Headfor P/L ABN 84073495557 T/As

McLennans **Diving Service**

- Marine Contractors

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To Martin Dawson
Department of Crown Lands

From Alan McLennan
Project Manager July 1st, 2021

Report on the Removal of hanging sections of the ex-HMAS Adelaide Port side Hanger Roof.

McLennans Diving Service (MDS) was asked to investigate the damage to the port side hanger on the ex-HMAS Adelaide wreck after it was report that the roof had collapsed. This inspection was done on May 26th. After this inspection as plan was developed to remove the overhanging debris. On June 17th, a storm event occurred with swells of 5 metres, and we were advised that further damage had occurred.

MDS mobilized to the site on Tuesday 22nd June with the following resources:

- A seven-person dive crew with SSBA equipment
- The vessel Sea Runner and Sea Hunt
- Deep Trekker ROV
- Hydraulic cutting equipment

Our objective was set out in the document "Proposal Port Hanger Repair V2"on 16/6/2021.

The Effect of the Storm

The storm of June 17th substantially increased the damage to the port hanger. The storm caused the frame around the opening to the port hanger to crack through near the amidships wall join, and caused the column supporting the outboard side to break through and compress approximately 100mm. This is illustrated in Figure 1 below.
The entire structure has is being held in place by the davit arrangement that is above the port hanger. There is a davit located on both the port and starboard sides. The davits swing back over the hanger when not in use. When the vessel was scuttled the port davit was in the "swung out" position. This includes a guy post which swings out from the centre of the vessel.
When the top of the hangar has broken through from the stress of the storm and the effects of corrosion it was the strong connections of the davit which have so far prevented it collapsing. Examination of the structure indicates that it will fail shortly.

Work Progress

Day 1 – Establish on site and load vessels. Hampered by very bad visibility and changes to the wreckage made by the weekend storm.
Day 2 – Cut through the hanging section of roof called Part A. Drop it to the main deck. Commence cutting through the hanger roof on Part C. Visibility still very bad.
Day 3 – Cut through the rest of the suspended hanger roof on Part C.
Day 4 – Examine and photograph the extent of damage. Cut off dags which still hung on parts of the roof metal.

Findings

The work progressed as planned except that the new damage to the frame above the hanger door and the breakthrough of the port side column has created a new danger. The frame has broken through and would be expected to fall to the main deck however the davit arrangement is holding it in place. The davit is anchored strongly to the port side hanger roof which has broken; however it is also attached to the unbroken amidships roof by a guy pole. It is this pole which is stopping the whole structure collapsing.

The area shown in green in Figures 1 and 2 is ready to fall with only the guy pole holding it. When it falls, it will fall six metres directly onto the main deck. It is for this reason that MDS cannot recommend that recreational diving be allowed on the vessel at this time. The hangers are an attractive area to swim through and the large suspended mass of the port hanger frame could come down at any time.

Recommendation

The area around the port hanger should be flagged as a dangerous and made a no go zone. The suspended mass will presumably fall when the guy pole snaps during an upcoming storm event. But it could fail at any time, even in calm weather as the guy pole is under a lot of strain.
It is not technically difficult to remove the suspended mass using the same proposal that we proposed for the suspended centre of the port hanger roof (Part B). That section was moved by the recent storm which eliminated the need for intervention.
The method we propose is to support the weight with a two tonne enclosed lift bag, and then remove the securing pin on the guy pole, and then drop the entire broken section to the seabed. This method and drawings of the damaged area are shown in Figures 12, 13 and 14 below.

Conclusion

The diving goals were achieved but the vessel was not made safe due to the new storm damage to the pot hanger frame.
Recreational divers should be suspended, or the divers warned of the danger of the suspended frame.

Thank you for asking us to assist with this task. Please find also extensive video files and photographs of the situation posted online. The link will be emailed separately.

