705MG or comparable Futaba Model. An acceptable holder for the HiTec steering servo is the Aeromarine's 1/4-ScaleHolder. For a throttle servo, use the Hitec model HS85mg or a comparable unit. All radio-associated items are normally included with the selected Radio package. Hardware needed for assembly or mounting is supplied with each unit. Note, some units have auxiliary instructions which will assist in their respective installation

This next part of the boat assembly is rather complex and is separated into 4 sub-steps

- A. The first step is to assemble the steering servo to the holder (see Fig.3 & Pic.#8)
 1. Fasten the pre-cut 3-inch long wood mounting board (5s) to the metal base of the U-shaped servo holder as follows and as shown in Fig.3a Bottom-Side View:
 - a. Sand all wood surfaces on the board (80-grit paper) and corner-round one 1-1/2-inch end to match the bottom cove in the aft wall of the Radio Box.
 - b. Lightly coat the 4 edges and the top side of the board with Crazy Glue to provide a Water seal for the wood. DO NOT coat the bottom side of the mounting board.
 - c. Refer to the Fig.3a Bottom View and match the mounting board to the holder Base (rounded end on bottom and facing aft to match the Radio Box's aft wall).
 - d. Attach the wood mounting board to the holder's metal base with 4 self-tapping screws via the inside holes in the holder base as shown in Fig.3a Bottom View.
 3. Add 2 screw-lock U-grommets to each tab end of the steering servo and press in a brass insert into the bottom of each grommet as shown in Fig.3b Top View
 4. Route the servo's power cable thru the front bottom hole in the holder and then secure the servo to the holder with 4 self-tapping 1/2-inch screws thru the tab's grommet holes and into the holder's screw holes as shown in Fig.3b Top View.
 5. Discard the cross & wheel shape horns supplied with the steering servo. The remaining horn has a single propeller shape, which must be modified by cutting off one of the two blades, leaving the horn with one blade and a center-splined hub.
4. Add the small brass ring to the center spline and press the hub flush onto the servo output shaft with the blade in its final position (i.e., skyward). Secure the hub to the servo shaft with the small self-tapping screw.

- B. The next step is to mount the steering servo & holder assembly in the Radio Box:
1. Center the Radio Box on the boat stringers and pushed back to the transom.
 2. Place the servo-holder assembly in the Radio Box as far back as possible (see Pic. #8). The steering servo's upright horn tip must line up with the associated push-rod hole in the transom and with the rudder control arm linkage. With this position, mark an outline of the holder's mounting board on the Radio Box floor.
 3. Holding the above Radio Box position, insert a 1/4 drill bit thru the transom's rudder bracket push-rod hole and drill a straight hole into the Radio Box, which lines-up with the blade tip on the servo horn. At this time refer to Fig. And drill a 2nd hole (1/4-inch) in the transom which is about 3/4-inch starboard of the rudder mounting bracket. This 2nd hole will be used later for a water intake line.
 4. Remove any drilling debris from the Radio Box. Then glue in a waterproof grommet (5r seal) in the new push-rod hole in the Radio Box.
 5. Sand the Radio Box floor inside the area marked for the servo holder's mounting board (step B. 2).
5. Crazy Glue the bottom of the wood mounting board and affix the steering servo & holder assembly in the marked area.
- C. The next step is to mount the throttle servo in the Radio Box as shown in Fig.4 and Pic. #8. 1.
1. The throttle servo mounts next to the steering servo (see Pic. #8) and is held in Place forward and aft by 2 wood mounting blocks (Fig. 4) glued to the Radio Box.
 2. Modify the front wood mount (5t) per the Fig.5 Template (i.e., cut-out a bottom egress slot for the servo's power cable).
 3. Sand and lightly coat all wood surfaces of the front mount with Crazy Glue, except for the bottom end, which will attach to the Radio Box floor.
 4. Secure the front mounting block to the servo's front tab using 2 self-tapping screws.
 5. Sand and lightly coat all wood surfaces of the aft mount (5u) with Crazy Glue, Except for the 1/2-inch side, which mounts to the Radio Box aft wall.
 6. Position this 1/2 x 1/2 mounting block parallel under the servo's aft tab with the un-coated side facing the Radio Box aft wall; secure with 2 self-tapping screws.
 7. Temporarily place this throttle servo next to the steering servo holder in the Radio Box as shown in Pic. #8, and mark the outline of the mounting blocks on the Radio Box floor and on its aft wall. (Note the port side leg of the top-mounted servo horn must line-up with the carburetor throttle linkage via a controlling push rod.)
 8. Sand both mounting areas in the Radio Box and use Crazy Glue to fasten the throttle servo via its two mounting blocks to the marked spots in the Radio Box.
 9. Line-up the port side leg of the servo horn with the carburetor throttle linkage and drill a corresponding 1/4-inch hole in the Radio Box upper front wall for a push-rod. Glue in a waterproof grommet (5r seal) in this hole.
 10. Measure 1/2-inch to the right of the push-rod hole and drill a 3/16-inch hole in the Radio Box front wall for later mounting of the radio's on-off power switch & holder.

