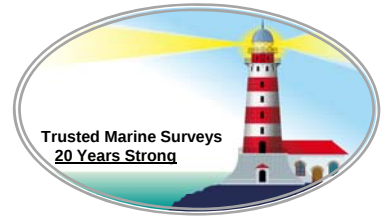


# JAMESON THERIAULT MARINE SURVEYS

CERTIFIED MARINE SURVEYOR / IIMS DIPL. No. 00-0184 / BSc.

Box 1330, Digby, NS, Canada B0V 1A0 / Phone No: (902) 245-5652

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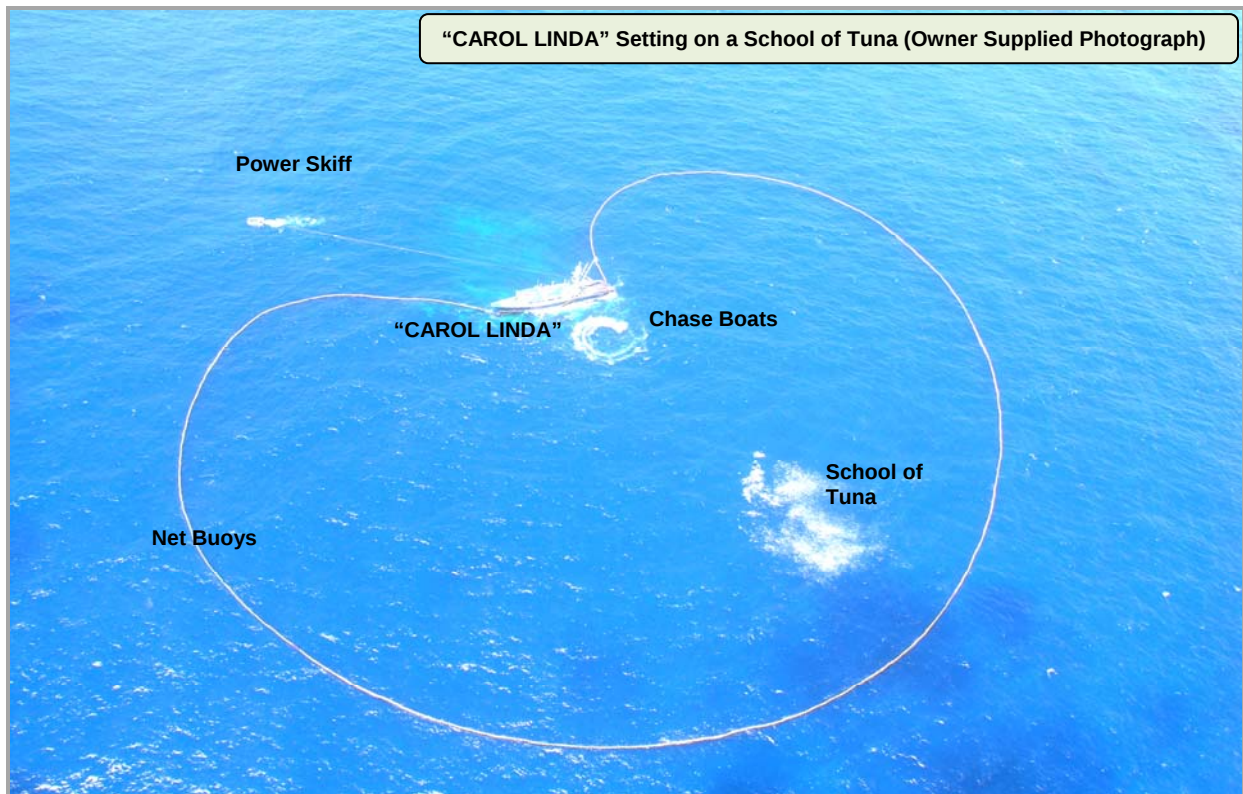


JAMESON THERIAULT : MARINE SURVEYOR

## CONDITION & VALUATION SURVEY

“CAROL LINDA”





## TABLE OF CONTENTS

|             |                                                         |                |
|-------------|---------------------------------------------------------|----------------|
| <b>1.0</b>  | <b>SURVEY PARTICULARS.....</b>                          | <b>4 - 5</b>   |
| <b>2.0</b>  | <b>SHIP'S PARTICULARS.....</b>                          | <b>6 - 8</b>   |
| <b>3.0</b>  | <b>HISTORY OF USE / CERTIFICATION.....</b>              | <b>9</b>       |
| <b>4.0</b>  | <b>NOTABLE UPGRADES, MAINTENANCE &amp; REPAIRS.....</b> | <b>9 - 10</b>  |
| <b>5.0</b>  | <b>CONSTRUCTION PARTICULARS &amp; CONDITION.....</b>    | <b>13 - 16</b> |
| <b>6.0</b>  | <b>MAST - CROW'S NEST / RIGGING / DECK GEAR.....</b>    | <b>16 - 18</b> |
| <b>7.0</b>  | <b>FISH-WELLS / REFRIGERATION SYSTEM.....</b>           | <b>19 - 24</b> |
| <b>8.0</b>  | <b>HYDRAULIC SYSTEMS.....</b>                           | <b>24 - 25</b> |
| <b>9.0</b>  | <b>MAIN PROPUSION.....</b>                              | <b>26 - 29</b> |
| <b>10.0</b> | <b>DRIVETRAIN / STEERING &amp; RUDDER GEAR.....</b>     | <b>29 - 30</b> |
| <b>11.0</b> | <b>ACCOMMODATIONS / DOMESTIC SERVICES.....</b>          | <b>31 - 37</b> |
| <b>12.0</b> | <b>PILOTHOUSE / ELECTRONICS.....</b>                    | <b>37 - 40</b> |
| <b>13.0</b> | <b>ELECTRICAL SYSTEMS.....</b>                          | <b>41 - 43</b> |
| <b>14.0</b> | <b>FUEL SYSTEM &amp; OTHER TANKS.....</b>               | <b>43 - 44</b> |
| <b>15.0</b> | <b>FIRE, BILGE &amp; OTHER PUMPING SYSTEMS.....</b>     | <b>45</b>      |
| <b>16.0</b> | <b>LOSS PREVENTION &amp; EMERGENCY SYSTEMS.....</b>     | <b>46 - 48</b> |
| <b>17.0</b> | <b>POWER SKIFF &amp; WORK BOATS / TUNA NET.....</b>     | <b>49 - 51</b> |
| <b>18.0</b> | <b>GENERAL MAINTENANCE ISSUES.....</b>                  | <b>52 - 53</b> |
| <b>19.0</b> | <b>RECOMMENDATIONS.....</b>                             | <b>53</b>      |
| <b>20.0</b> | <b>SURVEYOR'S COMMENTS.....</b>                         | <b>54</b>      |
| <b>21.0</b> | <b>VALUATION / ECONOMIC LIFESPAN.....</b>               | <b>55</b>      |
| <b>22.0</b> | <b>APPENDIX:</b>                                        |                |
| <b>22.1</b> | <b>2013 HULL PLATING ULTRASOUND SURVEY.....</b>         | <b>57 - 59</b> |
| <b>22.2</b> | <b>OIL SAMPLE RESULTS - MAIN ENGINE.....</b>            | <b>60</b>      |
| <b>22.3</b> | <b>TANK PLANS.....</b>                                  | <b>61</b>      |

DATE OF ISSUE: May 2, 2015

REPORT NO: 4604

## 1.0 SURVEY PARTICULARS

### 1.1 TYPE OF SURVEY

Condition & Valuation Survey for Resale,  
Banking and Insurance Purposes

### 1.2 CONTACT

Craig Theriault - Theriault International Ltd.  
Phone Number: (902) 467-0239

Email Address:

[sales@theriaultinternational.com](mailto:sales@theriaultinternational.com)



### 1.3 DATE / PLACE OF SURVEY

April 13 - 17, 2015 / Pago Pago, American Samoa

### 1.4 PURPOSE OF SURVEY

- i. To identify the vessel and its systems.
- ii. To ascertain "Fair Market Value" for resale, banking and insurance purposes.
- iii. To identify, by way of Recommendations, any faults or problems that would compromise seaworthiness or that would constitute a threat to the safety of crew, or that would otherwise pose an unreasonable risk to underwriters for insurance purposes.



## 1.5 SCOPE & LIMITATIONS OF THE SURVEY

The vessel was viewed while afloat at the wharf in Pago Pago, American Samoa.

The outside of the underwater hull was not examined and the vessel was not sea-trialed.

All topside and under-deck compartments were examined where readily accessible and exposed.

The mechanical systems were examined visually and tested where practical.

The main engine, marine gear and auxiliary engines were operated.

A main engine oil sample was taken for analysis.

The gen-sets were operated and the electrical systems were examined visually and tested where practical.

No internal fuel tank spaces were inspected during the survey.

The main power skiff was sea-trialed.

The engineer and other crewmembers were present during the survey.



## 2.0 SHIP'S PARTICULARS – F/V "CAROL LINDA"

### 2.1 GENERAL INFORMATION

|                          |                             |
|--------------------------|-----------------------------|
| Vessel Type:             | Tuna Purse Seiner           |
| Year Built:              | 1979                        |
| Official Number:         | 624971                      |
| IMO Number:              | 7827445                     |
| International Call Sign: | WTF4062                     |
| Port of Registry:        | Las Vegas, Nevada, USA      |
| Flag of Registry:        | USA                         |
| Builder:                 | Burton Shipyard, Texas, USA |

### 2.2 PRINCIPLE PARTICULARS

|                             |                                                                    |
|-----------------------------|--------------------------------------------------------------------|
| Length Overall:             | 274 feet / 83.5 metres                                             |
| Length B.P:                 | 250 feet / 76.2 metres                                             |
| Breadth Moulded:            | 42 feet / 12.8 meters                                              |
| Depth Moulded:              | 18.5 feet / 5.6 meters                                             |
| Lightship Displacement:     | 1662.7 tonnes                                                      |
| Lightship Draft:            | Forward P. 7.4 feet / 2.2 meters<br>Aft P. 10.2 feet / 3.1 meters  |
| Port Departure Draft (98%): | Forward P. 19.2 feet / 5.8 meters<br>Aft P. 20.9 feet / 6.3 meters |
| Registered Tonnage:         | 1,975 GRT / 996 NRT                                                |

### 2.3 POWER AND SPEED PARTICULARS

|                       |                               |
|-----------------------|-------------------------------|
| Main Engine:          | 3600 HP                       |
| Service Speed:        | 12 - 13.5 Knots (as reported) |
| Main Generating Sets: | 1 x 600 kW<br>2 x 300 kW      |
| Bow Thruster:         | 420 HP                        |

## 2.4 PRIMARY TANK CAPACITIES

|                       |                                                                                                                                                                                         |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Diesel Fuel Capacity: | 115,000 US gal. approx. in fuel tanks<br>Additional 30,000 US gal. of fuel can be stored in the flume (stability) tank<br>Additional capacity also available in 2 designated fish-wells |
| Freshwater Capacity:  | 15,000 US gal. approx.                                                                                                                                                                  |

## 2.5 STORAGE CAPACITY & FREEZING CAPABILITIES

|                      |                                     |
|----------------------|-------------------------------------|
| No. of Fish-Wells:   | 23                                  |
| Total Well Capacity: | 1,750 tons approx. (3,500,000 lbs.) |
| Freezing Capacity:   | 300+ tons per day                   |

## 2.6 ACCOMMODATIONS

|                   |                                 |
|-------------------|---------------------------------|
| No. of Cabins:    | 11 Cabins                       |
| No. of Bunks:     | 27                              |
| No. of Washrooms: | 3 Private / 4 Shared / 2 Common |

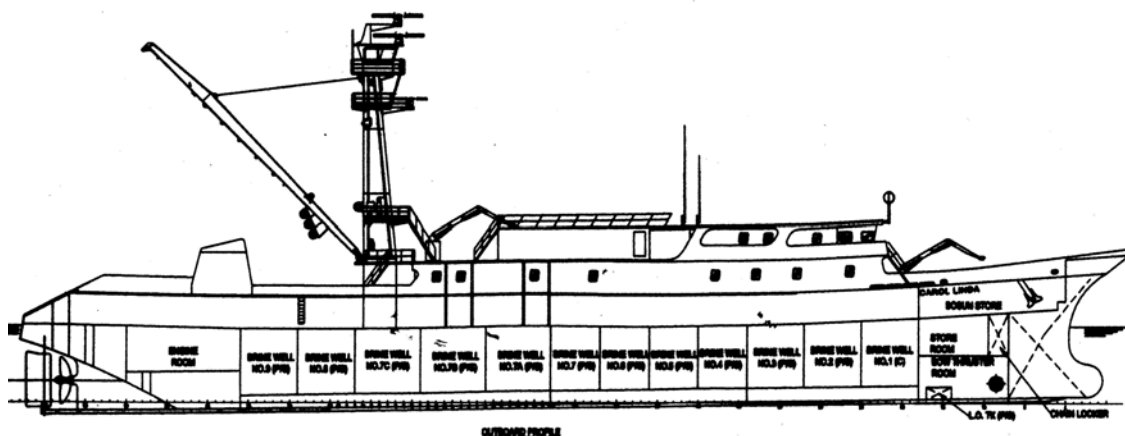
## 2.7 GENERAL DESCRIPTION - ARRANGEMENTS

### General Arrangement Plans

General arrangement plans were posted in the accommodations area and chartroom.

