MARINE DIESEL SURVEYORS, LLC.
13294 Lakeside Ter.
Cooper City, FL 33330
(MDS68982-0707
MARINEDIESELSURVEYS@GMAIL.COM

ENGINE SURVEY REPORT

TO: Mr. Barry Neustein
115 San Marita Way
PBG, Fl 33418

REQUESTED BY: Same

FILE NUMBER: MDS6898
DATE: January 15, 2020
VESSEL: "DREAM WEAVER"
HULL NUMBER: CZH07026C505

ENGINE SPECIFICATIONS:	**PORT**	**STARBOARD**
Engine Manufacturer	Caterpillar	Caterpillar
Engine Model	C32	C32
Engine Serial No.	RXB02214	RXB02215
Engine Hours	5864 Posted	5890 Posted
Transmission Manufacturer	Z.F.	Z.F.
Transmission Model	ZF2060	ZF2060
Transmission Serial No.	50012420	50012421
TRIAL RUN DATA:		
Engine RPM'S	2360 RPM'S	2314 RPM'S
Engine Water Temp.	189 Degrees	192 Degrees
Engine Oil Temp.	205 Degrees	210 Degrees
Drive Oil Temp.	144 Degrees	144 Degrees
Engine Oil Pressure	58 PSI	55 PSI
Drive Oil Pressure	306 PSI	294 PSI
Fuel Pressure	64 PSI	61 PSI
Crankcase Pressure	600 CFPH	620 CFPH
Turbo Boost	30 PSI	35 PSI
COOLING SYSTEMS:		
Fresh Water System	Clean	Clean
Caps	Held pressure	Held pressure
Pump	No leaks	No leaks
Hoses	Serviceable	Serviceable
Hose Clamps	Serviceable	Serviceable
Heat Exchanger	No leaks	No leaks
Raw Water System	Operational	Operational
Pump	No leaks	No leaks
Zincs	Deteriorating	Deteriorating
Hoses	See note	See note
Hose Clamps	See note	See note
ELECTRICAL:		
Electronic Monitoring Unit	Serviceable	Serviceable
Computerized Monitoring System	Serviceable	Serviceable
Engine Monitoring System	Operational	Operational
Electronic Control Modulator	Operational	Operational
Alarms-Ignition Test	Operational	Operational
Alternator Output	Normal	Normal

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FILTERS:	**PORT**	**STARBOARD**
Engine Oil Filters	Serviceable	Serviceable
Primary Fuel Filters	Serviceable	Serviceable
Secondary Fuel Filters	Serviceable	Serviceable
Transmission Oil Filter	Serviceable	Serviceable
OIL/FUEL LINES:		
Turbo Oil Lines	Serviceable	Serviceable
Engine Oil Lines	Serviceable	Serviceable
Engine Fuel Lines	Serviceable	Serviceable
Transmission Oil Lines	Serviceable	Serviceable
AIR SYSTEM:		
Turbos	Operational	Operational
Airseps	Serviceable	Serviceable
Air Filters	Clean	Clean
Aftercoolers	See note	See note
EXHAUST SYSTEM:		
Hoses	Serviceable	Serviceable
Risers	See note	See note
Elbows	Serviceable	Serviceable
Mufflers	Serviceable	Serviceable
Manifolds	Serviceable	Serviceable
Crossover	Serviceable	Serviceable
Collectors	Serviceable	Serviceable
Turbo Sweep	Serviceable	Serviceable
Hose Clamps	See note	See note
MISCELLANEOUS:		
Engine Mounts	Firm	Firm
Engine Paint	Serviceable	Serviceable
Vibration Dampener	Serviceable	Serviceable
Engine Oil Level	Full	Full
Engine Oil Condition	See oil sample	See oil sample
Transmission Oil Level	Full	Full
Transmission Oil Condition	See oil sample	See oil sample
Generator Oil Level	Full	Full
Generator Oil Condition	See oil sample	See oil sample

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This is to certify that the undersigned diesel engine surveyor did, at the request of Barry Neustein, perform an engine and generator survey to the above captioned vessel while afloat and during the sea trial on January 15, 2020. Survey performed in order to ascertain the general condition for owner of the vessel.

