



Marine Diesel Engine Service & Repairs

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PERFORMANCE SEA TRIAL AND GENERAL ENGINE INSPECTION REPORT

Customer's Name: RG Marine Holdings Inc

Date: 02-01-24

Yacht Name: ARIADNE

Location: Yacht Haven Marina – Fort Lauderdale - FL

Conditions of this performance sea trial report acceptance:

This report represents the surveyor's honest and unbiased opinion and was performed visually with the aid of various test instruments. No disassembly of any component was performed unless specifically stated in this report.

All details and particulars in this report are believed to be true, but are not guaranteed accurate. All judgments, conclusions and recommendations are expressions of opinion of the undersigned based on his skill, training and experience

This report sets forth the conditions existing at the time of inspection and sea trial. By acceptance of this report it is understood by all parties that it is not to be considered a warranty or guarantee either expressed or implied and does not create any liability on the part of the surveyor. The use of any part of this report constitutes acceptance of these conditions.

YT. Ariadne

Builder: Breaux Bay Craft

Class: Motoryacht

Year: 1979 Reported

Length: 124'

Beam: 24.11'

Draft: 6.1'

Hull Material: Aluminum

Main Engines: JOHN DEERE

Model: 6135SFM75

Number of Cylinders: In-Line 6

Method of operation: 4-stroke directed injected, turbocharged diesel engine with aftercooler.

Displacement (l): 13.5

Bore and Stroke (mm): 132 x 165

Aspiration: Air-to-sea water

Rated Fuel Consumption (gal/h): 32.9

Crankshaft power: 650 HP @ 2100 rpm

ENGINE DESCRIPTION:

High torque and low rated rpm

4-valve cylinder head

Electronic Unit Injectors (EUI)

Water-cooled exhaust manifold

Turbocharged with air-to-seawater aftercooling

Replaceable cylinder liners.

Electronic Engine Control Unit (ECU)

Heat Exchanger

ENGINES MEASUREMENTS:

Length maximum (mm): 1819

Height (mm): 1266

Height, crankshaft centerline to top (mm): 902

Height, crankshaft centerline to bottom (mm): 364

Weight, dry (lb): 3144

ENGINES INFORMATION:

Port Outboard Engine #1

Model: 6135SFM75

Serial #: RG6135G000922

Port Inboard Engine #2

Model: 6135SFM75

Serial #: RG6135G000924

Stbd Inboard Engine #3

Model: 6135SFM75

Serial #: RG6135G001613

Stbd Outboard Engine #4

Model: 6135SFM75

Serial #: RG6135G001637

Note: Hours presented herein do not verify, confirm or validate the total time of operation of equipment

Port Outboard Engine # 1 Hs: 3,996.4 Hs (John Deere digital display)

Port Inboard Engine # 2 Hs: 3,972.8 Hs (John Deere digital display)

Stbd Inboard Engine # 3 Hs: 4,021 Hs (John Deere digital display)

Stbd Outboard Engine # 4 Hs: 3,994 Hs (John Deere digital display)

Transmissions: TWIN DISC

Model: MG 5114 HD

Ratio: 2.54:1

Port Outboard #1 Serial #: 2060862

Port Inboard #2 Serial #: 2060863

Stbd Inboard #3 Serial #: 2062577

Stbd Outboard #4 Serial #: 5LA004

Generators: CUMMINS

Model: 6BT5.9-D(M)

Port Serial #: 45697928

Stbd Serial # 45697739

Port Generator Serial # 0097948/06

Rated: KVA 68.75, KW 55, Volts 120/208, Hz 60, Amp 192 @ 1800 RPM

Stbd Generator Serial # 0098142/09

Rated: KVA 68.75, KW 55, Volts 120/208, Hz 60, Amp 192 @ 1800 RPM

Note: Hours presented herein do not verify, confirm or validate the total time of operation of equipment.

Port Generator Hours: 2,049.7 Hs (after rebuilt-informed by engineer)

Stbd Generator Hours: 877.4 Hs (after rebuilt-informed by engineer)

GENERAL INSPECTION: Several pictures in engine rooms were taken. (See them attached)

ENGINE #1:

Primary fuel filter: Dual Racor, clean bowls

Secondary Fuel Filter: Not leaking.

Oil Filter: Not leaking.

Air Filter: *Dirty.

Heat Exchanger: Not leaking.

Coolant Level: Ok

Raw water system: Raw water pump has been replaced and it is unpainted.

Fresh water piping: Not leaking.

Fuel lines: OK.

Engine mounts: Secure.

Exhaust system: *Damaged insulation blankets

ENGINE #2:

Primary fuel filter: Dual Racor, clean bowls

Secondary Fuel Filter: Not leaking.

Oil Filter: Not leaking.

Air Filter: *Dirty.

Heat Exchanger: Not leaking.

Coolant Level: Ok

Raw water system: *Raw water pump oil leak @mounting and sign of water leakage @ seal

Fresh water piping: Not leaking.

Fuel lines: OK.

Engine mounts: Secure.

