

RTA 2 (O.N. 1290301)

Vessel Inspection Report

Prepared for: New Orleans RTA • New Orleans, LA

Ref: 19100-002-986-0 Rev. - December 10, 2019

PREPARED BY

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GENERAL NOTES

The vessel was inspected afloat at the RTA Facility Lower Algiers / Chalmette Lower Mississippi River (mile 88.7) on November 15, 2019. All compartments were open and available for inspection except as noted. Under deck (wet deck) inspection on November 22, 2019. No below water inspection was attempted.

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
-	Initial issue	12/10/19	WRS 39506

RESERVATION NOTES

This inspection was done with the vessel afloat, in the Mississippi River, any underwater issues were not discoverable nor part of the report.

Elliott Bay Design Group (EBDG) made every effort to discover any and all deficiencies. However; due to the completion stage of the vessel many areas were covered. EBDG is not responsible for any undiscovered items which may be discovered at a later date.

This scope of work does not include redesign.

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1 PURPOSE

RTA requires an onsite (above water) marine survey for the RTA 2 ferry outlining the following:

- a. Review as-built vessel construction and compare with approved vessel drawings.
- b. Prepare a summary report for vessel with any outstanding condition deficiencies noted.
- c. Identify possible USCG Certificate of Inspection (COI) structural, mechanical and electrical deficiencies preventing placing the vessel into service.

2 PROCEDURE

Scheduled Vessel Inspections: November 15 / November 22, 2019

- a. Review the as-built vessel construction and compare with the approved vessel drawings.
- b. Prepare a summary report with recommendations for correcting any structural, mechanical and electrical deficiencies for putting the vessel into service.

3 VESSEL CONDITION REPORT

3.1 Hull Inspection (TER / CEB)

3.1.1 Recurring Issues Throughout Vessel

The following shows examples of deficiencies found throughout the vessel, where the issues are germane to specific locations, they are noted in the sub-sections relative to the affected compartments. A more detailed list, by compartment, is included as Appendix A.

1. The "wet deck" is extruded plank rather than corrugated sheet as shown in, Ref. [1] Midship Section. The transverse seams appear to be continuously welded, Figure 1, protecting the wet deck void from water ingress.

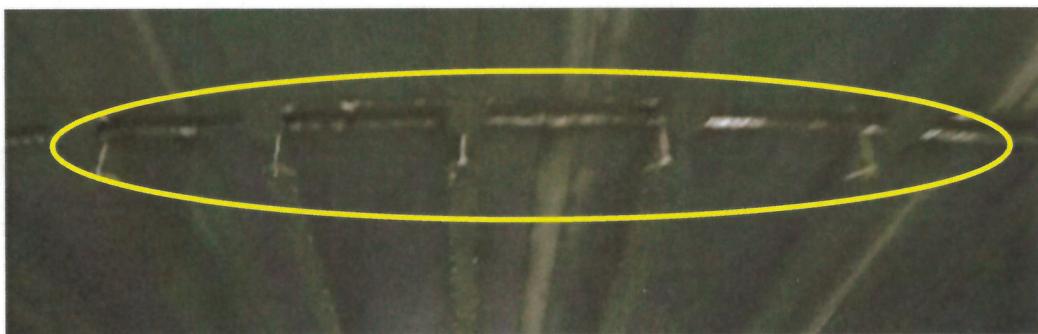


Figure 1: Wet Deck Seam

2. Longitudinal hull stiffeners do not have a matched pair of intermittent welds on each side of the transverse web frames as required in Refs. [2], [3] and [4], Figure 2.



Figure 2: Stiffeners at Web Frame

3. Limber holes shall be provided per Ref. [2] in non-tight structure to prevent the accumulation of liquids.
4. The first stiffener below the side shell and haunch knuckles, Figures 3 and 4, are to be welded double continuous (DC) per the Welding Arrangement, Ref. [3].



Figure 3: Stiffeners Below Sideshell Knuckle



Figure 4: Stiffeners Below Haunch Knuckle

5. The first stiffeners adjacent to the keel bar, Figure 5, are to be welded DC per the Welding Arrangement, Ref. [3].

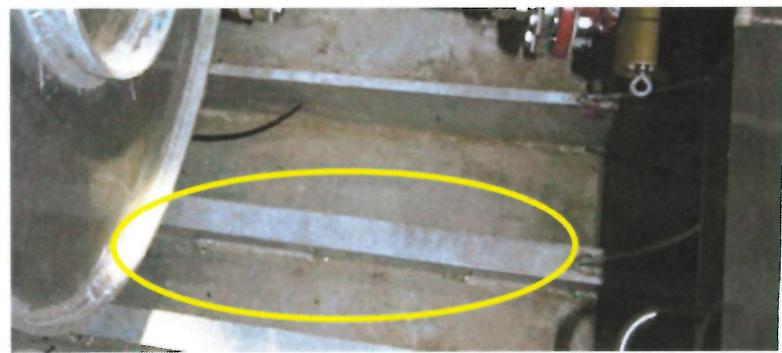


Figure 5: Stiffeners Adjacent to Keel

6. The deck planking stiffeners have been cut short and left unsupported in way of the pillar foundations, Figure 6.

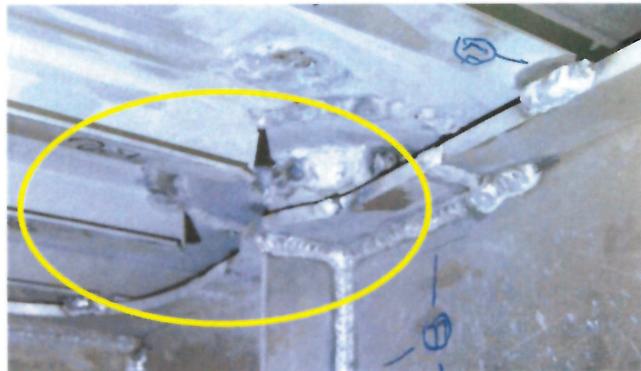


Figure 6: Pillar Foundation

7. Weld crater, possible source of cracking, Figure 7.



Figure 7: Weld Crater

8. The 4'x5' tonnage opening is obstructed by the gooseneck vent as shown in Figure 8. Ref. [5], MTN 01-99 CH-9 69.117 (d)(2')(i), defines the "In the Clear Requirement" for End Openings.



Figure 8: Tonnage Opening Obstruction

Ref. [5], MTN 01-99 CH-9 69.117 (d)(6')(ii) and (d)(6')(iii) defines the requirements for "Temporary Covers for Openings" which preclude the continuous joiner covering on the interior surface of the bulkhead, Figure 9.



