SOP-NAUT-002 Loss of Steering

1.0 Introduction

The purpose of this procedure is to establish general instructions for responding to a loss of steering event onboard the Nautilus. This vessel may lose steering control at any time due to a variety of mechanical, electrical, or physical problems. Understanding and following established protocols may mitigate the severity of the incident. Nautilus steering is provided by two Z-drive propellers. The steering gear is located below the main deck between the frame -01 / 06.

2.0 Responsibility

The Master has overall responsibility and coordinates all activities in the event of the vessel losing steering and will begin procedures to restore steering. The Master will contact the engine room and inform the engineering staff of the situation. The Chief Engineer is responsible for beginning any procedures or repairs necessary to restore steering capability. If steering cannot be restored on the vessel, the Master will call for outside assistance.

3.0 Procedures

3.1Steering mode

There are Six modes of steering on the Nautilus, three of them are in normal condition and other three for emergency situations.

- Combination mode
- Auto pilot
- Individual mode
- Emergency tiller (from BRIDGE)
- Emergency tiller (from ECR)
- Emergency steering (from steering gear room)

When the Engine Control Room (ECR) gives the control of the Azimuth drives to the bridge, the O.O.W. must be carried out a system check to see if the system is working properly. As per company procedure.

Use the engines to maneuver the vessel away from any danger. If the vessel is in shallow water reduce speed and keep both anchors ready for immediate deployment. Inform any nearby vessels of the loss of steering by Channel 16. Update the ships status on the AIS. Use the appropriate signals (day-two black balls on yard arm, night-turn off white mast light and turn on 2 red mast lights) to let vessels know steering ability is compromised.

3.2Manual Mode

3.2.1Combination mode

With this configuration it is possible to control both azimuth drives using only the starboard azimuth control level (direction and propeller pitch)

IMPORTANT, with this configuration never change the HDG with hard to port or hard to starboard command, to avoid the wash of one propeller make cavitation to the other one.

3.2.2 Autopilot mode

To select the auto pilot mode the operator has to keep the azimuth levers in 0º position , then turn the selector switch into Combination mode. After they can turn the selector knob on the auto pilot to AUTO. Autopilot is connected with Gyro nº1 and Gyro nº2. To change the HDG just need only rotate the small wheel located on the Auto Pilot.

3.2.3Individual mode

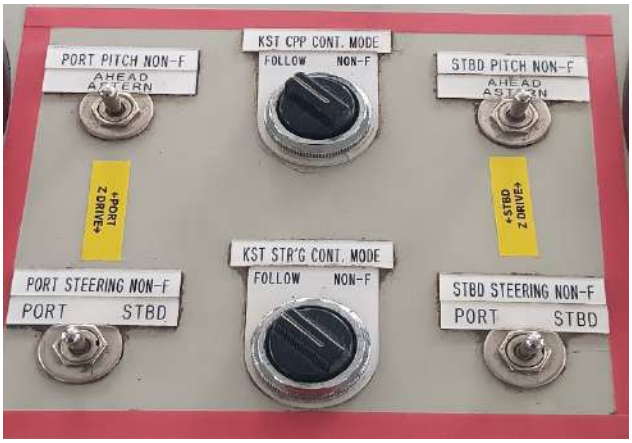
In this mode the helmsman has to use both azimuth control levers. Normally this is utilized for narrow channel / river transit and its possible stop the movement quickly in case of emergency (by turning the wash of the propeller outside). With this configuration pay attention to **don't put** the propeller wash against the other azimuth.

3.3EMERGENCY MODE

When steering is lost the following steps should be taken

3.3.1Emergency tiller (from bridge console)

- Between the z-drive joystick is located the emergency control panel (see picture below)

