SOP-NAUT-006 HiPap 502 Racover and Lower

1.0 Introduction

This Standard Operating Procedure (SOP) describes the vessel's Kongsberg HiPap 502 system onboard. Details of HiPap 502 operations are detailed in the manufacturer's manuals. This SOP is to provide guidance for local, remote, and manual deployment / recovery of the transducers.

2.0 Responsibility

Bridge: Properly trained personnel will go to the HiPap 502 system and manually open/close gate valve and observe lowering and raising of transducer pole. They will keep in radio contact with the bridge and have hatch watch relay messages to the bridge as needed. The Bridge will delegate various inspection and maintenance duties to the engineering staff.

Chief Electrician/ Electronic Technician (ET): Will be contacted if electrical failures occur.

Survey Room: Will be operating the HiPap 502 software and will activate the Raise / Lower function of the Transducer through the software

3.0 Procedures

Brief operating instructions for Recovering and Lowering the HiPap Transducer.

3.1 Local Deployment

- Gather tools if needed; review and discuss JSA before doing the job.

- Have a person standing by to relay communications to the **Bridge and Survey Room**.
- Verify test/bleed valve closed. **Picture 1**
- Fully open Gate Valve. There is a safety interlock device between the gate valve and the hoist motor that should stop the motor from operating if the indicator does not show that the valve is fully open. Verify with **Survey Room** by handheld radio that gate valves is fully opened.
- Open Hoist Control Unit (HCU) door. Inform Bridge and Survey Room that you will be lowering the transducer pole. Set the rotary switch to Lower. **Picture 2**
- Test the lower limit switch. The location of the HCU makes this a two man job. One to operate the HCU and one to test the limit switches. The motor should stop. If motor does not stop call ET to investigate. Unit can still be hoisted but must be manually stopped before the upper flange of the pole bottoms out. If at any time, while raising the unit, it needs to be stopped at a position between fully retracted and fully deployed, this can be done by putting the switch S1 to the STOP position The limit switch should automatically stop the motor when the unit is fully deployed.
- Monitor transducer cable. If there is any chance of the transducer cable getting caught on anything, stop immediately. Report **to Bridge and Survey Room** that transducer is deployed.
- Verify HCU switch is in the Remote Position. (in case of an emergency).
- Close the HCU door.

3.2 Remote Deployment (Survey Room)

- Gather tools if needed; review and discuss JSA before doing the job
- Have a person standing by to relay communications to the **Bridge and Survey Room**.
- Verify test/bleed valve closed **Picture 1**
- Fully open Gate Valve. There is a safety interlock device between the gate valve and the hoist motor that should stop the motor from operating if the indicator does not show that the valve is fully open. Verify with **Survey Room** by handheld radio that gate valves is fully opened.
- Open HCU (Hoist Control Unit) door and place rotary switch in the REMOTE position.
- Radio **Survey Room** and have them press Lower/Down button on remote station located on the Survey Room Port Side. When fully deployed the Lower/Down button will be illuminated. Verify with Survey Room that the transducer pole is fully deployed.
- If the unit jams the safety interlock will cut in and trip the power to the motor. The STOP button will light up and the motor will have to be reset by using the RESET button on the motor protection relay in the HCU

3.3 Manual Deployment

- Gather Permit to Work and Inspect tools for job task.
- Have electrician electrically isolate the motor to prevent an accident should power come back on without warning.
- Verify test/bleed valve closed.
- Fully open Gate Valve
- Manually release the internal brake on the motor by tightening the screw (on top of the motor/gearbox - see figure below) until it is possible to turn the motor shaft with the hand crank. **picture 3**
- Loosen the hand crank from the hoist platform. The hand crank is stowed on the hoist platform and must be fitted to the motor shaft for use. Put the hand crank on top of the motor and crank. **Picture 4**
- Once the TD is retracted, loosen the screw once more to its previous position.
- Remove the hand crank and return it to its stowed position.
- Remove electrical isolation to the motor.
- Close out the Permit to Work.

3.4 Local Recover

- Gather tools if needed; review and discuss JSA before doing the job.
- Have a person standing by to relay communications to the **Bridge and Survey Room**.
- Open Hoist Control Unit (HCU) door. Inform Bridge and Survey Room that you will be Hoisting the transducer pole. Set the rotary switch to Hoist. **Picture 2**
- Test the lower limit switch. The location of the HCU makes this a two man job. One to operate the HCU and one to test the limit switches. The motor should stop. If motor does not stop call ET to investigate. Unit can still be hoisted but must be manually stopped before the upper flange of the pole bottoms out. If at any time, while raising the unit, it needs to be stopped at a position between fully retracted and fully deployed, this can be done by putting the switch S1 to the STOP position The limit switch should automatically stop the motor when the unit is fully deployed.
- Monitor transducer cable. If there is any chance of the transducer cable getting caught on anything, stop immediately.
- Report **to Bridge and Survey Room** that transducer is recovered.
- Verify with Survey Room that indication of fully raised transducer
- Fully close Gate Valve. Verify with **Survey Room** by handheld radio that gate valves is fully Closed.
- Verify HCU switch is in the Remote Position. (in case of an emergency).
- Close the HCU door

3.5 Remote Recover

- Gather tools if needed; review and discuss JSA before doing the job
- Have a person standing by to relay communications to the **Bridge and Survey Room**.
- Open HCU (Hoist Control Unit) door and place rotary switch in the REMOTE position.
- Radio **Survey Room** and have them press Lower/Down button on remote station located on the Survey Room Port Side. When fully raised the Lower/Down button will be illuminated. Verify with Survey Room that the transducer pole is fully hoisted.
- If the unit jams the safety interlock will cut in and trip the power to the motor. The STOP button will light up and the motor will have to be reset by using the RESET button on the motor protection relay in the HCU.
- Fully close Gate Valve. Verify with **Survey Room** by handheld radio that gate valves is fully closed.

3.6 Manual Recover

- Gather Permit to Work and Inspect tools for job task.
- Have electrician electrically isolate the motor to prevent an accident should power come back on without warning.
- Manually release the internal brake on the motor by tightening the screw (on top of the motor/gearbox - see figure below) until it is possible to turn the motor shaft with the hand crank. **picture 3**
- Loosen the hand crank from the hoist platform. The hand crank is stowed on the hoist platform and must be fitted to the motor shaft for use. Put the hand crank on top of the motor and crank. **Picture 4**
- Once the TD is retracted, loosen the screw once more to its previous position.
- Remove the hand crank and return it to its stowed position.
- Fully close Gate Valve
- Remove electrical isolation to the motor.
- Close out the Permit to Work.