### Hull Design / Construction

Welded steel full displacement hull - traditional purse seiner design with flared bow, double bottom tanks, bulbous bow and raked stern.



Boat Deck (Upper Deck) - Listed Forward to Aft  
Pilothouse with heli-pad on the roof.

Chartroom with office.

Captain's suite with custom lounge, private bedroom and washroom.

2 Workshops / storage rooms abaft the captain's suite.

Upper deckhouse abaft the pilothouse with 2 x 2-bunk cabins with shared washroom and 3 storage rooms.

Main Deck - Listed Forward to Aft  
Forward deck.

Primary accommodations with 6-bunk crew cabin, 2 x 4-bunk crew cabins, 2 officers' cabins with single bunks and private washrooms, 2 x 2-bunk officers' cabins with shared washroom, 2 common washrooms, laundry room, multiple storage rooms and lockers.

Full service galley and mess with 3 tables and pantry.

Walk-in dry stores locker and walk-in freezer.

Work deck abaft the accommodations with hauling station, deck winch, work area and seine platform aft.

Below Deck

3 Compartments in the forepeak (upper and lower storage compartments and lowermost bow thruster compartment).

Wet deck abaft the upper forepeak compartment extends aft with raised hatch coamings over 23 fish-wells. Engineer's workshop amidships on the wet deck on the starboard side.

Pipe alleyways positioned along the centerline between the port and starboard fish-wells (upper and lower walkways).

Upper engine room aft (refrigeration and hydraulic systems, etc.).

Lower engine room aft (main engine and gen-sets, etc.).

Tank Arrangements

Bulbous bow tank (used for trimming purposes).

Double bottom tanks below the fish-wells.

Tanks for diesel fuel, freshwater, seawater ballast, flume tank and other fluids aft.

## 3.0 HISTORY OF USE / CERTIFICATION

### 3.1 GENERAL INFORMATION

#### History of Use

"CAROL LINDA" has a longstanding track record in the tuna purse seine fishery in the South Pacific.

The vessel last fished in July 2013 and has been maintained in near ready condition with a partial crew onboard in American Samoa since that time (the vessel is moved to different locations in the harbour on a regular basis).

"CAROL LINDA" carries a regular crew of 25 with a trip duration of up to 60 days.

#### Built to USA Standards

"CAROL LINDA" was well built to US boat building standards for large fishing vessels (ABS Classification) and has been structurally maintained through periodic dry-dock refits through the years.

The most recent refits were in 2009, 2012 and 2013.

#### Certification

To fish tuna in the South Pacific "CAROL LINDA" requires certificates from USCG (i.e. CFR 33, 46, 47, 67), FCC (state radio licence) and other regulatory bodies as well as certain high seas and territorial fishing permits. The status of the latter (tuna fishing related documents) was not confirmed, as this was outside of the scope of this survey.

## 4.0 NOTABLE UPGRADES, MAINTENANCE & REPAIRS

### 4.1 SUMMARY OF NOTABLE UPGRADES, MAINTENANCE & REPAIRS

#### Structural

**2000** Hull lengthened amidships by approx. 50 feet at Pan United Shipyard in Singapore.

Significant hull maintenance and repairs carried out at Ching-Fu Shipbuilding Co. in Taiwan.

**2012** Deteriorated underwater hull plating renewed in compliance with ultrasound survey at Ship Repair New Zealand Ltd.

#### Galley / Accommodations

**2000** New galley.

**2009** New upper deckhouse installed (37 ft. x 22 ft.) abaft the pilothouse on the boat deck (spare accommodations and storage rooms).

### Mechanical Systems and Rigging

**2009** New refrigeration coils fitted in the fish wells. New Marco purse winch. Main sea chests serviced.

**2013** The following were repairs of damages reportedly sustained during an incident at sea several years ago. Mostly new hydraulic system. New mast with crow's nest and booms. New rigging including all new cargos winches, cables, blocks and Marco power block. New aft deck crane.

**2014** Refrigeration system partially overhauled.

### Electrical System

**2012** Rebuilt Caterpillar 3412 installed with generator (no.1 gen-set).

### Electronic Equipment

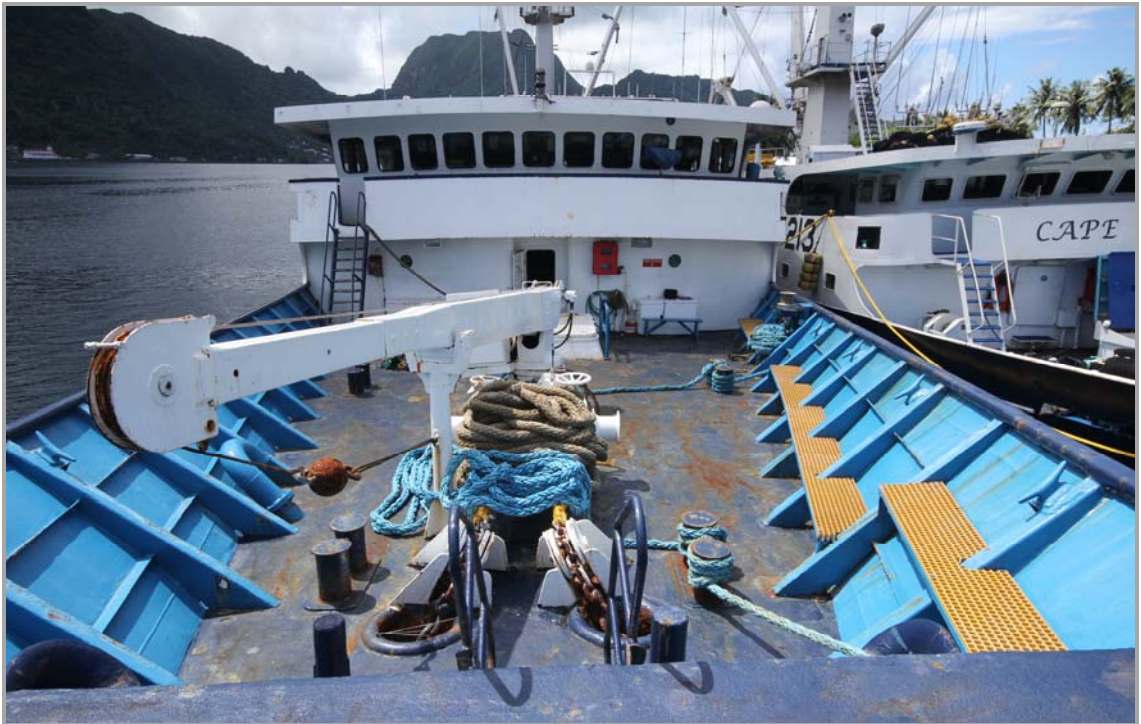
The electronics have been upgraded with new models through the years including several recent additions.

### Fishing Gear

**2009** New tuna net.

**2013** New power skiff.





Views of the Forward Deck



Deck Crane for  
Offloading the Forward  
Fish Wells

Forward  
Offloading Hatch



## 5.0 CONSTRUCTION PARTICULARS & CONDITION

### 5.1 HULL DESIGN, CONSTRUCTION & CONDITION

#### Welded Steel Hull Construction:

US built full displacement welded steel hull built in accordance with ABS classification requirements.

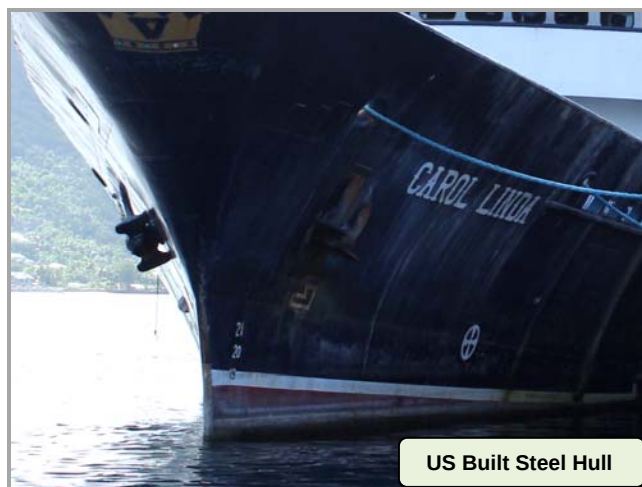
Welded steel plates over longitudinal and transverse frames and transverse steel bullheads.

Heavy rub-rail along the waterline on both sides (in good visible condition where exposed).

#### Hull Plating Original Thickness

$\frac{1}{2}$ " Underwater hull plating thickness.

$\frac{3}{8}$ " Topside hull plating thickness.



#### Hull Modification in 1999 / 2000

The hull was lengthened by approx. 50 feet amidships to increase fish storage capacity from 1200 tons to 1750 tons.

#### Ultrasound Survey of Hull Plating

An ultrasound survey of the underwater hull plating was completed by Stork Technical Services in New Zealand in September 2012.

This survey found areas of deteriorated hull plating (pitting and corrosion). The hull plating in question was reportedly cropped and renewed. A copy of the Ultrasound Report is attached in the **APPENDIX 22.1**.

#### Hull Exterior - Visual Condition of Steel Plating

The outer hull plating and welds were in serviceable condition where readily accessible and exposed above the waterline (no apparent structural deficiencies and paint coatings in average condition).

There was no significant plate buckling between the frames.

The outside of the underwater hull was not examined during the survey.

#### Hull Interior - Visual Condition of Steel Plating

The inner hull plating and welds were in serviceable condition where readily accessible and exposed (no apparent structural deficiencies and paint coatings in good condition).

The inner hull plating was not examined in the fish-wells or inside the double bottom tanks.

### Longitudinal Side Frames

5 ½" x 3" Box side frames (spaced 2 feet apart) were welded along the topside hull plating where exposed in the upper and middle forepeak compartments, wet deck and upper engine room. In certain areas forward these frames were interspersed with 1" x 6" frames.

6" x 4" x ½" Angle side frames (spaced 2 feet apart) were welded along the underwater hull plating where exposed in the forefoot (thruster room) and the lower engine room aft.

### Transverse Side Frames

11" x 4 ½" x ½" Angle transverse frames (12 - 14 foot spacing) were welded along the topside hull plating where exposed in the upper and middle forepeak compartments, wet deck and upper engine room.

13"x 6 ½" x ½" Angle transverse frames (6 foot spacing) were welded along the underwater hull plating where exposed in the forefoot (thruster room) and in lower engine room aft.

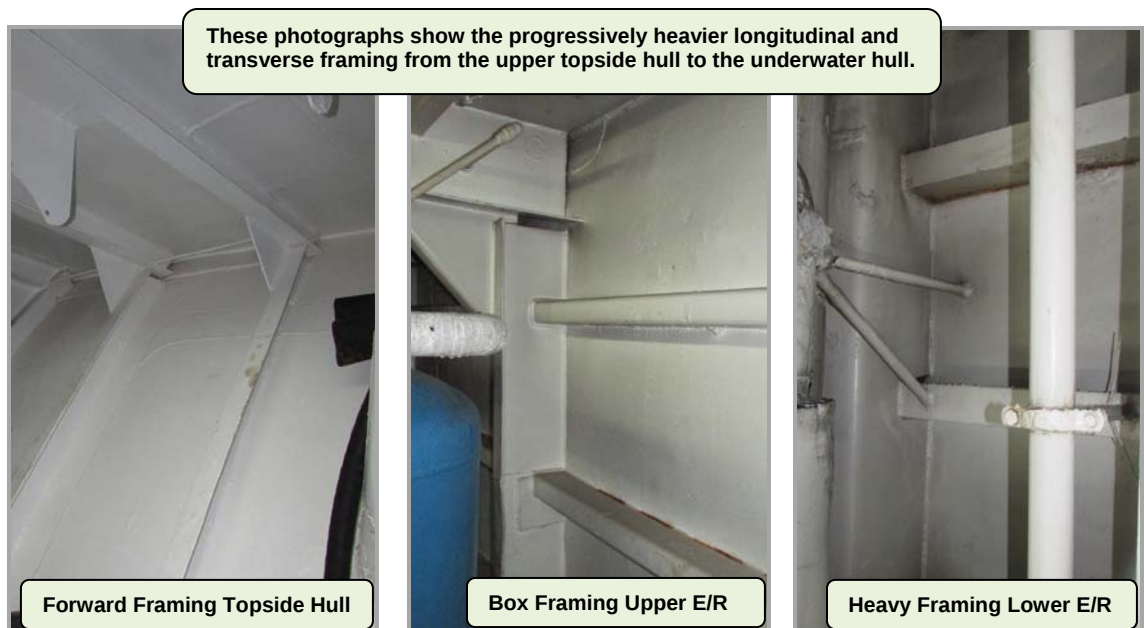
### Web Frames / Deep Floor Frames

Heavy (suitably sized) transverse web and deep floor frames were exposed in the bilge areas in the forefoot (thruster room) and in the lower engine room aft.

