



PMI/M KM 2017 ART Lifeboat 5Y PM

During 25th April – 25th May 2017

Prepared by Manuchida K. (PMI/M)

Introduction

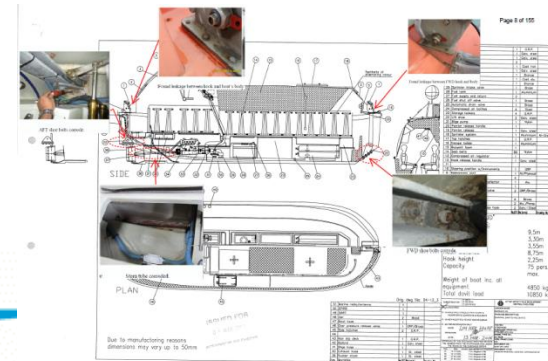
- Work will be performed as mandatory requirements of SOLAS Revised Chapter III, Reg 20.II.2:
 - The release gear overhaul and
 - Operational test at 1.1 times the total mass of the lifeboat when loaded with its full complement of persons and equipment
 - Carried out at least once **every 5 years.**
- Last PM: **April 2012**

Major Work Scope

- Replace winch wire rope and all lifting gears including the safety pendants (chain)
- On-load hook test using hydraulic test kit as per ***SSE-04-021 Norsafe procedure***
- Inspect surface defection on davit structure by ET On-load hook test as per ***SSE-04-021 Norsafe procedure***
- Winch dynamic load test at 11.935 ton as per ***A-M-QP-SDT-0001 Maintenance procedure for winch dynamic load test***
- Lifeboat Sea Trial Exercise as per ***SSHE-320-PDR-502.03 Life Boat Tests and Drills***
- CM As per survey report



Microsoft Excel
Worksheet



Major Work Scope

- Upgrade both FWD & AFT Hooks



New TOR MK2 features:

- Double lock system
- Compliant to the new regulations MSC 320/321
- Non-corrosive material - Duplex stainless steel
- Not sensitive to wear and tear
- Prevention against premature release
- PADLOCK – for visualization of open and closed hook

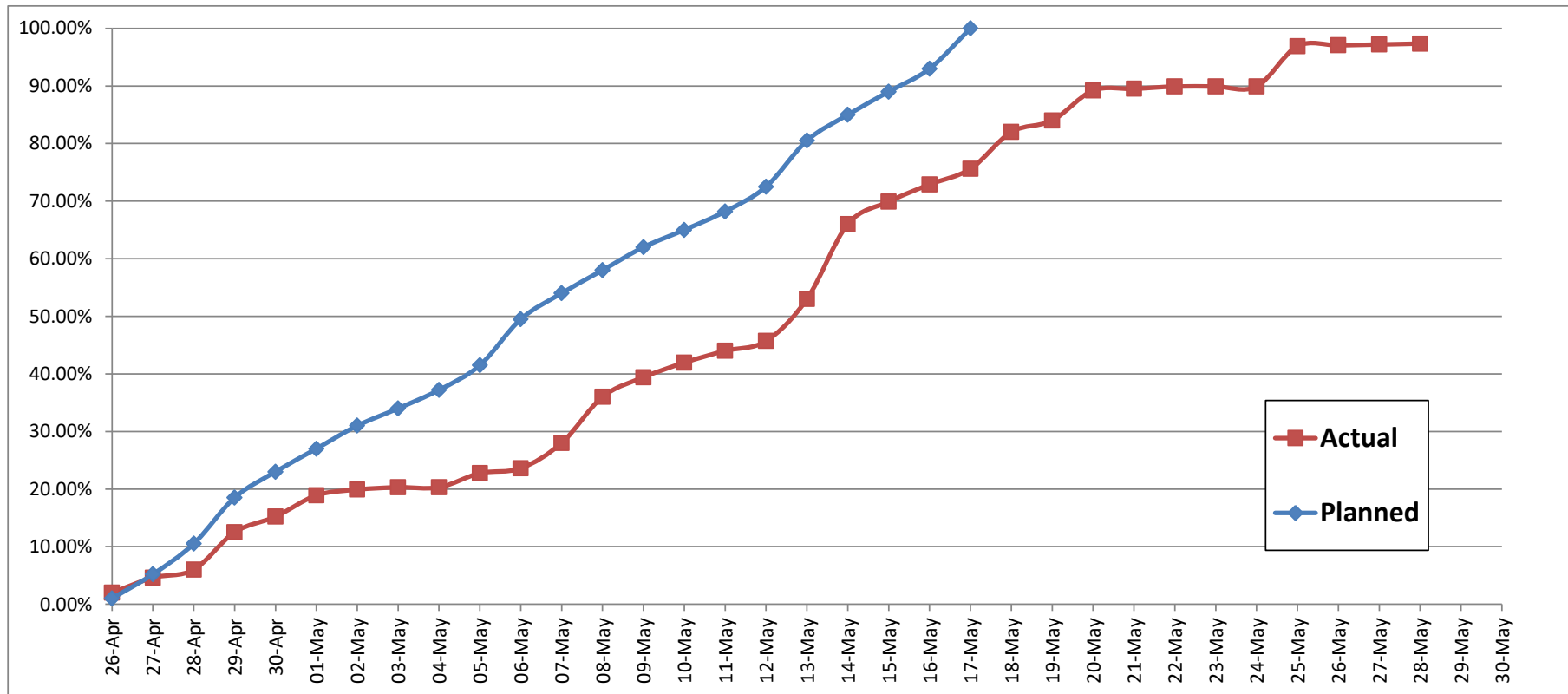
Work division and manpower plan

Scope	Support/Contractor
Lifeboat PM Hook and wire rope replacement	2 Norsafe 3 CRAT
ET inspection	1 Dacon
Witness load test	1 ABSG
Lifeboat Sea Trial Exercise	Mechanic team
Support FRC Standby crew boat Crane operation Support supply boat for load test using water bag	Logistic team
Scaffolding Painting repair Hook support modification	Construction team