Figure 9: Tonnage Opening Obstruction

3.1.2 Upper Deck

Bulwark stiffener end connections not aligned and welded, Figure 10.



Figure 10: Bulwarks Stiffener

3.1.3 Aft Peak Starboard (R101.S)

1. Black Water Tank foundation ends fully welded, Figures 11 and 12.



Figure 11: Black Water Tank Foundation



Figure 12: Black Water Tank Foundation

2. Main deck penetration patched and not fully welded, Figure 13.



Figure 13: Main Deck Penetration Patch

3.1.4 Tank Compartment Starboard (R103.S)

Compartment had diesel in the bilge and significant diesel fumes, so it was not safe for entry and was not inspected, Figure 14.

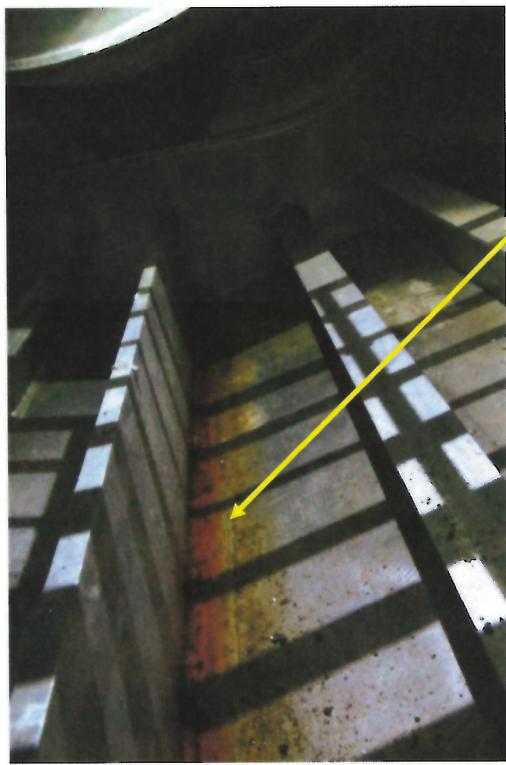


Figure 14: Starboard Tanks Compartment Bilge

3.1.5 Bow Thruster Compartment Port (R104.P)

1. Deck edge bracket end connection not welded, Figure 15.

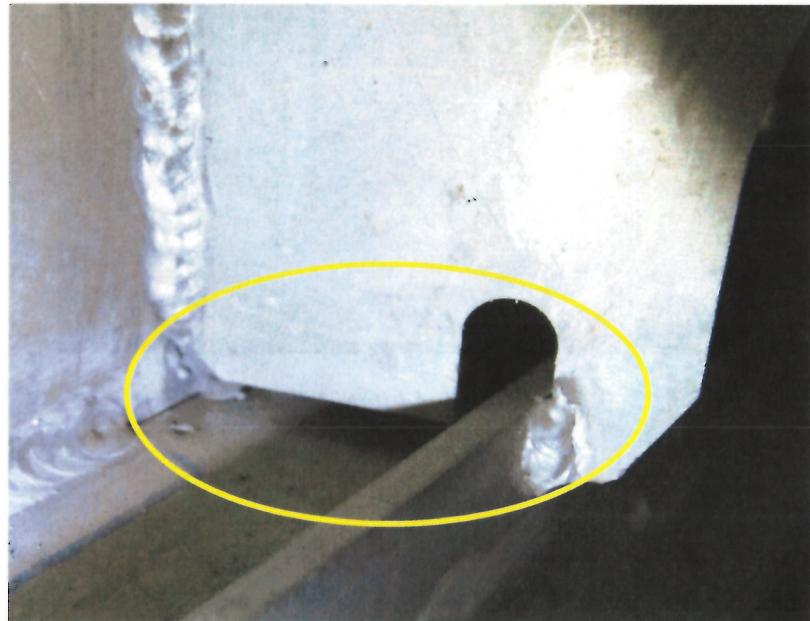


Figure 15: Deck Edge Bracket

2. Weld burn through, Figure 16.



Figure 16: Weld Burn Through

3.1.6 Forepeak Starboard (R105.S)

Deck edge brackets end connection not welded, Figure 17.



Figure 17: Weld Burn Through

3.1.7 Passenger Compartment

1. Wheelchair ramp not in compliance with ADA Chapter V4, Ref. [6]. Ramp rise shown in Figure 18 and ramp run-length shown in Figure 19.

Recommended Resolution: Ramp to be redesigned to meet ADA requirements.



