



| | |
|-----------------|-----------------|
| WEAR | ABNORMAL |
| CONTAMINATION | ABNORMAL |
| FLUID CONDITION | ABNORMAL |

Area
BROACHE [NICK/23582]
Machine Id
CRUSADER 630899
Component
Port Gasoline Engine
Fluid
MERCURY 25W40 (--- GAL)

RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend an early resample to monitor this condition.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|----------|
| Sample Number | | Client Info | | VPA048618 | VPA042644 | --- |
| Sample Date | | Client Info | | 27 Jun 2024 | 13 Sep 2022 | --- |
| Machine Age | hrs | Client Info | | 663 | 654 | --- |
| Oil Age | hrs | Client Info | | 0 | 0 | --- |
| Filter Age | hrs | Client Info | | 0 | 0 | --- |
| Oil Changed | | Client Info | | Not Changd | Not Changd | --- |
| Filter Changed | | Client Info | | Not Changd | Not Changd | --- |
| Sample Status | | | | ABNORMAL | SEVERE | --- |

WEAR

Cylinder, crank, or cam shaft wear is indicated.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|-----|
| Iron | ppm | ASTM D5185m | >150 | ▲ 259 | 123 | --- |
| Chromium | ppm | ASTM D5185m | >20 | 2 | 1 | --- |
| Nickel | ppm | ASTM D5185m | >5 | 2 | 2 | --- |
| Titanium | ppm | ASTM D5185m | | <1 | 0 | --- |
| Silver | ppm | ASTM D5185m | >2 | <1 | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >40 | 23 | 20 | --- |
| Lead | ppm | ASTM D5185m | >50 | 1 | <1 | --- |
| Copper | ppm | ASTM D5185m | >155 | 35 | 23 | --- |
| Tin | ppm | ASTM D5185m | >10 | <1 | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | --- |
| White Metal | scalar | *Visual | NONE | NONE | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | --- |

CONTAMINATION

Sodium and/or potassium levels are high.

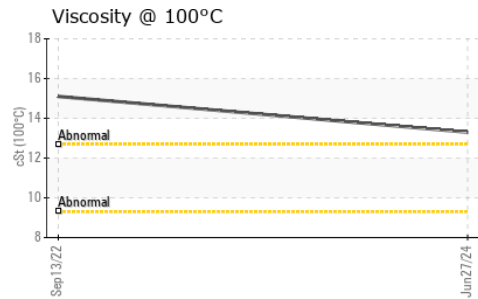
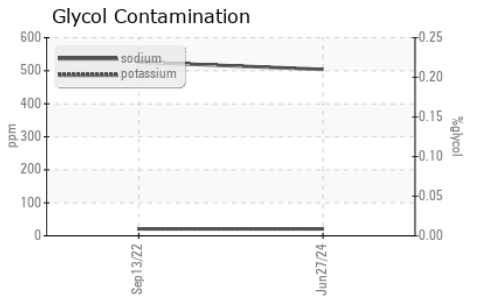
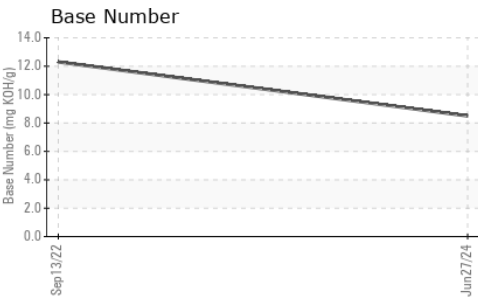
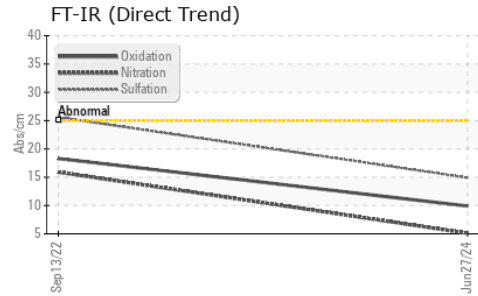
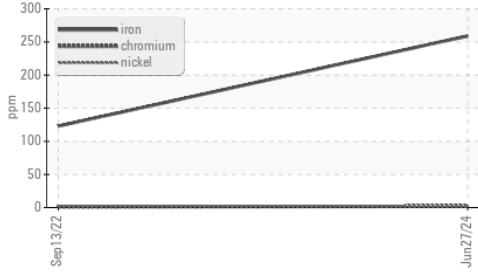
| | | | | | | |
|------------------|----------|-------------|-------|----------------|---------|-----|
| Silicon | ppm | ASTM D5185m | >30 | 8 | 5 | --- |
| Potassium | ppm | ASTM D5185m | >20 | ▲ 21 | ▲ 21 | --- |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | --- |
| Water | | WC Method | >0.2 | NEG | NEG | --- |
| Glycol | % | *ASTM D2982 | | NEG | NEG | --- |
| Soot % | % | *ASTM D7844 | | 0.1 | 1 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 5.1 | 15.9 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 14.9 | 25.6 | --- |
| Silt | scalar | *Visual | NONE | NONE | NONE | --- |
| Debris | scalar | *Visual | NONE | NONE | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | --- |
| Appearance | scalar | *Visual | NORML | NORML | ● MILKY | --- |
| Odor | scalar | *Visual | NORML | NORML | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | ▲ 0.2% | --- |

