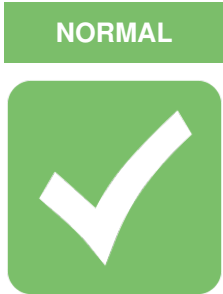
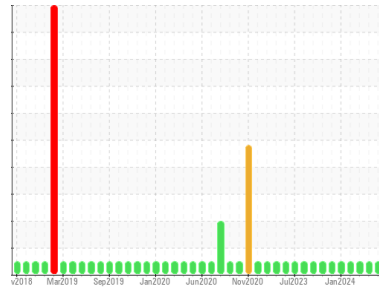


OIL ANALYSIS REPORT

Area
Aft Machinery Space [450292086]
 Machine Id
Thruster Aft Starboard - Steering System (S/N Sample Tag CL-06003-S2)
 Component
Hydraulic System
 Fluid
PETRO CANADA HYDREX MV 36 (200 LTR)

Sample Rating Trend



DIAGNOSIS

Recommendation
 Resample at the next service interval to monitor.

Wear
 All component wear rates are normal.

Contamination
 The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

Fluid Condition
 The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

| method | limit/base | current | history1 | history2 |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | PC | PC | PC |
| Sample Date | Client Info | 30 Apr 2024 | 21 Apr 2024 | 30 Mar 2024 |
| Machine Age | hrs | 0 | 0 | 0 |
| Oil Age | hrs | 0 | 0 | 0 |
| Oil Changed | Client Info | N/A | N/A | N/A |
| Sample Status | | NORMAL | NORMAL | NORMAL |

CONTAMINATION

| method | limit/base | current | history1 | history2 |
|--------|-----------------|------------|----------|----------|
| Water | WC Method >0.05 | NEG | NEG | NEG |

WEAR METALS

| method | limit/base | current | history1 | history2 |
|-----------|-----------------------|--------------|----------|----------|
| PQ | ASTM D8184* | 0 | 0 | 0 |
| Iron | ppm ASTM D5185(m) >20 | 4 | 4 | 4 |
| Chromium | ppm ASTM D5185(m) >10 | 0 | 0 | 0 |
| Nickel | ppm ASTM D5185(m) >10 | <1 | 0 | 0 |
| Titanium | ppm ASTM D5185(m) | 0 | 0 | 0 |
| Silver | ppm ASTM D5185(m) | 0 | 0 | 0 |
| Aluminum | ppm ASTM D5185(m) >10 | 0 | 0 | 0 |
| Lead | ppm ASTM D5185(m) >20 | 0 | 0 | 0 |
| Copper | ppm ASTM D5185(m) >20 | 7 | 7 | 7 |
| Tin | ppm ASTM D5185(m) >10 | 0 | 0 | 0 |
| Antimony | ppm ASTM D5185(m) | 0 | 0 | 0 |
| Vanadium | ppm ASTM D5185(m) | 0 | 0 | 0 |
| Beryllium | ppm ASTM D5185(m) | 0 | 0 | 0 |
| Cadmium | ppm ASTM D5185(m) | 0 | 0 | 0 |

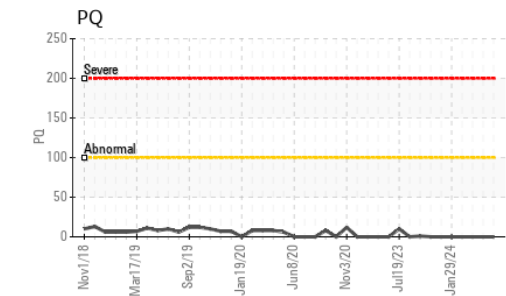
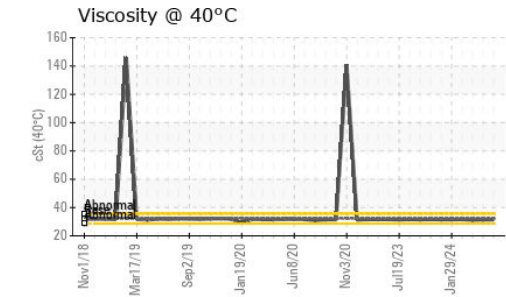
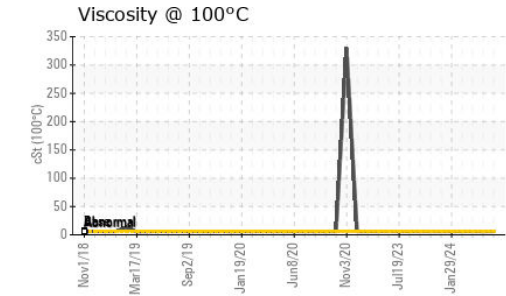
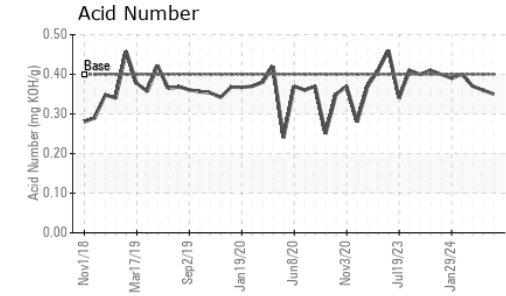
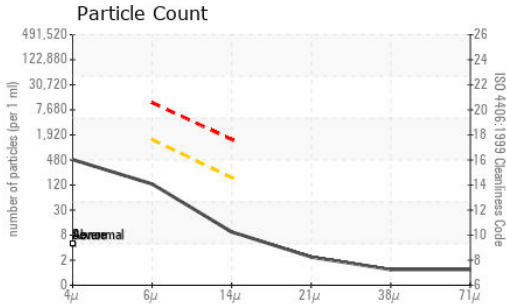
ADDITIVES