Figure 18: Wheelchair Ramp Height



Figure 19: Wheelchair Ramp Length

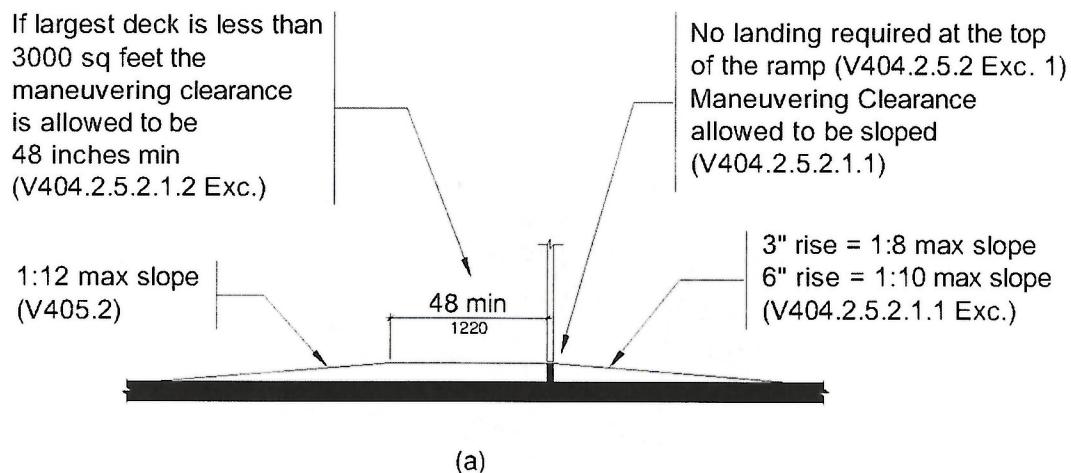


Figure 20: Wheelchair Ramp Requirements

2. ADA wheelchair hold down presents tripping hazard as currently installed.

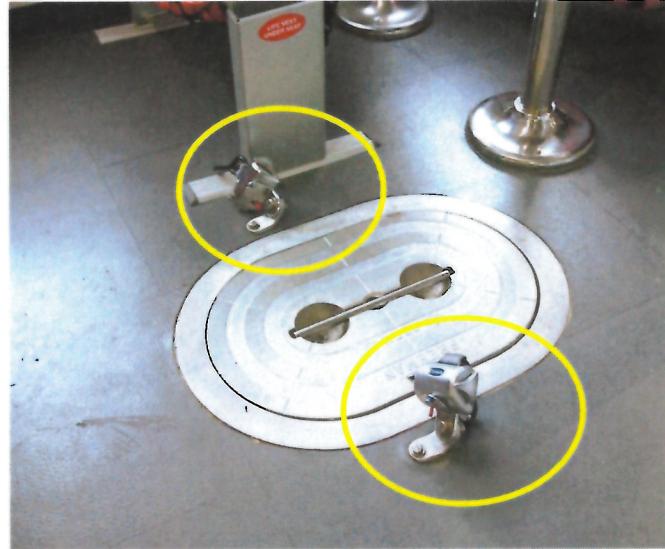


Figure 21: Wheelchair Hold Down

Recommended Resolution: Wheelchair hold-down slots to prevent tripping hazard of unmarked wheelchair hold-downs.

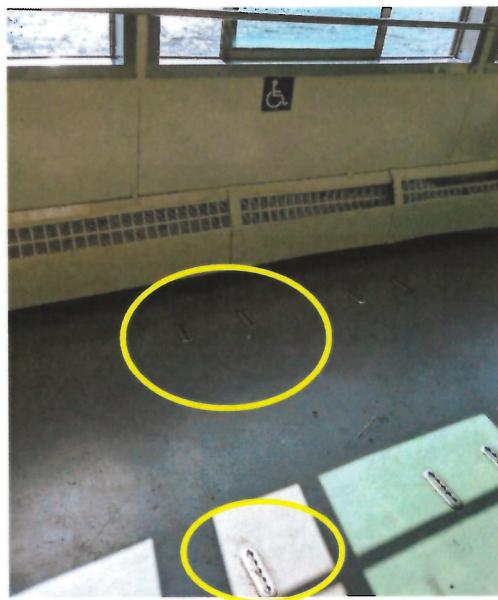


Figure 22: Example Wheelchair Hold Down Slots

3.1.8 Leakage in Main Passenger Compartment

While underway, as reported there may be a structural problem below the bridge wing. The leak is located approximately one-third of the way back on starboard side of the main passenger compartment. It was found when water stains on plastic seats were spotted.

Recommended Resolution: Open area to locate leakage and seal.

3.1.9 Doors

1. All doors have a composite material core. Specifications require the doors be made from aluminum.

Recommended Resolution: Doors appear to be made with an aluminum frame and have composite interior and exterior surfaces. Some are already damaged. And this is prior to being put into service. Doors should be replaced with more durable aluminum material doors.

2. Composite door at front starboard location of main passenger compartment leaks, even after gasket replacement.

Recommended Resolution: Flatness of door and alignment of door installation should be checked and corrected as necessary. If required, replace door assembly.

3. Weathertight door on port side of passenger compartment is damaged. Several dogs are non-functioning and have caused cracks to propagate.

Recommended Resolution: Replace door.

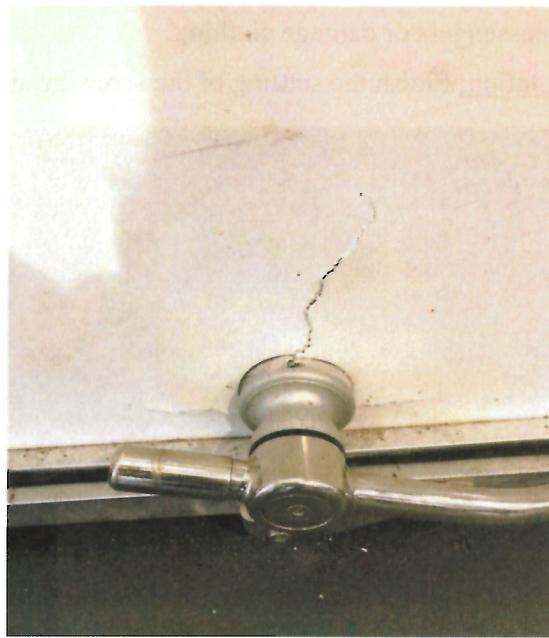


Figure 23: Weathertight Door

3.1.10 Fire and Safety Plan

Fire and Safety Plan displayed onboard vessel does not match the existing equipment in its current status and will need to be updated before certification and before vessel can go into service.

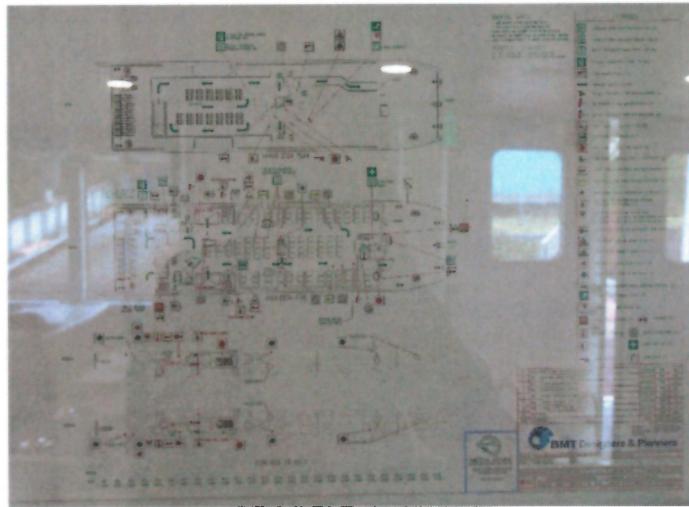


Figure 24: Fire & Safety Plan

3.1.11 Signage Fastening

Some signage fastened with screws have screw heads protruding far enough from bulkheads to injure passengers or damage clothing.

Recommended Resolution: Finish the settling of the screw head to the bulkhead surface



Figure 25: Passenger Hazard, Main Cabin

3.1.12 Exit Sign

Exit sign mounted to overhead has broken and come loose. Adjacent to forward access door of main passenger compartment on Main Deck.

Recommended Resolution: Repair or replace all exit signs with a more durable fixture.

