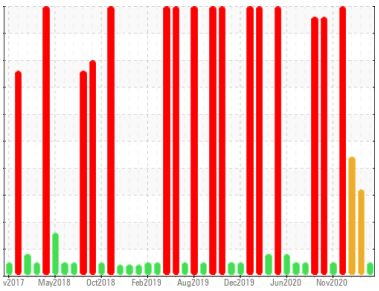
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
Aft Machinery Space [450188488]
Machine Id
Thruster Aft Port - Seal Oil System (S/N Sample Tag CL-06002-S3)
Component
Sealing System
Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)

DIAGNOSIS

Recommendation
Confirm the source of the lubricant being utilized for top-up/fill. 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
Additive levels indicate the addition of a different brand, or type of fluid. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PC0062028**	PC	PC
Sample Date		Client Info		**14 Aug 2023**	31 Mar 2023	05 Feb 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**NORMAL**	ABNORMAL	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	0
Iron	ppm	ASTM D5185(m)	>100	**6**	2	48
Chromium	ppm	ASTM D5185(m)	>3	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>8	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	<1
Aluminum	ppm	ASTM D5185(m)	>3	**0**	0	<1
Lead	ppm	ASTM D5185(m)		**0**	0	<1
Copper	ppm	ASTM D5185(m)	>3	**<1**	<1	<1
Tin	ppm	ASTM D5185(m)		**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	0	<1
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)		**12**	▲ 21	2
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	<1
Magnesium	ppm	ASTM D5185(m)		**0**	0	2
Calcium	ppm	ASTM D5185(m)		**2**	0	2
Phosphorus	ppm	ASTM D5185(m)		**190**	215	317
Zinc	ppm	ASTM D5185(m)		**6**	2	6
Sulfur	ppm	ASTM D5185(m)		**16342**	▲ 16085	7798
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**<1**	1	9
Sodium	ppm	ASTM D5185(m)		**<1**	0	4
Potassium	ppm	ASTM D5185(m)	>20	**<1**	0	<1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	**4963**	▲ 36153	⬢ 55972
Particles >6µm		ASTM D7647	>1300	**1082**	▲ 7771	⬢ 15555
Particles >14µm		ASTM D7647	>160	**106**	▲ 771	▲ 780
Particles >21µm		ASTM D7647	>40	**40**	▲ 232	▲ 160
Particles >38µm		ASTM D7647	>10	**4**	▲ 16	4
Particles >71µm		ASTM D7647	>3	**3**	4	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	**19/17/14**	▲ 22/20/17	⬢ 23/21/17

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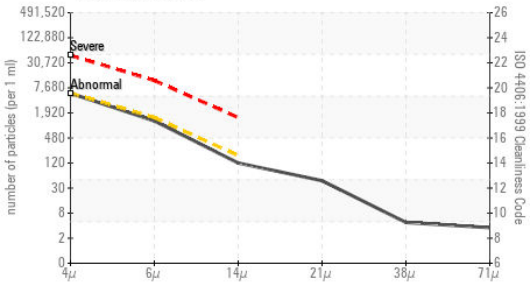
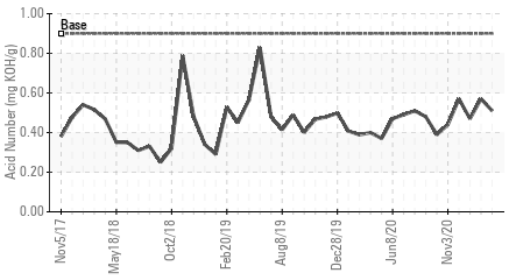
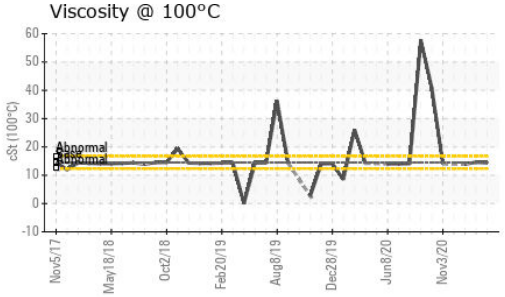
Particle Count



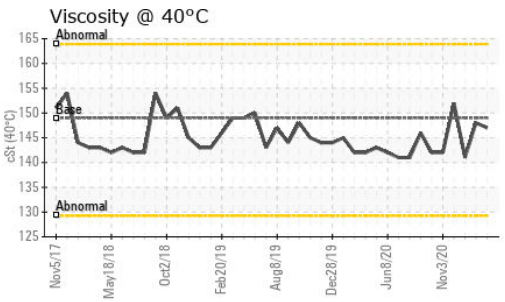
Acid Number



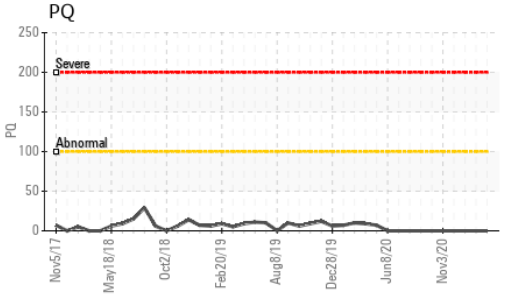
Viscosity @ 100°C



Viscosity @ 40°C



PQ



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.9	**0.51**	0.57	0.47

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**VLITE**	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**	VLITE	VLITE
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*		**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)	149	**147**	148	141
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	**14.3**	14.6	13.9
Viscosity Index (VI)	Scale	ASTM D2270*		**94**	97	94

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0062028 **Received** : 13 Sep 2023
Lab Number : 02582294 **Diagnosed** : 14 Sep 2023
Unique Number : 5643359 **Diagnostician** : Kevin Marson
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man, 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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