| method | limit/base | current | history1 | history2 |
|------------|-----------------------|--------------|----------|----------|
| Boron | ppm ASTM D5185(m) 0 | <1 | 0 | <1 |
| Barium | ppm ASTM D5185(m) 0 | 0 | 0 | 0 |
| Molybdenum | ppm ASTM D5185(m) 0 | 0 | 0 | 0 |
| Manganese | ppm ASTM D5185(m) 1 | 0 | 0 | 0 |
| Magnesium | ppm ASTM D5185(m) 0 | <1 | <1 | <1 |
| Calcium | ppm ASTM D5185(m) 135 | 68 | 70 | 70 |
| Phosphorus | ppm ASTM D5185(m) 236 | 302 | 300 | 311 |
| Zinc | ppm ASTM D5185(m) 317 | 353 | 365 | 366 |
| Sulfur | ppm ASTM D5185(m) 561 | 751 | 714 | 749 |
| Lithium | ppm ASTM D5185(m) | <1 | <1 | <1 |

CONTAMINANTS

| method | limit/base | current | history1 | history2 |
|-----------|-----------------------|--------------|----------|----------|
| Silicon | ppm ASTM D5185(m) >15 | 0 | 0 | 0 |
| Sodium | ppm ASTM D5185(m) | 0 | <1 | 0 |
| Potassium | ppm ASTM D5185(m) >20 | <1 | <1 | <1 |

OIL ANALYSIS REPORT



| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|-------------------|--------------|-----------|------------|-----------------|----------|----------|
| Particles >4µm | ASTM D7647 | | | 432 | 342 | 406 |
| Particles >6µm | ASTM D7647 | >1300 | | 112 | 88 | 128 |
| Particles >14µm | ASTM D7647 | >160 | | 8 | 9 | 9 |
| Particles >21µm | ASTM D7647 | >40 | | 2 | 3 | 2 |
| Particles >38µm | ASTM D7647 | >10 | | 1 | 1 | 0 |
| Particles >71µm | ASTM D7647 | >3 | | 1 | 0 | 0 |
| Oil Cleanliness | ISO 4406 (c) | >--/17/14 | | 16/14/10 | 16/14/10 | 16/14/10 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|------------|------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.40 | 0.35 | 0.36 | 0.37 |

| VISUAL | | method | limit/base | current | history1 | history2 |
|------------------|--------|---------|------------|--------------|----------|----------|
| White Metal | scalar | Visual* | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | Visual* | NONE | NONE | NONE | NONE |
| Precipitate | scalar | Visual* | NONE | NONE | NONE | NONE |
| Silt | scalar | Visual* | NONE | NONE | NONE | NONE |
| Debris | scalar | Visual* | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | Visual* | NONE | NONE | NONE | NONE |
| Appearance | scalar | Visual* | NORML | NORML | NORML | NORML |
| Odor | scalar | Visual* | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | Visual* | >0.05 | NEG | NEG | NEG |
| Free Water | scalar | Visual* | | NEG | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|----------------------|-------|---------------|------------|-------------|----------|----------|
| Visc @ 40°C | cSt | ASTM D7279(m) | 32.25 | 31.3 | 31.3 | 31.1 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 6.3 | 6.0 | 5.9 | 6.0 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 148 | 140 | 135 | 142 |

| SAMPLE IMAGES | | method | limit/base | current | history1 | history2 |
|---------------|--|--------|------------|---------|----------|----------|
| Color | | | | | | |
| Bottom | | | | | | |



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : **02636171**
Unique Number : 5785333
Test Package : MAR 2 (Additional Tests: KV100, PQ, VI)
Received : 16 May 2024
Tested : 21 May 2024
Diagnosed : 21 May 2024 - Kevin Marson

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 St. John's, NL
 CA A1C 1B6
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 T: (709)778-3575
 F: (709)724-2835

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.