All observations and conditions contained in this Diesel Evaluation were derived from "external inspections", no internal inspections were ordered or performed but are recommended. The findings are the results of facts and conditions presented before and during the trial run, with no guarantees or warranties specified or implied by Marine Diesel Surveyors, LLC., any employee, surveyor, representative or agent of the corporation.

ENGINE TYPE:
The main engines are Caterpillar C32 high performance diesels, which are, V-12 cylinder four cycle-stroke turbocharged aftercooled diesels with fresh water cooling.

TRANSMISSION TYPE:
The transmissions are ZF 2060 gears with 2.4:1 ratios.

EXHAUST SYSTEMS:
The exhaust risers are manufactured of stainless steel. The exhaust elbows are manufactured of stainless steel. The exhaust mufflers are manufactured of fiberglass. Normal life (safe) expectancy for risers is five to seven years. This life expectancy would be subject to the operating conditions to which the vessel was subjected. The only positive means of attesting to the internal condition of the risers is to have them removed and pressure tested.

The exhaust hoses were inspected and a few were found to be in deteriorating condition.

The exhaust hose clamps were inspected and a few were found to be in deteriorating condition.

The exhaust risers were inspected externally showing signs of leakage at the welds.

The exhaust manifolds were inspected and appear to be in serviceable condition.

The exhaust elbows were inspected and appear to be in serviceable condition.

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FUEL SYSTEMS:
The fuel systems consist of Racor 1000 water/fuel separators, primary filters and spin-on secondary filters. A sample of the fuel showed the fuel to contain some bacteria and sediment. The fuel lines were inspected and appear to be in serviceable condition.

AIR INTAKE SYSTEM:
The air filters were inspected and found to be in serviceable condition.

FRESH WATER SYSTEMS:
The fresh water systems were pressure checked with a Stant Pressure Tester at operational pressure.

The port system showed no leaks. The starboard system showed no leaks. The fresh water caps held pressure port and starboard. The fresh water pumps showed no leakage during pressure testing port or starboard. The fresh water hoses appear to be in serviceable condition. The fresh water hose clamps appear to be in serviceable condition. The systems were clean and had antifreeze protection.

RAW WATER SYSTEMS:
The raw water systems were visually inspected before and during the trial run. The heat exchangers were inspected and no leaks were found. The raw water pumps showed no leakage during the trial run. The raw water hoses were inspected and a few were found to be in deteriorating condition. The raw water hose clamps were inspected and a few were found to be in deteriorating condition.

ALARM SYSTEMS IGNITION TEST:
The engine alarm systems were tested and found to be operational. Engine overheat and/or low oil pressure testing of the alarm systems cannot be performed.

HOUR METERS:
Hour meters were found to be operational during the trial run. Note:, hours posted cannot be guaranteed accurate by the undersigned engine surveyor. Internal inspections would be needed to confirm hours posted. No internal inspections were ordered or performed.

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AFTERCOOLERS:
The aftercooler cores cannot be visually inspected. Note:, aftercooler cores should be replaced every six years according to factory specifications.

TURBOS:
The turbos were inspected intake sides and appear to be in serviceable condition. Note:, exhaust sides of the turbos cannot be inspected. Exhaust pipes would need to be removed.

TURBO OIL LINES:
The turbo oil lines were inspected and appear to be in serviceable condition.

ENGINE OIL LINES:
The engine oil lines were inspected and appear to be in serviceable condition.

ENGINE/TRANSMISSION MOUNTS:
The engine-transmission mounts were visually inspected and found to be firm. The mounts were inspected under sea trial conditions by shifting from forward to reverse, while watching the mounts for movement (Back Down Test).

ENGINE/TRANSMISSION ALIGNMENT:
During the trial run, some engine/transmission movement and vibration was noted. Some amount of movement and vibration is considered normal.

TRANSMISSIONS:
The gear sumps were probed via magnet and found to have a slight trace of metal. A small trace of metal is considered normal. The transmission oil lines were inspected and appear to be in serviceable condition.

BLOW BY TEST:
A crankcase blow by test was performed using a Caterpillar Computerized Blow By Indicator. Port engine showed 600 CFPH and the starboard engine showed 620 CFPH. This test shows cylinder pressures are most likely but not definitely being controlled by the pistons, rings and cylinder liners at this time. Internal inspections is the only definitive way to determine cylinder condition.