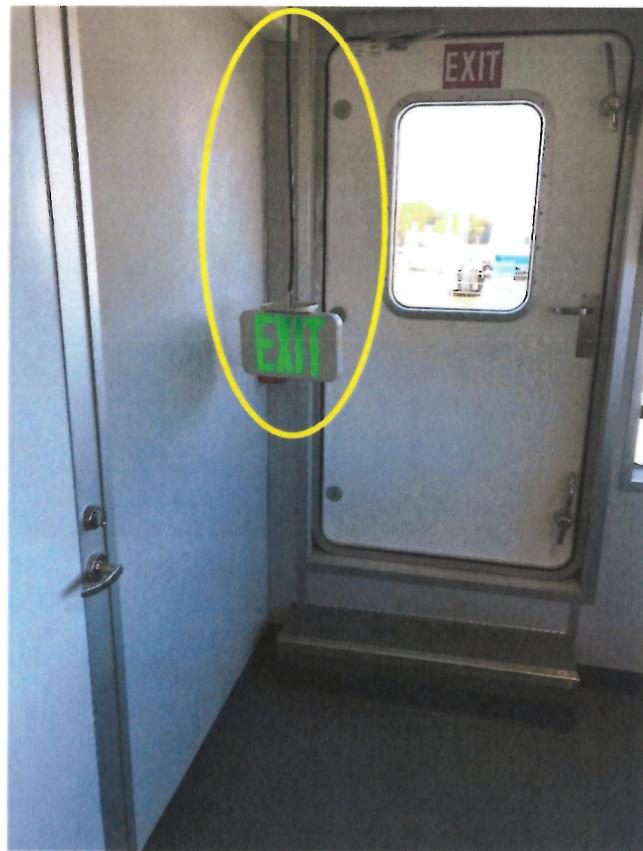


Figure 26: Damaged Exit Sign in Main Cabin

3.1.13 Anchor Arrangement

Anchor deployment will be difficult to deploy in an emergency. Pull pins shown in Figure 27 and Figure 28.

Recommended Resolution: Redesign with different pull pins used for fast and safer operation.

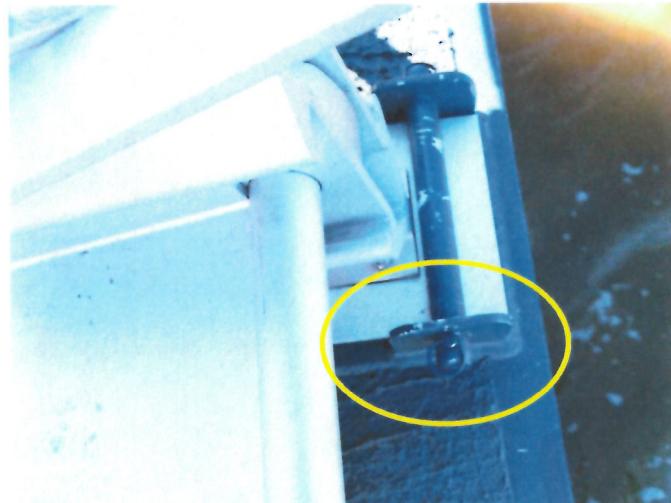


Figure 27: Anchor Locking Pin

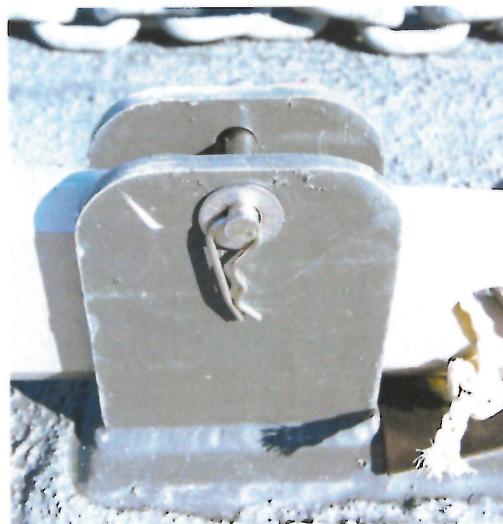


Figure 28: Anchor Locking Pin

3.1.15 Pilot House

1. Cracks in the console and fitment issues with wall trim in Figure 29 and Figure 30.

Recommended Resolution: Replace console top before vessel begins service.



Figure 29: Console Crack



Figure 30: Console Crack

2. Joiner damage and trim fitment issues shown in Figure 31 and Figure 32.

Recommended Resolution: Replace and repair before vessel begins service.



Figure 31: Damaged Outfitting



Figure 32: Damaged Outfitting

3.2 Mechanical Inspection (RBS)

The following observations have been made:

3.2.1 Gangways, Port & Starboard

Bolted Equipment Removal Panel (BERP) is bolted in; port side is leaking; bolts on BERP are not flush. This creates a passenger/personnel hazard.

Recommended Resolution: Modify bolting so that the bolt heads do not extend up beyond the level of the deck plate or BERP plate. Condition is noted on exterior of the Upper Deck in passenger area, also.

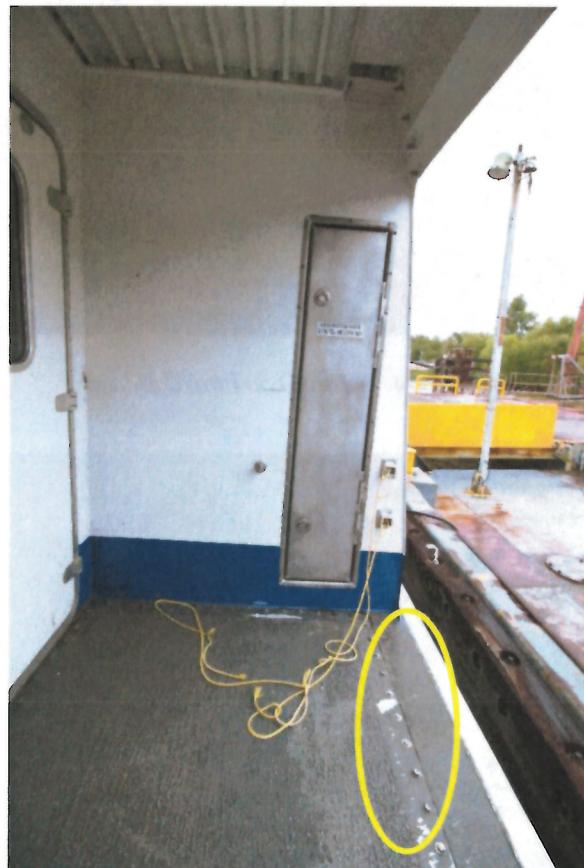


Figure 33: Deck Bolting Head Clearance

3.2.2 Davit/Manual Crane for Man-Over-Board (MOB)

1. Man-overboard boom has not been updated to the 60" length as requested by RTA. The safe operation of the boom winching mechanism may be hindered on the starboard side due to the placement of the hand crank. Movement to the starboard side will prove cumbersome and impractical as currently designed.