Kind Regards,

Alan McLennan
Ph 0433111528

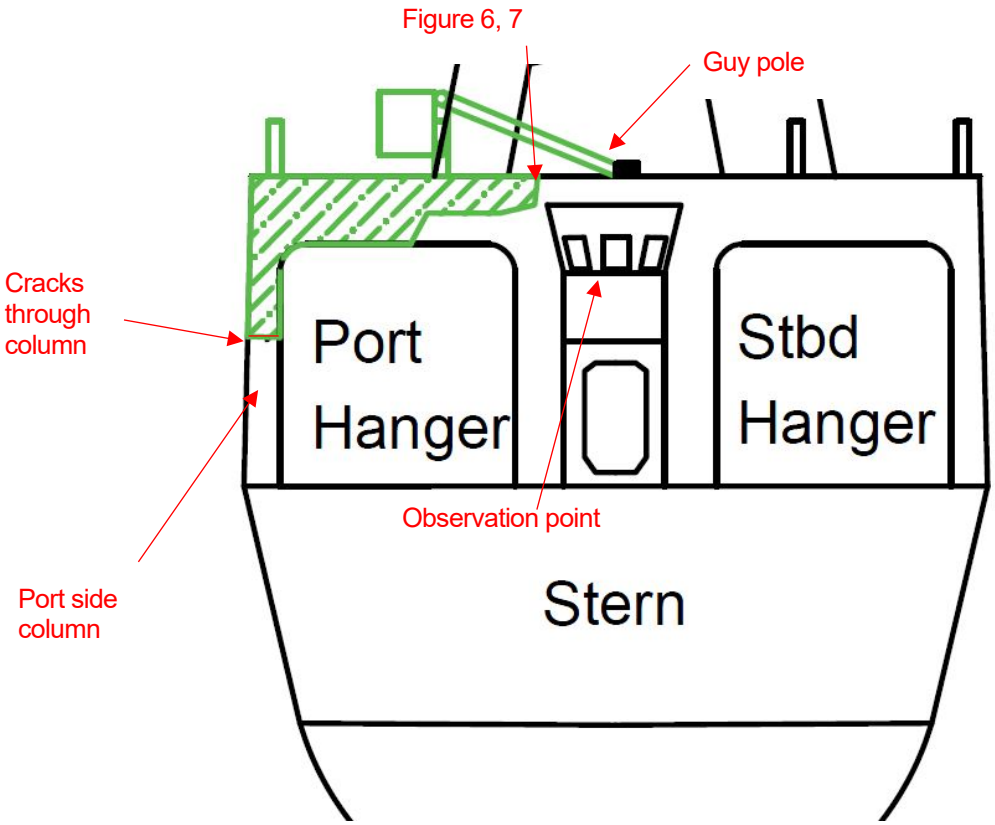

Figure 1: Stern view of the vessel showing the broken rear hanger frame in green.