FLUID CONDITION

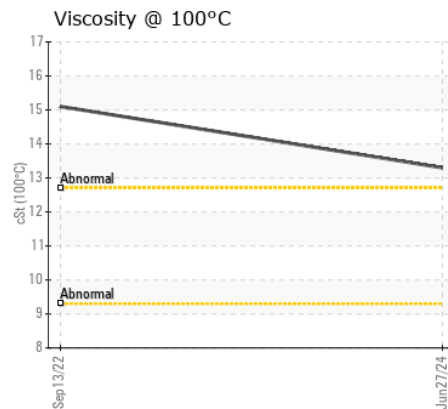
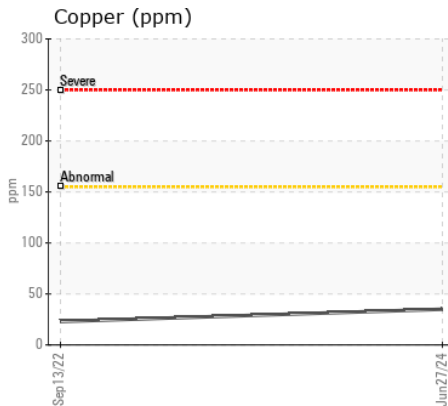
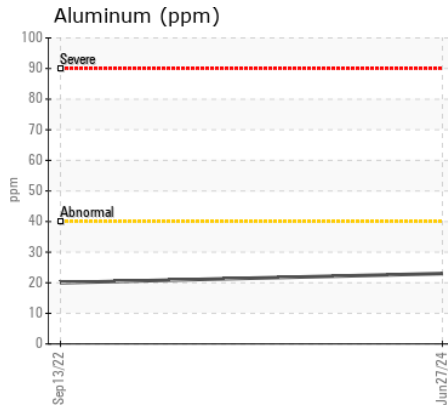
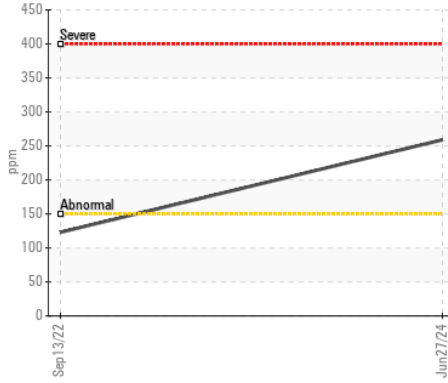
The BN result indicates that there is suitable alkalinity remaining in the oil.