Figure 34: Man-Overboard Boom



*Figure 35: Man-Overboard Boom Crank
as shown on Port Side*

2. Recovery is not mounted high enough to bring rescued person onto deck.

Recommended Resolution: Re-configure MOB Recovery System so that an average adult can be lifted onto the deck to complete rescue operations. One possibility that has been investigated is replacing the current unit with a larger MOB recovery unit. Ensure unit is operable in port and starboard mounting locations. If customization is required for each location, installation of two units, one at each location (P & S), should be considered. Prior to reconfiguration the structure should be evaluated for the additional area stress issues.

Recommendation: Install additional lighting for rescue area for overboard visibility.



Figure 36: Man-Over-Board Recovery System

3.2.3 Aft Weather Deck Port & Starboard Hatches

Hatches have athwartship orientation; should be forward-aft to match location of ladders for access to space.

Recommended Resolution: Arrangement between hatch and ladder should be resolved and physical change made.



Figure 37: Aft Hatch Orientation

3.2.4 Children's Life Vests

Life vests in external compartment (off Aft Weather Deck) have been stored in small space with exterior access. Life vests should be relocated to just inside main passenger compartment inside aft access door in existing shelving found toward centerline of ship.

Recommended Resolution: Relocate Children's Life Vests to an accessible location.

3.2.5 Engine Room Ventilation Inlet Air Trunk

Located on gangway BERP at loading gangway. It is bolted on so that the bolts attaching the vent to the BERP are on the interior of the vent. This is very difficult to access.



Figure 38: Engine Room Ventilation Bolting

3.2.6 Fuel Tank Soundings

Within compartments R103 port and starboard, operating personnel cannot manually confirm how much fuel is on board in the fuel tanks. Tank levels cannot be manually determined with the present configuration of tank hardware. The inability to know much fuel is in the fuel tanks prohibited RTA personnel from running the diesel machinery and EBDG personnel from being able to observe the main engines and generators in operation. Therefore, EBDG was unable to verify the main engines and generator engines in operation during the inspection. Sounding system needs to be modified or repaired.

Recommended Resolution: Possible solution is to install USCG approved sight glass on forward end of fuel tank.

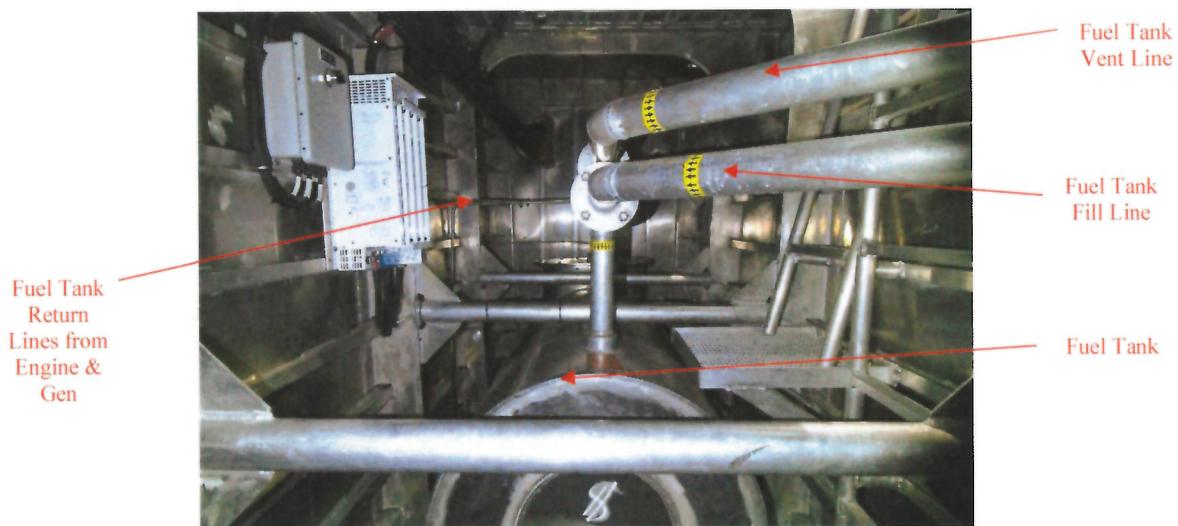


Figure 39: Fuel Tank Connections

3.2.7 Black Water Tank Venting

Tank is located in a below main deck compartment R101 starboard. It is unclear whether the cap is properly sealed to avoid venting into the space.

Recommended Resolution: Verify tank cap is properly sealed and ensure proper venting outside the tank compartment.

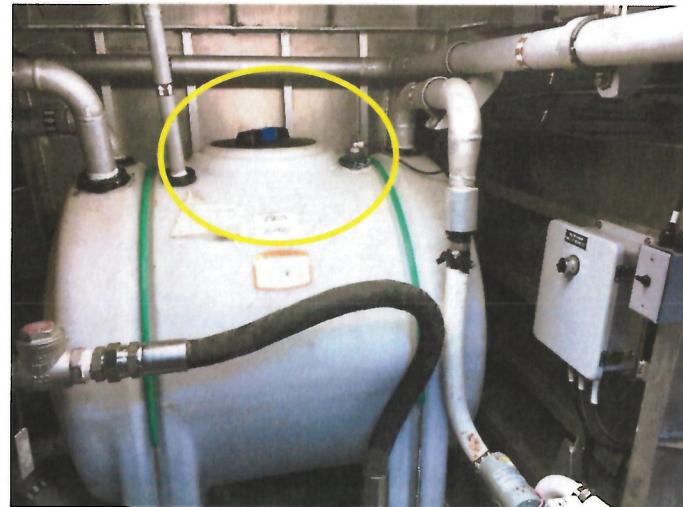


Figure 40: Black Water Tank Vent Location

3.2.8 Potable Water Tank Venting

Tank is located in a below main deck compartment R101 port. It is unclear whether the cap is properly sealed to avoid venting and spillage into the space.

Recommended Resolution: Verify tank cap is properly sealed and ensure proper venting is installed for tank.



Figure 41: Potable Water Tank Vent Location

3.2.9 Fuel duplex Strainers

Locations for main engine and generator are extremely difficult to access.

Recommended Resolution: If possible, relocate or move for better accessibility.

3.2.10 The Black Water Pump-Out Pump

The black water pump-out pump, a Headhunter/Tortuga, Model TOR1P60 Macerator Pump, is not working. There are associated odors in the compartment. Compartment may be contaminated, also.

Recommended Resolution: Repair/replace pump and clean compartment.