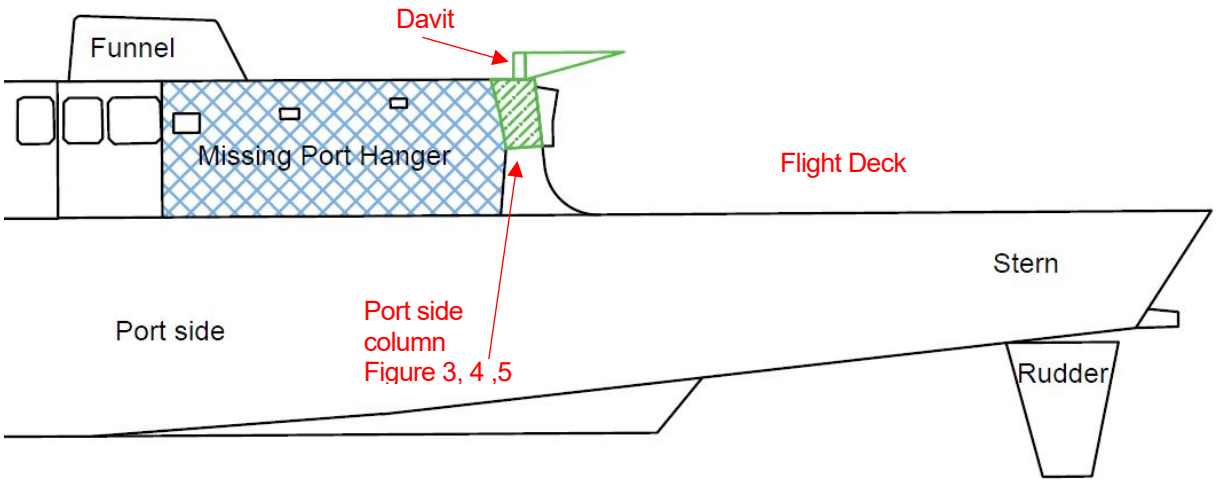

Figure 2: Port side view of the vessel showing port side column in green

Figure 3: The break in one face of the port hanger column

Figure 4: The break in the outboard face of the hanger column. Not the compression of the column

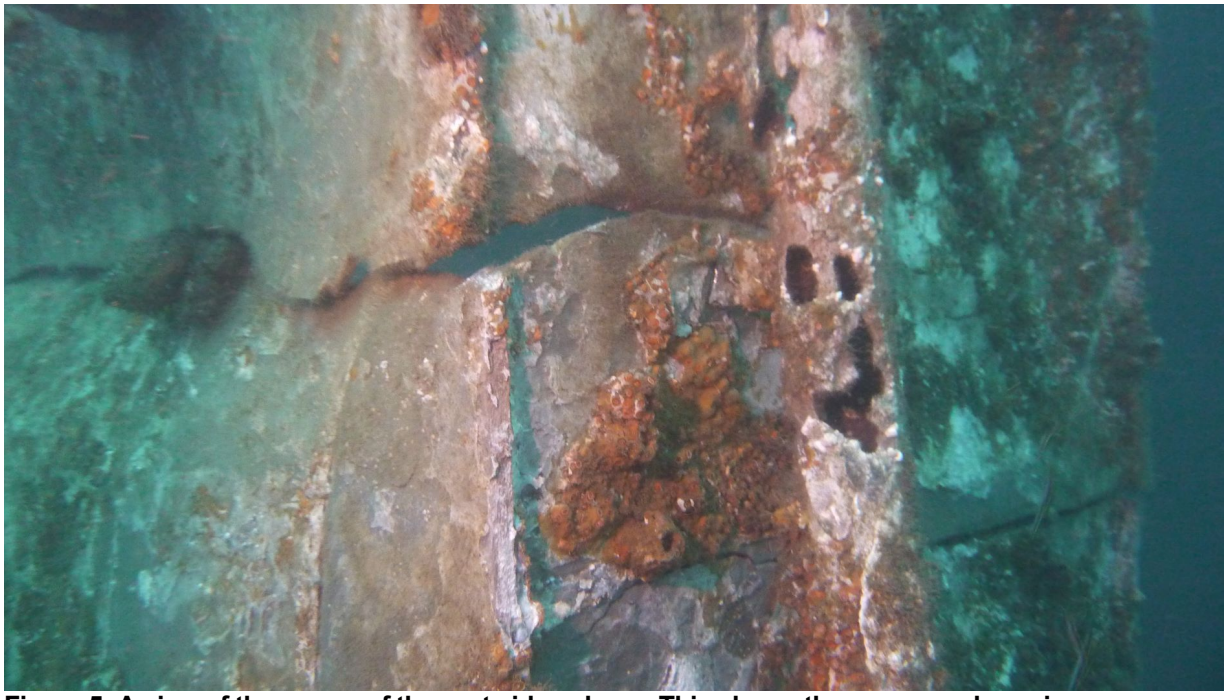

Figure 5: A view of the corner of the port side column. This shows the same cracks as in Figures 1 and 2

Figure 6: This view shows the cracks through the port side column from the inside

