

USCG Auxiliary District 11 North Surface Operations Update October 2020



Virginia Luchetti – DSO

2021 OPTREX Calendar

We will begin work on the OPTREX Calendar for 2021. Please email possible dates to DSO-OP.

Boat Crew and Personal Protective Equipment (PPE)



Information from our District PPE Manager, Michael Brown

Earlier this year, a crew member dropped off a float coat at DIRAUX on a day I wasn't there. When I arrived at the DIRAUX office, it was on the back returns/pickup table, in a classic dry-cleaner's plastic cover. I put it in the PPE locker and after about 10 minutes (still in its cover) the whole room began to take on an odor of stale cigarettes. Removing the plastic wrap, the odor was almost overwhelming, so I took it to the base warehouse to air out. About four hours later, the problem hadn't abated. I ended up having to destroy the jacket (per our OTO) and take it to the warehouse trash facility. So, good people...**please do not** expose your returnable PPE gear to smoke, as under that situation such items cannot be reused. The other problem was that in an honest attempt to remove the odor, the member had the coat dry-cleaned. However, the instructions in the float coat specifically state "WARNING: DO NOT DRY CLEAN." Doing so seriously degrades the materials used in the float coat. The integrity of any Mustang or float coat cannot be guaranteed if those items are dry-cleaned. If cleaning is necessary, use warm water and gentle detergent (again, read the label). Air-dry the outside, then the inside out, then the outside of the item again to avoid mildew. If you have any questions on cleaning these items, please don't hesitate to contact me.

Paul's Tips

Navigation and Safety Reminders from Qualification Examiner Paul Verveniotis

Why Won't This Boat Walk? Or Is It Me?...

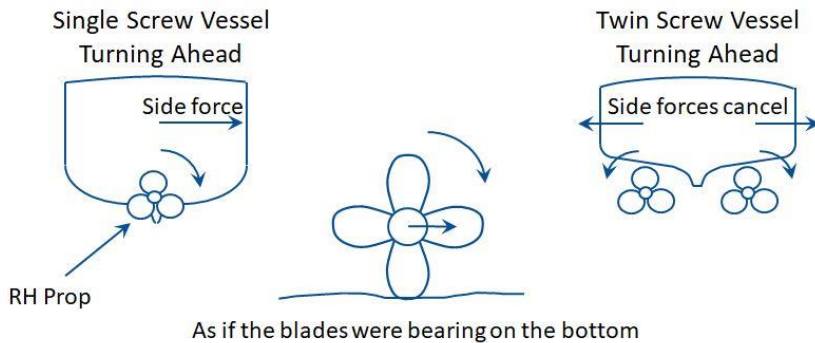
Those who have operated a twin-engine boat may know that it's possible to "walk" the boat laterally or sideways. This is of course a huge boon for close quarters boat handling and docking a twin.



So, you try it on your boat and it doesn't walk at all – you might think there must be some magic touch that you don't have. Well, there is some of that, but also some boats just will not walk sideways, period. It all depends on several factors related to the boat's geometry and the forces involved. Also, lateral control of a twin is normally a topic for an inboard engine boat – not outboards. It is possible to walk an outboard twin – more on that later.

The Propeller Forces

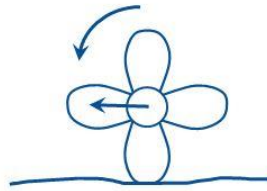
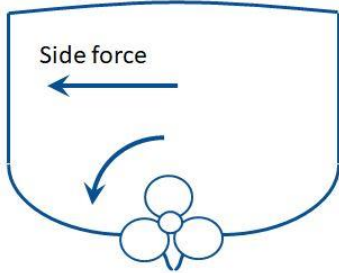
First, let's look at the forces generated by a propeller. On an inboard single engine vessel, there is of course forward thrust from the prop's discharge current when turning ahead. There is also a lateral (transverse) thrust due to engine torque and underbody flow. This can be thought of as if the propeller is walking along the sea bottom. While turning ahead (forward) with a right hand prop, the force pulls the stern to starboard.



On a twin, the starboard engine normally has a right hand prop and port has a left hand prop, so these forces cancel out.