### Framing in the Double Bottom Tanks

The framing in the double bottom tanks was not examined.

Note - we viewed documentation showing inspection and service of steelwork by way of the double bottom tanks during dry-dock refits in 2009 and 2012.



Condition of Exposed Frames

The readily accessible and exposed framing was in serviceable condition (no apparent structural deficiencies and paint coatings in good condition). Note - we observed documentation showing significant frame maintenance and repair during a 2009 refit at Ching-Fu Shipbuilding Co. in Taiwan.

Condition of the Transverse Bulkheads

With the following exception, the exposed bulkheads were in serviceable condition (no apparent structural deficiencies and paint coatings in good standing).

There was scaling and rust staining along the aft bulkhead in the middle and lower forepeak compartments (storage room and bow thruster room). The affected steelwork should be sand blasted and recoated in keeping with prudent maintenance practices.

**(See Maintenance Issues)**

## 5.2 DECKS / BULWARKS / HATCHES

Steel Decks & Bulwarks / Steps & Handrails

With the following exception, the decks and bulwarks were in serviceable condition where readily accessible and exposed (no apparent structural deficiencies and paint coatings in good standing).

There was light to moderate scaling on the exposed plating on the forward deck. The hawse pipes were notably corroded with deeper scaling. There was scaling along the inside of the bulwark rails around the forward deck and, to a lesser extent, the work deck aft. These areas should be sandblasted and recoated in keeping with prudent maintenance practices. **(See Maintenance Issues)**

With the following exception, the steps and handrails (between decks) were in good condition. The handrail on the ladder from the boat deck to the forward deck on the starboard side was in need of repair. **(See Maintenance Issues)**

Deck Hatches

The raised offloading hatch on the forward deck and the flush offloading hatches on the work deck were in serviceable condition and were suitable for offshore use.

Mooring Gear

The vessel was fitted with adequate and well secured bollards, fairleads, etc., for mooring purposes - all in serviceable condition with no excessive rope wear.

## 5.3 SUPERSTRUCTURE

Certain parts of the superstructure were built with aluminum to minimize weight topside. The superstructure (sides on the main deck and sides and roof on the boat deck) were in serviceable condition where readily accessible and exposed (no apparent structural deficiencies and paint coatings in good standing).

There were no visible corrosion problems with the aluminum-to-steel interface at the superstructure-to-deck connections (this area can be problematic area due to interaction of dissimilar metals).

#### Windows and Weather-Tight Doors

The outer doors and windows in serviceable condition (no apparent deficiencies).

## 6.0 MAST / RIGGING / DECK GEAR

### 6.1 MAST, RIGGING & WINCHES

#### Limitations

This section documents the mast with crow's nest, booms, rigging, winches and deck cranes. These findings were based on a visual inspection and were not intended to be a full rigging survey (the hydraulic equipment was not tested under load and the various fittings and connections were not examined aloft).

#### Mast - Crow's Nest & Rigging

The mast - crow's nest, brailing and cargo booms, blocks, cables and connections were installed new in 2013. Professionally installed and engineered system in excellent condition.

#### Purse Seine Deck Winch

Marco WS-484 hydraulic purse seine winch (installed new in 2009 and recently serviced). The winch cables were not examined (only what was visible on the drum). The winch was tested (with no problems) at the time of the survey.

#### Heavy Duty Marco Power Block

78" Marco power block (model PB-78E) installed new in 2013. The block was tested (with no problems) at the time of the survey.

#### Spares

There were numerous spare parts onboard for the winch and the power block (including a spare 5-piston motor for the power block).





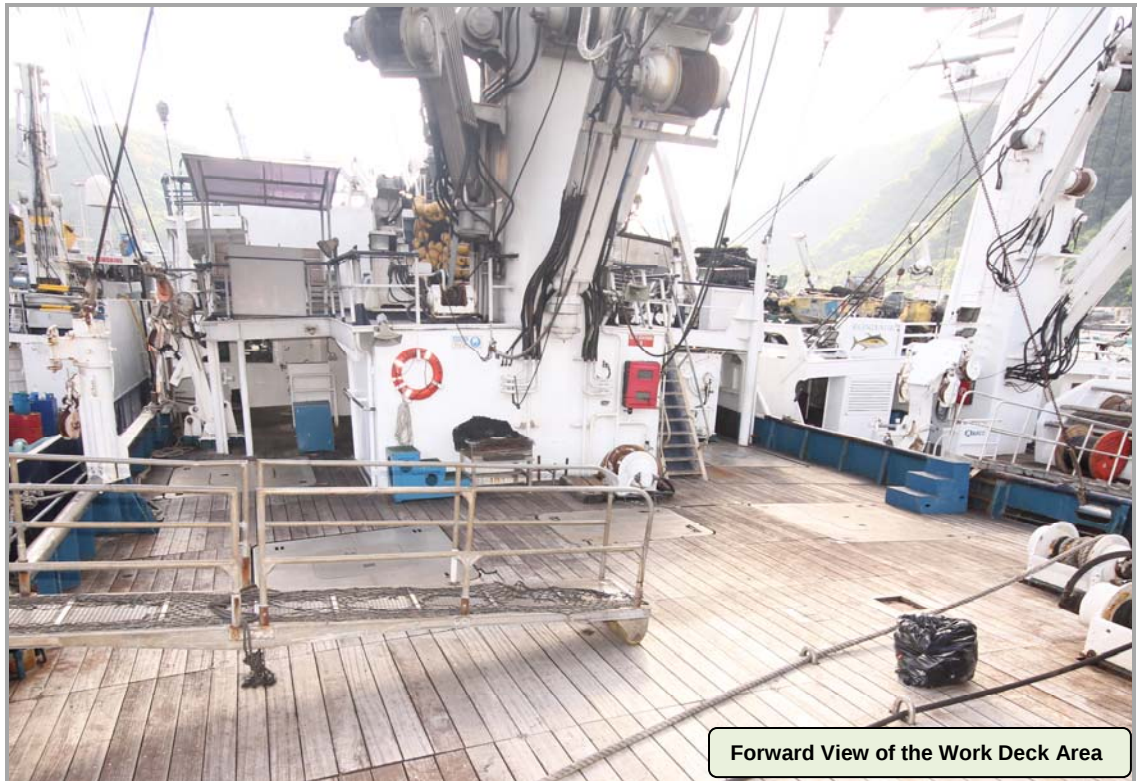
### Cargo Winches

Multiple hydraulic cargo winches of different capacities in the rigging and on deck - most were installed new with the mast and rigging in 2013.

### Deck Cranes

Forward and aft deck cranes fitted for offloading purposes. The forward crane was recently rebuilt (it works for offloading from the forward hatch, but the boom does not extend). The aft crane was installed new in 2013.



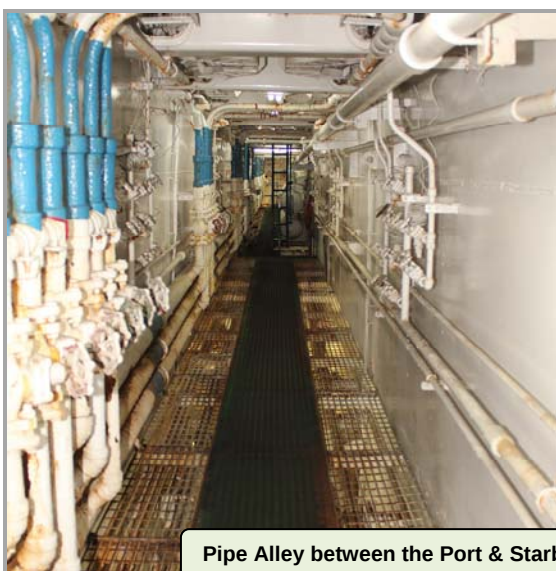
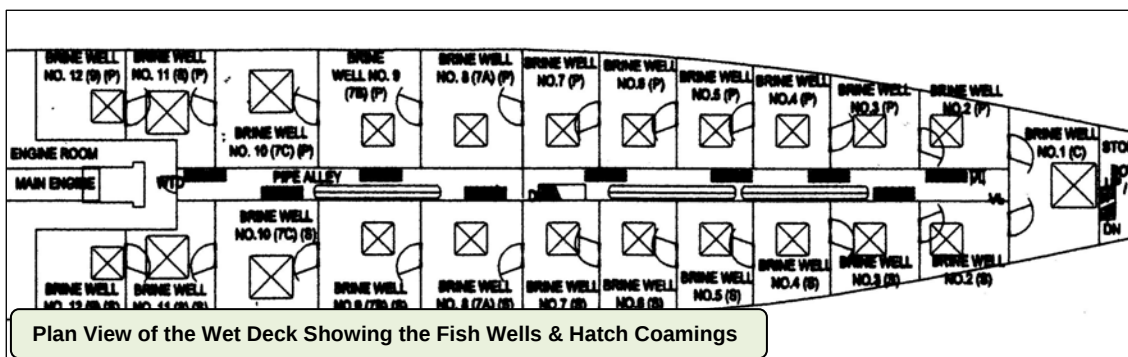
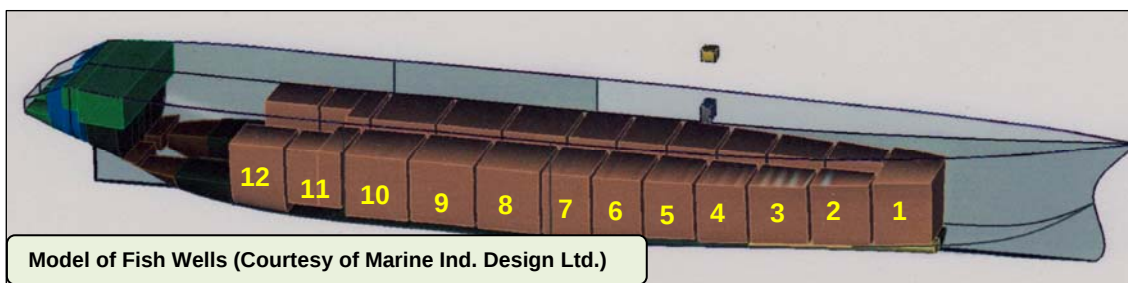


## 7.0 FISH WELLS / REFRIGERATION SYSTEM

### 7.1 FISH-WELLS

#### Design / Configuration

23 Fish-Wells: Forward center well and 11 wells along each side with 15" raised coamings. A pipe alleyway, with upper and lower walkways, was positioned along the centerline between the wells.



Status of the Fish-Wells

Fish-wells no. 1 and no. 2 (port and starboard) were 90% drained. Fish-wells no. 3 - no.12 (port and starboard) were filled with water (regular practice for stability purposes).

The Following 3 Photographs Show the Wet Deck & Hatch Coamings over the Fish-Wells (From No. 1 Forward to No. 12 Port & Starboard Aft)





### Fish-Well Capacities

The fish-wells range in capacity from 90 tons - 157 tons.

Total combined capacity is approx. 1750 tons.

### Refrigeration Coils

The wells were steel lined and were fitted with a system of tightly spaced coils for refrigeration purposes. The coil system was renewed in 2009.



### Condition of the Fish-Wells

The steel linings in the fish-wells were refinished when the new coils were installed in 2009. The linings and coils were in serviceable condition where exposed in the forward holds.

The water in the 18 fish-wells that were filled had reportedly been in place for several months. The fact that the water was clear bodes well for structural integrity of the wells (i.e. discoloration of the water over time could be indicative of leaks from the double bottom tanks).

### Loading Procedure (Suggested Upgrade)

The fish-wells are loaded from the work deck by a central sluice and a system of portable chutes that are manually positioned by the crew over the well coamings.

This method of loading is labour intensive and has been replaced by a conveyor system on most tuna seiners nowadays. An upgrade to a conveyor system for loading purposes would be a positive upgrade.

### Off Loading Procedure

The fish-wells are fitted with sluices at the bottom to allow the fish to migrate for offloading purposes. Fish-wells no.1 - no. 7 (port and starboard) are offloaded through the hatch on the forward deck. Fish-wells no. 8 - no. 12 (port and starboard) are offloaded through hatches on the work deck.