Planned VS Actual Completion

Task	Planned completion date	Actual completion date
Lifeboat no.1 PM	3 May (8 days)	8 May (13 days)
Lifeboat no.2 PM	10 May (7 days)	14 May (6 days)
Lifeboat no.3 PM	17 May (7 days)	25 May (10 Days*)

*Stand by for weather for 5 days (20–25 May)



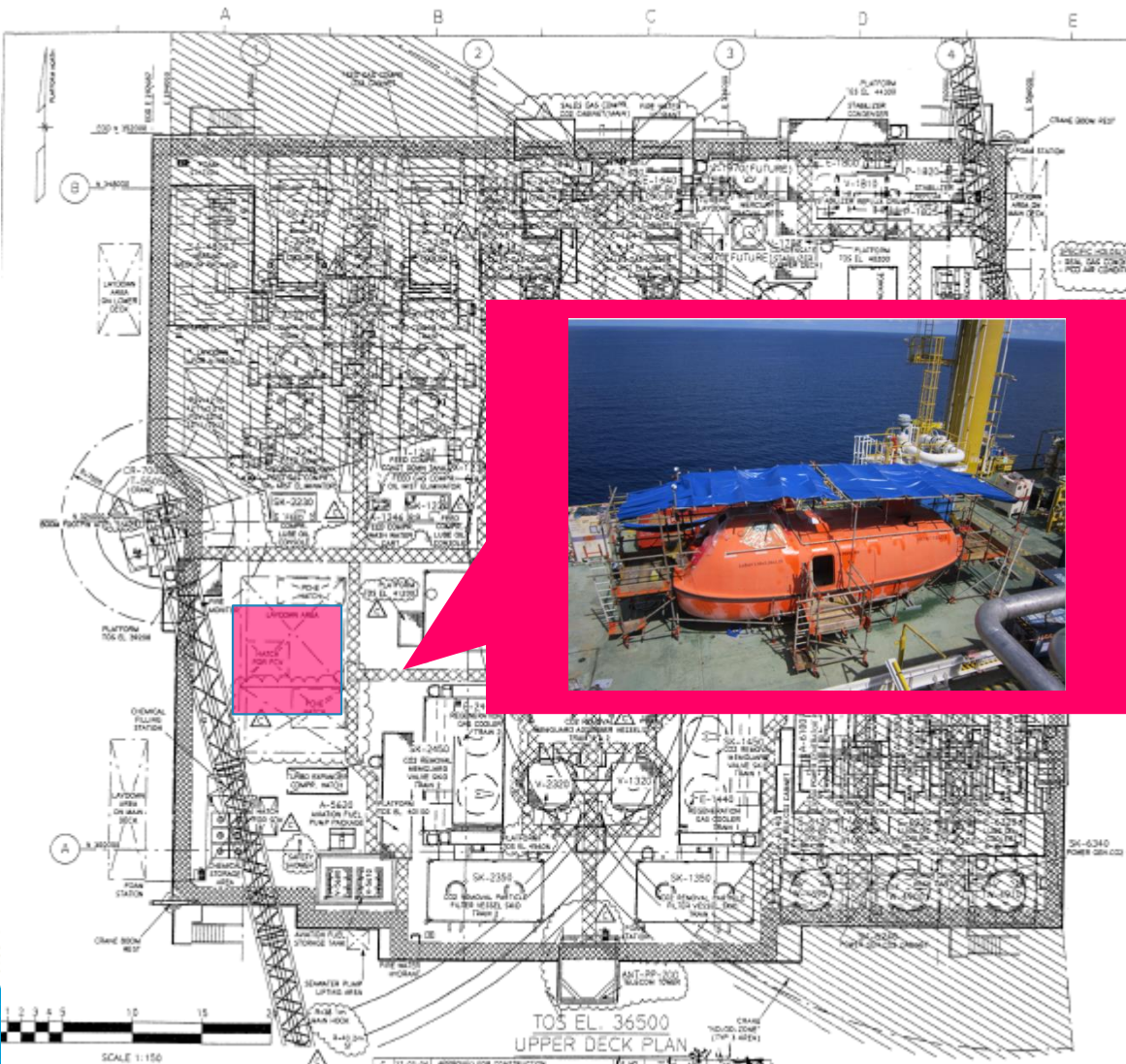
Working area

- APP, upper deck, west => Lifeboat PM



Working area

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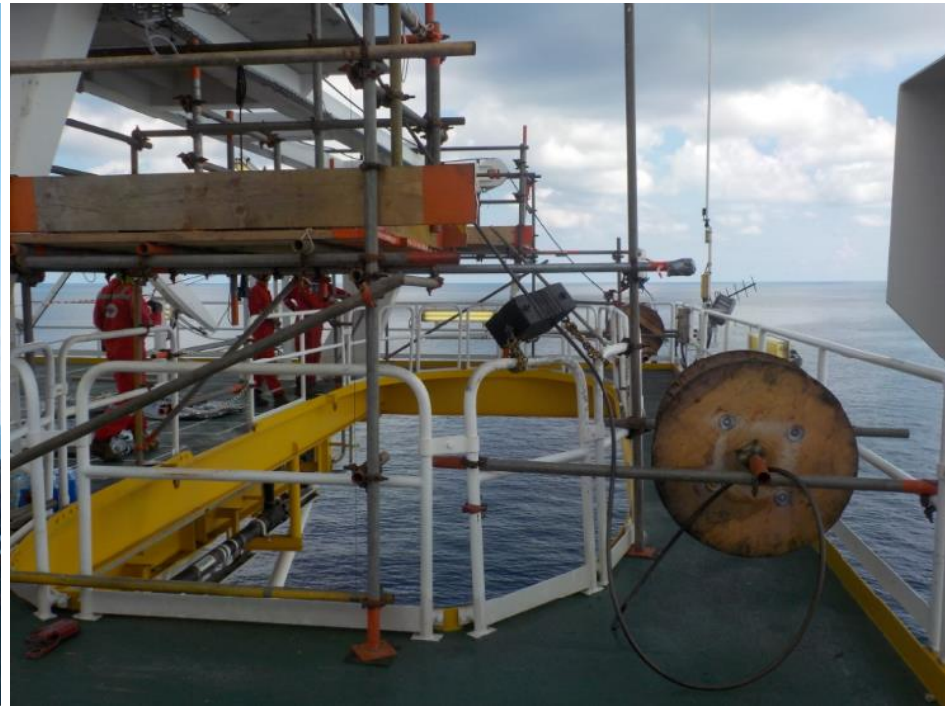
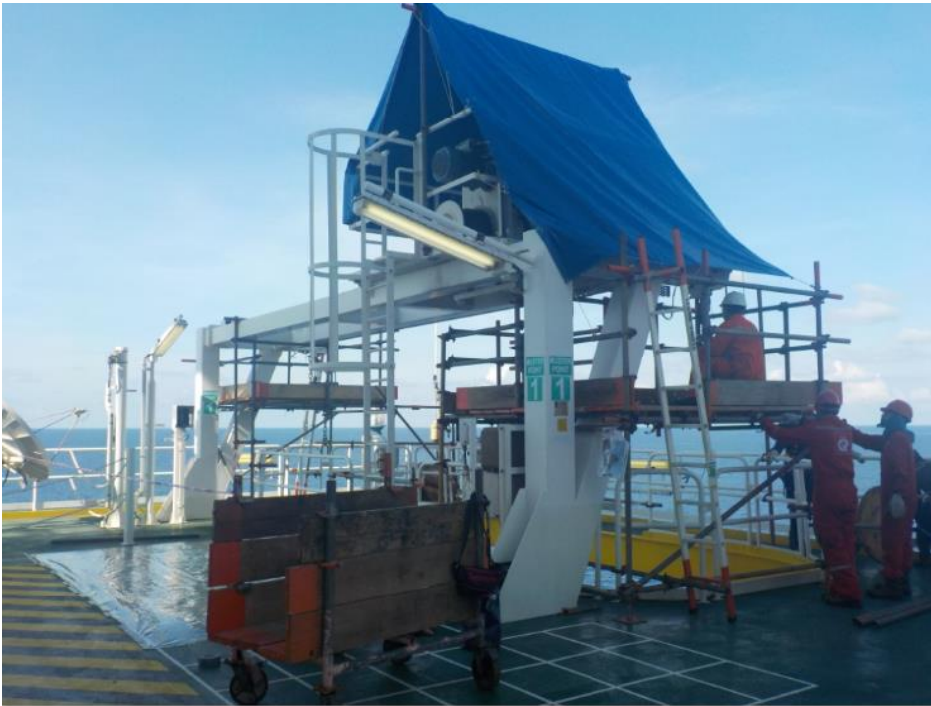


Lifeboat Overall dimension
W4.5m x L9.5m x H4.5m

****Should be placed out of
Rmin of crane****

Working area

- AQP, main deck => winch and davit PM



Work steps

AQP/MD

APP/UD/West

1

DAVIT: Perform ET
LB: Visually inspect &
test engine

2

Move LB to APP

3

DAVIT: PM, replace wire rope,
dynamic load test, ET

3

LB: PM, replace hook,
on-load test

4

Launch LB and perform
sea trial exercise
Then, drive LB to APP

5

Return LB back to
stowage position

Transfer Lifeboat between AQP and APP



Lower boat by operate electrical winch
(No personnel in boat)



Coxswain, Bow and Aft Asst. access to boat by support FRC from AQP boat landing.