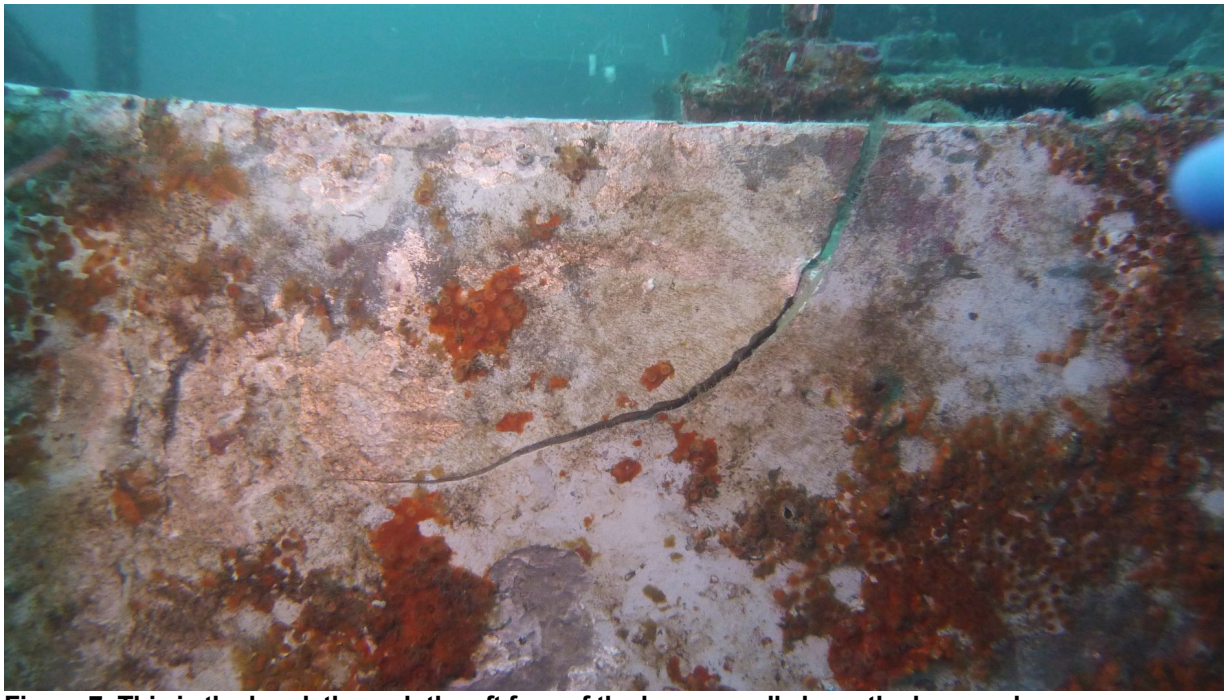

Figure 7: This is the break through the aft face of the hanger wall above the hanger door.

Figure 8: This is the same crack shown above but shows it travelling along the aft wall

Figure 9: A view of the davit projecting over the port side flight deck

Figure 10: The attachment point of the guy pole for the davit which located directly above the observation point as seen in the picture below

A view of an FFG flight deck with the observation point visible and the guy pole for the davits attached above it

Figure 11: A view of ex-HMAS Adelaide immediately before sinking showing the port davit in position over the flight deck