Unloading the Tuna Net at Sea (Owner Supplied Photograph)

## 7.2 REFRIGERATION SYSTEM

### The Need to Freeze

Tuna have to be frozen solid within 24 hours of coming onboard or they begin to deteriorate.

### System Particulars

The expansion refrigeration system is powered by 6 Vilter reciprocating compressors and has 2 x 300 ton condensers.

### System Capacity

The system can reportedly freeze 300 tons of fish per day in a brine solution in the wells.

More capacity is reportedly available, if the system is properly operated.

### System Capacity / Operating Temperature

The system will reportedly maintain a temperature of 10° Fahrenheit or less in the wells.

### Most Recent Maintenance

The refrigeration system had a partial overhaul in 2012 (compressors no.1 and no. 2 were overhauled and the receivers were upgraded).



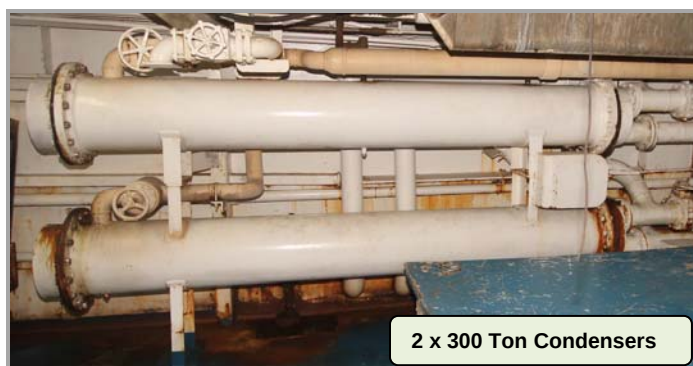
### System Condition

The refrigeration system was in operational condition at the time of the survey.

Vilter compressors 3 - 6 have been using more lubricating oil than normal and are in need of general overhaul in the not-too-distant future. (**See Maintenance Issues**)

### Spares

There were numerous spare parts onboard for the various refrigeration system components.



## 8.0

## HYDRAULIC SYSTEMS

### 8.1 GENERAL INFORMATION

#### Limitations of Survey

Assessment of the main and backup hydraulic systems was based on a visual inspection with testing of the various components while onboard.

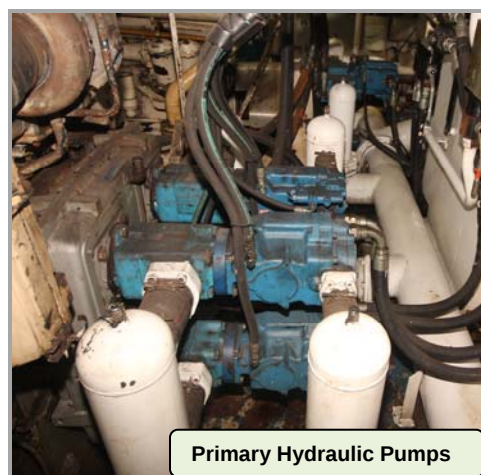
A comprehensive assessment of the hydraulic system was beyond the scope of this report.

#### Hydraulic System Upgrade

The primary and backup hydraulic systems underwent a major refit in 2013 with new pumps, hoses, valves and associated hardware.

#### Hydraulic Hose Making Equipment / Spares

There were hydraulic hose making equipment and supplies onboard and there were numerous spare parts for the various hydraulic system components.



## 8.2 MAIN HYDRAULIC ENGINE

Make / Model Caterpillar 3412

Year Built Unknown

Horsepower Tag not visible

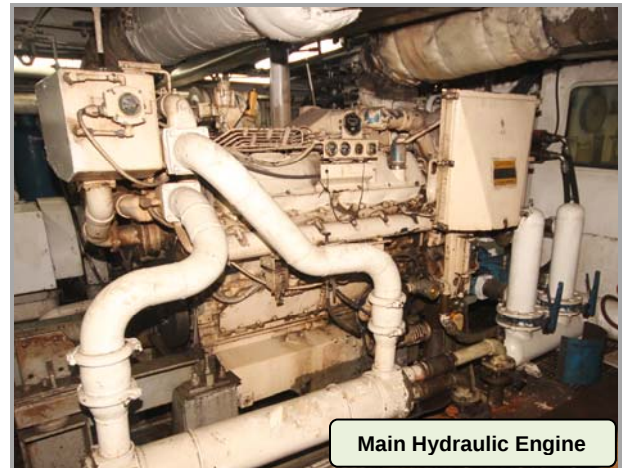
Serial No. Tag not visible

Engine Hours 7041

### Condition / Service History

The engine was maintained in good working order (it started right off and performed well during the survey).

The engine had acquired 7,041 hours of use since the last rebuild (date of rebuild unconfirmed).



Main Hydraulic Engine

## 8.3 MAIN HYDRAULICS

Multi-stage gear / demand pumps with Marco pump-drive. The system was plumbed with marine grade hydraulic hoses, valves and fittings.

### Condition Service History

The primary hydraulic system was well maintained. Most of the components have had minimal use since installation in 2013.

## 8.4 BACKUP HYDRAULIC SYSTEM / INDEPENDANT OFFLOADING SYSTEM

### Backup Hydraulic System:

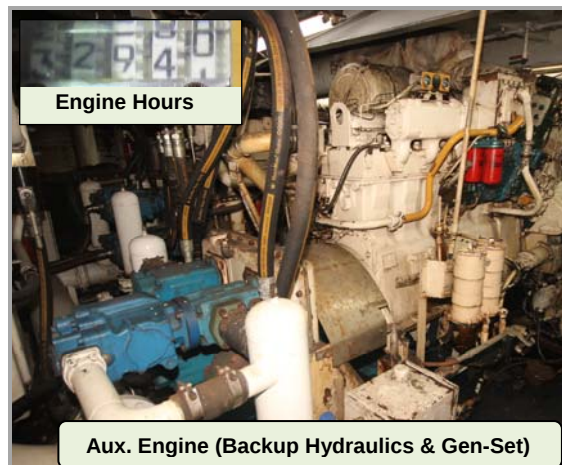
A backup hydraulic system was driven off a Caterpillar 353 auxiliary engine (engine serial no. 46B7076). The engine had acquired 3,294 hours of use since the last rebuild and was in good working order (tested during the survey).

The backup hydraulic system was functional and was designed to bring the tuna net back onboard in the event of a primary hydraulic system failure.

### Independent Offloading System:

An electrically driven hydraulic pump-set powers the forward and aft deck cranes.

This system facilitates offloading without the added expense of operating the main hydraulic engine.



Engine Hours

Aux. Engine (Backup Hydraulics & Gen-Set)

**9.0****MAIN PROPULSION****9.1 MAIN ENGINE PARTICULARS**

|                          |                                                                                                                          |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <u>Make - Model</u>      | GM - EMD 645E3<br>20 Cylinder                                                                                            |
| <u>Horse Power</u>       | 3600 HP @ 900 rpm                                                                                                        |
| <u>Year Built</u>        | Unconfirmed<br>1979 (assumed)                                                                                            |
| <u>Serial Number</u>     | 09-J3-1033                                                                                                               |
| <u>Cooling System</u>    | Heat exchanger                                                                                                           |
| <u>Eng. Alarm System</u> | Custom alarm system fitted and working                                                                                   |
| <u>E/R Ventilation</u>   | Blower system                                                                                                            |
| <u>Starting System</u>   | Compressed air start with 2 Quincy compressor systems<br>maintained in good condition (1 compressor was rebuilt in 2015) |

Exhaust System

Dry exhaust system well supported, lagged and adequately spaced from the surrounding combustibles (not viewed with the lagging off). There were some corrosion issues on the exhaust pipe in the stack aft on deck on the starboard side.

**Main Engine I.D. Tag****EMD Main Engine - Starboard Side View**



## 9.2 ENGINE CONDITION / SERVICE HISTORY

### EMD Diesels - A Trusted Name

EMD Diesels have a longstanding worldwide reputation for performance, dependability and long life between rebuilds.

### Engine Condition

The engine was well painted and free of external rust and corrosion. There were oil leaks around the seals (a common sign of wear), but the engine was reportedly consuming lubricating oil at a normal rate (24 hours reported running between top-ups).

During a short test the engine started instantly from cold and ran smoothly with no irregular noises. The engine was smoking more than normal (possibly an injector issue).

### Service History / Maintenance

The engine had a new crankshaft installed during a general rebuild in 2000.

The last full overhaul in 2007 including all new cylinder packs and turbocharger (total hours since that rebuild were not available).

8 Injectors were replaced in 2012. The starter and water pump were overhauled in 2015.

### Spares

There were numerous spare main engine parts onboard including 6 new cylinder packs.

### Oil Sample Results

With the engineer's assistance we obtained an oil sample from deep in the crankcase. The sample was submitted to Atlantic Caterpillar for analysis.

The analysis found an insignificant amount of wear metals in the oil. The report cited "No Action Required".

A copy of the analysis report is attached in the **APPENDIX 22.2**.

## 9.3 MARINE GEAR PARTICULARS

|                   |                |
|-------------------|----------------|
| <u>Make</u>       | Falk           |
| <u>Model</u>      | 3548MRVFC-E    |
| <u>Year Built</u> | 1979 (assumed) |
| <u>Gear Ratio</u> | 5.003:1        |
| <u>Serial No.</u> | 7-874052-1     |



### Compatibility with the Main Engine

The marine gear was adequately sized for the main engine horsepower.

### Condition / Service History

The marine gear was in working order.

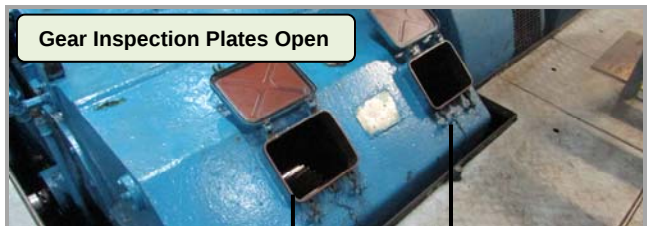
The exposed drive gears were in good visible condition.

The lubricating oil was clear (not black from overuse).

We could not confirm the date of the last general rebuild.

### Spares

A spare flexible coupling was stored in the forepeak.



#### 9.4 BOW THRUSTER SYSTEM

The vessel is fitted with a capable bow thruster that was maintained in working order.

The thruster was driven by a Caterpillar marine diesel and Twin Disc marine gear.

##### Engine Particulars

Caterpillar 3408 DITA

420 HP @ 1800 rpm

Serial No: 99U03580

Hours since the last rebuild: 1,379

##### Marine Gear Particulars

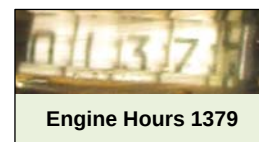
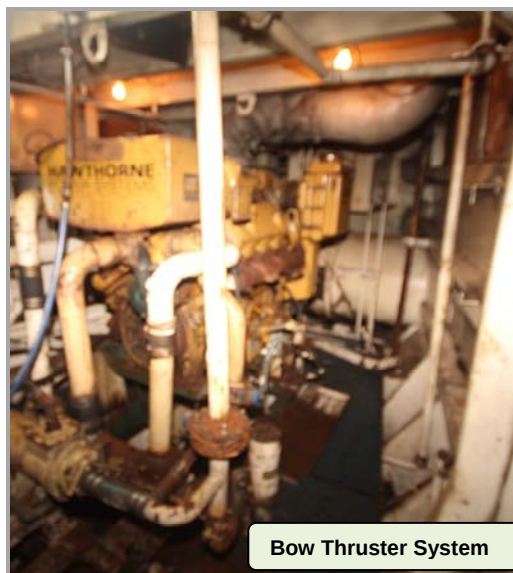
Twin Disc MG-5114

Age / Serial No: 2014 / 5KZ-817

Gear Ratio: 1.01:1

##### Thruster System Maintenance

The thruster engine was recently realigned (to resolve mounting issues) and the marine gear was renewed.



## 10.0 DRIVETRAIN / STEERING & RUDDER GEAR

### 10.1 DRIVETRAIN EQUIPMENT:

#### List of Visible Drivetrain Components

Steel tailshaft.

It was not possible to measure the tailshaft diameter at the time of the survey (11" diameter estimated).

Oil filled shaft seal.



Condition / Service History

The tailshaft, coupling, coupling bolts and shaft seal were in serviceable condition where exposed (no apparent deficiencies).

The service history of the drivetrain components was not confirmed.

Propeller

The propeller was not viewed during the survey (size, condition and service history unconfirmed). The propeller has been replaced since construction.

**10.2 STEERING & RUDDER GEAR**Steering Gear

Suitably sized dual ram hydraulic steering gear.

The steering gear was maintained in good condition.