Lift boat to APP/UD by west side crane
(No personnel in boat)

Transfer Lifeboat between AQP and APP

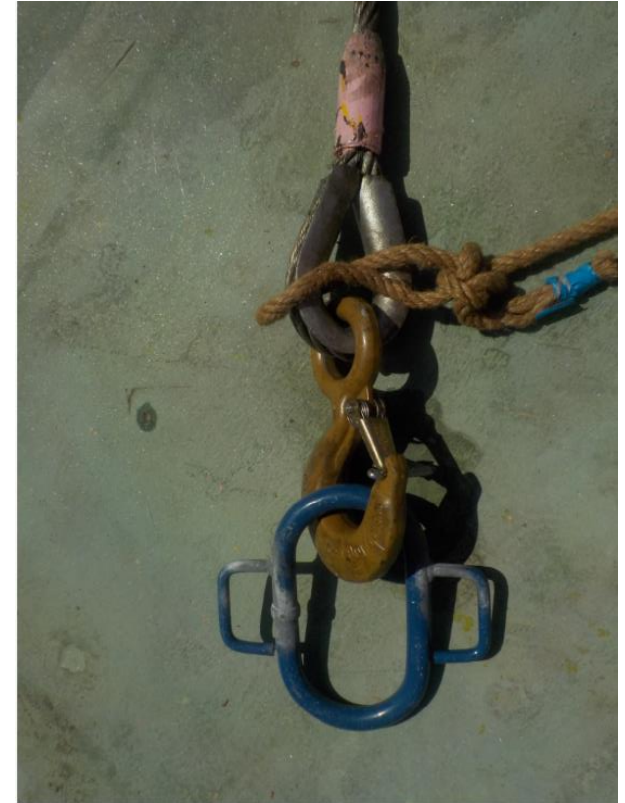


CR-7000 (APP, West)
limited capacity (Offboard)
SWL= **6.7 T** @ Rmax = 38.1m
SWL= **26 T** @ Rmin = 7.5 m

Lifeboat
Weight = **4.85 T**
Overall dim = W4.5m x L9.5M x H4.5m
Spreader bar and lifting gears
Estimated weight = **1.8T**

Transfer Lifeboat between AQP and APP

- Use single leg sling with auto-locking hook and master link
- >4m tag line is required



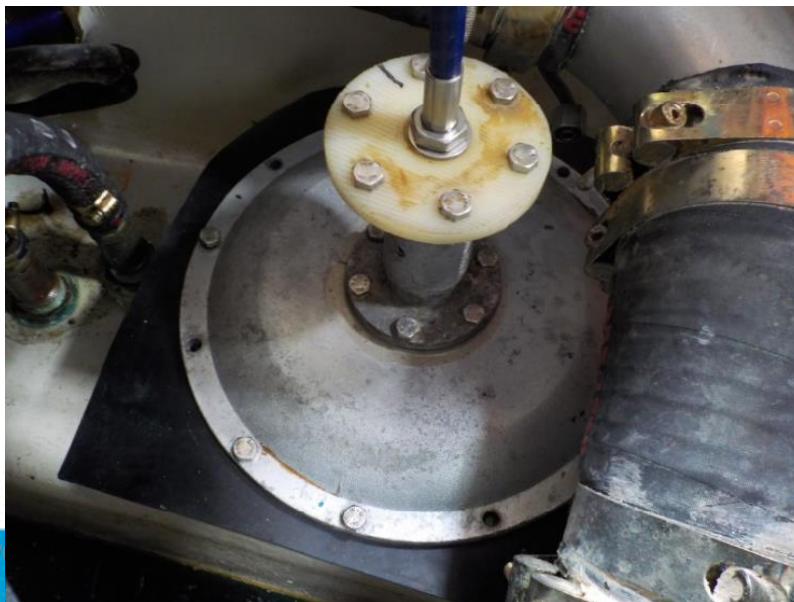
Safety requirement

- Limit **Wave Height** < 0.5 m and **Wind Speed** < 10 knot
- Limit **POB** < 180
- Limit number of naked flame hot work in Complex (APP, AQP, AWP1)
- **Stand-by crew boat** will be available within 10 min from stand by buoy
- In case of bad weather, Arthit has to de-manning from AQP to somewhere else i.e. FSO2, accommodation barge(NVT), Songkhla in order to keep POB at 150. De-manning criteria will be as soon as foreseen from weather forecast that bad weather for longer than 24hrs resulting to close port longer than 24 hrs. Short gust/scroll line will not be consider.



Lifeboat PM

- Engine PM (replace parts, lube and coolant)
- Replace window
- Upgrade hooks
- Replace hydrostatic unit diaphragm, release cables, and handle