Three section to be removed from the port hanger - ex HMAS Adelaide

Estimated total weight in water 727kg

To be removed

Missing Panels

Figure 12

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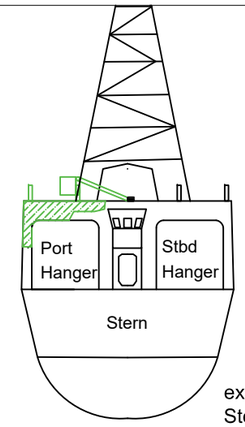
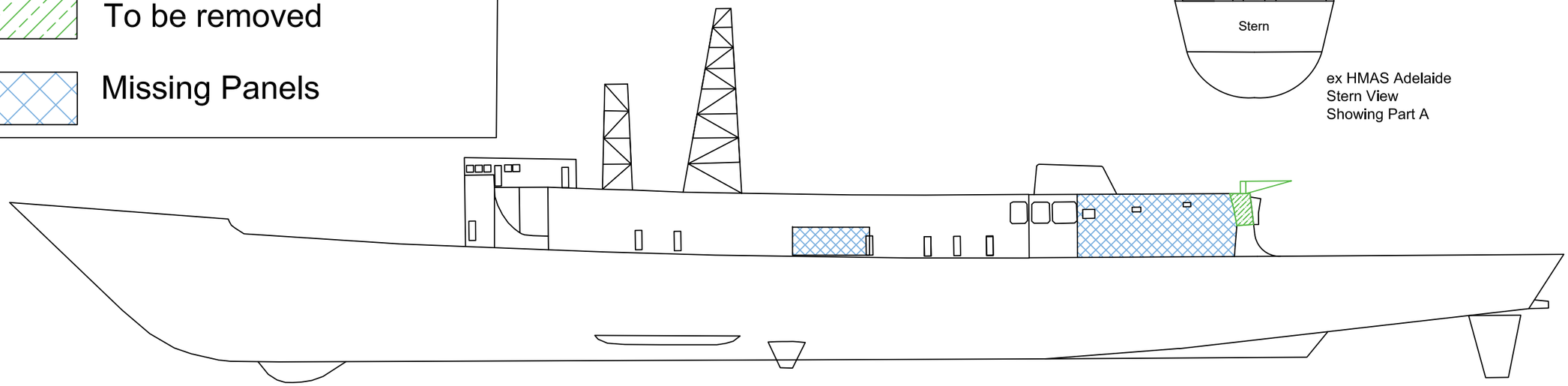
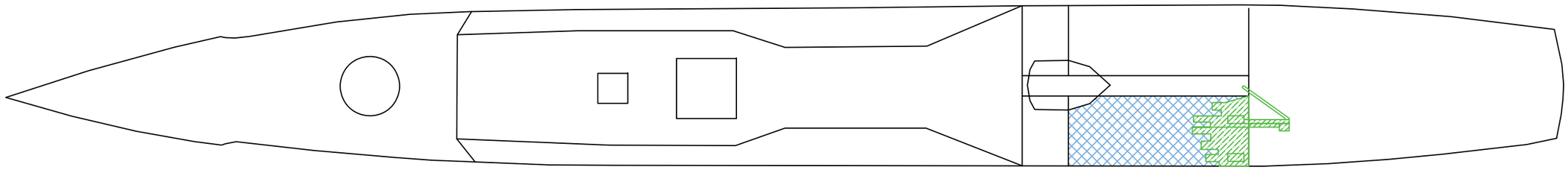


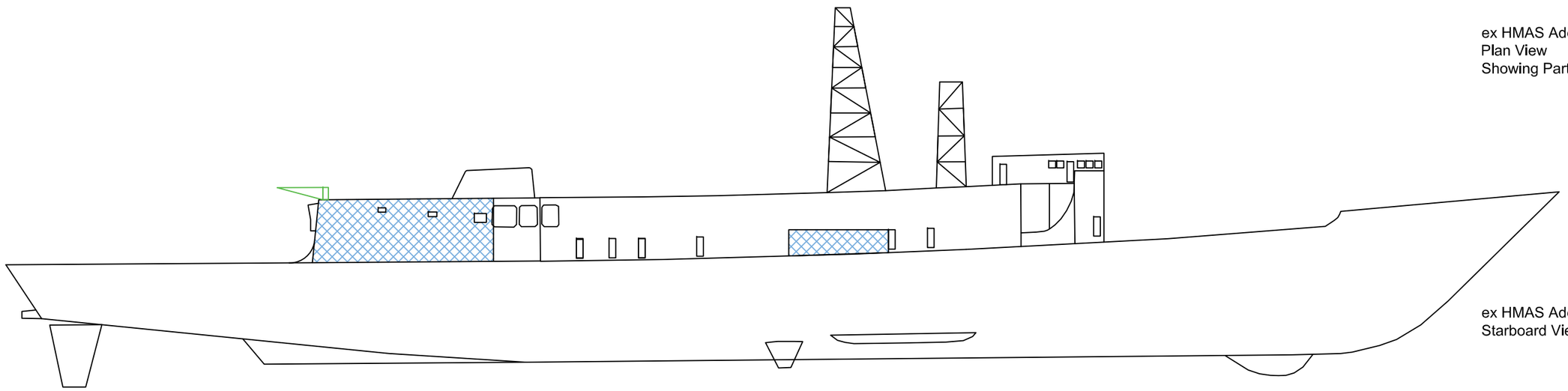
ex HMAS Adelaide
Stern View
Showing Part A