Backup Auxiliary Steering System

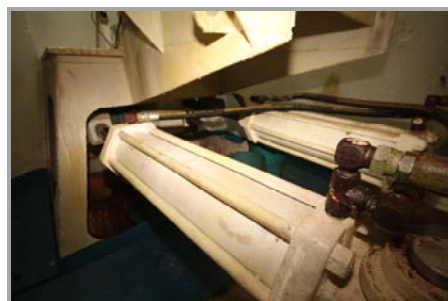
Operational auxiliary steering system installed at the access to the tiller flat (fitted with steering wheel).

Rudder

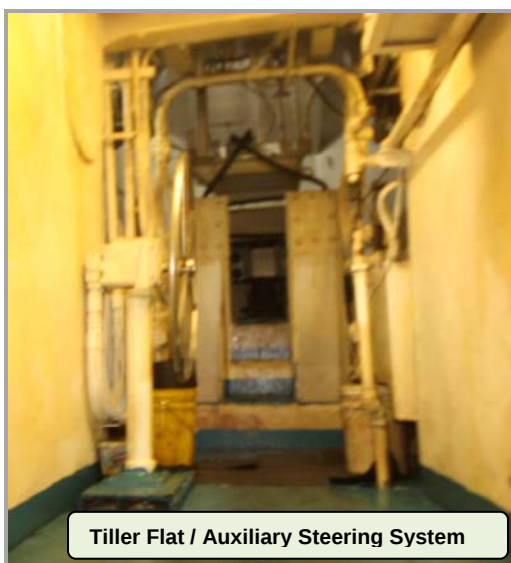
The rudder was not viewed during the survey.

Rudder Maintenance

The rudder was dismantled and removed several years ago. The stock neck bearings and the lower pintle bearings were rebushed and the rudder was sand blasted and recoated.



Steering Gear / Rudder Gland



Tiller Flat / Auxiliary Steering System

## 11.0 ACCOMMODATIONS / DOMESTIC SERVICES

### 11.1 MAIN DECK ACCOMMODATIONS / GALLEY - LAYOUT & DESCRIPTION

#### Officers' Cabins

Chief engineer's cabin with 1 bunk and washroom (1).

Navigator's cabin with 1 bunk and washroom (2).

2 x 2-bunk cabins with shared washroom (3).

#### Crew Cabins

6-bunk cabin (4).

2 x 4-bunk cabins (5).

#### Other Washrooms

2 Common washrooms (6).

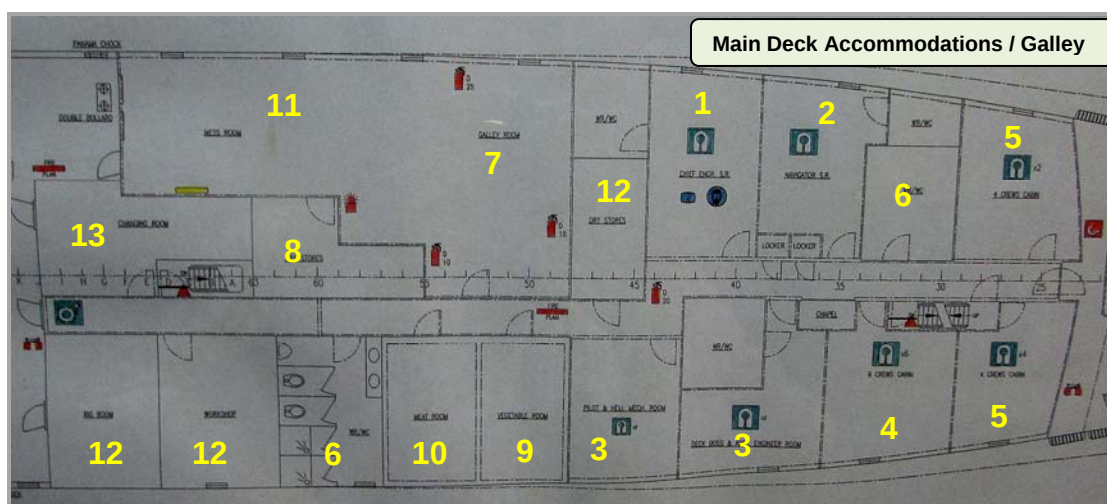
#### Galley / Mess

Full service galley (7) with pantry (8), walk-in dry stores locker (9) and walk-in freezer (10).

3 tables with seating in the mess area for full crew complement (11).

#### Other

Store rooms (12) and laundry room (13).



### 11.2 ACCOMMODATIONS ON THE BOAT DECK (UPPER DECK)

#### Captain's Suite

Captain's suite abaft the pilothouse and chartroom with custom lounge, separate bedroom and washroom.

#### Spare Cabins

2 x 2-bunk cabin with shared washroom in the upper deckhouse.

### 11.3 FINISH WORK IN THE ACCOMMODATIONS & GALLEY

The cabins on the main deck accommodations, galley, mess area and captain's suite (on the boat deck) were finished with dark wood grain panelling with hardwood trim, white panelled drop ceilings and mostly ceramic tile on the floor (certain cabins had a painted cement based floor).

With random exceptions of localized wear and tear, the finish work was in reasonably good overall condition. Some of the ceiling tiles were discoloured from age.

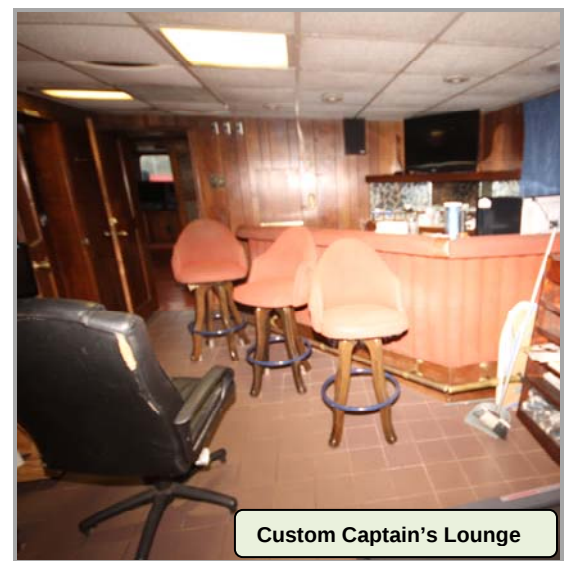
The finish work in the accommodations in the upper deckhouse was only partially completed. The completed portion was in good condition.



Hallways through the Main Deck Accommodations Area (Forward to Aft)



Chief Engineer's Cabin



#### 11.4 GALLEY APPLIANCES

The galley was fitted with a commercial grade Edlund stove with grill and range hood, deep fryer and warmer, Glenco fridge and walk in freezer. Other items included a microwave oven, toaster and a well-used coffee maker.

##### Condition of Appliances

Over the 5 days we were onboard the cook provided regular (excellent) meals using all galley appliances except the warmer. The oven, warmer and fridge had some issues and were in need of service. (**See Maintenance Issues**)



Full Service Galley





## 11.5 WASHROOMS / LAUNDRY

### Washrooms Finish Work / Taps, Fixtures and Plumbing

The finish work in the private and shared washrooms was in average overall condition. The finish work in the 2 common washrooms was in need of repair with worn shower stalls and doors, etc. (**See Maintenance Issues**)

The taps, fixtures and associated plumbing in all of the washrooms was worn and in need of general refit - the toilets worked, but some of the showers were inoperable. (**See Maintenance Issues**)

### Waste System

Waste system with storage tank, macerator pumps, etc. maintained to industry regulations and standards.

### Laundry Room

The washer and dryer in the laundry room were in working order, but were well used.



**11.6 DOMESTIC WATER SYSTEM**Freshwater Tanks

The vessel has 2 freshwater tanks aft (adjacent to the tiller flat port and starboard) with a reported capacity of approx. 15,000 US gallons. The system was filtered and water from the tanks was used for cooking and other domestic purposes. As the case with most vessels nowadays, the crew used bottled water for drinking purposes.

System Components

Domestic water system components included with a suitable circulating pump, pressure tank and hot water heater. The system was maintained in serviceable condition.

**11.7 AIR CONDITIONING**

The vessel was fitted with a capable air conditioning systems (central duct system for the main accommodations and separate units for the upper deck accommodation areas).

Despite tropical conditions outside, the living spaces were cool and well-ventilated while we were onboard.

## 12.0 PILOTHOUSE / ELECTRONICS

**12.1 NAVIGATION EQUIPMENT & DESCRIPTION**

|                         |                                                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Compasses</u>        | 2 Sperry Gyrocompasses / Magnetic compass                                                                                                       |
| <u>Radars</u>           | 3 x Furuno commercial grade radars with 18" displays<br>(2 x S-band bird radars / 1 X-band radar)<br><br>Radar slave display in the crow's nest |
| <u>Sonar</u>            | Furuno CSH 530 with 12" LCD display and 18" slave display                                                                                       |
| <u>Autopilots</u>       | Sperry (Gyro) / ComNav 2001 (magnetic backup pilot)                                                                                             |
| <u>Sounders</u>         | Furuno FCV-1100L (10" LCD display)<br>Furuno FCV-295 (10" LCD display)                                                                          |
| <u>Computer Plotter</u> | MaxSea computer plotter (in the office)                                                                                                         |
| <u>Current Dopplers</u> | 2 x JRC                                                                                                                                         |
| <u>VHF Radios</u>       | Multiple VHF radios in compliance with GMDSS regulations for Area 3 (in pilothouse, office and crow's nest)                                     |
| <u>SSB Radios</u>       | 2 x Icom (pilothouse and office)                                                                                                                |
| <u>Inmarsat</u>         | Furuno (flat broadband)                                                                                                                         |
| <u>G.P.S's</u>          | 3 x Furuno (in chart room)                                                                                                                      |

Other Items

2 Taiyo direction finders / Bridge watch alarm / Dytex seawater temperature system

Iridium satellite phone (office) / Furuno speed log / Black box vessel positioning device

Furuno weather fax / Desktop PC with fax and printer (office)

Bridge to engine room and deck communications / Miscellaneous other items

System Test / General Information

The electronics were tested where possible and with the following exceptions, the equipment was in working order.

Upgrades

The electronics have been upgraded through the years. Certain VHF's were dated, but overall it was a capable and modern electronics package. The antennas were recently renewed.

Confirmed Issues (**See Maintenance Issues**)

The magnetron in the Furuno radar on the portside had excessive hours of use (over 4000) and should be replaced.

The sonar was not working and the dome would not extend electronically (it had to be manually cranked). There were some new replacement sonar parts onboard.



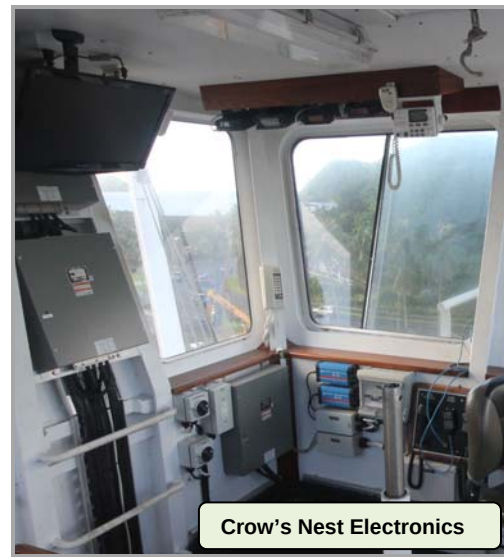


Well Appointed Pilothouse - Starboard & Portside Views





Pilotouse Communication Equipment



Crow's Nest Electronics

## 12.2 PILOTHOUSE, CHARTROOM / OFFICE - FINISH WORK

The pilotouse, chartroom and office were finished with wood grain panelling with hardwood trim, white panelled drop ceilings and marine linoleum on the floors.

These areas were clean and presentable and the finish work was in good condition.