Exhaust system: *Damaged insulation blankets

Note: * Belt guard bolt is missing nut

* Oil leak @ valve cover gasket.

ENGINE #3:

Primary fuel filter: Dual Racor, clean bowls

Secondary Fuel Filter: Not leaking.

Oil Filter: Not leaking.

Air Filter: *Dirty.

Heat Exchanger: Not leaking.

Coolant Level: Ok

Raw water system: *Raw water pump with sign of water leakage @ seal

Fresh water piping: Not leaking.

Fuel lines: OK.

Engine mounts: Secure.

Exhaust system: * Damaged insulation blankets

Note: * Shaft seal leaks.

ENGINE # 4:

Primary fuel filter: Dual Racor, clean bowls

Secondary Fuel Filter: Not leaking.

Oil Filter: Not leaking.

Air Filter: *Dirty.

Heat Exchanger: Not leaking.

Coolant Level: Ok

Raw water system: *Raw water pump leak @ cover.

Fresh water piping: Not leaking.

Fuel lines: OK.

Engine mounts: Secure.

Exhaust system: *Damaged insulation blankets / * Damaged support bracket

* At WOT Engine had low oil pressure alarm and power reduction due to high crankcase pressure that caused oil blown off the oil filling tube.

* Oily air boost leak @ turbo hose to intercooler.

GENERATORS:

The generator # 2 (Stbd) was running and with load at the beginning of the inspection. The tachometer was inoperative.

When requested to test generator #1 (Port) engineer started it up and shutdown #2 (blackout) since parallel load transfer does not work.

Then the generator # 1 took the electrical load.

When it was requested to change back to # 2, the generator did not start and engineer informed that generator needed to cool off for restarting it.

After a while and other attempts the generator still did not start.

Therefore generator # 1 continued in service for the rest of the inspection.

General Observations during inspection:

Oil levels were normal on both engines.

Oil level was normal on generator.

Coolant levels were normal.

NOTE: A borescope inspection was not requested/performed at this time; therefore the internal condition of the engines is unknown

OILS:

NOTE: Oil samples from all (4) main engines, (4) transmissions and (2) generators were pulled and sent to lab for analysis. (Please see results reports attached).

The oil analysis incorporates three different tests.

The first part of the report examines the units oil for wear metals, measured in parts per million. Wear metals are minute particles of metal suspended in the unit's oil, which are formed by

friction between moving parts, abrasion or corrosion. The second part of the analysis inspects the oil for contaminants such as fuel, water, sodium, potassium, glycol, dirt (silicon) and soot.

The third checks the oil for its ability to lubricate and protect the unit properly. (Oxidation, viscosity, SAE and TBN.

LAB RESULTS: (See separate Lab Reports with own comments and recommendations)

SEA TRIAL:

Load Condition: 20% Fuel / 90% Water / 8 People

START UP:

Start-up engines: No abnormal smoke exiting the exhaust.

IDLE SPEED:

ENGINE # 1:

RPM: 600

OIL PRESSURE: 46 PSI

COOLANT TEMPERATURE: 86 F

ENGINE # 2:

RPM: 600

OIL PRESSURE: 45 PSI

COOLANT TEMPERATURE: 86 F

ENGINE # 3:

RPM: 600

OIL PRESSURE: 44 PSI

COOLANT TEMPERATURE: 90 F

ENGINE # 4:

RPM: 600

OIL PRESSURE: 41 PSI

COOLANT TEMPERATURE: 90 F

The engine speeds were gradually increased and engine parameters were checked along the way.

1200 RPM

ENGINE # 1:

RPM: 1205

OIL PRESSURE: 48 PSI

COOLANT TEMPERATURE: 118 F

FUEL RATE: 5.0 G/H

ENGINE # 2:

RPM: 1217

OIL PRESSURE: 47 PSI

COOLANT TEMPERATURE: 126 F

FUEL RATE: 6.1 G/H

ENGINE # 3:

RPM: 1218

OIL PRESSURE: 32 PSI

COOLANT TEMPERATURE: 178 F

FUEL RATE: 7.0 G/H

ENGINE # 4:

RPM: 1218

OIL PRESSURE: 27 PSI

COOLANT TEMPERATURE: 178 F

FUEL RATE: 6.7 G/H

BOAT SPEED: 10.6 knots

1500 RPM:

ENGINE # 1:

RPM: 1514

OIL PRESSURE: 51 PSI

COOLANT TEMPERATURE: 129 F

FUEL RATE: 12.2 G/H

ENGINE # 2:

RPM: 1500

OIL PRESSURE: 40 PSI

COOLANT TEMPERATURE: 138 F

FUEL RATE: 14.1 G/H

ENGINE # 3:

RPM: 1502

OIL PRESSURE: 37 PSI

COOLANT TEMPERATURE: 181 F

FUEL RATE: 13.0 G/H

ENGINE # 4:

RPM: 1492

OIL PRESSURE: 31 PSI

COOLANT TEMPERATURE: 180 F

FUEL RATE: 12.4 G/H

BOAT SPEED: 12.9 knots

1700 RPM:

ENGINE # 1:

RPM: 1732

OIL PRESSURE: 51 PSI

COOLANT TEMPERATURE: 144 F

FUEL RATE: 18.7 G/H

ENGINE # 2:

RPM: 1711

OIL PRESSURE: 50 PSI

COOLANT TEMPERATURE: 153 F

FUEL RATE: 20.8 G/H

ENGINE # 3:

RPM: 1717

OIL PRESSURE: 39 PSI

COOLANT TEMPERATURE: 181 F

FUEL RATE: 19.1 G/H

ENGINE # 4:

RPM: 1715

OIL PRESSURE: 33 PSI

COOLANT TEMPERATURE: 180 F

FUEL RATE: 19.0 G/H

BOAT SPEED: 14.1 knots

1900 RPM:

ENGINE # 1:

RPM: 1892

OIL PRESSURE: 51 PSI

COOLANT TEMPERATURE: 154 F

FUEL RATE: 24.1 G/H

ENGINE # 2:

RPM: 1873

OIL PRESSURE: 49 PSI

COOLANT TEMPERATURE: 163 F

FUEL RATE: 27.0 G/H

ENGINE # 3:

RPM: 1922

OIL PRESSURE: 39 PSI

COOLANT TEMPERATURE: 185 F

FUEL RATE: 26.4 G/H

ENGINE # 4:

RPM: 1900

OIL PRESSURE: 30 PSI

COOLANT TEMPERATURE: 183 F

FUEL RATE: 26.0 G/H

BOAT SPEED: 15.5 knots

*When the engines were increased @ WOT (2100 rpm's) the engine #4 had a low oil pressure alarm and power reduction. Then the engines were lowered back to idle speed to check things out.

Once engineer finish inspecting the engine #4, sea trial was continued and the readings @WOT were taken with the engine # 4 not exceeding the 1900 rpm range.

WOT SPEED:

ENGINE # 1:

RPM: 2073

OIL PRESSURE: 46 PSI

COOLANT TEMPERATURE: 165 F

FUEL RATE: 31.3 G/H

ENGINE # 2:

RPM: 1988

OIL PRESSURE: 45 PSI

COOLANT TEMPERATURE: 167 F

FUEL RATE: 31.1 G/H

ENGINE # 3:

RPM: 2030

OIL PRESSURE: 40 PSI

COOLANT TEMPERATURE: 185 F

FUEL RATE: 31.2 G/H

ENGINE # 4:

RPM: 1919

OIL PRESSURE: 35 PSI

COOLANT TEMPERATURE: 183 F

FUEL RATE: 24.3 G/H

BOAT SPEED: 16.4 knots

Backdown test:

BACKDOWN TEST (Run one engine at a time & rvrs up to 1500 rpm):

	<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>
Mount movement or runout	NO	NO	NO	NO
Trans rear seal leak	NO	NO	NO	NO
Shaft seal leaking water	NO	NO	*YES	NO
Shaft movement	NO	NO	NO	NO
Engine stalling	NO	NO	NO	NO

Maintenance Log:

No Maintenance log was found onboard.

Recommendations:

The engines showed high crankcase pressure, it is strongly recommended to perform a borescope inspection of cylinders to find out the internal condition of the engines.

As a good base line change oil and filters on mains, transmissions and generators.

Change primary, secondary fuel filters and air filters on mains and generators.

Rebuild or replace raw water pumps on engines # 2, # 3 and # 4.

Repair turbo boost leak engine # 4. Inspect and clean air system.

Test alarm system and make necessary repairs (some alarms such as gear oil pressure low are always present at bridge panel)

Investigate cause of non-functioning of parallel (electrical transfer of loads) between generators and make necessary repairs.

Repair oil leak at valve cover on engine # 2.

Replace damaged exhaust insulation blankets.

Repair/replace exhaust support bracket engine # 4.

Install missing nut on bolt belt guard engine # 2.

Repair water leak at shaft seal # 3.

Important: Maintain manufacturer's maintenance guidelines (JOHN DEERE, TWIN-DISC & CUMMINS).

Keep a record of oil sample results every time the oil is changed.

Operating at the recommended cruising speed will help to provide the maximum engine service life and the most economical operation.

Fuel Conservation Practices:

The efficiency of the engines can affect the fuel economy, therefore be aware of the properties of the different fuels. Use only the recommended fuels.

Avoid unnecessary idling.

Shut off the engines rather than idle for long periods of time.

Keep the air filters clean.

Ensure that the turbochargers are operating correctly so that the proper air/fuel ratio is maintained. Clean exhaust indicates proper functioning.

No part of this report is issued as an expressed or implied warranty of the condition or life expectancy of the vessel's engines, transmissions and generators, or of the cost of repairs.

It is agreed that Scarano Marine Inc. shall not be held liable or responsible for any errors, omissions, or oversights in the inspection of the above described yacht.

This report is issued without prejudice to the rights of whom it may concern.

Sincerely,
Adolfo Scarano
Certified Marine Engineer-Surveyor

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