ex HMAS Adelaide
Port View
Showing Part B



ex HMAS Adelaide
Plan View
Showing Part C



ex HMAS Adelaide
Starboard View

Figure 13

Three sections to be removed from the port hanger - ex HMAS Adelaide

Estimated total weight in water 727kg

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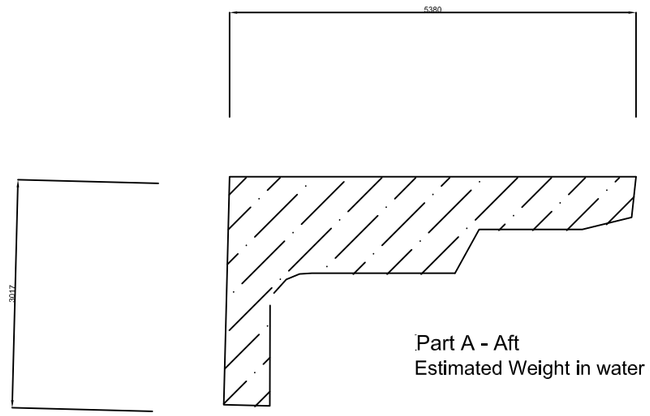
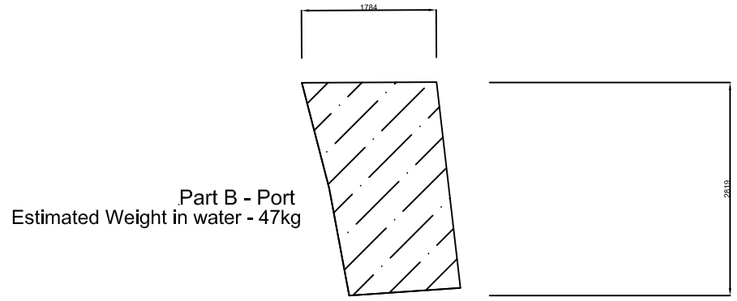
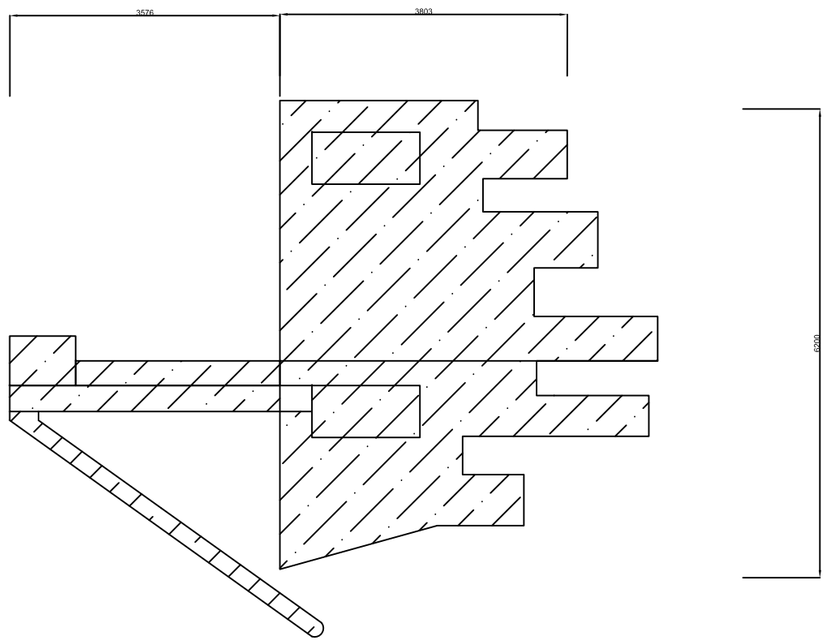