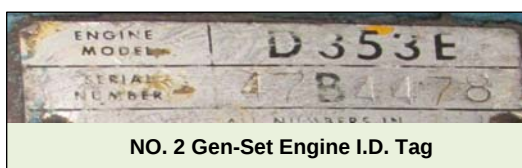
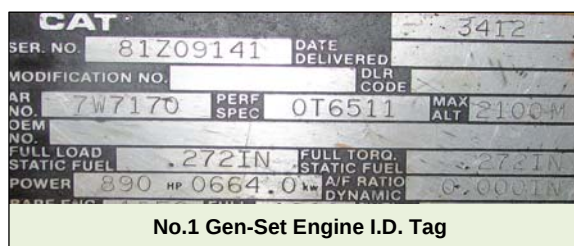
Chartroom abaft Pilotouse Starboard Side



Office Abaft Pilotouse Starboard Side

## 13.0 ELECTRICAL SYSTEMS

### 13.1 GEN-SET PARTICULARS



| GEN-SET                   | No.1                         | No. 2                      | No. 3 (Backup)             |
|---------------------------|------------------------------|----------------------------|----------------------------|
| Location:                 | Lower Engine Room Stbd. Side | Lower Engine Room Portside | Upper Engine Room Portside |
| Engine Make / Model:      | Caterpillar 3412             | Caterpillar 353            | Caterpillar 353            |
| Serial No:                | 81Z09141                     | 47B4478                    | 46B7076                    |
| Year Built:               | Unconfirmed                  | Unconfirmed                | Unconfirmed                |
| Horse Power:              | 890 HP @ 1800 rpm            | 350 HP @ 1400 rpm          | 350 HP @ 1400 rpm          |
| Hours Since Last Rebuild: | 9,079                        | 7,808                      | 3,294                      |
|                           |                              |                            |                            |

|                                   |                                                                                                                                                                                |                                                                                         |                                                                                                        |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Condition & Service History:      | Overhauled and installed in 2012.<br><br>Started right off from cold during a short test and ran fine.<br><br>Maintained in good working order. Fuel pump recently overhauled. | Was operating full time while we were onboard.<br><br>Maintained in good working order. | Started right off from cold during a short test and ran fine.<br><br>Maintained in good working order. |
| <u>Generator</u><br>Rated Output: | 460 Volts AC / 60 Hz<br>600 kW est.                                                                                                                                            | 460 VAC / 60 Hz<br>300 kW                                                               | 460 VAC / 60 Hz<br>300 kW                                                                              |
| Service History:                  | Unconfirmed.                                                                                                                                                                   | Unconfirmed.                                                                            | Unconfirmed.                                                                                           |
| Condition:                        | In working order.                                                                                                                                                              | In working order.                                                                       | In working order.                                                                                      |

### 13.2 SURVEY LIMITATIONS

Our inspection of the electrical system was based upon a visual examination and did not include testing of the various systems and circuits or any meggar testing.

A more comprehensive analysis of the electrical system was beyond the scope of this report.

The no. 2 gen-set was operating for the 5 days we were onboard and aside from a few burnt bulbs in the overhead lighting, there were no apparent problems.



### 13.3 GENERAL INFORMATION

The vessel was fitted with a 460 Volt AC - 60 Hz system with 2 primary gen-sets and backup gen-set.

The wiring was insulated marine grade to ABS Classification standards and properly protected with fuses and circuit breakers as necessary.

The main switchboard, various distribution panels, sub systems and associated components were found to be in operable condition.

The gen-sets were in working order; it appeared, however, that output may have been reduced (below rated output). The generators should be specifically checked for electrical output and serviced as necessary. (**See Maintenance Issues**)

#### **13.4 VOLTAGE SYSTEMS**

##### 460 / 120 Volts AC

Primary voltage with transformers to 120 Volts AC (for lights and certain other equipment).

##### 12 Volts DC

Multiple inverters (AC to DC) for certain navigation equipment.

Battery bank for emergency communications .

#### **13.5 SHORE-POWER SYSTEM**

Shore-power system with Lemarche constavolt and dedicated marine shore-power cord.

The system was not in use at time of the survey as there was no shore-power at the wharf.

#### **13.6 UPGRADES**

Most of the wiring, switching components and associated hardware appeared to be original equipment.

The wiring to the navigation equipment and the crow's nest was recently installed.

#### **13.7 SPARES**

There were numerous spare parts for the gen-set engines and other electrical system components.

### **14.0 FUEL SYSTEM & OTHER TANKS**

#### **14.1 DIESEL FUEL TANKS PARTICULARS**

##### Survey Limitations

No fuel tanks were viewed internally during the survey.

Neither the type nor grade of fuel onboard was confirmed or quality tested.

##### Fuel Tank Capacity

The vessel was designed with double bottom fuel tanks, fuel tanks aft and day tanks, giving a total capacity in the vicinity of 115,000 U.S. gallons.

### Additional Fuel Storage

The flume (stability) tank can be used for additional fuel storage (30,000 US gal. approx.).

No. 8 and no. 9 fish-wells were also designed to hold fuel for extended capacity if necessary.

### Condition of Fuel System Components

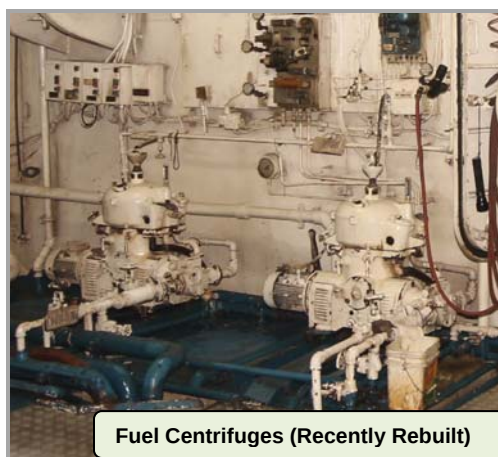
The fills, fittings, vents, shut-offs, etc., for the fuel system were in serviceable condition where exposed.

Owing to age the steel fuel lines should be examined for corrosion, cropped and replaced as necessary in the not-too distant future in keeping with prudent maintenance practices.

**(See Maintenance Issues)**

### Notable Recent Maintenance

The 2 fuel centrifuges were overhauled in 2015 (these ensure a clean fuel supply to the engines).



### Diesel Fuel Onboard

There was minimal fuel onboard at the time of the survey (exact quantity unconfirmed).

## **14.2 OTHER TANKS**

### Comments on Other Tanks

Other tanks were fitted for saltwater ballast, lube oil, dirty oil, hydraulic oil, etc.

The bulbous bow tank is used for trimming purposes when fishing (high capacity water pump fitted for rapid fill and discharge).

### Flume Tank

A flume (stabilizing) tank was fitted abaft the upper engine room. This tank is reportedly not used for stability purposes.

### Fuel For Helicopter and Speed Boats

Helicopter fuel is stored in the no.1 and no. 2 double bottom tanks (10,000 US gal. capacity approx.).

Gasoline for the speedboat outboard motors is stored in a dedicated tank on the boat deck.

## **14.3 TANK PLANS**

A copy of the tank plans is attached in the **APPENDIX 22.3**.

## 15.0 BILGE, FIRE & OTHER PUMPING SYSTEMS

### 15.1 GENERAL SERVICE BILGE PUMPS

2 x Electrically driven 3 ½" (7 HP) general service pumps.

#### Purposes

- i. Discharge water from the lower engine room bilge, pipe alley, wet deck and forepeak bilge (bow thruster room).
- ii. Charge and discharge seawater ballast tanks.

#### Oily Water Separator

B.O.S.S. bilge oil separation system maintained in good working order.

### 15.2 FIRE PUMP

Electrically driven (35 HP) 3" fire pump plumbed to 6 fire stations throughout the vessel.

The fire pumping system was maintained in serviceable condition.

### 15.3 OTHER PUMPING SYSTEMS

2 x 6" (35 HP) pumps to charge the fish-wells.

23 x 6" Fish-well circulation pumps.

Miscellaneous other pumping systems.

#### Recent Maintenance

Seawater intake valves are fitted on each of the 23 fish-wells. 20 of these valves were overhauled in 2015.

### 15.4 MAIN SEA-CHESTS

2 Main sea-chests (last reported service in 2009).

### 15.5 PIPING FOR SEAWATER

Owing to age the steel seawater lines (fill lines for the fish-wells, bilge suction, etc.) should be examined for corrosion, cropped and replaced as necessary in the not-too distant future in keeping with prudent maintenance practices.

(See Maintenance Issues)



General Service Pump



Fish-Well Circulating Pumps

## 16.0 LOSS PREVENTION & EMERGENCY SYSTEMS

### 16.1 FLOOD PREVENTION

#### 16.1.1 High Water Bilge Alarms

High water bilge alarms were fitted for the lower engine room bilge, pipe alley, wet deck and forward bilge (bow thruster room).

Custom alarm system tested and working (at the panel).



#### 16.1.2 Watertight Bulkheads

Watertight bulkheads and / or doors were fitted between all major compartments.

#### 16.1.3 Work Deck Drainage

Suitably sized and spaced open freeing ports.

#### 16.1.4 Bilge Pumping System

Capable bilge pumping system.

### 16.2 FIRE FIGHTING EQUIPMENT

#### 16.2.1 Fixed Engine Room Fire Smothering System

Primary CO2 system positioned aft on the wet deck with secondary system (for the bow thruster room) forward on the wet deck. The system was last serviced in March 2014.

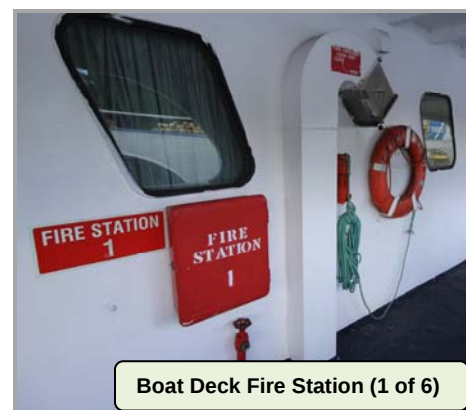


#### 16.2.2 Portable Extinguishers

Suitably sized fully charged portable fire extinguishers were mounted in readily accessible locations in all compartments (extinguishers last serviced in March 2014).

#### 16.2.3 Fire Stations

6 Fire stations clearly marked throughout the vessel. 50 meter long hoses with nozzles.



**16.2.4 High Heat Alarms**

High heat alarms were fitted in upper and lower engine rooms, tiller flat, bow thruster room and accommodations area. The alarm system was tested and working (at the panel).

**16.2.5 Other Fire Fighting Gear**

1 Fire suit and 2 Scott air packs onboard.

**16.3 COLLISION AVOIDANCE / GROUNDING AVOIDANCE****16.3.1 Navigation Lights**

Dual navigation lights fitted and working.

**16.3.2 A.I.S. (Automatic Ship Identification System)**

No A.I.S. installed.

**16.3.3 Signal Horn**

High capacity air horns in working order.

**16.3.4 Radar Plotting System**

ARPA plotting (anti-collision) system fitted on the 3 radars.

**16.3.5 Ground Tackle**

Capable hydraulic windlass mounted on the forward deck with 2 suitably sized anchors.

The windlass was maintained in operable condition and was fitted with suitably sized stud-link chain.

**16.4 MISCELLANEOUS****16.4.1 Security**

The outer doors were fitted with locks and the vessel was manned on a regular basis.

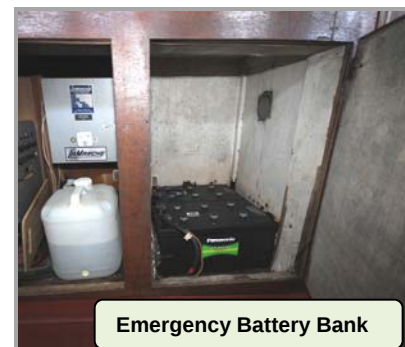
**16.4.2 Emergency Communications**

Dedicated battery bank for emergency communications mounted in the pilothouse.

2 Handheld GMDSS VHF's were mounted in the pilothouse and other portable VHF's were onboard.

**16.4.3 Emergency Steering System**

Auxiliary steering system fitted in the tiller flat.



**16.4.4 Underwater Hull Maintenance**

The underwater hull was last serviced in 2013 (paint and anodes).

**16.5 CREW EMERGENCY & SAFETY GEAR****16.5.1 Life Raft 1 (Starboard Side)**

2007 Beaufort 25-person life raft with hydrostatic release.

The life raft inspection certificate expired in April 2015 (**See Recommendations**).

The hydrostatic release expires in April 2017.

**16.5.2 Life Raft 2 (Portside)**

2007 Beaufort 25-person life raft with hydrostatic release.

The life raft inspection certificate and the hydrostatic release expired in April 2015.

(**See Recommendations**)

**16.5.3 Class One E.P.I.R.B.**

Class One (float free) roof mounted E.P.I.R.B. The hydrostatic release and battery were expired. (**See Recommendations**)

**16.5.4 Life Boats**

The power skiff and large workboat would serve as capable life boats in the event of an emergency.

**16.5.5 Emergency Flares / SART**

No emergency flares sighted. (**See Recommendations**)

2 SARTs were mounted at the pilothouse access (port and starboard) with batteries valid to December 2015.

**16.5.6 Crew Flotation Devices / Other Safety Gear**

USGC approved life jackets with whistle (enough for full crew complement).

3 Life rings mounted on the boat deck with attached heaving lines and floating emergency strobe lights. 2 of the emergency strobe lights were not working.

(**See Recommendations**)

2 Life rings with heaving lines mounted on the work deck.

Offshore grade first-aids kits.

## 17.0 POWER SKIFF & SUPPORT BOATS / TUNA NET

### 17.1 LIST OF SUPPORT BOATS

#### Main Power Skiff

Powerful work boat - used to deploy the seine.

#### General Purpose Work Boat

Capable work boat - could be used to manoeuvre the vessel if the thruster failed.

Stowed on the boat deck - deployed by davits.