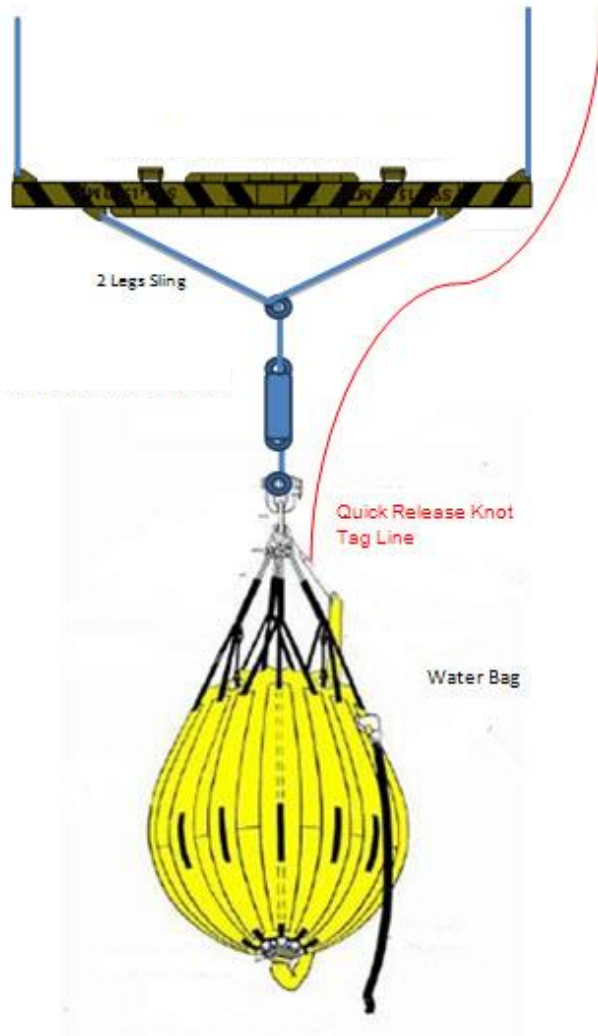


Winch PM

- Replace wire rope
- Replace band brake and clutch
- Replace winch foundation
- Replace oil seals and bearing
- Replace adjustable sheave of davit no.2



Winch dynamic load test



Total davit load = 10.850 T
Required test load = $10.850 \times 1.1 = 11.935$ T

Spreader beam weight = 1.800T

Load cell reading = $11.935 - (1.800)$ T

Note:

1. Testing is required to comply with A-M-QP-SDT-0001
2. Under supervision of Norsafe Rep.
3. Under witness of ABSG

Winch dynamic load test



Prepare water bag and
spreader beam on
supply boat deck



Lower 2-fall sling to secure
with spreader beam on
supply boat deck

Winch dynamic load test

Lift water bag from supply boat



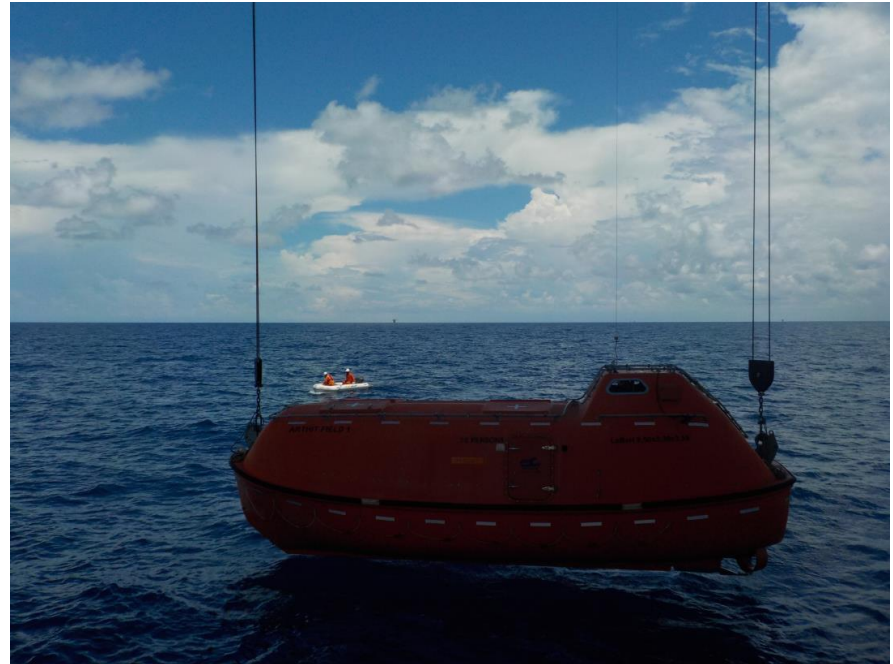
Winch dynamic load test

Lower test load and break for 3 times



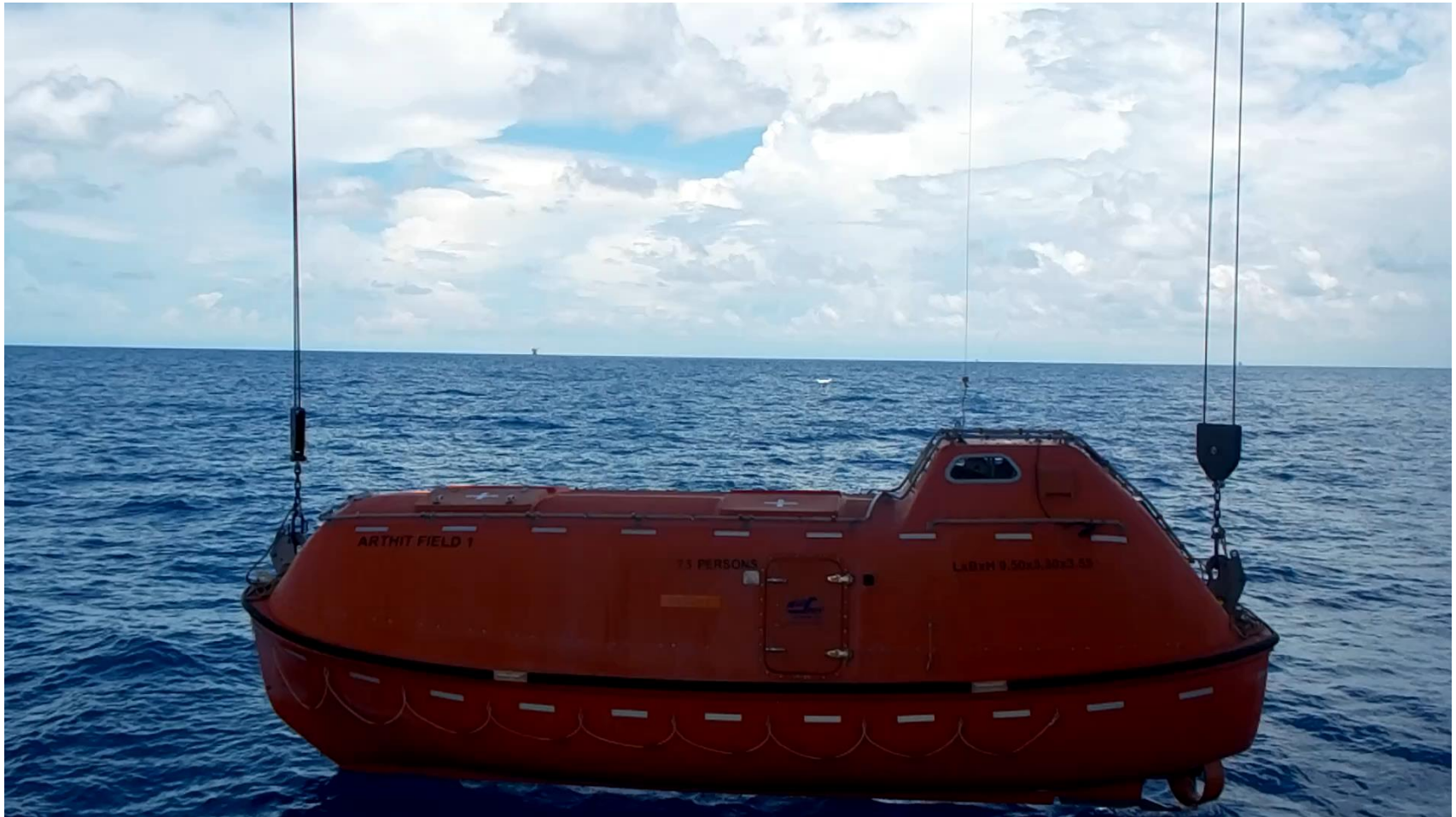
On-load release test

- Suspend boat loaded with pillow bags at 1.1SWL



On-load release test

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On-load release test

- Using hydraulic test kit at 355 Bar



On-load release test

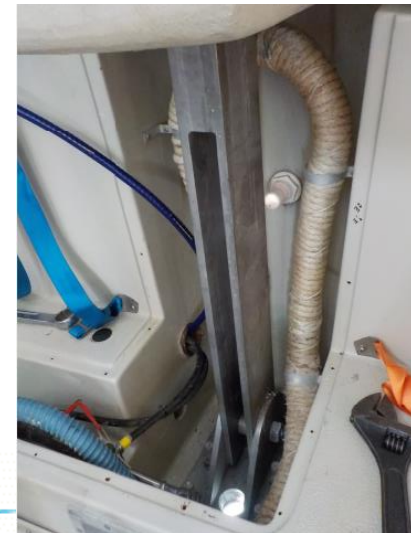
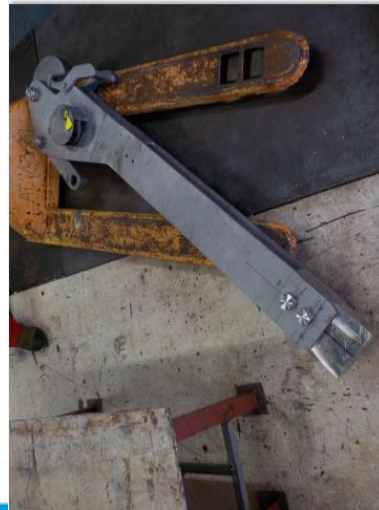
- Using hydraulic test kit at 355 Bar



Lesson learnt

Wrong material and delay supplied

- New FWD hook is too short to install
=> need extension bar
- New AFT hook is too long
=> trim out