The lateral force is much more pronounced when turning astern (reverse).

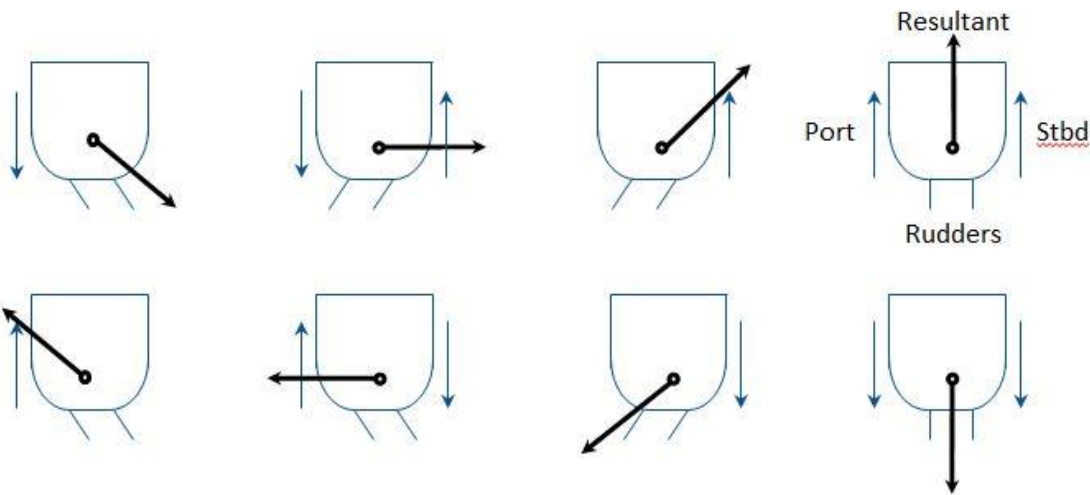
Single Screw Vessel
Turning Astern



As if the blades were bearing on the bottom

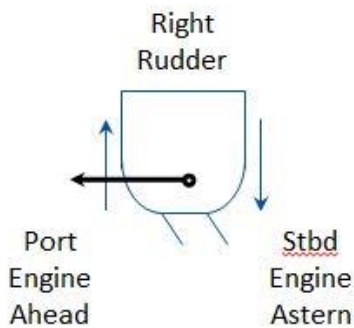
OK, so far so good. Now let's look at the forces created by a twin in different control configurations. There are many combinations of propeller thrust and rudder position which results in different overall force vectors. These are all in "normal" mode (not attempting to walk).

Twin Engine – Combinations of Rudder and Engine Commands



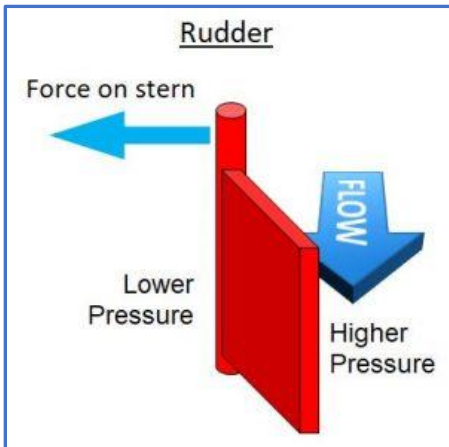
Study these different images closely and you should be able to decipher what is happening with one or both engines turning in different directions.

Note that in the following configuration, the stern has a strong vector to port and this would be how you would normally spin the vessel in place clockwise.



The Rudders

Then there are the rudders. Each one generates a lateral thrust as a result of water moving across it. When turning ahead, the propeller's discharge current is directed onto the rudder and that creates the force up the rudder post to direct the stern.



When turning astern, the discharge current is towards the bow, and the suction current does not have nearly the same effect. In other words, the rudder does much more with an engine that is turning ahead (assuming dead in the water).