3.3 Electrical Inspection (ESJ)

3.3.1 Emergency Lighting in Main Deck Passenger Area

Emergency lighting in the main deck passenger area trips offline. When attempting to reset the DC supply in Panel DC#3, the panels ammeter actually drops from approximately 8 amps into the negative region, then the supply breaker trips after a few seconds. Once the breaker trips the indicator lamp remains lit, indicating the circuit is still energized. EBDG suspects the emergency lighting inverter is back feeding the circuit. Also, the emergency lighting drawing calls for a 25 amp breaker in Panel DC#3 to feed the emergency lighting. Breaker sizes are not identified in the Newmar panels, but an undersized or faulty breaker is suspected. Note this issue went away after the vessel was connected to shore power for several hours, indicating that a low battery charge was a factor.

Recommended Resolution: Verify correct breaker is installed. Research back feed issue and correct as needed.

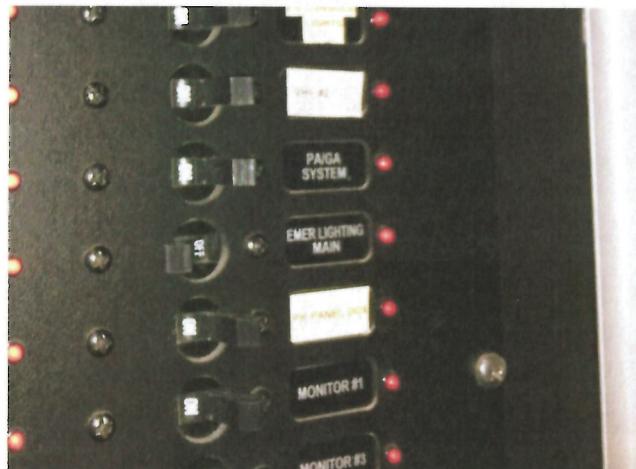


Figure 42: 24VDC Emergency Lighting Circuit Still Energized after Trip

3.3.2 Security Camera System

Reportedly, rebooting the security camera system requires entering the bridge console cabinet to physically un-plug and re-plug the power to the control unit.

Recommended Resolution: Add a switch on the control console to reset the security camera system.

3.3.3 Panel Circuit Labels

Panel P23 in the crew office has circuit number labels partially removed. The remaining panels, P21, P22, and P24 have no circuit number identifying labels.

Recommended Resolution: Rework panel circuit breaker labels so that each breaker has a unique circuit number.

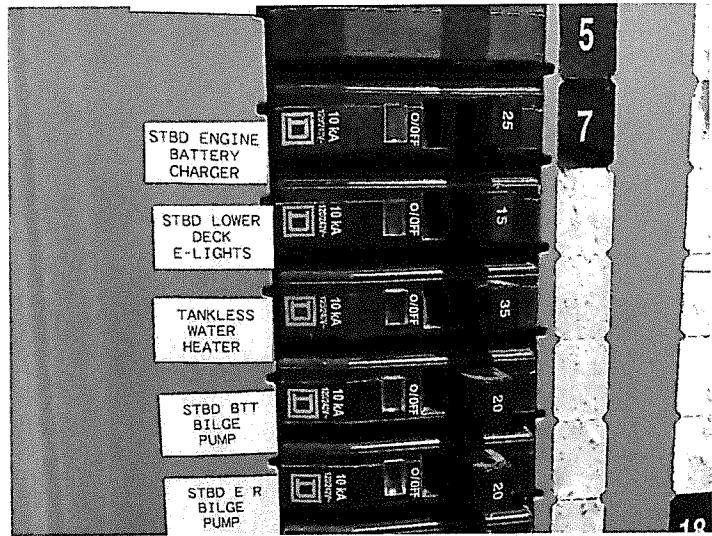


Figure 43: Partially Removed Number Labels in Panel P23

4 REFERENCES

- [1] BMT Nigel Gee, "NG1068-102-00-01 Typical Midship Section," 2017.
- [2] ABS, "Rules for Building and Classing High Speed Craft," American Bureau of Shipping, Spring, TX, 2019.
- [3] BMT Nigel Gee, "NG1068-104-00-02 Welding Arrangement," 2017.
- [4] BMT Nigel Gee, "NG1068-104-00-01 Weld Detail Booklet," 2017.
- [5] USCG, "MTN 01-99 CH-9 Tonnage Technical Policy," USCG, Washington DC, 2017.
- [6] ADA, "Chapter V4: Onboard Accessible Routes and Accessible Passenger Boarding Systems," United States Access Board, Washington, DC.
- [7] USCG, "46CFR Subchapter T," Office of the Federal Register, Washington DC, 2015.

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5 APPENDIX A
Structural Discrepancy List

5.1 Structural Discrepancy List

COMPARTMENT	ITEM #	ISSUE DESCRIPTION	SUGGESTED REPAIR
Aftpeak (R101.P)	1	Missing Bracket	Add bracket where missing.
	2	Longitudinal stiffeners do not have a matched pair of intermittent welds on each side of the transverse web frames as required by the design drawings.	Add a matched pair of welds on each side of all transverse web frames as necessary; or an inspector approved alternative.
	3	Stiffeners require limber holes to prevent water accumulation.	Add limber holes in members to allow for drainage of condensation and other water.
Aftpeak (R101.S)	1	Weld craters, possible source of future cracking.	
	2	Longitudinal stiffeners do not have a matched pair of intermittent welds on each side of the transverse web frames as required by the design drawings.	Add a matched pair of welds on each side of all transverse web frames as necessary; or an inspector approved alternative.
	3	Weld burn through	
	4	Deck penetration plug not completely welded DC	Prepare seam and weld fully
	5	Incomplete weld wrap on deck stiffener	

COMPARTMENT	ITEM #	ISSUE DESCRIPTION	SUGGESTED REPAIR
	6	Stiffeners require limber holes to prevent water accumulation.	Add limber holes in members to allow for drainage of condensation and other water.
Engine Room (R102.P)	1	Hard corner on exhaust hanger possible source of fatigue cracking.	
Engine Room (R102.S)	1	Hard corner on exhaust hanger possible source of fatigue cracking.	
Tank Compartment (R103.P)	1	MD pillar penetration, stiffener unsupported at end connection.	
	2	Intermittent weld on 1st stiffener below haunch knuckle, design drawings require DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	3	Intermittent weld on 1st stiffener below side shell knuckle, design drawing requires DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	4	Intermittent weld on 1st stiffener adjacent to keel, design drawings require DC	Prepare surface and complete the DC welds; or an inspector approved alternative.