Lesson learnt

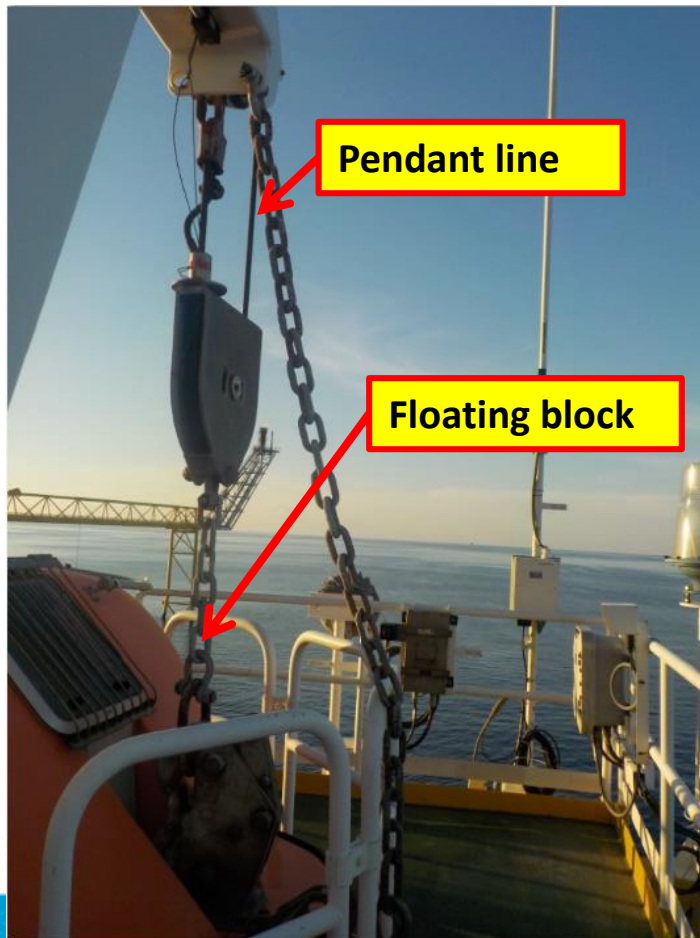
Wrong material and delay supplied

- S/S M24X110mm bolt/nut with double washer and spring washer for aft hook shoe bracket 3 set total 24pcs
- Winch foundation wrong size M24 x 90mm full thread X 16 pcs
- Engine belt wrong supply part number should be 4PK 875 X 3 pcs
- Thermostat wrong part number supplied
- Hook release cable wrong size 9 meter X 3 lengths
- Hook release cable wrong size 3.5 meter X 3 lengths
- Hook release cable wrong size 10.25 meter X 3 lengths
- Window set short supply sikaflex and screw set.
- Window screw set & 15pcs sikaflex must be supply FOC
- Hook pad lock sticker 6 pcs
- Hydraulic test kit

Lesson learnt

Lack of good preparation

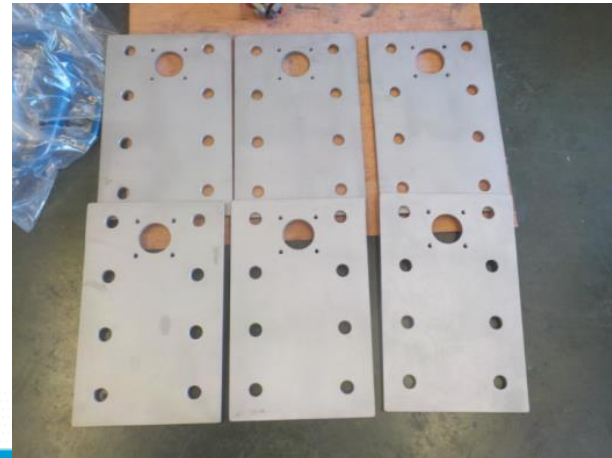
- New set floating block chains and shackles are not prepared (only set of pendent lines are prepared => Cut out the new chain for 6 pc to replace the existing floating lines and confirm condition of the existing shackles and chains of pendent line by NDT and dynamic load test



Lesson learnt

Lack of good preparation

- Wrong order item, only AFT hook bracket total received 6 set, no FWD hook bracket supply.



Lesson learnt

Lack of good preparation

- Winch bearing and oil seals replacement are not included in work scope
=> order new from SKL



Unexpected problem

- Found crack at welding of adjustable sheave of lifeboat no.2 after performed dynamic load test



Unexpected problem

- New adjustable sheave => welding => prove welding by dynamic load test and confirm no crack by MT