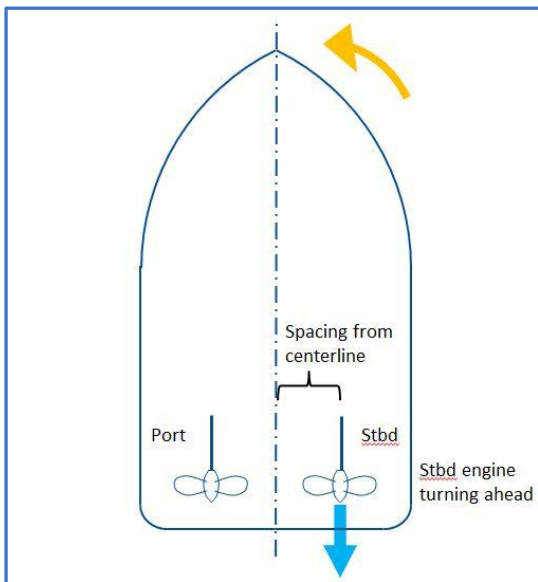
A larger rudder will generate a greater force and provide more rudder authority.

Note that the graphic of the rudder above is a simplified example of what's called an *unbalanced* rudder.

Many boats use a *semi-balanced* rudder to ease the steering force and capture more of the prop's discharge current.

Engine Spacing

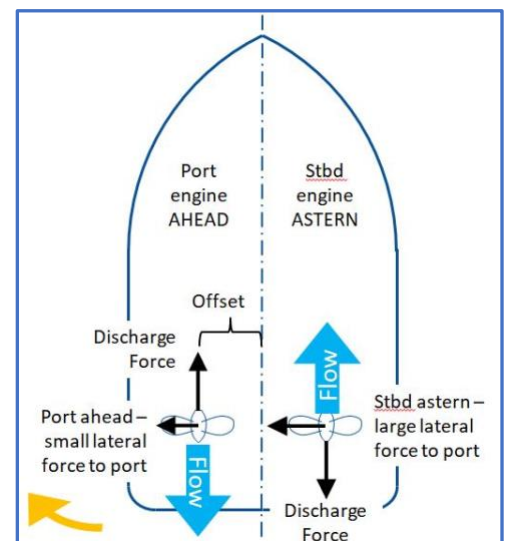
There is also the factor of the amount of spacing of the two engines in relation to the length of the boat. Since the engines are off to each side of the centerline, the thrust from the propeller creates a twisting moment which wants to turn the boat to one side or the other.



The shorter the boat and the more spacing between the engines, the greater is this effect.

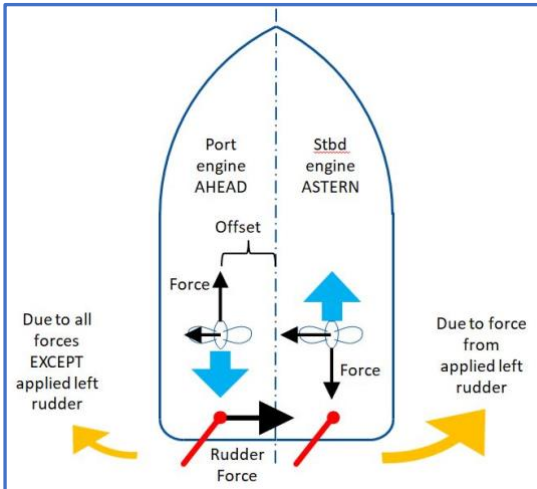
Walking

SO...now let's look at a hypothetical vessel that is attempting to walk sideways to starboard. To do so, the port engine is placed ahead and the starboard is placed astern. First consider the forces without the rudder.



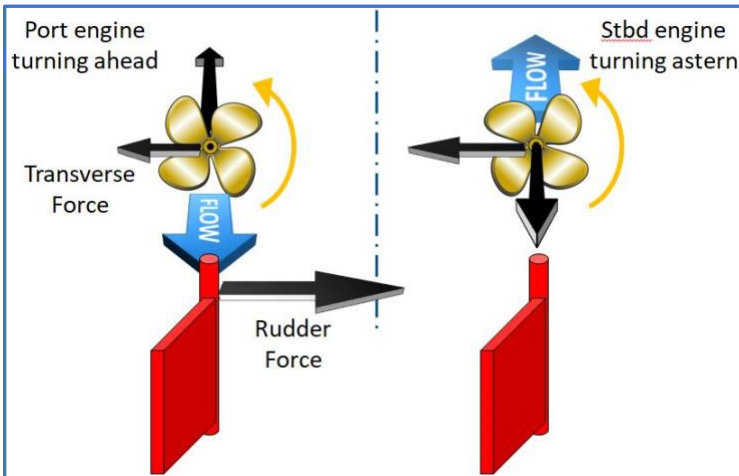
The combination of propeller thrust, lateral forces, and engine offset are all pushing the stern to port and trying to spin the boat to starboard. So basically, all of the forces are against us. In fact, this is exactly what we would normally do to spin the boat clockwise to starboard. But...we want the stern (and the whole boat) to go to starboard.

