

SPORT TAB INSTALLATION INSTRUCTIONS for ST12 and ST16

READ INSTRUCTIONS COMPLETELY BEFORE BEGINNING INSTALLATION

Materials / Tools:

- | | | | |
|------------------------|---------------------------|-----------------|------------------------------------|
| 1/2" Wrench | Vise Grips | Wire Stripper | Wire Cutters |
| Electric Drill | 3/16" and 1/2" Drill Bits | Teflon Tape | #2 & 3 Phillips Head Screw Driver |
| Four Foot Straightedge | Wire Crimpers | Tape Measure | Marine Epoxy |
| Marine Grade Sealant | Masking Tape | 1-1/8" Hole Saw | 1 Qt. Automatic Transmission Fluid |

Step 1 - Position the tabs against the transom and check to see that the upper mounts of the hydraulic actuators do not center on an inside obstruction. If they do, reposition tabs slightly outboard. The further outboard the tabs are mounted the greater the lateral (side to side) control. Position tabs 3" to 4" from the chine, and a minimum of 10" from the centerline of outboard or sterndrive unit. (see figure 1). Note: If the inside of the transom is inaccessible due to fuel tank, floatation, or other obstruction, call Bennett Marine for alternate installation instructions. (Note: the angled sides of the ST16 trim tabs face inboard. See figure 2.)

Step 2 - Attach the mounting plates and trim plane with #14 x 1-1/2" stainless steel screws 3/8" above hull bottom (see figure 3). Make 3/16" pilot holes for mounting screws. Assemble mounting plates and tab, dip screws in marine epoxy before running in. Position trim tab between mounting plates before running screws tight. Snug screws down to secure mounting plates and trim tab to transom.

Step 3 - Secure the lower hinge of each actuator to the tab with 1/4-20 x 3/4" Phillips head machine screws. Using a straightedge under the hull bottom set the "negative angle" of the tab's trailing edge as shown in figure 2. The ST16 should have a negative angle of 1-1/4", the ST12 should be 1".