COMPARTMENT	ITEM #	ISSUE DESCRIPTION	SUGGESTED REPAIR
	5	Longitudinal stiffeners do not have a matched pair of intermittent welds on each side of the transverse web frames as required by the design drawings.	Add a matched pair of welds on each side of all transverse web frames as necessary; or an inspector approved alternative.
	6	Stiffeners require limber holes to prevent water accumulation.	Add limber holes in members to allow for drainage of condensation and other water.
Tank Compartment (R103.S)	1	MD pillar penetration, stiffener unsupported at end connection.	
	2	Intermittent weld on 1st stiffener below haunch knuckle, design drawings require DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	3	Intermittent weld on 1st stiffener below side shell knuckle, design drawing requires DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	4	Intermittent weld on 1st stiffener adjacent to keel, design drawings require DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	5	Longitudinal stiffeners do not have a matched pair of intermittent welds on each side of the transverse web frames as required by the design drawings.	Add a matched pair of welds on each side of all transverse web frames as necessary; or an inspector approved alternative.

COMPARTMENT	ITEM #	ISSUE DESCRIPTION	SUGGESTED REPAIR
	6	Stiffeners require limber holes to prevent water accumulation.	Add limber holes in members to allow for drainage of condensation and other water.
Bow thruster Compartment (R104.P)	1	Bracket end connection not fully welded, excessive gap between end and stiffener.	Crop out and replace with sufficient material to bridge the gap and weld fully.
	2	Missing bracket	Add bracket.
	3	MD pillar penetration, deck stiffener unsupported at end connection.	
	4	Weld burn through	
	5	Intermittent weld on 1st stiffener below haunch knuckle, design drawings require DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	6	Intermittent weld on 1st stiffener below side shell knuckle, design drawing requires DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	7	Intermittent weld on 1st stiffener adjacent to keel, design drawings require DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	8	Longitudinal stiffeners do not have a matched pair of intermittent welds on each side of the transverse web frames as required by the design drawings.	Add a matched pair of welds on each side of all transverse web frames as necessary; or an inspector approved alternative.

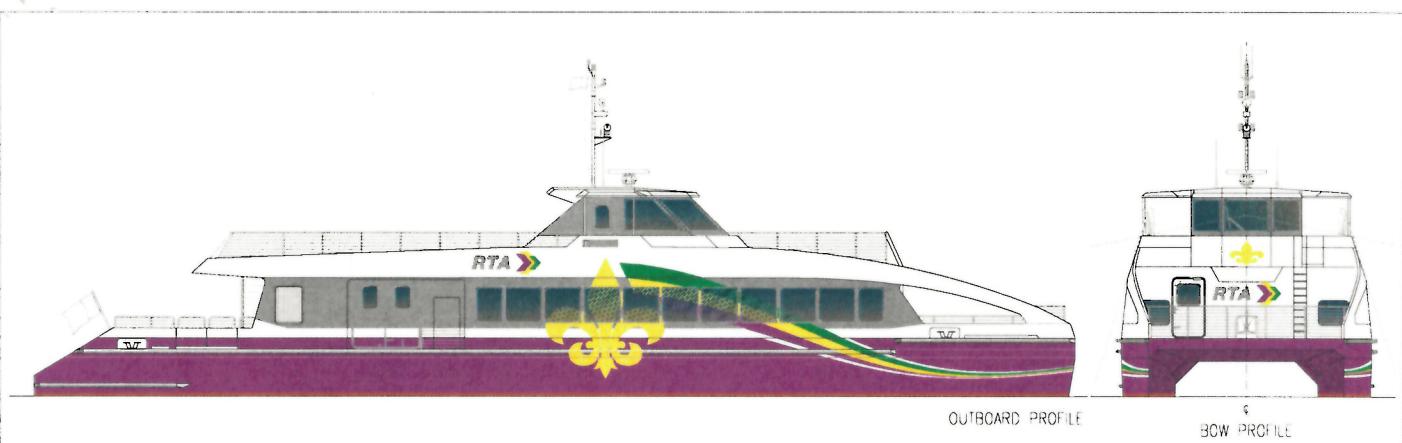
COMPARTMENT	ITEM #	ISSUE DESCRIPTION	SUGGESTED REPAIR
	9	Stiffeners require limber holes to prevent water accumulation.	Add limber holes in members to allow for drainage of condensation and other water.
Bow thruster Compartment (R104.S)	1	MD pillar penetration, stiffener unsupported at end connection.	
	2	Intermittent weld on 1st stiffener below haunch knuckle, design drawings require DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	3	Intermittent weld on 1st stiffener below side shell knuckle, design drawing requires DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	4	Intermittent weld on 1st stiffener adjacent to keel, design drawings require DC	Prepare surface and complete the DC welds; or an inspector approved alternative.
	5	Longitudinal stiffeners do not have a matched pair of intermittent welds on each side of the transverse web frames as required by the design drawings.	Add a matched pair of welds on each side of all transverse web frames as necessary; or an inspector approved alternative.
	6	Stiffeners require limber holes to prevent water accumulation.	Add limber holes in members to allow for drainage of condensation and other water.

COMPARTMENT	ITEM #	ISSUE DESCRIPTION	SUGGESTED REPAIR
Forepeak (R105.P)	1	Longitudinal stiffeners do not have a matched pair of intermittent welds on each side of the transverse web frames as required by the design drawings.	Add a matched pair of welds on each side of all transverse web frames as necessary; or an inspector approved alternative.
	2	Stiffeners require limber holes to prevent water accumulation.	Add limber holes in members to allow for drainage of condensation and other water.
Forepeak (R105.S)	1	Bracket end connection not fully welded	Weld end connection all around
	2	Bracket end connection not fully welded	Weld end connection all around
	3	Longitudinal stiffeners do not have a matched pair of intermittent welds on each side of the transverse web frames as required by the design drawings.	Add a matched pair of welds on each side of all transverse web frames as necessary; or an inspector approved alternative.
	4	Stiffeners require limber holes to prevent water accumulation.	Add limber holes in members to allow for drainage of condensation and other water.
Passenger			
Pilot House			

COMPARTMENT	ITEM #	ISSUE DESCRIPTION	SUGGESTED REPAIR
Upper Deck	1	Stiffener end connection stbd. side not fully connected	Crop off stiffener and re-install with proper alignment and end connection
Fore Deck	1	Tonnage Opening Obstructed by vent gooseneck.	Relocate vent so that it does not obstruct tonnage opening, or an inspector approved alternative.
Aft Deck			
Hull			