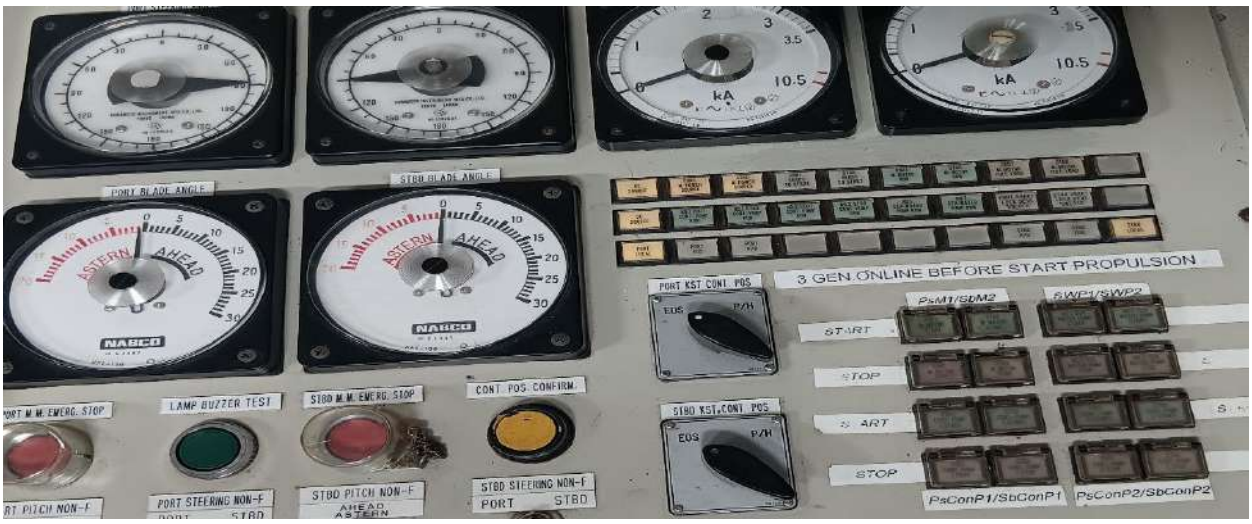


- Turn the selector in Non-follow position
- From this moment you can control the z-drive direction and pitch.
- **(This emergency panel is present also for the tunnel thruster and for the retractable thruster.)**

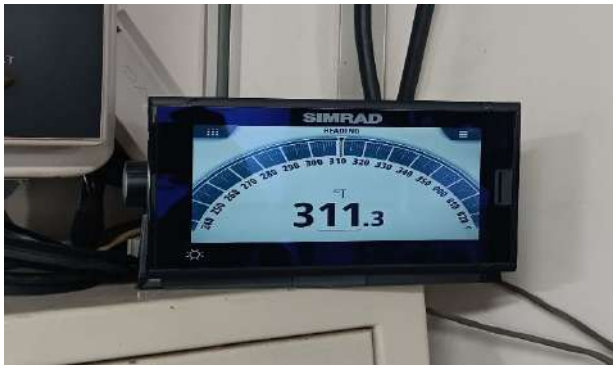
3.3.2Emergency tiller (from ECR)

In this case also the emergency tiller on the bridge is out of order immediately inform the ECR. Automatically the Officer of the Watch in the ECR take the command of the Z-drive (see picture nº1) and from the emergency steering panel (see picture nº2) he can control the HDG. In the engine control room nearby the panel is present the HDG indicator (see picture nº3) and an emergency phone.

(picture nº1)
EOS= control in ECR
P/H= control on Wheelhouse



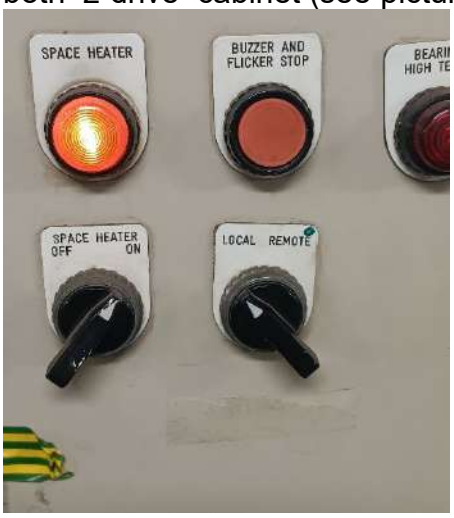
(picture nº2)



(picture no3)

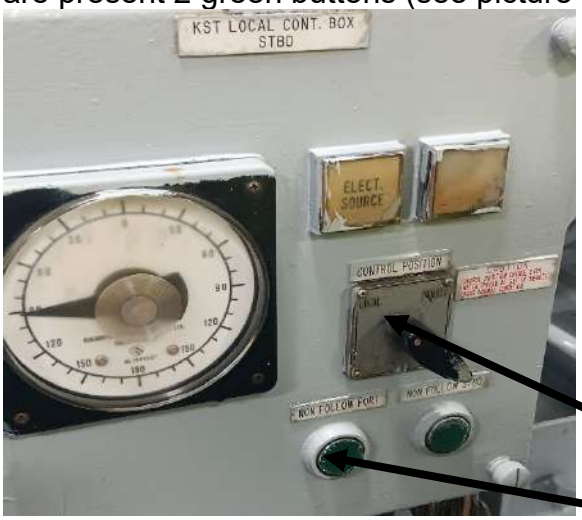
3.3.3Emergency Steering (from steering gear room)

In this case also the control in the ECR station are out of order the Officer on duty has to inform immediately the bridge.
On the steering gear room he has to select from remote to control the throttle on both z-drive cabinet (see picture no1) on local position



(picture nº1)

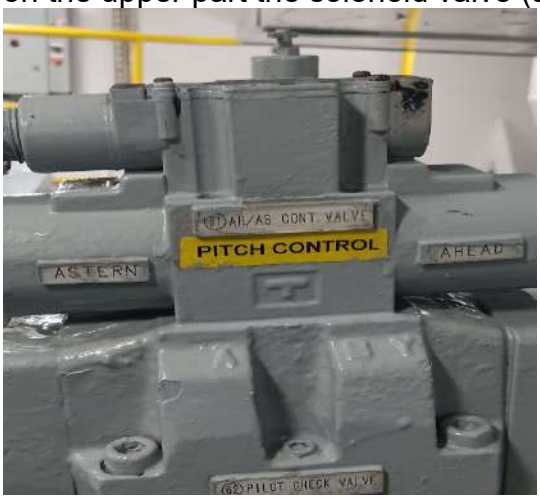
Proceed to the z-drive installation, on the lower part of both z-drive there is a control box (see picture nº2) turn the selector on local position. In this control box are present 2 green buttons (see picture nº2).



