

**RPM** DIESEL ENGINE CO., INC.



Authorized DETROIT DIESEL



RPM DIESEL ENGINE CO. INC.  
2555 STATE RD 84  
FT. LAUDERDALE FLORIDA 33312  
BROWARD: 954-587-1620 FAX: 954-587-0367

DATE: May 8, 2024

Registry #746648

WO # 71753

TO: Raymond Caron  
14 Marina Ct  
Newnan GA 30263  
754-308-9607  
Jack@boathouseauctions.com

**Survey on the M/V Sea Class**

The 139' Abeking Rasmusen Yacht was inspected on 5/8/24 while located in Pompano Beach, and during a trial run on the Atlantic Ocean. This was requested by the prospective owner, buyer, or broker/agent for the vessel.

The vessel was equipped with Twin MTU 12V2000 Common Rail Main Engines and Twin 99 KW Northern Lights Generators.

The following inspections and tests were conducted by external methods only. If major dismantling of the engines is required, it will be conducted at a later date at an agreed upon rate at which time an addendum to this report will be issued. The type of inspections conducted at this time are intended to relay the present operating condition of the engines, transmissions, and generators as of this date. Latent defects and internal failures will not be covered in this report.

A bore scope test was not conducted at this time, as per customer request. \_\_\_ Customer Initial. See attached addendum.

Oil samples were taken and sent to laboratory for analysis. The results should be sent to us in four or five days.

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**TERMS, CONDITIONS & LIMITATIONS**

This engine survey report is issued by the undersigned, who has exercised reasonable care in conducting a visual inspection of the accessible areas, in connection with a marine diesel engine survey of the subject vessel. All details and particulars in this report are believed to be true, but are not guaranteed accurate. All judgements, conclusions and recommendations are expressions of opinion of the undersigned based on his skill, training and experience. After a routine examination of the vessel's engines, and after discussions with owners or others familiar with the vessel.

No part of this report is issued as an expressed or implied warranty of the condition or life expectancy of the vessel's engines, reverse gears and generators, or of the cost of repairs. Unless specifically stated otherwise in this report, the undersigned has not disassembled or removed any components, covers, or accessories for inspection or testing; therefor this report does not cover latent defects not readily discovered without such removal or disassembly. **The undersigned has conducted his survey and issued this report for the sole use of the specified requesting party. For an agreed fee based on the intended use of the report and legal liability of the undersigned; accordingly. Others are not to use this report and not to rely upon the contents of this report without payment to the undersigned of an additional agreed fee based upon reevaluation of the same factors.** Further, the undersigned shall have no liability for property loss damages, and no liability for punitive damages, all of which shall be deemed to have knowingly and voluntarily waived upon use of this report; further, in no event shall the legal liability of the undersigned for this report ever exceed the fee paid by the requesting party for issuance of this report, regardless of the number of claims or suits and regardless of whether under theory of tort, contract, warranty, outrage, or otherwise.

**THIS SURVEY IS PREPARED EXCLUSIVELY FOR A POTENTIAL BUYER AND IS NOT IN ANY CIRCUMSTANCES TRANSFERRABLE.**

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TRIAL RUN DATA

	IDLE	PORT FULL LOAD	IDLE	STBD FULL LOAD
RPM'S	601	2393	600	2345
LOAD %	14%	100%	16%	100%
OIL PRESSURE (psi)	44	114	44	113
FUEL PRESSURE (psi)	68	76	64	66
GEAR OIL PRESSURE	214	243	215	241
GEAR OIL TEMP	117	147	117	139
TURBO PRESSURE PSI	15.3	54.1	15.1	49.3
WATER TEMP (deg. F)	159	172	157	173

**Notes:**

1. 19.1 Knots at wide open throttle.
2. Both Engines fell slightly short of rated RPM'S at Full Load

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ENGINES: PORT

PORT ENGINE	<u>MTU</u>	HOURS: 2158
MODEL NUMBER	12V2000 C/R	SERIAL # 535105760
NO.OF CYLINDER	12	RATED RPM: 2450
TRANSMISSION	ZF	YEAR: 2006
MODEL NUMBER:	ZF2560	SERIAL # 50023642
RATIO:	3.306:1A	