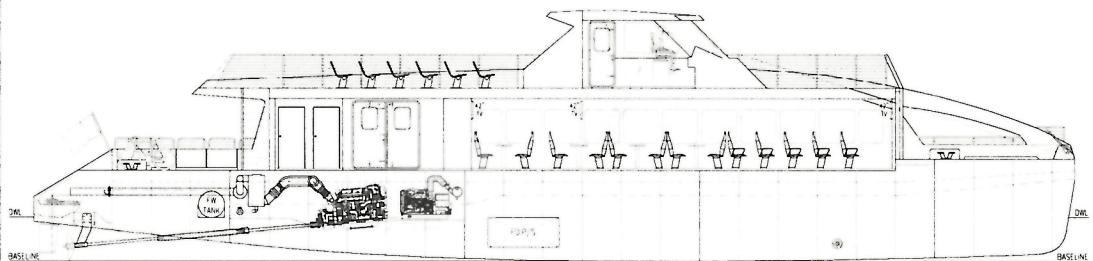
6 APPENDIX B

General Arrangement Reference Drawing

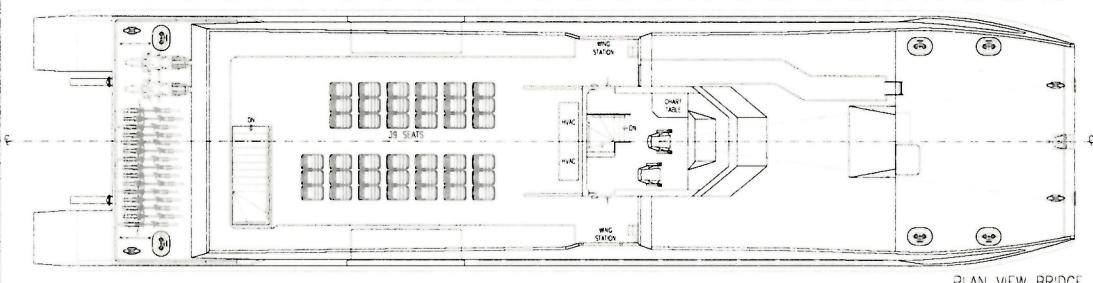


OUTBOARD PROFILE

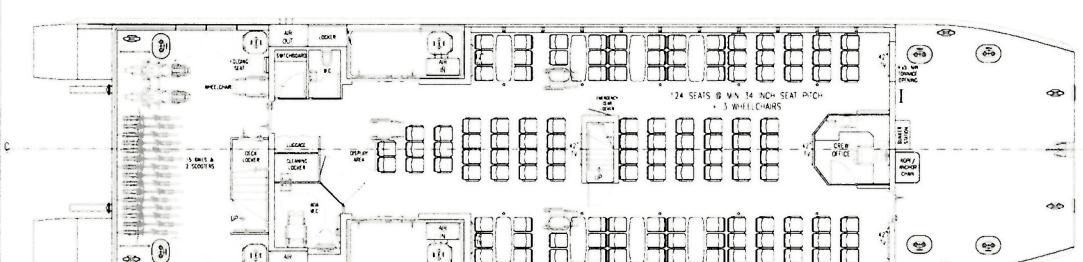
BOW PROFILE



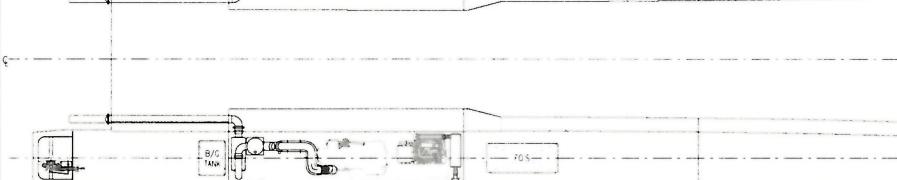
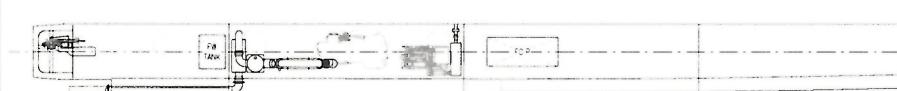
INBOARD PROFILE
TRANSOM
FR.0 FR.1 FR.2 FR.3 FR.4 FR.5 FR.6 FR.7 FR.8 FR.9 FR.10 FR.11 FR.12 FR.13 FR.14 FR.15 FR.16 FR.17 FR.18 FR.19 FR.20 FR.21 FR.22 FR.23 FR.24 FR.25 FR.26
FR.0 1200 2400 3600 4800 6000 7200 8400 9600 10800 12000 13200 14400 15600 16800 18000 19200 20400 21600 22800 24000 25200 26400 27600 28800 30000 31200



TRANSOM
FR.0 FR.1 FR.2 FR.3 FR.4 FR.5 FR.6 FR.7 FR.8 FR.9 FR.10 FR.11 FR.12 FR.13 FR.14 FR.15 FR.16 FR.17 FR.18 FR.19 FR.20 FR.21 FR.22 FR.23 FR.24 FR.25 FR.26
FR.0 1200 2400 3600 4800 6000 7200 8400 9600 10800 12000 13200 14400 15600 16800 18000 19200 20400 21600 22800 24000 25200 26400 27600 28800 30000 31200



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FR.0 FR.1 FR.2 FR.3 FR.4 FR.5 FR.6 FR.7 FR.8 FR.9 FR.10 FR.11 FR.12 FR.13 FR.14 FR.15 FR.16 FR.17 FR.18 FR.19 FR.20 FR.21 FR.22 FR.23 FR.24 FR.25 FR.26
FR.0 1200 2400 3600 4800 6000 7200 8400 9600 10800 12000 13200 14400 15600 16800 18000 19200 20400 21600 22800 24000 25200 26400 27600 28800 30000 31200



TRANSOM
FR.0 FR.1 FR.2 FR.3 FR.4 FR.5 FR.6 FR.7 FR.8 FR.9 FR.10 FR.11 FR.12 FR.13 FR.14 FR.15 FR.16 FR.17 FR.18 FR.19 FR.20 FR.21 FR.22 FR.23 FR.24 FR.25 FR.26
FR.0 1200 2400 3600 4800 6000 7200 8400 9600 10800 12000 13200 14400 15600 16800 18000 19200 20400 21600 22800 24000 25200 26400

PRINCIPAL PARTICULARS

LENGTH OVERALL	32.0 m
LENGTH WATERLINE (DESIGN)	31.7 m
BEAM MOULDED	7.7 m
DRAUGHT (DESIGN)	1.35 m
FUEL	732 US Gal
WATER	125 US Gal
BLACK WATER	125 US Gal
PASSENGER CAPACITY	150 PAX
MAIN DECK	124 SEATS + 3 WHEELCHAIRS
MAIN DECK AFT	1 FOLDING SEAT + 1 WHEELCHAIR
UPPER DECK	39 SEATS
MAIN ENGINES	2 x CAT C18 533kW
PROPELLION	2 x PPP Ø34" 5° SHAFT ANGLE
SPEED @ 85% MCR	22.5 knots