- D. The final servo step is to mount the Radio Box and add the connecting push rods:
1. Position the Radio Box inside the aft stringers and back to the transom. At the Box's mid-way point, add a 1/2-inch brass hook (5e) to the topside of each stringer. Secure the radio box in place by using 2 rubber bands (1 m) stretched over the top-center of the box and from hook-to-hook. (Do not glue to stringers or hull.)
 2. The supplied push-rod (5o) for steering must be shortened to fit between the tip of the servo horn and the rudder control arm. Route the un-threaded end of the rod thru a seal (5f), thru the aft rudder bracket push-rod hole, thru the Radio Box grommet hole and past the steering servo horn tip in its upright or vertical position. Add a threaded connector (5p) to the rod at the rudder end and connect it to the hole in the rudder control arm. Press the push-rod seal into the transom hole). At the horn tip, mark & cut-off the "excess" rod length (i.e., rod length beyond the horn after the solder-on connector (5q) is added. Discard the excess push rod. When the rod length is correct, solder-on the 5q connector and attach it to servo horn tip. Check and manually adjust the push rod for proper operation of the servo horn and the rudder
 3. The push rod for the throttle servo will also be a unique length and must be cut to fit between the throttle servo horn and the carburetor throttle linkage. Use the second push-rod (5o) and route the threaded end thru the Radio Box's grommet hole. Add a threaded connector (5p) on the rod end and connect it to the carburetor throttle linkage. With the throttle set to its neutral (upright) position, measure the push-rod distance, with the solder-on connector (5q) added, to the horn's port side leg tip. (Pic. #8 shows the horn connection.) Mark & cut the push rod at the measured point and solder-on a connector (5q). Attach the rod connector to the proper horn leg tip and then check and manually adjust the push rod for proper throttle operation.

STEP 13 - Concluding Assembly Items

1. The boat motor has two water fittings which must be installed in the water jacket, one on the port side for out-going water and one on the starboard side for incoming water.
 - a. Interconnect the water outlet hose to the port side fitting on the water jacket.
 - b. Interconnect the starboard side water jacket fitting to the water pick-up fitting located top-aft on the boat rudder. Again use the excess large fuel line for this connection but route the line thru the pre-drilled 1/4-inch hole in the transom as shown in Fig. 1. Inside the boat cockpit dress this line under the starboard-side decking to maintain a good appearance; discard any remaining large line.
2. Install the prop on the flex shaft up against the drive dog and secure with the Locknut (5n)
3. Radio items:
 - a. Mount the radio on-off switch holder (5v) in the pre-drilled 3/16-inch hole in the Radio Box. Add the on-off (push-pull) switch with "Off" being the 'pull" position.
 - b. Mount the antenna rod on the Radio Box lid by first drilling a slow speed 1/4-inch hole in the left-center of the lid. (This hole must be forward of the throttle servo.)
 - c. Install the antenna rod and insert the external WHITE wire from the RIC receiver. Then cushion-wrap the receiver and place it inside the Radio Box.
 - d. Follow the R/C radio instructions and insert power batteries in the battery pack. Tape and cushion-wrap the battery pack securely and place it in the Radio Box.
 - e. Complete all power cable connections and then radio-test the servo operation.
 - f. Secure the lid to the Radio Box top with 3M clear tape (1 n).

MAINTENANCE, TROUBLE-SHOOTING & OPERATING HINTS

(Visit our Web-site - www.Seaducerboats.com - for any changes affecting your boat.)

1. Grease the flex shaft after every 4 runs; also check-lubricate- tighten all moving parts.
2. Clean and polish the boat hull after every outing to maintain top speed and appearance.
1. The boat has a built-in "hook" in the hull to improve performance.
4. With strut correctly mounted, monitor the boat "attitude" and trim to your driving skills.
5. Fuel can be pumped into both fuel tanks by disconnecting and temporarily using The large fuel line connected to the carburetor. Reconnect this carburetor line.
6. For security, copy your boat's serial number and keep it in a safe place.