| | | | | | | |
|------------------|----------|-------------|------|--------------|-------|-----|
| Sodium | ppm | ASTM D5185m | >400 | ▲ 504 | ▲ 526 | --- |
| Boron | ppm | ASTM D5185m | | 200 | 109 | --- |
| Barium | ppm | ASTM D5185m | | <1 | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | | 53 | 46 | --- |
| Manganese | ppm | ASTM D5185m | | 2 | <1 | --- |
| Magnesium | ppm | ASTM D5185m | | 29 | 18 | --- |
| Calcium | ppm | ASTM D5185m | | 2094 | 1502 | --- |
| Phosphorus | ppm | ASTM D5185m | | 659 | 707 | --- |
| Zinc | ppm | ASTM D5185m | | 800 | 773 | --- |
| Sulfur | ppm | ASTM D5185m | | 2035 | 2781 | --- |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 9.9 | 18.3 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | 8.5 | 12.3 | --- |
| Visc @ 100°C | cSt | ASTM D445 | | 13.3 | 15.1 | --- |

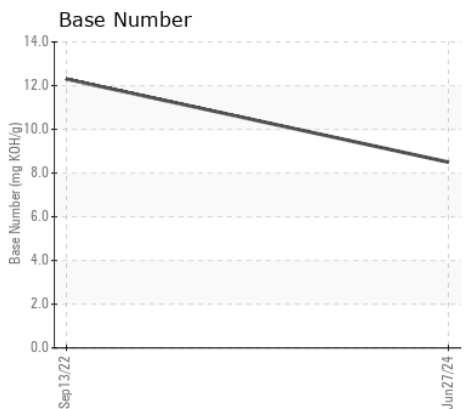
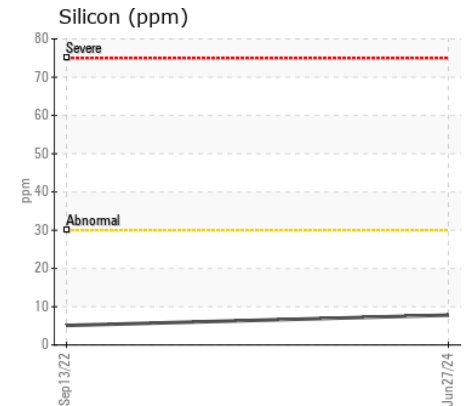
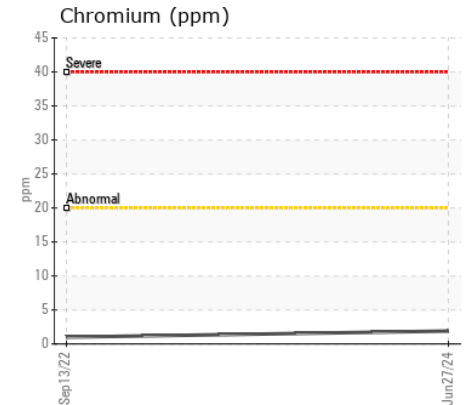
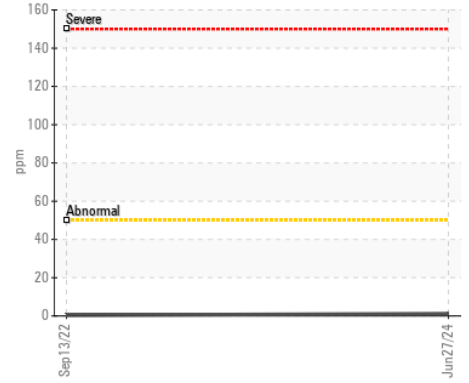
▲ Ferrous Alloys



▲ Iron (ppm)



Lead (ppm)



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : VPA048618 Received : 02 Jul 2024
 Lab Number : 06225753 Tested : 03 Jul 2024
 Unique Number : 11103950 Diagnosed : 03 Jul 2024 - Jonathan Hester
 Test Package : MOB 1 (Additional Tests: Glycol, TBN)

Seven Seas Yacht Services LLC
 1804 CRAB ALLEY DR
 CHESTER, MD
 US 21619
 Contact: Stephanie Wright
 stephanie@sevenseasys.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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F: