

## Boating Tips

### Trim Tabs 2.0

**S**o I'm on a 40-foot Express Cruiser instructing a new client. He brought his friend along for the ride and to see if he, an experienced mariner, could learn anything new. I was fine with having him along. He also owned a large express cruiser.

I get to the section on trim tabs and what they do. After the explanation, the friend looks at me with this bewildered look and says: "I didn't know that... I've owned my express for 6 years and never even touched those toggles." Needless to say, I was speechless...

If you don't know the multiple purposes of trim tabs and how to operate them correctly on a boat or yacht, don't feel bad, you're not alone. The fact is when I do boating instruction trim tabs are right up there with GPS and radar when it comes to the most intriguing mysteries my clients face in getting to know their new ride.

If your vessel has trim tabs, they were installed for good reason. Learning what they do and how to operate them is an important part of safely (and efficiently) operating your vessel.

Our 38-foot Bayliner, *Her Way*, has not two but four large trim tabs. Ours is a "semi displacement" yacht. (Or it could be referred to as "semi planing.") Basically, this means the boat won't plane out completely.

Planing out is where the vessel

rides (mostly) on top of the water as opposed to pushing through the water. This reduces friction and allows for a faster ride. Generally, the faster you go the more out of the water the boat will be.

### What Are They?

Trim tabs are those metal plates attached adjacent to the keel at the stern of the vessel on the transom. They project farther back than the stern/transom. Our boat has two on the outside and two bigger ones on the inside. In the full up position they are a natural extension of the contours of the keel. When deployed, they extend down to a maximum of about 20 degrees. You can set them (individually) in many positions between full up and all the way down.

A good analogy is to compare trim tabs on a boat to wing flaps on an airplane. When the airplane takes off, the flaps are in the down position. This makes the aircraft aerodynamically efficient at slow speeds. Also, when the pilot slows for landing the flaps are deployed to make the craft more aerodynamically efficient as the craft slows and loses lift.

Trim tabs, on the other hand, make the vessel "hydrodynamically" efficient when going from slow speeds to faster. Just as with an airplane, they need to be adjusted when speed increases significantly, decreases or conditions change. Unlike an airplane, they don't need to



BY KEVIN O'LEARY

be adjusted when going from being on plane to not on plane.

One of the issues many boaters have with trim tabs is that the vast majority of them don't have indicators to tell the driver which position they are in. Some of the newer, more expensive yachts have trim indicators, which are a series of red, yellow or green lights in a line.

If no lights are on out of the 10, then the tab is in the full up position. If all 10 lights are on, then the tab is in the full down position. These systems are very useful in keeping the driver aware of what is going on with the trim tabs. They can be purchased and added on to (most) existing systems.

### Hydraulic Or Electric

There are two types of trim tab systems available on the mar-



Electronic indicator control.

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ket today. One is hydraulic, the other electric. Hydraulic tabs move (slightly) slower than electric ones and, therefore, affect the attitude of the vessel slower. (I prefer hydraulic tabs myself.)

Hydraulic systems are capable of making the precise adjustments needed for smooth and safe control of the trim tabs. Hydraulic systems start and stop instantaneously. There is no lag time. As soon as you release the toggle, they stop moving.

Some electric tab manufacturers' freewheeling ball screw, gears and electric motor create considerable lag time from the time you take your finger off the control until the trim tab stops moving. This "actuator overrun" means that even momentary presses of the switch will result in the trim tabs running too far down or too far up. This overrun creates unpredictable and erratic control of the trim tabs that is confused with "fast action."

Some boat owners prefer electric tabs because they feel they are easier to learn on because they give instant gratification. In other words, just a short tap on the toggle switches results in a considerable change in the attitude of the vessel.



Euro style rocker control.



A trim tab is installed on the port side of the transom.



A fully mounted trim tab.

The thinking is they are easier to learn on because they react faster. (I disagree.)

Sometimes the hydraulic tabs don't even affect the vessel's attitude until a few seconds after you've already released the toggles. This can result in a lack of understanding by the driver of what just happened and why; however, I still prefer hydraulic systems. It's a matter of safety to me. Hydraulic systems allow for a slower reaction from the vessel and that translates to safety in my book.

### Toggle Switches

Another issue with trim tabs is the toggle switches and how they are set up. Basically, you have two

choices. You can toggle up or toggle down. The problem is they seem (logically) to be backwards. You would think that if you toggled up, the bow would rise. If you toggled down the bow would go down. The fact is they are set up opposite of this. In other words, when you press the "up" toggle, the bow goes down. When you press the "down" toggle, the bow goes up.

Since you can't see the tabs working, this seemingly backwards logic freaks out many boaters to the point where they want nothing to do with those damn trim tabs. I can understand this. There is a lot going on and a lot to focus on when you are planing out a yacht or boat. This is especially true in some of the



tight quarters of the Bay and Delta. Losing your focus of the task at hand could result in a dangerous situation.

What I tell my clients when instructing on the operation of trim tabs is to picture both of the toggle switches as miniature boats. Then I ask them to imagine looking down at the miniature boats from above. The “up” toggle becomes the bow and the “down” toggle becomes the stern. If you want the bow to go down you press on the bow of the miniature boat. If you want the bow to go up, you press on the stern of the miniature boat. While I realize this may seem like a very juvenile way to remember these things, it has proven effective for me over and over again.

### Reasons For Having Trim Tabs

Now that you know how to use them, let’s talk about what they do to the boat and the main purposes of having them in the first place. There are four main purposes for trim tabs:

**FIRST:** And most important is they help most vessels get on plane faster. This is very important because the driver will usually be “blind” for a few seconds during the process of planing out if the trim tabs are in the wrong position. When I say blind, what I mean is that the bow has risen so high you can’t see the horizon from the helm. This is a very dangerous situation to be in especially in the tight confines of the Delta.

**SECOND:** Adjusting for sea conditions including wind, seas, tides and currents. For instance, if you have a 20-knot wind on your starboard beam, the vessel will tend to heel to port. This situation can be corrected by adjusting the trim tabs.

**THIRD:** Onboard weight distribution. If you have the 49ers’ front four sitting on the port side and you are the only one on the starboard side, the vessel may heel to port.

This can be corrected by manipulating the trim tabs. **FOURTH:** Trims the boat for hydrodynamic efficiency. Bottom line here is you save fuel if the boat is operated hydrodynamically efficiently. Trim tabs can help you do this.

Special thanks to Bennett Trim Tabs and Joseph Schneider, Director of Business Development, for consulting with me for this article and providing photos.


For more information on trim tabs and the differences between electric and hydraulic systems, go to [www.bennetttrimtabs.com](http://www.bennetttrimtabs.com).

### Kevo’s Tip:

Never run trim tabs in the full down position when encountering a following sea. Under these circumstances the vessel may “broach,” which means the bow gets driven into the backside of a wave and the vessel veers violently to port or starboard.

You don’t want that! (Trust me, I know from experience.) HA!

Be safe & happy boating.

As always, feedback is appreciated. I can be reached at 925/890-8428 or [kevo@yachtsmanmagazine.com](mailto:kevo@yachtsmanmagazine.com). 



Tab in motion.

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