	CONDITION
PRIMARY FUEL FILTER	<u>TWIN RACOR</u>
SECONDARY FUEL FILTER	<u>TWIN SPIN ON</u>
AIR CLEANER	<u>NOTE # 1</u>
FUEL LINES	<u>NOT LEAKING</u>
LUBE OIL LINES	<u>NOT LEAKING</u>
TRANSMISSION OIL LINES	<u>NOT LEAKING</u>
TRANSMISSION WATER COOLING LINES	<u>NOTE # 2</u>
RAW WATER SYSTEM	<u>SERVICEABLE</u>
RAW WATER HOSES	<u>NOT LEAKING</u>
RAW WATER CLAMPS	<u>NOT LEAKING</u>
RAW WATER PUMP	<u>LEAKING</u>
RAW WATER SEA VALVE	<u>TURNS FREELY</u>
RAW WATER STRAINER	<u>SERVICEABLE</u>
HEAT EXCHANGER	<u>NOT LEAKING</u>
FRESH WATER SYSTEM	<u>SERVICEABLE</u>
FRESH WATER CIRCULATING PUMP	<u>LEAKING</u>
FRESH WATER HOSES	<u>NOT LEAKING</u>
FRESH WATER CLAMPS	<u>NOT LEAKING</u>
COOLING FLUID CONDITION	<u>SERVICEABLE</u>
PRESSURE CAP	<u>NOT LEAKING</u>
EXHAUST SYSTEM RISER	<u>NOT LEAKING</u>
EXHAUST SYSTEM HOSES	<u>NOT LEAKING</u>

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**PORT ENGINE (Continued)**

EXHAUST SYSTEM	<u>SERVICEABLE</u>
TURBO	<u>SPINS FREELY</u>
SHAFT COUPLER	<u>TRUE</u>
CLUTCH AND THROTTLE CONTROL	<u>NORMAL OPERATION</u>
MOTOR MOUNTS	<u>SECURE</u>
EMERGENCY ENGINE STOPS	<u>ELECTRONIC</u>
GAUGES	<u>MTU</u>
WIRING	<u>SERVICEABLE</u>
BELTS	<u>SERVICEABLE</u>
TRANSMISSION SEAL	<u>NOT LEAKING</u>
ENGINE FRONT SEAL	<u>NOT LEAKING</u>
ENGINE REAR SEAL	<u>NOT LEAKING</u>

**REMARKS AND RECOMMENDATIONS:**

1. DRY PAPER STYLE- DIRTY/ REPLACE
2. CORROSION AND RUST AROUND THE RAW WATER INLET & OUTLET OF COOLER.
3. EXHAUST FLAP ACTUATOR ON "A" BANK LEAKS OIL.

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**ENGINES: STARBOARD**

**STBD ENGINE MTU**

**HOURS: 2206**

**MODEL NUMBER: 12V2000 C/R**

**SERIAL # 535105759**

**NO. OF CYLINDER 12**

**RATED RPM: 2450**

**YEAR: 2006**

**TRANSMISSION ZF**

**MODEL NUMBER ZF 2560**

**SERIAL # 50023641**

**RATIO: 3.306:1A**

**CONDITION**

PRIMARY FUEL FILTER

TWIN RACOR

SECONDARY FUEL FILTER

TWIN SPIN ON

AIR CLEANER

NOTE # 1

FUEL LINES

NOT LEAKING

LUBE OIL LINES

NOT LEAKING

TRANSMISSION OIL LINES

NOT LEAKING

TRANSMISSION WATER COOLING LINES

NOTE # 2

RAW WATER SYSTEM

SERVICEABLE

RAW WATER HOSES

NOT LEAKING

RAW WATER CLAMPS

NOT LEAKING

RAW WATER PUMP

LEAKING

RAW WATER SEA VALVE

TURNS FREELY

RAW WATER STRAINERS

SERVICEABLE

FRESH WATER SYSTEM

SERVICEABLE

FRESH WATER CIRCULATING PUMP

NOTE # 3

FRESH WATER HOSES

NOT LEAKING

FRESH WATER CLAMPS

NOT LEAKING

COOLING FLUID CONDITION

SERVICEABLE

PRESSURE CAP

NOT LEAKING

EXHAUST SYSTEM RISER

NOT LEAKING

EXHAUST SYSTEM HOSES

NOT LEAKING

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**STARBOARD ENGINE (Continued)**