Part A - Aft
Estimated Weight in water - 150kg



Part B - Port
Estimated Weight in water - 47kg

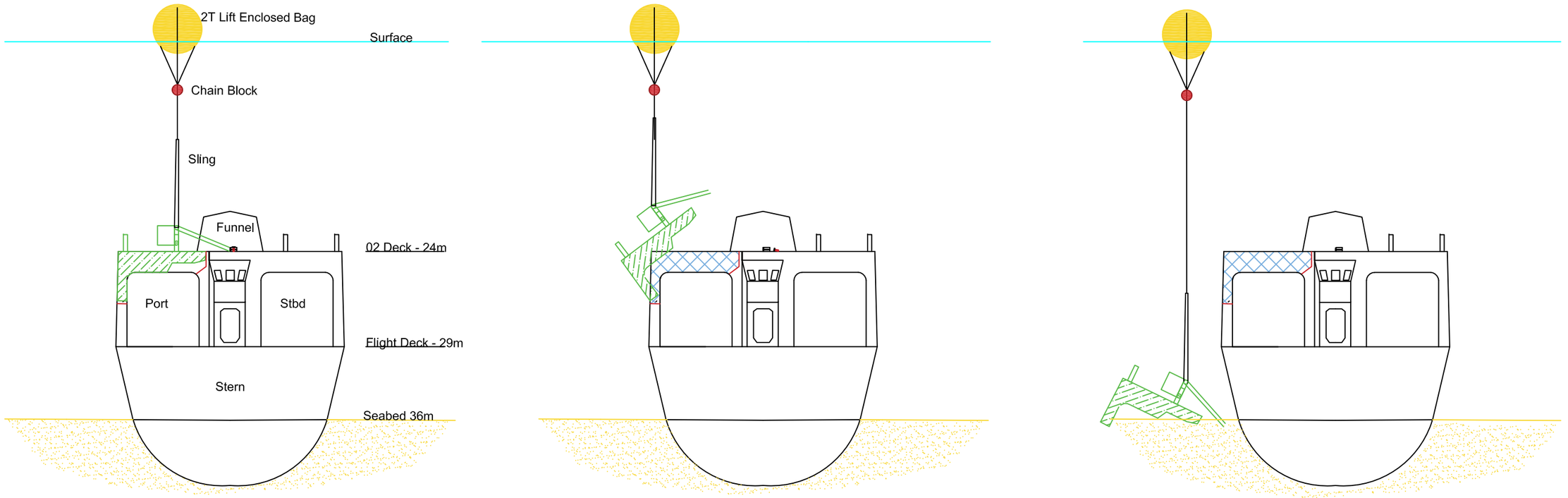


Part C -Davit and 02 deck
Estimated Weight in water - aluminium - 175kg
Estimated Weight in water - davit - 355kg

ex-HMAS Adelaide

Steps to remove the damaged port side hanger roof

Figure 14



Step 1: Rig a 2 tonne enclosed lift bag to the base of the davit
Step 2: Make a saw cut through the top frame of the hanger to join the existing break
Step 3: Join the breaks in the port side column. Cut any dags still joined.

Step 4: Remove the pin in the gut pole in the centre of the hangers
Step 5: Come up on the chain block and allow the top of the hanger to pivot outwards

Step 6: Raise the hanger top and davit with the chain block until the centre of balance is outboard.
Step 7: Lower the damage section to the sea floor with the chain block. Remove the rigging

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