#### 2 Chase Boats

Heavy duty speed boats used in the fishing process to stop tuna from escaping the tuna net. Stowed on the boat deck - deployed by davits.

### 17.2 MAIN POWER SKIFF PARTICULARS



Year Built 2013

Length 31.4 feet / 9.6 meters

Beam 19.4 feet / 5.9 meters

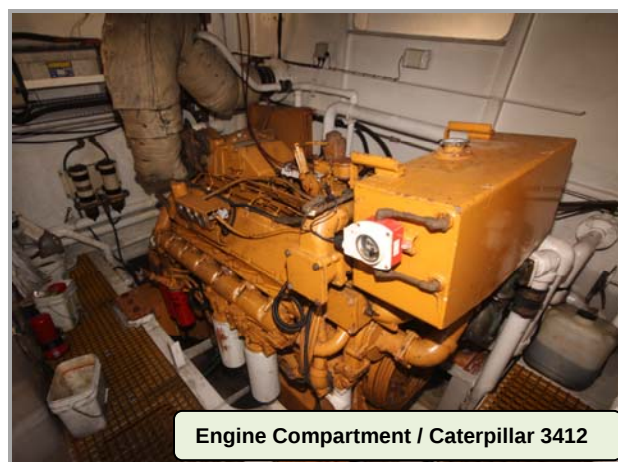
#### Construction Particulars

Steel hull, deck and bulwarks.

Single screw with 4" tailshaft.

Helm aft with raised engine compartment amidships.

Well rigged and capable power skiff.



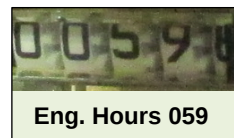
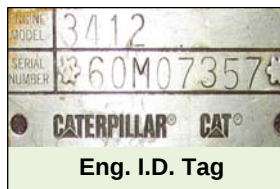
Engine Particulars

Make: Caterpillar 3412

Year Built: 2013

Serial No: 60M07357

Engine Hours: 059

Marine Gear

Make: Twin Disc

Model / Age: Unknown (no I.D. tag visible)

Sea-trial / Condition

The skiff performed well during the sea-trial and was in good condition structurally and mechanically.

**17.3 GENERAL PURPOSE WORK BOAT PARTICULARS / CHASE BOATS**Year Built: 2009Length: 22 feet / 6.7 metersBeam: 9.4 feet / 2.8 metersConstruction Particulars

All aluminum construction.

Single screw with 2.5" tailshaft.

Helm aft and raised engine compartment forward.

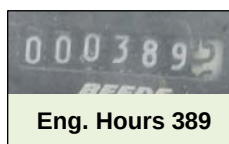
Engine Particulars

Make: Cummins 6BTA5.9

Year Built: 2012

Serial No: 60267271

Engine Hours: 389

Condition

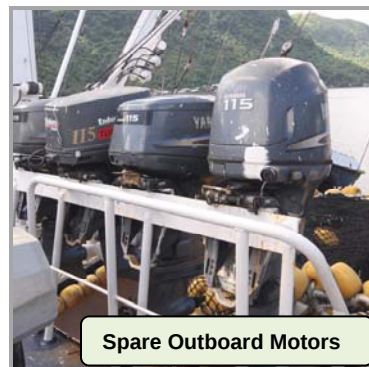
The general work boat was in good overall condition.



### Chase Boats

2 Aluminum hull speed boats (20 foot and 16 foot) powered by 115 HP Yamaha outboard motors.

The chase boats were in serviceable condition. Spare outboard motors were stored onboard. There was a dedicated workshop and fuel supply tank for the support boats on the boat deck.



## 17.4 TUNA NET

### Particulars & Description

Model: Hi-Tech 7 (1316 FL x 29 strips)

Year Assembled: 2009

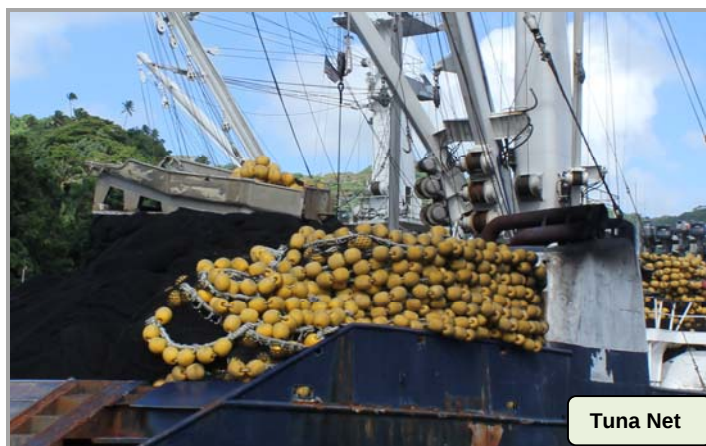
The net was designed with braided nylon netting and lacing twines, EVA floats, suitably sized nylon rope and 1/2" and larger tuna chains.

The limited portion of the net that was exposed was in good condition. The net is reported to be in good overall condition with 1 tear. The latter would need to be repaired prior to fishing.

### Spares

There were a number of spare bails of netting and other net parts onboard.

Part of a net was stored aft on the boat deck (far right in the adjacent photograph).



## 18.0 GENERAL MAINTENANCE ISSUES

### 18.1 STEELWORK MAINTENANCE:

#### Forward Deck, Hawse Pipes, Bulwarks, Forepeak Bulkhead, Tank Tops & Handrail

There was light to moderate scaling on the exposed plating on the forward deck and deeper scaling on the hawse pipes.

There was light scaling on the inside of the bulwarks on the forward deck and work deck aft.

There was scaling and rust staining along the aft bulkhead in the middle and lower forepeak compartments (storage room and bow thruster room).

There was light scaling and rust staining along the tops of the double bottom tanks in the pipe alley (between the fish wells).

The above noted areas should be sandblasted and recoated in keeping with prudent maintenance practices.

There were failed welds on the handrail on the ladder from the boat deck to the forward deck on the starboard side. Service as necessary.

### 18.2 MACHINERY & ELECTRICAL SYSTEM

#### Refrigeration System

The refrigeration system was in working order; however, 4 of the refrigeration compressors (no. 3 - no.6) were using oil (excessively) and will require general overhaul in the not-too-distant future.

#### Electrical System

The gen-sets were in working order. It appeared, however, that output may have been reduced (below rated output).

The generators should be specifically checked for electrical output and serviced as necessary.

### 18.3 WASHROOM ISSUES

#### Finish Work

The finish work in the 2 common washrooms was in need of repair with worn shower stalls and doors, etc. Refurbish all deteriorated finish work as necessary in keeping with prudent maintenance practices.

#### Taps, Fixtures and Plumbing

The taps, fixtures and associated plumbing in all of the washrooms was worn and in need of general refit - the toilets worked, but some of the showers were inoperable.

Renew all taps, fixtures and associated plumbing as necessary.

**18.4 NAVIGATION EQUIPMENT**

The magnetron in the Furuno radar on the portside had excessive hours of use (over 4000) and should be replaced.

The Furuno sonar was not working and the dome would not extend electronically (manually crank only). Service as necessary. Note - there were some new sonar replacement parts onboard.

**18.5 GALLEY APPLIANCES**

The galley oven, warmer and fridge had some issues and were in need of service.

**18.6 FUEL AND SEAWATER PIPING**

Owing to age, the steel fuel pipes and all seawater pipes (including the fish-well intake pipes and the bilge suctions) should be specifically examined and repaired as necessary in the not-too-distant future in keeping with prudent maintenance practices.

**19.0 RECOMMENDATIONS****19.1 LIFE RAFTS SERVICING**Life Raft 1 (Starboard Side)

The life raft inspection certificate just expired (April 2015) and should be renewed to reduce the risk of non-deployment in the event of an emergency.

Life Raft 2 (Portside)

The life raft inspection certificate and the hydrostatic release just expired (April 2015) and should be renewed to reduce the risk of non-deployment in the event of an emergency.

**19.2 E.P.I.R.B. SERVICING**

The battery and the hydrostatic release for the E.P.I.R.B. were expired and should be replaced.

**19.3 EMERGENCY FLARES**

No emergency flares were sighted onboard. The vessel must carry an adequate supply of USCG approved emergency flares with valid expiry dates.

**19.4 LIFE RING ISSUES**

2 of the emergency strobe lights attached to the life rings on the boat deck were not working and should be serviced.

## 20.0 SURVEYOR'S COMMENTS

### 20.1 GENERAL COMMENTS

#### General Considerations

A vessel of the size and complexity of "**CAROL LINDA**" cannot be summed up in a few sentences. Readers should examine all sections of this report for a full documentation and understanding of the vessel.

#### Readiness for Tuna Fishing

"**CAROL LINDA**" is a capable US built vessel with a rich history and proven track record in the South Pacific tuna purse seine fishery. Typical of most vessels of this size with multiple systems, there are maintenance issues; however, none were particularly pressing.

With the necessary fuel, stores, maintenance to the crew's washrooms and repair of the tuna net, the vessel could be ready for the fishing grounds promptly.

#### Suitable for Other Applications

"**CAROL LINDA**" could operate anywhere in the world on an extended basis. Given the ample refrigerated hold capacity and numerous multi-purpose features, the vessel would be readily adaptable for a variety of offshore fisheries or other commercial or research applications with the necessary modifications.

#### Banking Considerations

"**CAROL LINDA**" has had several major refits over the past 15 years. It was evident from the survey that the owners have strived to maintain the vessel to industry standards and there were no visible problems that would adversely affect "Fair Market Value" for banking purposes.

#### Insurance Considerations

The recommendations were relatively minor to resolve (safety gear issues) and we were satisfied that "**CAROL LINDA**" is a reasonable insurance risk for underwriters at the value stated in **21.2**.

## 21.0 VALUATION / ECONOMIC LIFESPAN

### 21.1 DETERMINATION OF FAIR MARKET VALUE

"Fair Market Value" is the resale value that should be realized, taking into consideration replacement cost, past sales of similar vessels, historical depreciation curves over time, upgrades, market demand and overall condition.

Note: Tuna fishing licences and/or permits were not a consideration in the valuation process.

#### Included in the Valuation

- The vessel and all of the equipment described in this report.
- The power skiff, workboats and tuna net.
- All spares onboard (extensive).

#### Not Included in the Valuation

- Tuna fishing licenses or permits.
- Helicopter (rented when fishing).

### 21.2 FAIR MARKET VALUE OF "CAROL LINDA"

|                                                                |
|----------------------------------------------------------------|
| <b>Fair Market Value</b> <b>\$9,650,000.00</b> <u>US Funds</u> |
|----------------------------------------------------------------|

Effective Date - May 2, 2015

#### Other Considerations

For resale purposes the above value assumes that the vessel would be properly marketed within a reasonable amount of time and assumes a willing buyer and seller, neither being under any compulsion to buy or sell and both having a reasonable knowledge of the relevant facts.

### 21.3 ECONOMIC LIFESPAN FOR BANKING PURPOSES

Assuming that satisfactory maintenance practices are adhered to, any and all structural issues are addressed as necessary, and assuming only normal wear and tear has occurred, the economic lifespan of "**CAROL LINDA**" should exceed 20 years from the date of this report.

### 21.4 ESTIMATED REPLACEMENT COST

New vessel replacement cost would exceed \$30,000,000.00 US funds (similarly sized, constructed and outfitted to the same high standard at a capable shipyard).

*The undersigned surveyor warrants that this survey is a true and unbiased opinion of the condition and "Fair Market Value" of "CAROL LINDA" at the time it was inspected. No warranties are expressed or implied with the report, and the acceptance of it recognizes this agreement between all parties concerned.*

Respectfully Submitted,



**JAMESON THERIAULT - BSc. / DMS**  
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## 22.0

## APPENDIX

## 22.1 2012 HULL PLATING ULTRASOUND SURVEY - "CAROL LINDA"

STORK TECHNICAL SERVICES NEW ZEALAND LTD  
 Whangarei Office  
 PO Box 1271, Whangarei 0140, New Zealand  
 Ph: +64 (09) 438 1512, Fax: +64 (09) 438 1234  
 Email: admin.whangarei@stork.com  
 Internet: www.storktechnicalservices.com

**STORK**  
 TECHNICAL SERVICES

Page 1 of 3

### ULTRASONIC EXAMINATION REPORT

REPORT No: 12-15629 - 01 PAGE No: 1 of 3

|                  |                     |                      |               |
|------------------|---------------------|----------------------|---------------|
| Client:          | Ship Repair NZ Ltd  | UT Test standard:    | AS2452.3 2005 |
| Job No:          | FV CAROL LINDA      | Acceptance Criteria: | Client Info   |
| Job Description: | Hull plate gauging  | Surface Condition:   | Painted       |
| Job Location:    | Ship Repair Slipway | Equipment used:      | Epoch LT      |
| Order N°         | PD421555            | Equipment Serial No: | 70178311 /    |
| Test %           | Partial             | 0° Ref level         | 2nd BWE @ FSH |
| Couplant         | Paste               | Probe Ref level      | n/a           |

|                    |          |          |  |
|--------------------|----------|----------|--|
| Probe type         | WKK CD   | Phoenix  |  |
| Angle              | 0 deg    | 0 deg    |  |
| Serial N°          | 28825    | A5829    |  |
| Dimensions         | 10mm Dia | 10mm Dia |  |
| Frequency MHz      | 5 MHz    | 5 MHz    |  |
| Sensitivity Ref db | n/a      | n/a      |  |
| Transfer db        | n/a      | n/a      |  |

Ultrasonic scanning was carried out on the hull of the "FV Carol Linda" to assess the plating condition below the waterline.

