

PARAGON POWER

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SURVEY REQUESTED BY: WHITE STAR YACHTING, LLC.

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BROKER: N/A

SURVEYOR: N/A

LOCATION OF VESSEL: FORT LAUDERDALE, FL

VESSEL DESCRIPTION

MAKE: BENETTI

MODEL: 113'

YEAR: 1983

NAME: STAR OF THE SEA

HULL NO.: NOT SIGHTED

PORT ENGINE AND TRANSMISSION SPECIFICATION:

ENGINE MANUFACTURE –	CATERPILLAR
ENGINE MODEL NUMBER –	3408
ENGINE SERIAL NUMBER –	99V03811
ENGINE HOURS –	UNKNOWN
TRANSMISSION MANUFACTURER –	TWIN DISC
TRANSMISSION MODEL NUMBER –	MG-514C
TRANSMISSION SERIAL NUMBER –	3L1820
TRANSMISSION GEAR RATIO –	1.20

STARBOARD ENGINE AND TRANSMISSION SPECIFICATION:

ENGINE MANUFACTURE –	CATERPILLAR
ENGINE MODEL NUMBER –	3408
ENGINE SERIAL NUMBER –	99V03821
ENGINE HOURS –	UNKNOWN
TRANSMISSION MANUFACTURER –	TWIN DISC
TRANSMISSION MODEL NUMBER –	MG-514C
TRANSMISSION SERIAL NUMBER –	3L2198
TRANSMISSION GEAR RATIO –	1.20

FLUID SYSTEM COLD CHECK**PORT****STARBOARD**

COOLANT LEVEL	FULL	FULL
COOLANT CONDITION	SERVICEABLE	SERVICEABLE
ENGINE OIL LEVEL	FULL	FULL
ENGINE OIL CONDITION	DARK	DARK
TRANS OIL LEVEL	FULL	FULL
TRANS OIL CONDITION	SERVICEABLE	SERVICEABLE

Summary of Observations

Cold Inspection

The engines and transmissions were inspected in a cold state, revealing:

- **Hoses:** Age-related wear was observed on various hoses, suggesting the need for replacement.
- **Surface Condition:** Rust and corrosion were noted on engine and transmission surfaces, consistent with prolonged marine exposure.
- **Oil Leaks:** Miscellaneous oil leaks were observed, pointing to potential seal degradation or other age-related issues.

Startup (Cold)

Upon cold start:

- **White Smoke:** White smoke was observed from the exhaust, indicating incomplete combustion, which may result from low compression, worn injectors, or other factors.
- **Engine Sound:** The engines sounded good overall, with no abnormal noises or vibrations, indicating that internal components are operating cohesively despite other concerns.

Trial Run

During the trial run:

- **Engine Performance:** The engines maintained good pressures and temperatures and exhibited no abnormal noises.
- **Operating RPM:** Per the captain's request, the engines were operated at a maximum of 1600 RPM, despite being rated to a maximum of 1800 RPM.
- **Crankcase Pressure:** The starboard engine exhibited crankcase pressure, indicative of excessive blow-by, likely caused by internal wear such as worn piston rings or cylinder liners.
- **White Smoke:** Both engines emitted slight white smoke during the trial run, even after achieving proper cylinder temperatures, suggesting incomplete combustion or another underlying issue.

Oil Leaks

Two significant oil leaks were observed:

- The **port engine** had an obvious oil leak from the raw water oil supply line.
- The **starboard engine** showed an oil leak from the transmission line at the transmission oil cooler.

Post-Trial Run

After the trial run:

- **White Smoke:** White smoke persisted from the exhaust of both engines, further supporting concerns about incomplete combustion or possible coolant intrusion.

Conclusion

While the engines performed well during the trial run, maintaining good pressures and temperatures, the observations indicate significant wear and mechanical issues. The presence of white smoke, crankcase pressure on the starboard engine, and multiple oil leaks is concerning and points to potential long-term reliability issues.

The engines, currently derated to a maximum of 1800 RPM, should perform under moderate load. However, there is no guarantee of sustained reliability under more demanding conditions. To ensure continued performance and mitigate the risk of failure, it is strongly recommended that the identified issues be resolved promptly.

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