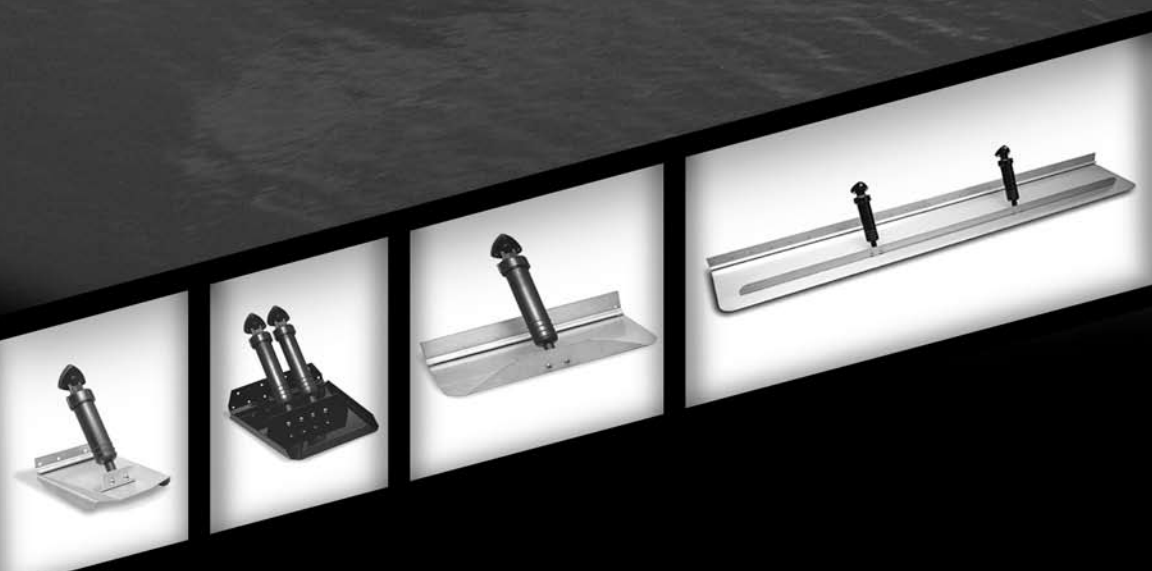




# Owner's Manual

(keep with boat owner's information)



Proven Durability. Unmatched Boater Satisfaction.

# Superior by Design

**Congratulations,** you are the owner of the finest trim tabs available. Bennett Trim Tabs provide you with control never thought possible. Properly sized trim tabs get you up on plane quickly and correct listing at nearly any speed, regardless of weight distribution or sea conditions. These benefits add up to less drag on the hull, reduced engine stress, increased speed and decreased fuel consumption. If you have any questions not answered in this manual please feel free to contact us!



Visit the Bennett Marine Web Site! It has a wealth of advice and information about owning & operating your trim tabs.

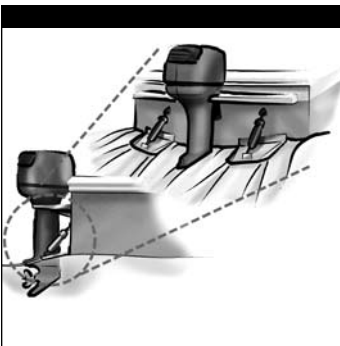
**Guide to Trim Tabs** — includes **videos** and tips on how to use your tabs for **maximum performance**

**Tech Help section** — features **online installation instructions and troubleshooting guides, Trim Tab Tips** for optimum maintenance, **Frequently Asked Questions**, and even a gallery of **Project Boats** with installation stories and before-and-after photos

**Product Catalog** — with featured accessories and an interactive parts diagram

**Contact Us page** — contact us by phone, e-mail or fill out our convenient online form. You can expect a prompt response to your questions.

## HOW TRIM TABS WORK

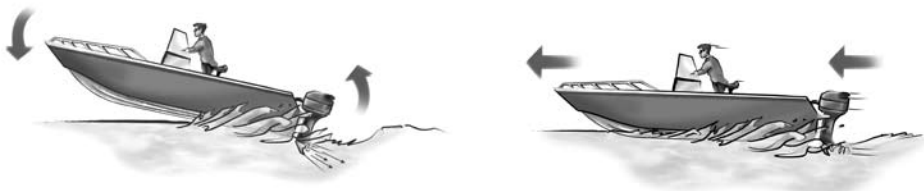


Bennett Trim Tabs are attached to the bottom edge of the transom. When the helm control is pressed, the trim tabs move into position. Water-force on the trim tab surface creates upward pressure, raising the stern and lowering the bow. Properly sized trim tabs improve the performance of your boat in a wide range of weight, weather and water conditions.

Bennett Trim Tabs operate the reverse of what you might think. The port trim tab controls the starboard bow. Conversely, the starboard trim tab controls the port bow. The helm control is wired so that all you have to do is press the control in the direction you want the bow to move. Don't worry about which trim tab is moving. The proper use of Bennett Trim Tabs becomes second nature after a short time.



# How to Use Your Trim Tabs



## GETTING AND STAYING TRIMMED

Most boats “break over” (get on plane) at a particular speed. This speed is determined by weight distribution, water conditions, etc. Bennett Trim Tabs enable your boat to plane at speeds lower than natural planing speed. By pressing the control to the “Bow Down” position, your trim tabs move down. This will raise your stern and lower your bow, getting you up on plane faster, usually increasing your speed.

## YOUR BOAT’S OPTIMUM ATTITUDE

A good way to find your boat’s optimum attitude is to conduct this test. Run the boat lightly loaded, at full speed on flat water. Notice the bow in relation to the horizon. This should be your boat’s best running attitude. Properly sized trim tabs can be used to recreate this “optimum attitude” regardless of weight distribution, speed or water conditions.

## GETTING USED TO THE “FEEL” OF YOUR TABS

When learning to use your tabs, begin by pressing the helm control in half second bursts for gradual trimming. A momentary delay occurs from the time you press the control to the time the boat reacts. This is normal, and varies with boat speed. Be careful not to over-trim your boat. An over-trimmed boat will “plow” or “bow-steer”. If you over-trim the boat, simply press “Bow Up” and the bow of the boat will rise.



## TRIMMING FROM A BRIDGE OR TOWER

When steering from a bridge or tower, a good trimming method is to watch the bow spray, stern wake, or the rooster tail. An untrimmed boat will produce more spray aft of the bow and it will produce a larger wake. When trimmed, the bow spray is farther forward, the wake is reduced, and the rooster tail is smaller and farther behind the boat. You’ll also notice that the engine RPM will increase when the boat is properly trimmed.

# How to Use Your Trim Tabs (continued)

## **RUNNING IN ROUGH WATER**

When running in a chop or heavy seas, press "Bow Down". This will bring the "V" of the hull in contact with the waves rather than having the waves pound the hull and your passengers. In a following sea or when running an inlet, the trim tabs should be fully retracted for maximum control and maneuverability.

## **CORRECTING FOR A LIST**

Bennett Trim Tabs may be operated individually so that you can correct for listing. Your control is designed so that you can use it "intuitively." Do not think about what the trim tabs are doing, just concentrate on the bow. If the port bow is high, push the port side "Bow Down" direction. If the starboard bow is high, push the starboard side "Bow Down" direction. Press the control in half-second bursts to avoid over-trimming, allowing time between corrections for the boat to react.

## **TRIM TABS WITH POWER TRIM – GETTING OPTIMUM SPEED AND POWER**

Using your trim tabs in conjunction with your power trim will give you increased speed and power.

1. Adjust the trim tabs to achieve a planing attitude.
2. Use the power trim to position the prop path parallel to the water flow.
3. If necessary, re-adjust the trim tabs to "fine tune" the trim of your boat. In other words, use your trim tabs to trim the boat and your power trim to trim your prop.

## **CORRECTING FOR PORPOISING**

Porpoising is a condition more common in faster boats. As speed increases, the bow repeatedly rises out of the water until gravity overcomes lift and the bow falls down. Press "Bow Down" in half second bursts. As the trim tabs deflect, the porpoising subsides and your speed should remain the same or decrease. Only a slight amount of trim tab deflection should be necessary.

## **SAFETY PRECAUTIONS**

- Do not overtrim, particularly at high speeds as the bow will dig in and wave action may cause the boat to veer.
- Use your trim tab helm control with caution.
- For best maneuverability, trim tabs should be fully retracted in a following sea, or when running an inlet.
- Improper use of trim tabs can cause an accident or injury.

Bennett Trim Tabs have a significant effect on the operation and versatility of your boat. No one knows your boat better than you, so the best learning method is to spend time getting familiar with your boat's reaction to the trim tabs. As your experience with Bennett Trim Tabs increases, so will your enjoyment. Always operate your boat with safety first in mind.

# System Specifications

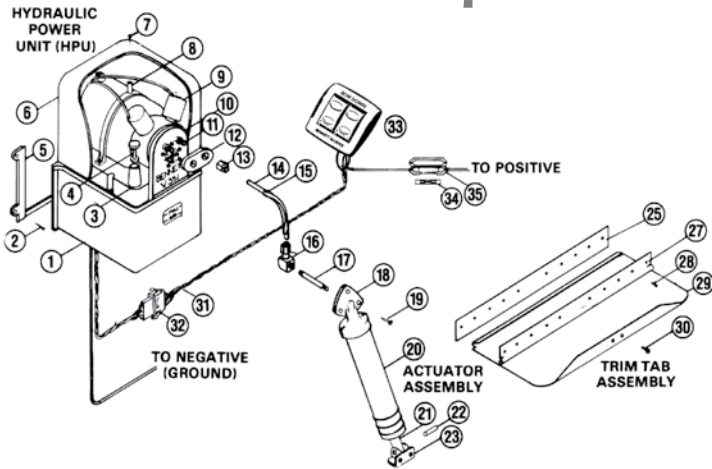


Diagram #	Description	Part #
1	Fluid Reservoir	VP1139
2	#10 x 1" Philip Pan Head Sheet Metal Screw	H1180
3	Filler Stack	—
4	Filler Plug	VP1140
5	Mounting Bracket for HPU	H1179
6	Lexan Cover	VP1138
7	#8 x 3/4" Philip Pan Head Sheet Metal Screw	VP1154
8	Motor Strap	VP1142
9	Solenoid Valve	VP1135-R (red) VP1135-G (green)
10	Faceplate for HPU	VP1144
11	1/8 Pipe to 1/4" Tube Connector	VP1146
12	Hex Retainer	VP1141
13	Nut with Ferrule	T1127
14	Hydraulic Tubing (20' unless otherwise specified)	T112520
15	Tube Bending Clip	H1173
16	Female Elbow	H1172
17	Pipe Nipple (3" unless otherwise specified)	H11713
18	Upper Hinge	A1103
19	#14 x 1-1/2" Philip Pan Head Sheet Metal Screw	H1174
20	Cylinder Body	A1105
21	Piston with O-Ring	A1109
22	Lower Hinge Pin	A1115
23	Lower Hinge	A1113
25	Backing Plate	varies with length
27	Hinge Plate	varies with length
28	#10 x 1-1/4" Philip Pan Head Sheet Metal Screw	EH1071
29	Trim Tab Only	varies with size
30	1/4 - 20 x 3/4" Philip Pan Head Sheet Metal Screw	H1175
31	Wire Harness (22' unless otherwise specified)	WH1000
32	Quick-Disconnect Plug	VP1143
33	Euro-Style Rocker Switch Control	ES2000
34	20 Amp Fuse (12 volt system)	H1176
35	Fuse Holder	H1178

# System Specifications (continued)

## SYSTEM COMPONENT SPECIFICATIONS

<b>Trim Tabs:</b>	Stainless steel												
<b>Actuators:</b>	Upper hinge material (Part #A1103) made of flexible nylon. Remainder of actuator made of high impact fiberglass-filled nylon.												
<b>Hydraulic Power Unit (HPU):</b>	<p>HPU draws approximately 18 amps (broken-in) and operates on 12 volts DC (except 24 volt HPUs). Approximately 22 ounces of ANY TYPE AUTOMATIC TRANSMISSION FLUID (ATF) is required to fill reservoir to proper level for single actuator installations. With trim tabs fully retracted, proper fluid level is about 2" from bottom of reservoir.</p> <p>The HPU forces both trim tabs full-up to full-down in 8-10 seconds, individually in 4-5 seconds. (Trim tab travel on dual actuator systems takes twice as long).</p>												
<b>Helm Control:</b>	Controls on 12 volt systems use 20 amp in-line fuse (24V systems use 10 amp in-line fuse).												
<b>Hydraulic Tubing:</b>	Tubing has 1/4" outside diameter												
<b>Wire Harness:</b>	<p>Wire colors and their functions:</p> <table border="1"> <tr> <td>Red</td> <td>Port valve</td> </tr> <tr> <td>Green</td> <td>Starboard valve</td> </tr> <tr> <td>Yellow</td> <td>Motor reverse (pump retract)</td> </tr> <tr> <td>Blue</td> <td>Motor forward (pump pressure)</td> </tr> <tr> <td>Black on HPU</td> <td>Ground</td> </tr> <tr> <td>Orange on helm control</td> <td>Positive</td> </tr> </table>	Red	Port valve	Green	Starboard valve	Yellow	Motor reverse (pump retract)	Blue	Motor forward (pump pressure)	Black on HPU	Ground	Orange on helm control	Positive
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# System Information

Bennett Trim Tabs are built to rigid quality standards. However, the marine environment is harsh. So, in the unlikely event a malfunction occurs, here is some helpful information:

1. If trim tabs do nothing ... no movement ... no sound from HPU:
  - Inspect for blown 20 amp in-line fuse in helm control's orange wire.
  - Inspect for disconnected or corroded connections on HPU ground wire, orange positive wire from helm control, and quick-disconnect plug.
2. If HPU motor runs but trim tabs do not move:
  - Inspect for disconnected or corroded red and green wire connections at helm control and quick-disconnect plug.
  - The following test can be used to help isolate a malfunction.  
Remove wires from helm control and touch together as follows:

<b>Operation</b>	<b>Reaction</b>
Orange ( + ), blue, red	Port trim tab down
Orange ( + ), blue, green	Starboard trim tab down
Orange ( + ), blue, red, green	Both trim tabs down
Orange ( + ), yellow, red	Port trim tab up
Orange ( + ), yellow, green	Starboard trim tab up
Orange ( + ), yellow, red, green	Both trim tabs up

If trim tabs function in each of the above combinations, check helm control. If during this test trim tabs continue to malfunction, inspect HPU.

3. If one trim tab operates and the other one does not:
  - Inspect for disconnected or corroded red or green valve wire connections at helm control and quick-disconnect plug. (Red wire operates port trim tab; green wire operates starboard trim tab).
  - Reverse hydraulic lines at front of HPU to determine if malfunction is in HPU or actuator / hydraulic connections. If after reversing lines, symptom shifts to other trim tab, malfunction may exist in HPU. If symptom remains on the same side, malfunction may exist with the actuator/hydraulic connections.
4. If trim tabs go down but will not retract:
  - Inspect for low voltage of the battery. Check battery voltage while HPU (or another accessory) is running. If voltage is less than 10 volts, valves may not open.
  - Inspect for disconnected or corroded connections on helm control, and quick-disconnect plug.

This general information is not intended to be complete. Please feel free to call Bennett Marine to assist in solving situations not clarified or addressed above.

# System Information (continued)

## MAINTENANCE

- Periodically, check fluid level in HPU. With trim tabs completely retracted, fluid level should be about 2" from bottom of reservoir (approximately 22 ounces). To refill, remove lexan cover and filler plug located at the front left hand corner of the reservoir. FILL WITH ANY TYPE AUTOMATIC TRANSMISSION FLUID (ATF) ONLY. Brands or types of ATF can be mixed. Running HPU with an excess or lack of fluid will not cause damage to the trim tab system.
- Periodically, check for clean electrical connections on back of control, HPU ground wire, and quick-disconnect plug.
- Cold temperatures do not affect the trim tab system. No winterization is necessary.
- (SALTWATER ONLY) To deter electrolysis, a zinc anode should be attached to the top of each trim tab. Zinc must make direct contact with stainless steel. Do not paint zinc. Do not ground trim tabs to other underwater appendages.
- Paint trim tabs to discourage marine growth.
  1. Clean surface of all grease, oil, dirt.
  2. Apply two coats of epoxy metal primer.
  3. Apply two coats of anti-fouling paint.Actuator, including the piston, may be painted.
- Unpainted trim tabs may acquire an orange discoloration. THIS OXIDATION OF SURFACE CARBON MOLECULES IS NORMAL. The integrity of the stainless steel is not affected. Orange coating can be cleaned off, but may eventually return. **Note:** This discoloration should not be confused with the pitting and corrosion of electrolysis.

## SAFETY INFORMATION

- Take immediate action to correct any malfunction or failure of your trim tabs.
- Occasionally, check for loose or corroded wiring connections.
- Stepping on the trim tab may cause damage to the unit, or injury.
- Make sure the HPU is mounted in a dry location to avoid drenching and consequent failure.
- Leaving the actuator extended when boat is not in use will not cause seal damage.
- Occasionally, inspect HPU fluid level.
- REFER TO SAFETY PRECAUTIONS ON PAGE 4.



# Other Bennett Products

## Tab Position Indicator (TPI):

The **Tab Position Indicator** is attractive, compact, water resistant and easy to install. The helm display accurately shows deflection percentage of each trim tab, and the LED brightness is adjustable for any lighting condition. Compatible with all Bennett Trim Tab systems, the **TPI** is as durable as it is precise. All sensors and wiring are fully enclosed within the trim tab system and protected from the marine environment.



## Auto Tab Control (ATC):

*Like Cruise Control for Your Boat!*

**Auto Tab Control** saves you money on fuel and is easy to install — just plug and play. It constantly monitors your boat's position and uses your trim tabs to maintain the optimum cruising attitude. Calculating more than a thousand attitude readings per second, the **ATC** adjusts your trim tabs to changes in vessel speed, sea conditions and shifting weight.

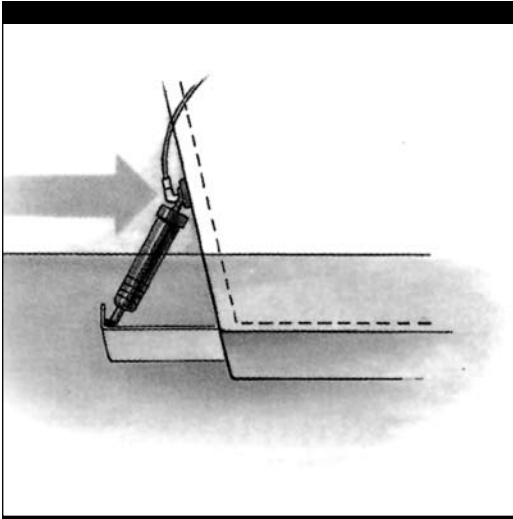


## Electronic Indicator Control:

*Three in one!* The popular Bennett rocker switch now has a built in **Trim Tab Indicator** and **Auto Tab Retractor**. Like the **TPI**, it is water resistant, highly accurate and features variable intensity LEDs for night or day. With the auto tab retraction feature, just turn off your ignition switch and your tabs automatically retract.

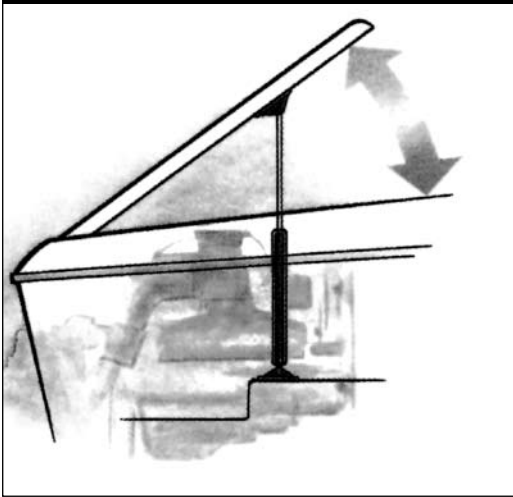


# Other Bennett Products (continued)



## **External Line Connection Actuator:**

The **External Line Connection Actuator** is used in cases of inaccessibility inside the transom. Unlike the standard actuator, the external line hydraulics enter the transom by means of external tubing above the waterline. Recommended only when necessary.



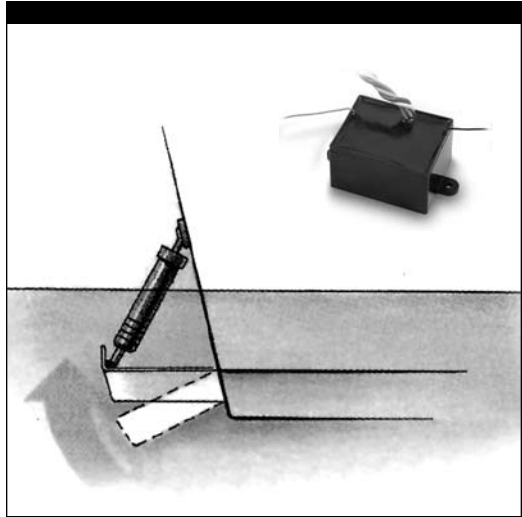
## **Hatch Lifter:**

The **Hatch Lifter** system raises hatches at the press of a switch — up to 250 lbs. Operation is smooth and quiet. For space and cost efficiency, the system shares the same Hydraulic Power Unit as the trim tabs. The **Hatch Lifter** cylinder features a stainless steel shaft with an anodized aluminum housing. Various kits are available with cylinders in 12", 18" and 24" strokes. Also available independent of trim tabs.

# Other Bennett Products (continued)

## **Auto Tab Retractor (ATR):**

The **ATR** automatically retracts trim tabs when boat's ignition key is turned to the "off" position. Retraction prevents trim tab damage for trailered or dry storage boats. Available in 12 and 24 volts.



## **Performance Sport Tabs:**

The **Sport Tab** series (ST9, ST12 and ST16) is engineered for the demands of offshore attitude correction over a wide range of water conditions. Built for speeds up to 60 mph. Features two heavy duty stainless steel tabs with powder-coated black finish, secured with heavy duty mounting plates and fasteners.



## **M80 and M120 Sport Tabs:**

Bennett's **M80 and M120 Sport Tabs** series are ideal for trailered boats in the 17' - 23' range. Their unique Batwing design provides 30% more lift than conventional trim tabs and their space-saving design ensures easy installation on virtually any transom.