Unexpected problem

- Water bag broken during dynamic load test at winch no.1



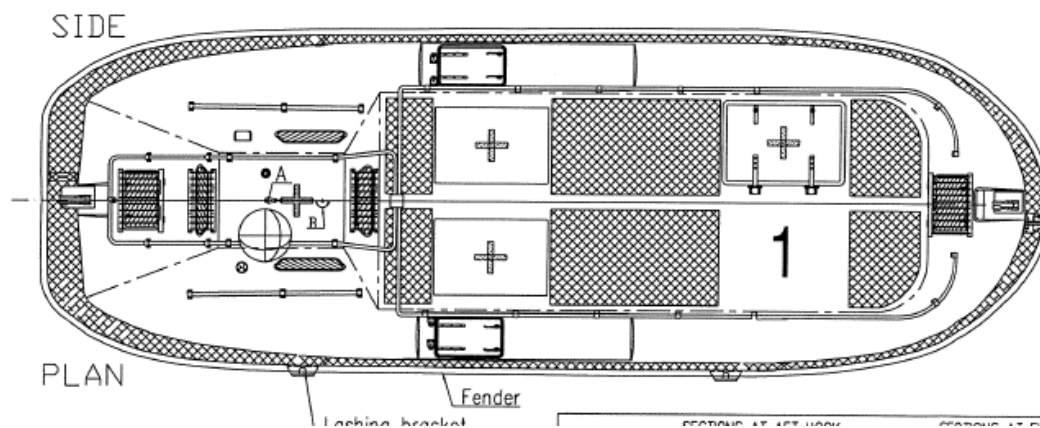
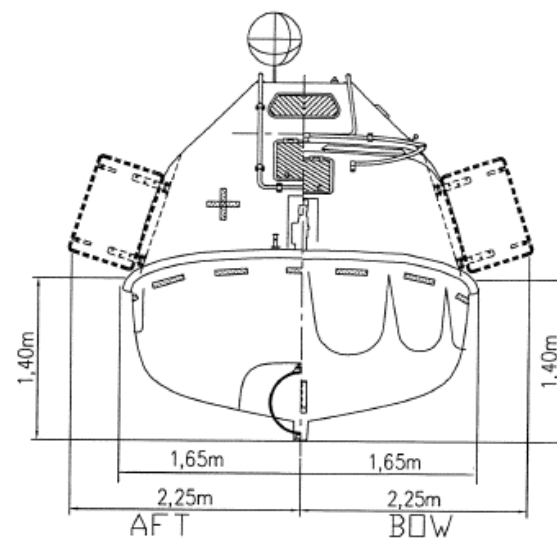
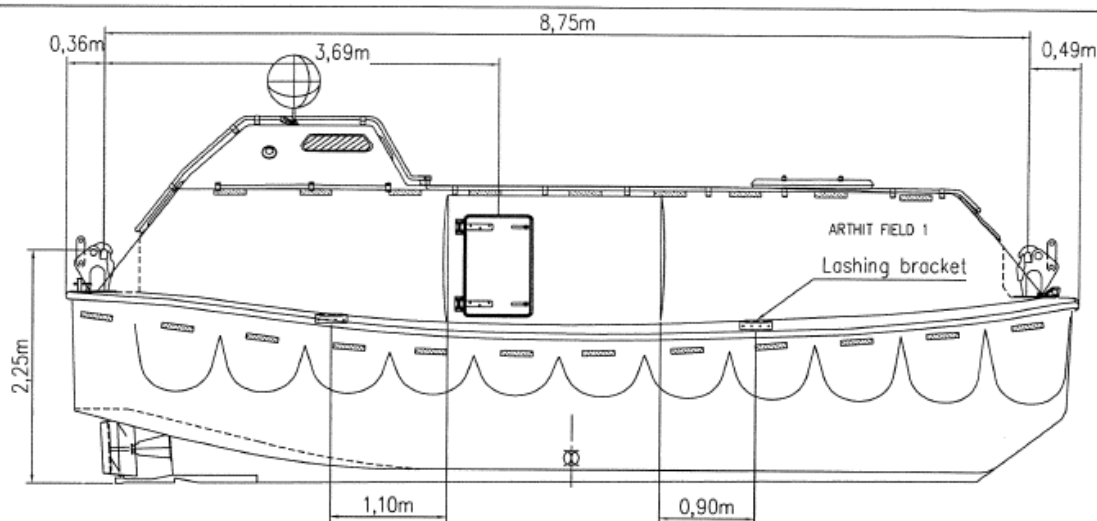
Recommendation for next 5Y PM

- Prepare for replacement
 - All winch bearings and oil seals
 - Hook shoes, plate, and bolts of boat AFT and FWD
 - All chains and shackles
- Consider to replace the floating block.
- Use hydraulic test kit for on-load hook test
- Ensure tools and equipment are in good condition
- Require 8 manpower at least, each 4 for lifeboat PM and winch PM
- Transfer lifeboat and dynamic load test should be done in the same day

PTW list

Location	PTW	Attachment
APP	HWP: Lifeboat PM <ul style="list-style-type: none"> – Replace part – On-load hook test – Use electric drill and saw 	<ol style="list-style-type: none"> 1. ART-MECH-093 Lifeboat 5Y PM on load release test 2. SSE-04-021 Procedure for On Load Release of TOR MKI MK2- 5T 8T Hook Using Hydraulic Test Kit R3 3. SSE-04-025 Re-hooking Procedure for TOR MK2 hooks R4
APP	CWP: Lifeboat Sea Trial Exercise	<ol style="list-style-type: none"> 1. ART-MECH-093 Lifeboat 5Y PM on load release test 2. SEA TRIAL CHECKLIST (Appendix 1 of Life Boat Tests and Drills, SSHE-320-PDR-502.03)
AQP	HWP: Winch and davit PM <ul style="list-style-type: none"> – Replace part (wire rope and lifting gear) – Use electric drill and saw 	<ol style="list-style-type: none"> 1. ART-MECH-094 Lifeboats davit winch 5Y PM
AQP	HWP: Winch dynamic load test	<ol style="list-style-type: none"> 1. ART-MECH-095 Lifeboats davit and winch dynamic load test 2. A-M-QP-SDT-0001 Lifeboat Davit Winch Dynamic Load Test
AQP	HWP: ET inspection on davit structure	<ol style="list-style-type: none"> 1. ART-INSP-010 General Perform Eddy-Current Testing on Structure (Topside)

Lifeboat GA



9,4 T.E.L.B. "MAUD" MAIN DIMENSIONS:

Length over all	9,5m
Beam	3,30m
Total height	3,55m
Hook distance	8,75m
Hook height	2,25m
Capacity	75 pers. max.
Weight of boat inc. all equipment	4850 kg
Total davit load	10850 kg