EXHAUST SYSTEM	<u>SERVICEABLE</u>
TURBO	<u>SPINS FREELY</u>
SHAFT COUPLER	<u>TRUE</u>
CLUTCH AND THROTTLE CONTROL	<u>NORMAL OPERATION</u>
MOTOR MOUNTS	<u>SECURE</u>
EMERGENCY ENGINE STOPS	<u>ELECTRONIC</u>
GAUGES	<u>MTU</u>
WIRING	<u>SERVICEABLE</u>
BELTS	<u>SERVICEABLE</u>
TRANSMISSION SEAL	<u>NOT LEAKING</u>
ENGINE FRONT SEAL	<u>NOT LEAKING</u>
ENGINE REAR SEAL	<u>NOT LEAKING</u>

**REMARKS AND RECOMMENDATIONS:**

1. DRY PAPER STYLE- DIRTY/ REPLACE
2. CORROSION AND RUST AROUND THE RAW WATER INLET & OUTLET OF COOLER.
3. FRESH WATER PUMP IS BARE METAL AND IS RUSTING.

GENERATOR: PORT

GENERATOR MAKE: NORTHERN LIGHTS

HOURS: 10973.3

MODEL NUMBER: MP668M-99 KW

SERIAL # 6682-32830

KILOWATTS: 99

VOLTS: 120-208

NO. OF CYLINDERS: 6

RPM: 1800

**CONDITION**

FILTERS	<u>RACOR</u>
LIFT PUMP	<u>NOT LEAKING</u>
FRESH WATER PUMP	<u>NOT LEAKING</u>
RAW WATER PUMP	<u>NOT LEAKING</u>
RAW WATER HOSES	<u>NOT LEAKING</u>
FRESH WATER HOSES	<u>NOT LEAKING</u>
BELT(S)	<u>SERVICEABLE</u>
MUFFLER	<u>NOTE # 5</u>
EXHAUST HOSES	<u>NOTE # 6</u>
INJECTORS	<u>NOT LEAKING</u>
INJECTION LINES	<u>NOT LEAKING</u>
ZINCS	<u>SERVICEABLE</u>
HEAT EXCHANGER	<u>NOTE # 1</u>
MIXING ELBOW	<u>NOT LEAKING</u>

**OPERATIONAL DATA**

WATER TEMPERATURE	<u>170</u>
OIL PRESSURE	<u>43 PSI</u>

**REMARKS AND RECOMMENDATIONS:**

1. THERE WERE LOTS OF CORROSION FROM LEAKING END CAPS, CAUSING MORE CORROSION TO THE CLAMPS DUE TO THE LEAKS.
2. THERE WAS RUST ON THE OIL COOLER AND MOTOR MOUNT FROM THE PREVIOUS RAW WATER LEAK.
3. THERE WAS AN OIL LEAK AT THE TURBOCHARGER
4. THERE WAS A CORRODED CLAMP FOR RAW WATER DISCHARGE HOSE UNDER TURBO
5. THERE WAS EVIDENCE OF A WATER STAIN NOTED FROM PIPING GOING INTO THE MUFFLER.
6. BROKEN CLAMP HANGING IN PLACE FOR OVERBOARD DISCHARGE
7. UNIT RAN AND HELD LOAD, REPAIRS NEED TO BE ADDRESSED.





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GENERATOR: STARBOARD

GENERATOR MAKE: NORTHERN LIGHTS

HOURS: 10018.4

MODEL NUMBER: M668H-99KW

SERIAL # 6682-35839

KILOWATTS: 99

VOLTS: 120-208

NO. OF CYLINDER: 6

RPM: 1800

	CONDITION
FILTERS	<u>RACOR</u>
LIFT PUMP	<u>NOT LEAKING</u>
FRESH WATER PUMP	<u>NOT LEAKING</u>
RAW WATER PUMP	<u>LEAKING</u>
RAW WATER HOSES	<u>NOTE # 2</u>
FRESH WATER HOSES	<u>NOTE # 3</u>
BELT(S)	<u>SERVICEABLE</u>
MUFFLER	<u>NOTE # 4</u>
EXHAUST HOSES	<u>NOTE # 4</u>
INJECTORS	<u>NOT LEAKING</u>
INJECTION LINES	<u>NOT LEAKING</u>
ZINCS	<u>NOT LEAKING</u>
HEAT EXCHANGER	<u>NOTE # 3</u>
MIXING ELBOW	<u>NOTE #4</u>