We can use the port engine's discharge current and left rudder to offset all of the other forces. The discharge current from the port engine creates a large lateral force to starboard. If the force is large enough, it can overcome all of the other forces and push the stern to starboard.



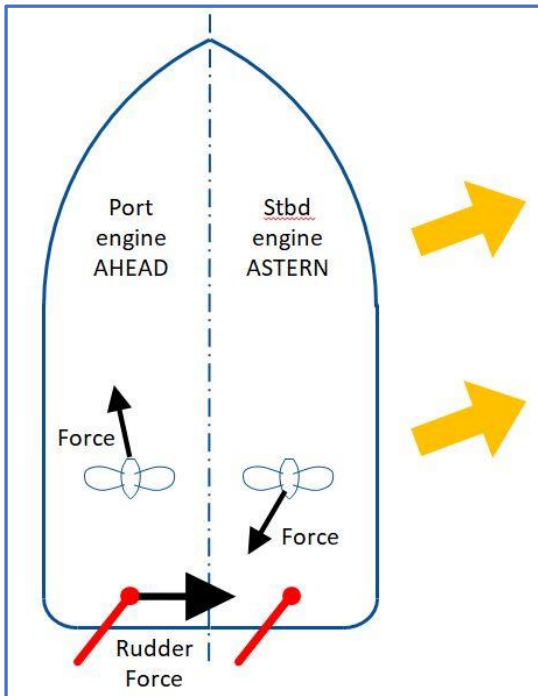
Remember that the starboard rudder does not do much with that engine turning astern. The discharge current is all directed forward.

Here's another view of the forces at play:



The last piece of the puzzle is getting the bow to also go to starboard. This is done with varying amounts of astern power on the starboard engine. That will pull the bow to starboard and result in walking the boat to starboard as well.

A simplified summary of the forces looks like this:



With all of the ahead thrust on port, most boats also make a bit of headway so the net result is walking a bit forward of directly abeam. This can be counteracted by momentarily turning both screws astern and sort of see-sawing to starboard.

So what are the characteristics of boats that walk better than others?

Longer, less beamy hulls and close engine spacing both minimize the offset force, and large rudders that produce enough lateral force to overcome all of the other forces. Lots of boats are built with massive beams in relation to their length to make them more liveable, and thus give up this sort of maneuverability. Those boats just “run out of rudder” when the operator is trying to make this happen.

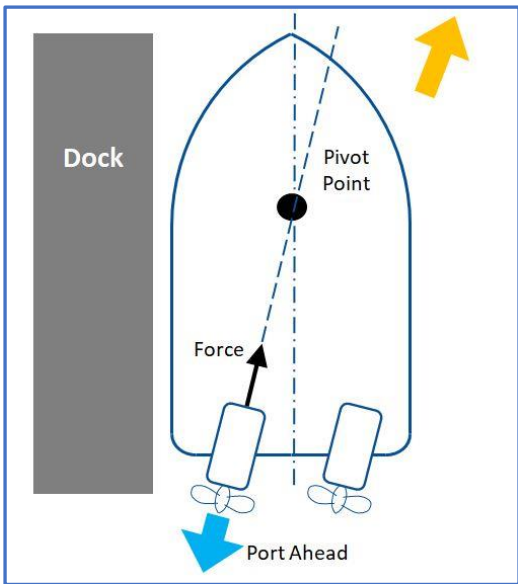
Outboard (and I/O) Twins

It is possible to walk outboard twins sideways. Some do it better than others. With outboards, the benefits of offset are the opposite – the more spacing between engines the better.

