

**Quick Start Guide**  
**Research Vessel ATLANTIS**  
**Type DESH-5 Deep Sea Research Winches**  
**Retrofit, Refurbish, Upgrade, Project Number 21691**

Enable Winch Operation

Apply power to Winch Drive Panel located in the incinerator room.

After power is applied, the Red Fault Push-to-Test illuminated indicator will be on indicating main power is applied to the drive and the drive is in the pre-permissive to operate state. Depress reset button on front for Drive Panel. The Red Fault indicator will turn off if the drive has no faults and is in an operable condition with the internal permissive circuit enabled. Ensure all Operator Control Station Emergency Stops are in the up position. Emergency Stop pushbuttons are located at the Starboard side pedestal Local Control Station, the Aft (Doghouse) Control Station and the Lab Control Station.

Ensure the fairlead drive control is in the Auto mode. This can be verified by opening the Fairlead Control SS protective enclosure located on the winch and observing the control station selector switch is in the Auto position.

Proceed to the Starboard side pedestal Local Control Station and select the winch to be operated by rotating the Station Select selector switch to the desired operator control station. The amber STATION Active indicator will turn on at the selected control station to indicate the station is active and ready to control the winch. Note that all control station speed/direction joysticks must be in the center off (neutral) position in order to select and activate a control station. Further note only one winch can be activated at any one time thus the inactive winch must have its station select in the Standby position.

Operate Winch

After the winch has been enabled to operate and an Operator Control Station selected and activated from the Starboard side pedestal Local Control Station, the winch may be operated as follows below.

**Starboard side pedestal Local Control Station:**

All winch operations involving deck side line handling, rigging, and package deployment/retrieval should be done from this station. It is recommended that all winch operations with less than 100 meters of line scope be done from the Local Control Station. With the Local Station Active Indicator on, the winch may be operated by pulling up on the joystick neutral position interlock and then deflecting the joystick slowly to the “first on” position in the desired direction of package control (winch wire movement) -- Hoist (inhaul wire direction) or Lower (payout wire direction). At the first-on position of the joystick (just off the center interlocked position) the winch motor will energize and the motor brake will release.

Winch speed will be at zero to a slow creep in the first-on position. To increase speed, continue smoothly moving the joystick in the desired direction of operation.

The emergency Stop pushbutton should only be used to stop the winch operation in the event of loss of control from the joystick or to immediately stop the winch in response to an emergency situation. The Emergency Stop will set the motor brake immediately and disable the winch drive.

### **AFT (Doghouse) Control Station:**

Reference Starboard side pedestal Local Control Station.

The AFT Control Station has an amber illuminated two position Winch Select selector switch which serves as both winch select and station active indicator. The Winch Select amber indicator will be on when the currently active winch position is selected. If the switch does not illuminate, verify the Winch Select switch is in the correct position for the winch to be operated. In addition, verify the winch to be operated has been selected and the AFT control station for that winch has been selected from the Starboard side pedestal Control Station—Reference Enable Winch Operation above.

With the Winch Select Indicator on, an operation mode must additionally be enabled before the winch can be operated. The winch may be enabled for manual control by momentarily depressing and releasing the blue Manual Mode illuminated push-button. The blue Manual Mode push-button will illuminate to indicate the manual mode is active. The winch may now be operated by pulling up on the joystick neutral position interlock and then deflecting the joystick slowly to the “first on” position in the desired direction of package control (winch wire movement) -- Hoist (inhaul wire direction) or Lower (payout wire direction). At the first-on position of the joystick (just off the center interlocked position) the winch motor will energize and the motor brake will release. Winch speed will be at zero to a slow creep in the first-on position. To increase speed, continue smoothly moving the joystick in the desired direction of operation.

The emergency Stop pushbutton should only be used to stop the winch operation in the event of loss of control from the joystick or to immediately stop the winch in response to an emergency situation. The Emergency Stop will set the motor brake immediately and disable the winch drive. The Manual Mode can be disabled by again depressing and releasing the pushbutton when the mode is active, effectively toggling the Manual Mode on and off.

### **LAB Control Station:**

Reference Starboard side pedestal Local Control Station.

Observe additional caution when operating the winch from the LAB location as this is a remote station and there is no direct visual contact with complete operating arena including both the winch and over boarding position of the package.

The LAB Control Station has a two position Winch Select selector switch and a Station Active amber indicator. The Station Active amber indicator will be on when the currently active winch position is selected. If the indicator does not illuminate, verify the Winch Select switch is in the correct position and winch to be operated. In addition, verify the winch to be operated has been

selected and the LAB control station for that winch has been selected from the Starboard side pedestal Control Station—Reference Enable Winch Operation above

With the Winch Select Indicator on, the winch may be enabled for manual control by momentarily depressing and releasing the Manual Mode illuminated push-button. The Manual Mode push-button will illuminate to indicate the manual mode is active.

The winch may now be operated by pulling up on the joystick neutral position interlock and then deflecting the joystick slowly to the “first on” position in the desired direction of package control (winch wire movement) -- Hoist (inhaul wire direction) or Lower (payout wire direction). At the first-on position of the joystick (just off the center interlocked position) the winch motor will energize and the motor brake will release. Winch speed will be at zero to a slow creep in the first-on position. To increase speed, continue move joystick in the desired direction of operation.

The emergency Stop pushbutton should only be used to stop the winch operation in the event of loss of control from the joystick or to immediately stop the winch in response to an emergency situation. The Emergency Stop will set the motor brake immediately and disable the winch drive.

### Advanced/Automatic Winch Operating Modes

Render / Recover

Cast / Hold

Motion Compensation (Active Heave Compensation)

Caution: These modes of operations should be activated with a minimum of 100 meters or greater of line scope deployed and only when the operator remains standing by and ready to assume control while observing the winch operations.

The Advanced/Automatic Winch Operation Modes are enabled by momentarily depressing and releasing the push-button associated with the desired operating mode. The Mode indicator will illuminate when the selected mode is enabled. To start/initiate operation with the selected mode, additionally the winch speed/direct joystick must be deflected off of the center neutral position. Active mode can be toggled off by again depressing the illuminated mode push-button.

### **Render/Recover**

The winch line pull is controlled manually by adjustable set point motor torque or controlled automatically to maintain an adjustable set point line tension. Winch line speed will be variable in response to maintaining constant motor torque or constant line tension.

Selector Switch Manual Position- Motor torque is adjustable via the Tension Min/Max rotary adjust operator. Adjustment range is 20 to 100% motor torque

Selector Switch Auto Position- Line Tension is adjustable via the Tension Min/Max rotary adjust operator. Adjustment range is ~300 to 3000LB line tension

Selector Switch Render Only Position- The winch will render line only, will not recover line in response to line tension exceeding adjustable set point. Line Tension is adjustable via the Tension Min/Max rotary adjust operator. Adjustment range is ~300 to 3000LB line tension

### **Cast / Hold**

This mode automatically deploys or retrieves line to an adjustable set point scope at an adjustable set point speed. The desired scope and speed are set by the operator on the Operator Interface display main control screen. Speed can be adjusted during an automatic cast via the operator interface touch screen using the up/down arrows.

### **Motion Compensation (MO-COMP) -Active Heave Compensation**

Winch speed and direction are controlled automatically following velocity output from a Motion Reference Unit (MRU). The MRU calculates the vertical heave velocity at a pre-defined overboarding point (hydroboom's turning sheave). Much of the ship's motion can be isolated from the deployed package allowing it remain at a constant position or be deployed or recovered at a constant rate.