**OPERATIONAL DATA**

WATER TEMPERATURE	<u>160</u>
OIL PRESSURE	<u>50 PSI</u>

**REMARKS AND RECOMMENDATIONS:**

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1. OIL PAN WAS LEAKING.
2. RAW WATER OUTLET HOSES AND CLAMPS UNDER THE HEAT EXCHANGER IS CORRODED, AND SHOULD BE REPLACED.
3. FRESH WATER COOLANT HOSE ON BOTTOM OF HEAT EXCHANGER HAS A CUT IN IT.
4. THERE ARE SEVERAL WATER LEAKS, PIN HOLES IN ELBOWS, AND BROKEN CLAMPS THAT ARE BADLY CORRODED. RECOMMEND TO REPLACE HOSES AND CLAMPS AS NEEDED. MIXING ELBOW NEEDS TO BE FURTHER INSPECTED.

5. UNIT RAN AND HELD LOAD, REPAIRS NEED TO BE ADDRESSED.

MTU (PLEASURE CRAFT) MAINTENANCE RECOMMENDATIONS (2000 SERIES)

1) **Lubricating System**

\*Check oil level daily. Replace oil and filters every 500 hours.

**Crankshaft Ventilation**- clean wire meshes for:

Crankcase ventilation system, every 500 hours, and 250 Hours to fit new paper or woven insert (if fitted) for Line separator for oil mist. Centrifugal oil filter (If fitted), Check thickness of oil residue layer, 500 Hours.

2) **Fuel System**

\*Change fuel filters every 500 hours or annually.

\*Fuel hoses should be inspected every 500 hours and Replaced at 1000 hours. Fire resistant fuel hoses do not require automatic replacement at 1000 hours, but should be inspected and replaced as necessary.

\*M-90 Series Engines- Bayonets & Injectors should be changed every 3000 hours. Fuel Injection Pumps (E.U.P.'s) every 6000 hours.

\*M-91 Series Engines Bayonets, Injectors and Injection Pumps (E.U.P.'s) should be replaced every 2000 hours.

3) **Cooling System**

\*Check coolant level daily. A cooling system properly maintained and protected with antifreeze and supplemental inhibitors can be operated up to 2 years or 4000 hours, whichever comes first.

\*Cooling hoses should be inspected every 500 hours and replaced at 1000 hours of service.

\*Check engine zincs initially every 60 days, then as required or annually.

\*Raw water pump (flexible impeller) should be replaced annually.

\*All marine tube & bundle type heat exchangers should be replaced after 4 years or 4000 hours, whichever comes first.

4) **Air System**

\*Air separator filter elements and vacuum limiters must be cleaned and re-oiled every 250 hours of engine operation.

\*Filter elements must be replaced every year or every 500 hours of engine operation, whichever comes first. Vacuum limiters must be replaced every two years or 1000 hours of operation, whichever comes first.

\*Air box collectors should be drained every 150 hours.

\*Air silencers - clean or replace polyurethane foam elements (socks) 3 years or 2000 hours. Should be cleaned though.

4) **Drive belts**

\*Drive belt tension should be checked every 150 hours, adjust if necessary and inspect for splits, cracks, and glazing. Replace belts after 2000 hours of service for M-91 series, and 3000 hours on M-90 Series, regardless of apparent conditions.

**MTU (PLEASURE CRAFT) MAINTENANCE RECOMMENDATIONS (2000 SERIES**

5) **Marine Gear**

\*Check marine gear oil level daily. Replace marine Gear oil coolers every 4 years or 4000 hours.

**FUEL SYSTEM-**

- 1) M-90 Series Engines- Bayonets & Injectors should be changed every 3000 hours. Fuel Injection Pumps (E.U.P.'s) every 6000 hours.
- 2) M-91 Series Engines Bayonets, Injectors and Injection Pumps (E.U.P.'s) should be replaced every 2000 hours.
- 3) Combustion Chambers- Inspect cylinder chambers using the Bore scope.