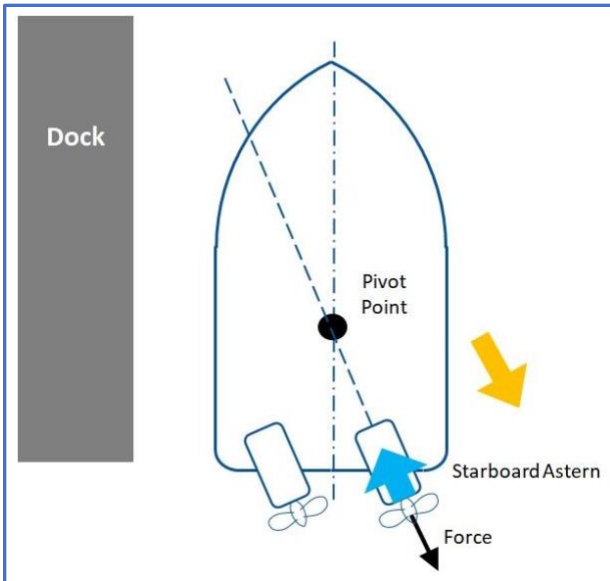
Outboards do not experience the propwalk effect that we see on inboard boats. They also have directed thrust rather than rudders since the entire engine rotates with the helm commands. Unfortunately, they are roughly equally effective turning both ahead and astern (unlike the inboard where the rudder does not do much turning astern). So it is not possible to use the same technique.

With outboards, the goal is to direct thrust towards the pivot point of the vessel. Recall that most boats pivot around a point roughly 1/3 of the way back from the bow while going ahead, and about 1/3 from the stern when turning astern. You’re not trying to pivot the boat – just to push it through its pivot point.

To move laterally to starboard, start with just a bit of left “rudder” and then apply a short burst ahead on the port engine. Just clutch ahead, no throttle.



The boat will move a bit forward and sideways with no rotation. Then shift to right rudder, and apply a bit of astern thrust on the starboard engine. You can think of this as “pulling” the boat through its pivot point.



With this back and forth seesaw motion, you can work the boat off the dock. There will be some fore and aft movement so you'll need a bit of space for that.

This definitely takes some finesse on the helm, and you'll need to be lively and delicate with the steering to find that exact point where the force is through the pivot point and not rotating the boat.

Newer boats have fully electronic steering controls and actuators such that both engines can be controlled independently by computer, and those boats can truly walk directly sideways or go in any direction you wish with control by just two fingers on a single joystick.

* * *

Walking sideways takes a lot of practice to learn the nuances of a particular boat. Don't be frustrated by your attempts, but also realize that some boats WILL NOT walk no matter who is behind the helm. So, don't be too hard on yourself!

Cutterman's Corner

Helpful Tips from Gary Kaplan

Coast Guard Auxiliary Cutterman
Boat Crew Academy Instructor
District 11 NR Assistant Staff Officer - Operations (Training)



Wearing Uniforms Properly

The following is a revision of an article that I wrote earlier this year for inclusion in my monthly Division 12 Operations Report. I have chosen to include it here as it is pertinent to an ongoing problem in the Auxiliary. The subject is the proper wearing of uniforms.

The Coast Guard has accorded us a very high honor by authorizing us to wear what is essentially a Coast Guard officer's uniform, the primary difference being that the stripes on our shoulder boards are silver and theirs are gold. At the very least, we should repay that honor by wearing the uniform properly.

We've all seen them, Auxiliarists who wear black leather athletic shoes with Velcro tabs with their Tropics, Auxiliarists who don't understand the gig line, Auxiliarists who wear unauthorized boat shoes with ODUs, and Auxiliarists who wear ODUs that are clearly beyond serviceable.

What follows shows how seriously the Coast Guard takes the wearing of uniforms.

The first topic presented in law enforcement training aboard Cutter ASPEN underscores the proper wearing of uniforms. At first glance, a Coast Guard boarding team and a Coast Guard Auxiliary boat crew may not seem to have much in common. However, there is one very significant similarity. At times, both we and they interact very closely with the public, they while boarding a vessel, and we while rendering assistance.