NOTE

Any new information will be posted in the above Web-site.

LIABILITY DISCLAIMER

The Seaducer Boat must be operated carefully and safely within the capability of the owner and/or designated operator. The boat is capable of high speeds, which if not properly controlled could endanger or harm the operator, another person or personal property. Use extreme care and common sense when operating this craft. Seaducer Boats cannot be held responsible in any degree or manner for any mishap.

Contact Seaducer Boats if you have any questions or suggestions regarding these assembly instructions or operating techniques. Call us - we like to help'. Tel. 954-493-7387 (Fax 954-772-9002). Also see our Web page at: www.Seaducerboats.com for more info
And any updating data. Please help us by returning the attached Questionnaire.

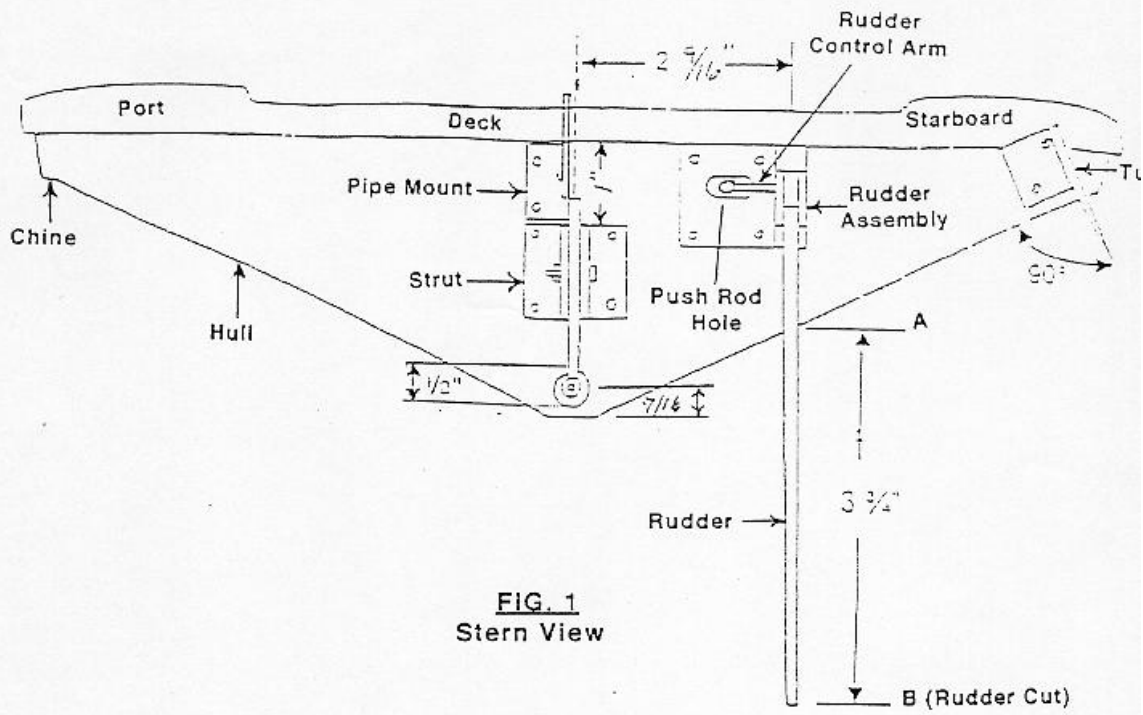


FIG. 1
Stern View

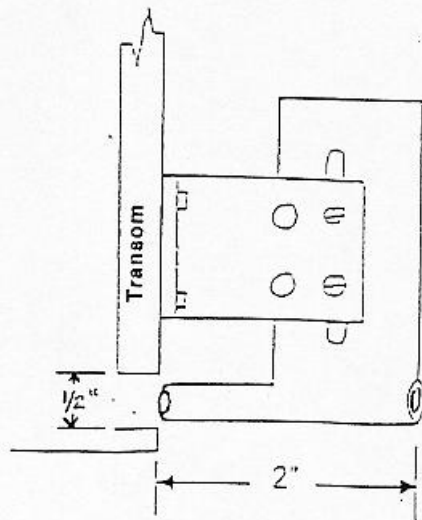


FIG. 2
Strut Assembly
(Side View)