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TRIAL RUN DATA:
Engine and transmission RPM'S were measured at full throttle with the use of a Caterpillar program and laptop computer. The port engine turned 2360 RPM'S, while the starboard engine turned 2314 RPM'S. The port transmission showed no slippage. The starboard transmission showed no slippage.

The following conditions were found during the trial run, using state of the art test equipment (readings were taken at full throttle sustained).

The port engine fresh water temperature was 189 degrees and starboard was 192 degrees. The port engine oil pressure was 58 PSI and starboard was 55 PSI. The port turbo boost pressure was 30 PSI and the starboard was 35 PSI. Engine fresh water temperatures, engine oil pressures and turbo boost pressures were found to be normal during the trial run.

The exhaust was clear with no sign of irregular oil consumption or fuel distribution. Some amount of smoke was noted during the cold start-up, which is normal.

The exhaust stack temperatures were uniformed port and starboard, showing a good balance between compression and fuel distribution.

The port engine oil sump temperature was 205 degrees and starboard was 210 degrees, which is normal.

The port engine transmission oil temperature was 144 degrees and starboard was 144 degrees, which is normal.

ENGINE INTERNAL INSPECTIONS:
No internal inspections were ordered or performed but are recommended. Condition of the internal parts (rods, liners, pistons, crankshafts, bearings, valves and etc.) is unknown. Caterpillar engines cannot be internally inspected without dismantling the engines. If internal inspections of the engines is requested, it will be conducted at a later date at an agreed upon rate at which time an addendum to this report will be issued.

CYLINDER COMPRESSION TEST:
To best determine cylinder condition, (rings and liners) a cylinder compression test would have to be performed. Cylinder compression test are recommended but performed only if requested. This test is not included in this survey and cost extra.

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MAINTENANCE INTERVAL SCHEDULE:
Caterpillar provides, with each type engine, a "Maintenance Interval Schedule", which can be found in the "Operation and Maintenance Manual". Proper operation and maintenance are key factors in obtaining the maximum life and economy of the engines. If the directions in the Operation and Maintenance Manual are followed, cost can be minimized and engine life can be maximized. **Note:, No proof was provided showing time since last factory recommended engine service was performed. If no documentation is provided to prove service was performed, then it is imperative to perform all factory recommended service at this time for engine hours posted and age of the engines.** Failure to comply could result is premature engine wear and/or shorten engine life.

The diesel evaluation results were derived via non disassembly type testing procedures. No internal inspections were ordered or performed but are recommended. Marine engines are subjected to a corrosive environment, which makes forecasting engine life difficult (especially inactive machinery). Diesel engines require frequent maintenance to maintain full RPM potential and safe operation. Continuous operation should not exceed 80%, while full throttle should be avoided to obtain maximum life and minimize fuel consumption. Operation at continuous full throttle will shorten engine life. Remaining engine life in unknown. Speculation of remaining engine life is not warranted. Internal inspections would be needed to estimate remaining engine life and to determine if defects are present.

Remarks and recommendations pertaining to the port and starboard engines and transmissions are repairs which require attention, due to their immediate effect on safe and proper operation. Reinspection of repairs by Marine Diesel Surveyors, LLC. should be conducted.

This report is issued to the condition that it is understood and agreed that neither this office nor any surveyor or any employee is under any circumstances whatsoever to be held responsible in any way for any error in judgement, default or negligence nor for any inaccuracy, omission or misrepresentation in this report, and that the use of this report shall be construed to be an acceptance of the foregoing conditions.

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PORT REMARKS AND RECOMMENDATIONS:

1. A few of the raw water and exhaust hose clamps were found to be in deteriorating condition. Renew the clamps as needed, double clamp all raw water and exhaust hoses.

2. Porosity and corrosion was noted at the exhaust riser. Renew the exhaust riser.

3. Several above average engine oil leaks were noted. Clean the engine, determine origin of the oil leaks and service as needed.

4. During full load testing, oil fill plug at the valve cover came loose most likely due to the rubber seal is oil saturated. Renew the oil fill plug at the valve cover.