Figure 1

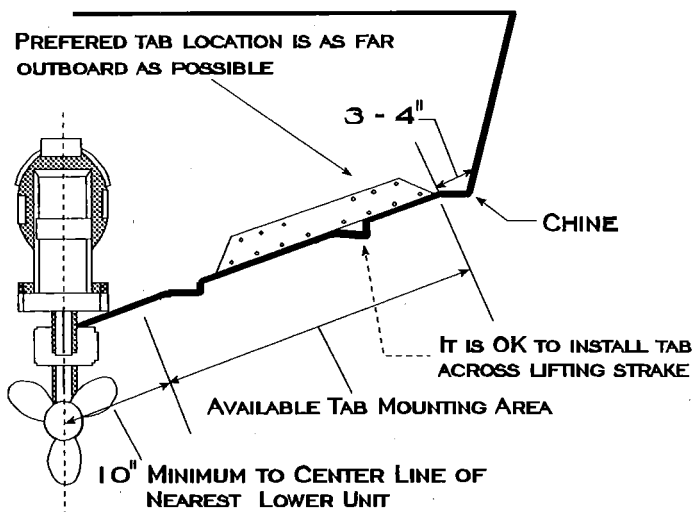


Figure 3

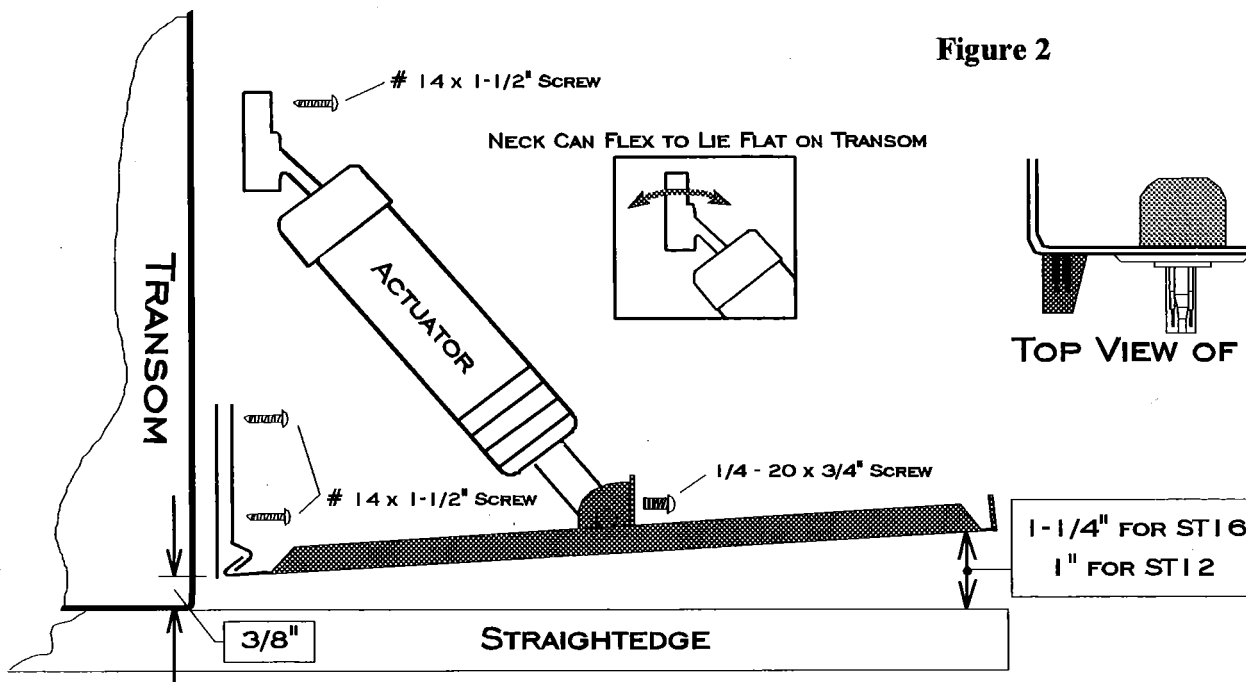
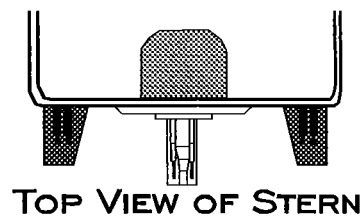


Figure 2



1-1/4" FOR ST16
1" FOR ST12

Step 4 – With tabs set at negative angle, position the upper mounts of the actuators against the transom. Slide the actuator template behind upper mount, align and tape to transom. It is not necessary that the upper mounts lie flat against the transom as the actuator neck has the ability to flex far more than necessary. The straightedge may now be removed. Drill holes accurately as indicated on templates. Drilling a small pilot hole first helps you locate accurate centers.

Step 5 – Install the pipe nipples (dry) snugly into the actuator upper mounts. Do not use Teflon tape. **Use care to avoid cross threading and do not over tighten (Turn in nipple finger tight, then two full turns with vice grips, NO MORE).** Apply waterproof sealant on surface around pipe nipples and screw holes. Insert pipe nipples through transom and secure actuator upper mounts to transom with #14 x 1-1/2" screws. **Note: cover the ends of the pipe nipples with masking tape to prevent dirt or debris from entering the system. Remove masking tape before making connections inside the boat.**

Step 6 – Install hydraulic power unit (HPU) in a convenient location with a dry environment. **Important: the HPU must be mounted in a dry enough location to avoid submersion and drenching.** Allow space over the HPU so that it may be slid into its mounting bracket. Lay out upper holes on HPU mounting bracket 4-5/8" apart and start #10 x 1" screws. Then drill pilot holes for lower screws and mount bracket. Slide HPU into bracket.

Step 7 – Inside the transom, apply Teflon tape on male threads of pipe nipples and tighten 90 degree brass elbows to pipe nipples. **While tightening elbow, hold pipe nipple with vise grips to prevent stripping actuator upper mount threads.** On the port side tab, cut two short runs of hydraulic tubing and attach to brass tee with "nut with ferrule fitting." These will be the lines that connect the two nipples. (To use "nut with ferrule," insert tubing through the nut and push until it bottoms in the fitting. While continuing to bottom the tubing in the fitting, tighten nut "finger tight," then one full turn with a 1/2" wrench...no more). Connect the two short runs of tubing from the brass tee to the two elbows using the "nut with ferrule" fittings. Connect one end of the long coil of tubing into the remaining fitting of the brass tee and run to HPU. Repeat for starboard side tab.

Step 8 – With plastic hangers secure hydraulic tubing along hullside or bulkheads to HPU. When facing HPU the brass fitting on the left of the pump face connects with the tubing from the port actuators, the fitting on the right connects with tubing from the starboard actuators. These fittings are marked "P" & "S" for port and starboard. Connect tubing to HPU fittings as described in **Step 7**. Use tube bending clips at desired 90 degree bends in tubing to prevent kinking.

Step 9 – Connect HPU ground wire to any convenient ground.

Step 10 – Run other end of wire harness to desired location of trim tab control switch. Secure wire harness with plastic hangers and cut to length. Install control switch according to "Rocker Switch Installation Instructions."

Step 11 – Fill HPU reservoir to full line using any type automatic transmission fluid (ATF). (Hint: An easy way to fill reservoir is to detach either side hydraulic tubing at tee fitting and insert into a quart container of ATF. Then press the Rocker Switch "Bow Up" for that tab until reservoir is full. Reconnect fitting).

Step 12 – Using the Rocker Switch control, press the "Bow Down" position for 15 seconds, then "Bow Up" for 15-20 seconds. Repeat 3 times. This will purge any air from the system. No bleeding is necessary.

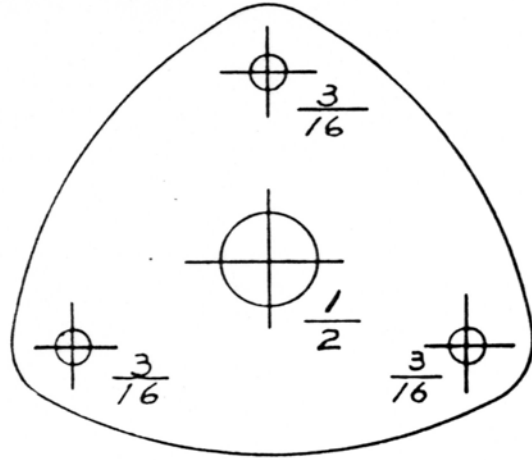
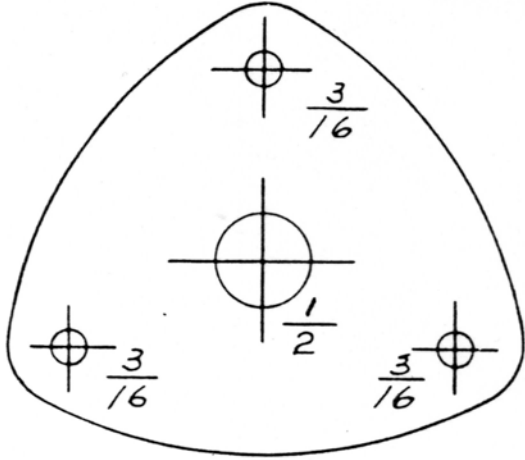
Step 13 – Place both tabs in the "full down" position and check all hydraulic connections for leaks. Bring the tabs to the full up position and check fluid level. Add ATF if necessary.

IMPORTANT NOTE FOR BOATS KEPT IN SALT WATER: The black finish of the trim tabs provides a barrier from electrolytic action. However, if the boat is kept in saltwater for long periods of time, a zinc anode must be applied to the top side of each tab. To provide protection, the zinc must make good contact with the stainless steel. Therefore the coating under the zinc must be removed. Do not ground the tabs to other underwater appendages. The black finish does not provide anti-fouling protection and should be painted with anti-fouling paint if such protection is required.

PLEASE KEEP THIS SHEET AND TRIM TAB OWNERS MANUAL WITH YOUR BOAT'S OPERATING MANUALS.



BENNETT MARINE
DUAL ACTUATOR TEMPLATE



CUT