Scans were a 50mm wide band based on a 2.5 x 2.5 meter grid.  
 Grid "0" point was the rudder stock centreline extending forward, and extending outward from the keel, as far as the waterline / hull banding.

Any areas of greater than 30% loss of WT due to corrosion were marked for assessment or repair.

Side shell and bilge plating all appeared in good condition with no areas of significant corrosion evident.

Bottom shell plating in the way of the double bottom ballast water tank showed extensive areas of corrosion with isolated pitting evident, particularly on the stbd side.  
 Large areas on the stbd side have been cut out for replacement and internal visual inspection shows the poor condition of the plating.

See page 2 for locations of excessive corrosion and page 3 for a schematic of the grid.



Legend: CD - Decibel, SG - Normal Probe, AP - Angle Probe, D - Double Crystal, TC - Twin Crystal, BWE - Back Wall Echo, CG - Cross Sectional Corrosion, LSL - Full Screen Height, SL - Scan Length, PBL - Flat Bottom Hole, RCK - Rigid Cracked K.

| INSPECTOR      |                                                                                     | CHECKED BY:    |                                                                                       |
|----------------|-------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------|
| NAME           | P. Hudson / B. Schoenmaeker                                                         | NAME           | W. MacDonald                                                                          |
| DATE INSPECTED | 20 & 21/09/12                                                                       | DATE INSPECTED |                                                                                       |
| DATE REPORTED  | 21/09/2012                                                                          | DATE REPORTED  | 21/09/2012                                                                            |
| SIGNATURE      |  | SIGNATURE      |  |

## 22.1 2012 HULL PLATING ULTRASOUND SURVEY - "CAROL LINDA"

**STORK TECHNICAL SERVICES NEW ZEALAND LTD**  
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Page 2 of 3

**INSPECTION CONTINUATION SHEET**

|                        |                               |      |        |
|------------------------|-------------------------------|------|--------|
| Job No: 12-15629       | Report No: 12-15629 - 01      | Page | 2 of 3 |
| Client:                | Ship Repair NZ Ltd            |      |        |
| Ultrasonic Inspection: | FV Carol Linda - Hull plating |      |        |

|        |                                                                                                                                                                                            |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loc 1: | Stbd side - 16m forward of rudder adjacent keel.<br>250 x 250mm area of corrosion<br>Minimum WT 4.7mm - Nominal 11.0mm                                                                     |
| Loc 2: | Stbd side - approx 19m forward of rudder adjacent weld Tee join<br>600 x 300mm area of corrosion<br>Minimum WT 3.5mm - Nominal 11.0mm                                                      |
| Loc 3: | Stbd side - approx 27.5m forward of rudder adjacent new insert plate and double bottom water tank / FO tank bulkhead<br>350 x 150mm area of corrosion<br>Minimum WT 6.9mm - Nominal 13.5mm |
| Loc 4: | Stbd side - approx 42m forward of rudder adjacent keel.<br>500 x 200mm area of corrosion<br>Minimum WT 5.3mm - Nominal 11.0mm                                                              |
| Loc 5: | Stbd side - 65m forward of rudder, 7.0m from keel.<br>Above new doubler plates at storeroom bulkhead.<br>100 x 100mm area of corrosion<br>Minimum WT 5.0mm - Nominal 10.0mm                |
| Loc 6: | Port side -<br>At aft end of banding strip as shown<br>150 x 100mm area of corrosion<br>Minimum WT 6.0mm - Nominal 12.5mm                                                                  |



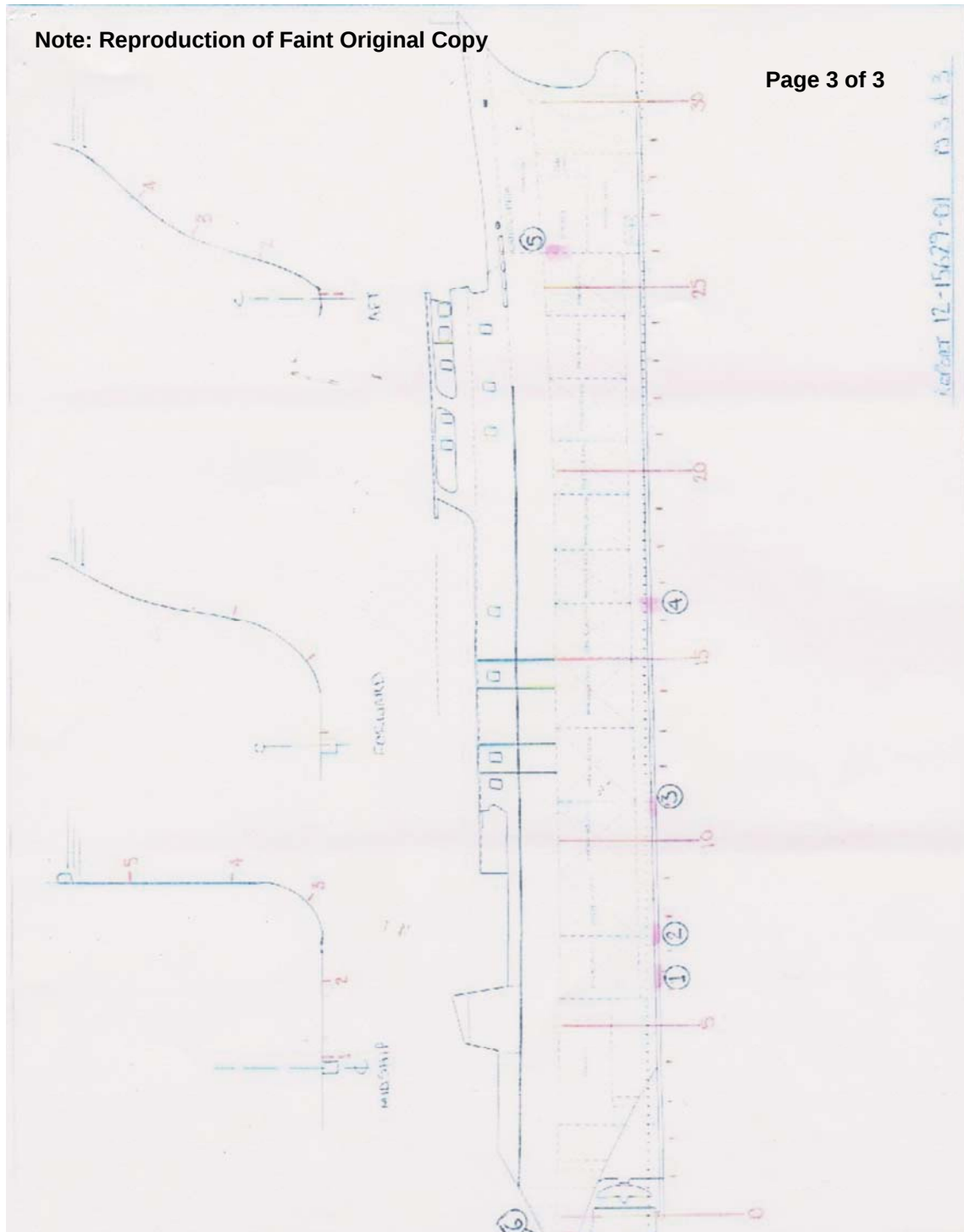
No shell expansion drawings were provided prior to testing and the nominal plate thickness has been assumed from scan information only.

|                   |                    |                    |                    |
|-------------------|--------------------|--------------------|--------------------|
| <b>INSPECTOR:</b> |                    | <b>CHECKED BY:</b> |                    |
| Name:             | P. H / BS          | Name:              | W. MacDonald       |
| Date Inspected    | 20 & 21/09/12      | Date Inspected     |                    |
| Date Reported     | 21/09/2012         | Date Reported      | 21/09/2012         |
| Signature:        | <i>[Signature]</i> | Signature:         | <i>[Signature]</i> |

IANZ Approved Signatory

RC07 Rev 2

## 22.1 2012 ULTRASOUND REPORT - "CAROL LINDA"



## 22.2 MAIN ENGINE OIL SAMPLE REPORT FROM CATERPILLAR - "CAROL LINDA"

|                                                                                                                                                                          |  |                                                                                                                                                                                                       |  |                                                                                                                                                                                              |  |                                                                                                                                                                                                                                |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>MARINE SURVEYS CANADA</b><br><b>JAMIE THERIAULT</b><br><br><b>DIGBY, BOV 1A0</b><br><br>FAX:<br>PHONE: 902-245-5652<br>SAMPLE TYPE: OIL<br>SAMPLE SHIP TIME (days): 6 |  | COMPANY NAME: MARINE SURVEYS CANADA<br>CUSTOMER EQUIP NUM: GM-EMD-E3<br>COMPARTMENT NAME: ENGINE<br>SERIAL NUMBER: 09-J3-1033<br>MANUFACTURER: UNKNOWN<br>MODEL: EMD<br>JOB SITE:<br>EXT WARR NUMBER: |  | SHOP JOB NUM:<br>COMP SERIAL NUM:<br>COMPARTMENT MODEL:<br>COMP MANUFACTURER:<br>SAMPLE LABEL NUM: 1690284A<br>FLUID BRAND/WEIGHT:<br>FLUID TYPE:<br>EXT WARR EXPIRE DATE:<br>FUEL CONSUMED: |  | <br><br><b>175 Akerley Blvd</b><br><b>P.O. Box 963</b><br><b>Dartmouth, NS B2Y 3Z6</b><br><b>902-468-0685 x5648</b><br><b>www.stlcat.ca</b> |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| LAB CONTROL NUMBER | SAMPLE DATE | PROCESS DATE | EQUIPMENT METER | METER ON FLUID | FLUID CHANGED | MAKE UP FLUID | MAKE UP FLUID UNITS | FILTER CHANGED |
|--------------------|-------------|--------------|-----------------|----------------|---------------|---------------|---------------------|----------------|
| N140-45118-0127    | 4/22/15     | 4/28/15      | 1000 HR         | 1000 HR        | Unknown       |               |                     | Yes            |

No Action Required

MORE SAMPLE HISTORY NEEDED TO ESTABLISH A NORMAL WEAR TREND.

| Wear Metals (ppm) | Cu | Fe | Cr | Al | Pb | Sn | Si | Na | K | B | Mo | Ni | Ag | Ti | Mn | Cd | Ca   | Mg | Zn | P  | Ba |
|-------------------|----|----|----|----|----|----|----|----|---|---|----|----|----|----|----|----|------|----|----|----|----|
| N140-45118-0127   | 4  | 34 | 1  | 1  | 1  | 1  | 3  | 11 | 2 | 1 | 0  | 0  | 0  | 0  | 0  | 0  | 2901 | 17 | 91 | 75 | 0. |

| Oil Condition / Particle Count (ct/ml) | ST | OXI | NIT | SUL | W | A | F | V100 |
|----------------------------------------|----|-----|-----|-----|---|---|---|------|
| N140-45118-0127                        | 78 | 6   | 11  | 18  | N | N | N | 13.1 |

Ag = Silver, Al = Aluminum, B = Boron, Ca = Calcium, Cr = Chromium, Cu = Copper, Fe = Iron, P = Phosphorus, K = Potassium, Mg = Magnesium, Mo = Molybdenum, Na = Sodium, Ni = Nickel, Pb = Lead, Si = Silicon, Sn = Tin, V = Vanadium, Zn = Zinc, A = Acidbase, F = Fuel, W = Water, P = Positive, N = Negative, T = Trace, E = Excessive, NIT = Nitration, OXI = Oxidation, ST = Soot, SUL = Sulfation, ISO = ISO Rating, PFC = Percent Fuel Content, PQI = Particle Quantifying Index, NaW = Salt Water, FL Pt = Flash Point, TAN = Total Acid Number, TBN = Total Base Number, H2O = Karl Fisher result, V100 = Viscosity@100C, V40 = Viscosity@40C.

Notice: This analysis is intended as an aid in predicting mechanical wear. No guarantee, expressed or implied, is made against failure of this piece of equipment or a component thereof.

## 22.3 TANK PLANS - "CAROL LINDA"