5. The rubber exhaust support mount was found to be broken. Renew the mount.

6. Raw water and exhaust leakage was noted at the exhaust by-pass hose in the lazarette. Service the leak as needed. Renew the deteriorating hose clamps.

7. During warm-up and until engine was at normal operating temperature, engine RPM'S are not steady (loping/hunting). Determine cause for the abnormal engine operation noted and service as needed.

8. A few of the raw water hoses were found to be in deteriorating condition and have chafe damage. Renew the hoses as needed using marine grade suction type hose material.

9. The fuel contains bacteria and sediment. Add AJX fuel treatment to the fuel tank(s). WWW.AJXDIRECT.COM

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STARBOARD REMARKS AND RECOMMENDATIONS:

1. A few of the raw water and exhaust hose clamps were found to be in deteriorating condition. Renew the clamps as needed, double clamp all raw water and exhaust hoses.

2. Porosity and corrosion was noted at the exhaust riser. Renew the exhaust riser.

3. Several above average engine oil leaks were noted. Clean the engine, determine origin of the oil leaks and service as needed.

4. During full load testing, oil fill plug at the valve cover came loose most likely due to the rubber seal is oil saturated. Renew the oil fill plug at the valve cover.

5. During warm-up and until engine was at normal operating temperature, engine RPM'S are note steady (loping/hunting). Determine cause for the abnormal engine operation noted and service as needed.

6. A few of the raw water hoses were found to be in deteriorating condition and have chafe damage. Renew the hoses as needed using marine grade suction type hose material.

7. One of the gauge cluster support mount bolts is loose due to missing nut. Renew the missing nut and lock washer.

8. Raw water leakage was noted at the transmission oil cooler end cap. Service the oil cooler as needed.

9. The fuel contains bacteria and sediment. Add AJX fuel treatment to the fuel tank(s). WWW.AJXDIRECT.COM

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FILE NUMBER: MDS6898
VESSEL: "DREAM WEAVER"

PORT GENERATOR:
MODEL:M864K.3
SERIAL:8642-33851C
HOURS:4886 Posted

The Northern Lights generator is a fresh water unit. The fresh water system was tested using a Stant pressure tester at operational pressure. The system showed no leaks. The fresh water cap held normal pressure. The system was clean and had antifreeze protection. Water temperature was tested and found to be normal. Engine oil pressure was tested and found to be normal. The fuel system is protected by a water/fuel separator and spin on secondary fuel filter. The generator was run under full load during the trial run, maintaining good voltage and phase. The exhaust showed little sign of oil or improper fuel atomization. Service to the following recommendations should be performed.

1. Raw water leakage was noted at the raw water pump. Renew the raw water pump.

2. Engine belt was found to be in deteriorating condition. Renew the engine belt.

3. Corrosion and raw water leakage was noted at the heat exchanger. Service the heat exchanger as needed.

4. Corrosion was noted at the engine mounts, support frame and etc.. Remove corrosion, inspect for corrosion damage, service if indicated, clean and apply protective coating.

5. Corrosion was noted at the exhaust mixer elbow. Renew the exhaust mixer elbow.

6. Sound shield insulation was found to be in deteriorating condition.

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FILE NUMBER: MDS6898
VESSEL: "DREAM WEAVER"

STARBOARD GENERATOR:
MODEL:M864K.3
SERIAL:8642-33852C
HOURS:4989 Posted

The Northern Lights generator is a fresh water unit. The fresh water system was tested using a Stant pressure tester at operational pressure. The system showed no leaks. The fresh water cap held normal pressure. The system was clean and had antifreeze protection. Water temperature was tested and found to be normal. Engine oil pressure was tested and found to be normal. The fuel system is protected by a water/fuel separator and spin on secondary fuel filter. The generator was run under full load during the trial run, maintaining good voltage and phase. The exhaust showed little sign of oil or improper fuel atomization. Service to the following recommendations should be performed.

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4. Corrosion was noted at the engine mounts, support frame and etc.. Remove corrosion, inspect for corrosion damage, service if indicated, clean and apply protective coating.

5. Corrosion was noted at the exhaust mixer elbow. Renew the exhaust mixer elbow.

6. Sound shield insulation was found to be in deteriorating condition.

Signed without prejudice,

Joe Stafford, Sr.

JOE STAFFORD, SR. for the corporation.