

OFF SPEC

Area

Fwd Machinery Space [450348225]

Machine Id

Thruster Fwd Fore - Steering System (S/N Sample Tag CL-06005-S2)

Component

Hydraulic System

Fluid

PETRO CANADA HYDREX MV 36 (200 LTR)

DIAGNOSIS

Recommendation

Due to this condition we recommend the following action... We advise an early resample to confirm this situation. NOTE: The current sample results do not match this units historical trend, indicating the sample may not be from this component/unit.

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

Viscosity of sample indicates oil is within ISO 150 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid.

SAMPLE INFORMATION method limit/base current history1 history2

Sample Number	Client Info	PC0080670	PC0080053	PC
Sample Date	Client Info	31 May 2024	28 May 2024	21 May 2024
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	NORMAL	NORMAL

CONTAMINATION method limit/base current history1 history2

Water	WC Method	>0.05	NEG	NEG	NEG
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WEAR METALS method limit/base current history1 history2

PQ	ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m) >20	2	<1	<1
Chromium	ppm	ASTM D5185(m) >10	0	0	0
Nickel	ppm	ASTM D5185(m) >10	<1	<1	0
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	0
Aluminum	ppm	ASTM D5185(m) >10	<1	<1	0
Lead	ppm	ASTM D5185(m) >20	0	0	0
Copper	ppm	ASTM D5185(m) >20	<1	2	3
Tin	ppm	ASTM D5185(m) >10	0	0	0
Antimony	ppm	ASTM D5185(m)	<1	<1	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

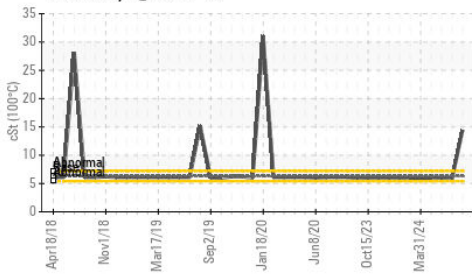
Boron	ppm	ASTM D5185(m) 0	11	<1	<1
Barium	ppm	ASTM D5185(m) 0	0	0	0
Molybdenum	ppm	ASTM D5185(m) 0	0	0	0
Manganese	ppm	ASTM D5185(m) 1	0	0	0
Magnesium	ppm	ASTM D5185(m) 0	<1	<1	1
Calcium	ppm	ASTM D5185(m) 135	10	47	48
Phosphorus	ppm	ASTM D5185(m) 236	157	309	322
Zinc	ppm	ASTM D5185(m) 317	4	402	414
Sulfur	ppm	ASTM D5185(m) 561	12440	702	748
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS method limit/base current history1 history2

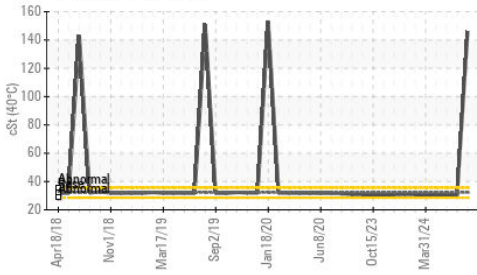
Silicon	ppm	ASTM D5185(m) >15	2	0	0
Sodium	ppm	ASTM D5185(m)	0	0	<1
Potassium	ppm	ASTM D5185(m) >20	<1	<1	<1

OIL ANALYSIS REPORT

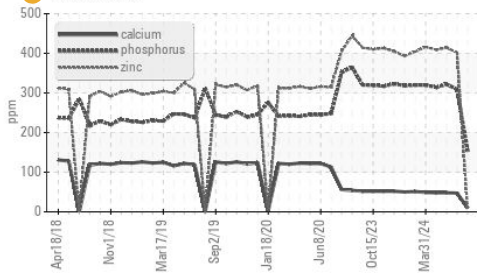
▲ Viscosity @ 100°C



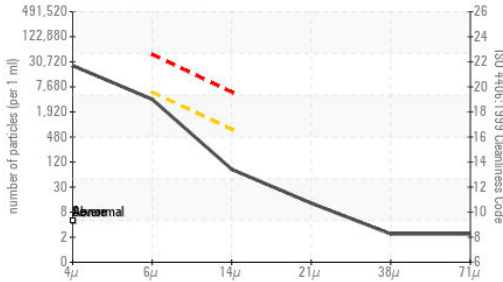
▲ Viscosity @ 40°C



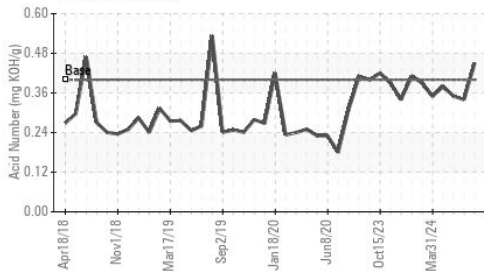
● Additives



Particle Count



Acid Number



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		21661	352	267
Particles >6µm		ASTM D7647	>5000	3373	90	49
Particles >14µm		ASTM D7647	>640	71	11	4
Particles >21µm		ASTM D7647	>160	11	3	1
Particles >38µm		ASTM D7647	>40	2	0	0
Particles >71µm		ASTM D7647	>10	2	0	0
Oil Cleanliness		ISO 4406 (c)	>--/19/16	22/19/13	16/14/11	15/13/9

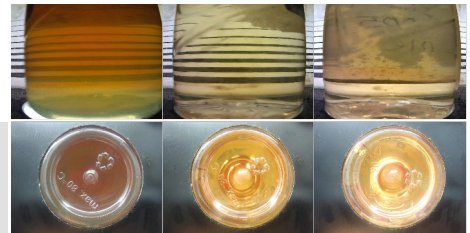
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.40	0.45	0.34	0.35

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	▲ 146	30.3	30.4
Visc @ 100°C	cSt	ASTM D7279(m)	6.3	▲ 14.4	5.9	6.0
Viscosity Index (VI)	Scale	ASTM D2270*	148	▲ 96	142	147

SAMPLE IMAGES		method	limit/base	current	history1	history2
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Color



Bottom



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0080670 **Received** : 24 Jun 2024
Lab Number : **02643721** **Tested** : 25 Jun 2024
Unique Number : 5801260 **Diagnosed** : 27 Jun 2024 - Kevin Marson
Test Package : MAR 2 (Additional Tests: KV100, PQ, VI)

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.

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