

Controlling Azimuth Drives in SSE V1.0

Azimuth drives are those drives whose propeller shafts can be rotated to point in any horizontal direction in order to push the ship in that direction—the direction of thrust.

They go by various names, such as Azipod, Schottel, Z-Drive, etc. This category **does not** include Voith-Schneider propellers (VSP), such as those on Red Eagle.

Current SSE ships with azimuth drives include: Orient Star, Bugsier 2, and Jumbo Javelin.

There are two separate issues:

1. Controlling the drive by means of the joystick object adopted by VSTEP for SSE. This is done in the same way for all ships.
2. The effect on a particular ship by the drive. This is different for each of the ships.

Manipulating the Joystick with the Mouse

We will use Orient Star as an example, and discuss differences later.

The control object provided by VSTEP was designed to be easily manipulated by the mouse. You might also assign keys or external controllers to manipulate the control, but that will not be discussed here.

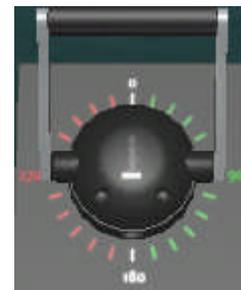
The joysticks commonly used on ships differ from gaming “flight sticks” in one important aspect: While the thrust is controlled by pushing the stick forward, or pulling it back for reverse thrust, the entire joystick platform can be rotated to point the handle in the direction of thrust.

To set the amount of thrust, click and hold the mouse over the crossbar of the handle to get a small white circle.

Move the mouse forward to increase the forward thrust. Pull the mouse back to decrease the forward thrust or increase the reverse thrust.

The propeller speed in RPM is indicated on the lower bar below the control.

The red area on the left is reverse thrust.



To set the direction of thrust, rotate the control by dragging the lower part of the control left or right. Moving the grey mark on the bottom center left into the red area turns Orient Star to port when going ahead. (The stern is pushed in the direction of the handle, to starboard, causing Orient Star to turn to port).

The angle of thrust is shown in degrees on the upper bar below the control.

Double-clicking the handle will set the thrust to zero. Double-clicking on the lower half of the control will set the angle of thrust to zero.

Notice that the values of thrust and azimuth do not change instantaneously, but take a realistic amount of time to reach their new values.

To make small course corrections with the mouse, you can adjust just one of the drives, leaving the other at dead ahead. It is preferable to adjust the drive that will be on the inside of the turn (the port drive for a turn to port), but either will do.

You can control azimuth & thrust of both drives together in small increments with the arrow keys **if precision steering is disabled:**

To change the azimuth, hold a **Shift Key** down while you tap the Left or Right arrow key to rotate the control platform. Release the shift key last.

To return to dead ahead, Release the shift key and tap either the left or right arrow key.

To change the thrust, hold a **Shift Key** down while you tap the Up or Down arrow key to move the handle. Release the shift key last.

To return to zero thrust, Release the shift key and tap either the up or down arrow key.

Note that the increment depends upon the length of time the key is down during your tap. It is unlikely that you can produce increments of consistent size. If, starting from dead ahead, you take three taps to port and then three taps to starboard, you may not return to zero. That is why you should release the shift key and tap one arrow to return to zero.

Also note that because the drives are at the stern of Orient Star, the left arrow rotates the drives clockwise to turn the ship to port.

Because the drives on Bugsier 2 are forward of the centro, the left arrow key rotates the drives counterclockwise to turn the ship to port.

Steering with the arrow keys is thus intuitive for both vessels.

Example—Docking Orient Star starboardside to:

Set the port drive azimuth to 90 degrees so that you can use it as a stern thruster in combination with the bow thruster.

Leave the starboard drive at 0 degrees to control the forward motion.

One common objection that I hear to using the mouse is that one can't control both drives at the same time. One seldom needs to. With a little practice, the lag will be less than a second in cases where it is necessary. Learn to use the mouse in combination with the arrow keys for precise control.



The reason for disabling the so-called “precision steering” is to allow throttles and steering to be rapidly returned to stop and amidships, respectively, with a single key tap. Something you would appreciate when riding the jetski in SS 2008.

Holding a shift-key down gives you the same incremental control that you get with precision steering enabled, with fewer headaches. This is also an advantage when steering the hovercraft with the bow ducts.

Bugsier 2

The two Rolls Royce Aquamaster drives are controlled in the same way as for the drives on OS, except that there is reverse with the thrust handle.

The rotation of the screw is never reversed; reversing the direction of thrust is done by changing the azimuth by 180 degrees.

There is an important difference in their effect on the ship: The two drives are forward of the center of rotation—making B2, technically, a tractor tug.

Because of that placement, the ship will turn in the direction of thrust. When the handle points to port, the thrust and the turn is to port. The black line in the top (azimuth) bar will be in the red zone.

To turn to port with the mouse, drag the bottom of the control to the **right**.

For **backing**, you need to turn the drives 180 degrees so that the handles point astern. This is easiest done by holding the left arrow key down, holding a shift key down, releasing the arrow key, and then releasing the shift key. **Precision steering must be disabled.**

With precision steering disabled the arrow keys act on both drives together as follows:

You can hold a **Shift** key down and tap the Left & Right arrow keys to change the azimuth in increments as explained for Orient Star. To return to **dead ahead**, tap the left or right arrow key *without* holding a shift key.

When going ahead, pressing the **left** arrow rotates the drive counterclockwise. The thrust and the turn will be to **port**.

Pressing the **Right** arrow rotates the drive clockwise. The thrust and the turn will be to **starboard**.

You could also tap the Up arrow key; but this will also set the thrust to zero.

To set the thrust ahead with the Up arrow, hold a shift key down while you tap it.

For full ahead, press and hold the up arrow, then press and hold the right shift key, then release the up arrow, and then release the shift key.

You can **reduce thrust** while going ahead by holding a shift key and tapping the Down arrow.

As with Orient Star, you can make course changes using only one of the drives if you want precise control using the mouse.

Jumbo Javelin

The azimuth thruster on Javelin differs from those on OS and B2 in that it is a relatively low-power (1700 KW) thruster that is used only for low-speed maneuvering or dynamic positioning.

It is not used for underway propulsion. While underway, it is retracted into the hull to reduce drag and risk of damage.

This picture is of a similar drive from a different manufacturer; Javelin has a Wartsila FS225-240/MNR.

In SSE V.1.1.0 build 1037 there is no control for the azimuth thruster. Hopefully that will change.