Selector switch
Angle control

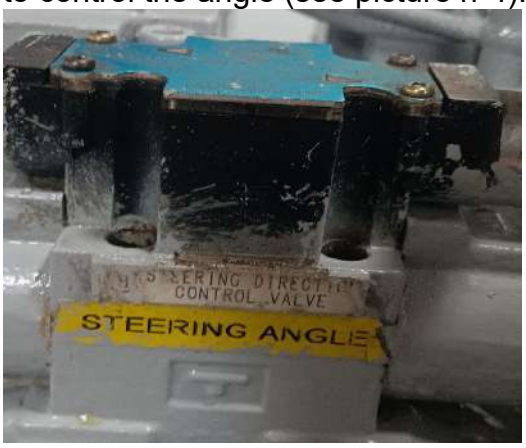
(picture nº2).

With the two green buttons is possible control only the angle. For the pitch we have on the upper part the solenoid valve (see picture nº3).



(picture nº3).

In case we have problem with the two green buttons we can use the other solenoid valve to control the angle (see picture nº4).



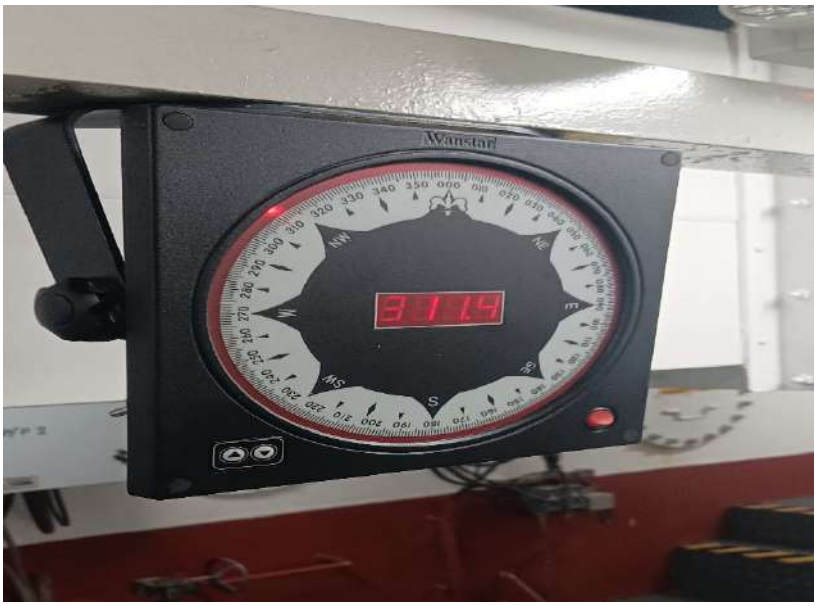
(picture nº4)

To keep monitored the angle and the pitch are present two indicator (see picture nº5)

(picture nº5 – angle indicator)

(picture nº5 – pitch indicator)

In the steering gear room is present also:
Gyro repeater
One Magneto phonic phone with the earmuff



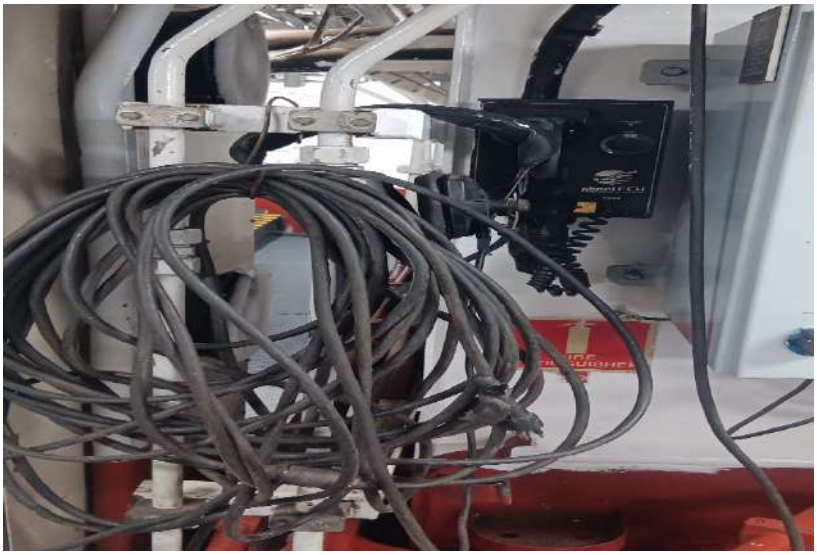


Diagram posted on FWD console wheelhouse