Behavioral science has shown that within 10 seconds of seeing someone, we formulate opinions of them that are based solely on appearance, and that these impressions are lasting. What follows should be the cardinal rule of Auxiliary small boat operations, as it is that of Coast Guard boarding parties. This is exactly how it was stated on ASPEN.

"If you want to be taken for a professional, look like a professional."

It is very clearly stated on the Auxiliary's Response Directorate website that when we are operating under orders, we are not Coast Guard Auxiliary, but Coast Guard, and that the facilities upon which we are patrolling are not Coast Guard Auxiliary facilities, but Coast Guard facilities. Therefore, it is incumbent upon us to look like professionals.

The bottom line is that if one can't wear the uniform properly, one shouldn't wear it at all.

News from the Field

From ADSO-OP and SO-OP Division 3 John Hardin:

Promoting Boat Safety- No One Said It Would Be Easy

While out on patrol or just out recreating, we often witness unsafe boating practices. We wish it weren't so, but it is and it's very frustrating for us. A family out enjoying boating with small children up on an unprotected bow. Persons on a swim step while underway. The list is endless.

Unconscious Incompetence

What's going on? Many lack the knowledge and skills to safely operate a boat, and to make matters worse, they don't know it. They are unconsciously incompetent. They just don't have a clue.

Conscious Incompetence

To correct their unsafe practices, they first need to become conscious of their incompetence. This involves becoming aware of the physical, financial, legal risks associated with their risky decisions. A child could fall off a bow and quickly be chewed up by the prop or a person on a swim step could be overcome by CO, fall in the water, and drown. We have a great opportunity our boating safety classes to point out the dangers involved in boating.

Conscious Competence

The Conscious Competence phase of involves actually learning and employing safe boating practices. Our boating safety class can fill this void also, but we all know that very few boaters take our classes. The immediate solution is to do a better job promoting our classes. Hopefully, the California Boater Card program will also promote boating safety.

From Lew Derfuss, Division 5 SO-OP and Division Commander:

With 2 passengers aboard, both new to boating, one a "first timer", the other a 2nd timer, AUDREY L towed 3 stranded boaters from the Carquinez deep water shipping lanes to safety and shore at Benicia's 9th Street pier.

Upon hearing shouts from somewhere and then spying a person waving an orange PFD over their head, AUDREY L proceeded to investigate and discovered the 3 boaters in a 16 foot open powerboat adrift in the deep-water shipping lane and about to drift into a 5 knot current.

After checking that the craft was not about to sink, not on fire, and that no medical emergencies existed, the AUDREY L put the vessel alongside and slowly motored toward the 9th Street pier.

The crew of the stranded vessel were congratulated for wearing PFD's and knowing at least 1 way to attract attention should help be needed. As they were under tow, lessons on how to toss a line to someone ashore were given, and well enough understood to get a line to a helpful stranger on the pier when the need arose later.

That 5 knot current on the beam sweeping past the 9th street pier created a " Get it right the first time" situation, as the waters down current shallow quickly, and large rocks cover the shoreline ahead, fishers crowd the upstream pier and the ramp between is mighty narrow for 2 boats in a strong sideways current.

A successful bow on landing was made by the stricken vessel, tow lines freed, and the AUDREY L steamed home to Glen Cove and rest.

Stopping by auto at the 9th street pier later, the boat was spotted safely on the trailer, and information about Aids to Navigation, California Boating Safety, Federal Requirements for Boats, and emergency radio operations were gratefully accepted.

I bet they use the "1/3 out, 1/3 back, 1/3 reserve formula" next time the leave the dock.

See ya on the water.

Reminders from our Operational Training Officer

Let's take full advantage of our time away from the water.

- Take an online Navigation test
- If you're not already AUXOP, this is a perfect time to complete many of the requirements
- Practice knots
- Practice knots
- Study and practice line handling commands
- Learn more about weather
- Go back through your qualification book and pretend that a QE is asking you some of the questions
 - First aid
 - Sound signals
 - Alongside tow procedures
 - Stern tow procedures

End of Report