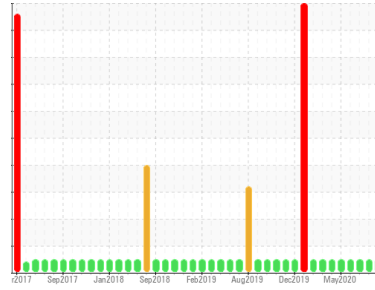


Area
Fwd Machinery Space [450188488]
Machine Id
Thruster Fwd Aft - Steering System (S/N Sample Tag CL-06004-S2)
Component
Hydraulic System
Fluid
AW HYDRAULIC OIL ISO 32 (200 LTR)



DIAGNOSIS

Recommendation
Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

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. NOTE: An increase in the particle count is noted.

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	PC0052580	PC	PC
Sample Date	Client Info	14 Aug 2023	05 Feb 2023	06 Jul 2020
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

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	0	0	0
Iron	ppm ASTM D5185(m) >20	<1	<1	<1
Chromium	ppm ASTM D5185(m) >10	0	0	0
Nickel	ppm ASTM D5185(m) >10	<1	0	<1
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	0	0	<1
Aluminum	ppm ASTM D5185(m) >10	0	<1	0
Lead	ppm ASTM D5185(m) >20	<1	2	1
Copper	ppm ASTM D5185(m) >20	3	3	19
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) 5	<1	<1	<1
Barium	ppm ASTM D5185(m) 5	0	0	0
Molybdenum	ppm ASTM D5185(m) 5	0	0	0
Manganese	ppm ASTM D5185(m)	0	0	0
Magnesium	ppm ASTM D5185(m) 25	<1	0	<1
Calcium	ppm ASTM D5185(m) 200	47	49	44
Phosphorus	ppm ASTM D5185(m) 300	360	356	258
Zinc	ppm ASTM D5185(m) 370	422	404	309
Sulfur	ppm ASTM D5185(m) 2500	1128	747	658
Lithium	ppm ASTM D5185(m)	<1	<1	<1

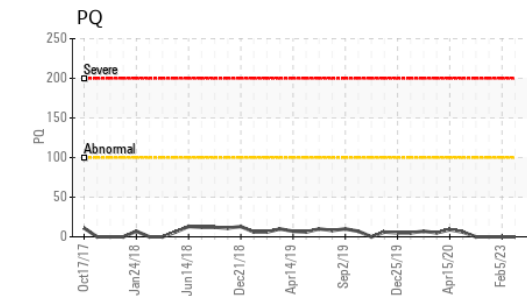
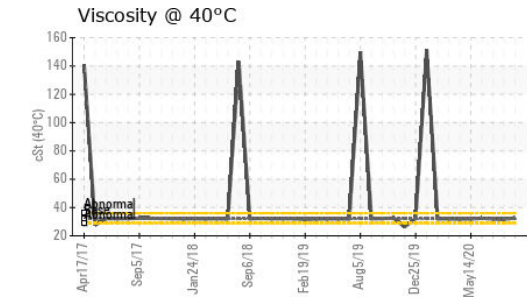
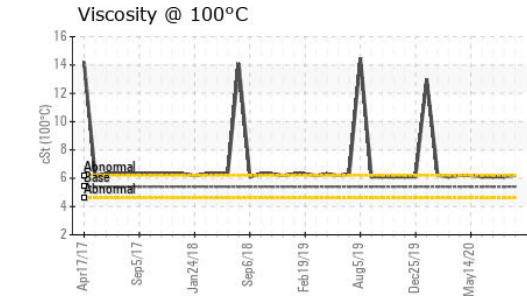
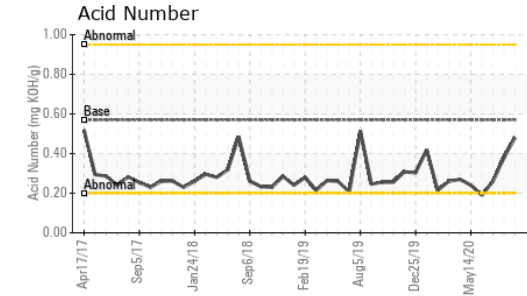
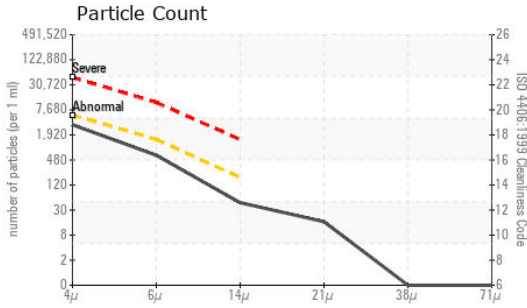
CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >15	<1	0	<1
Sodium	ppm ASTM D5185(m)	<1	0	2
Potassium	ppm ASTM D5185(m) >20	<1	<1	10

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >5000	2944	521	946
Particles >6µm	ASTM D7647 >1300	546	24	246
Particles >14µm	ASTM D7647 >160	40	3	28
Particles >21µm	ASTM D7647 >40	14	1	8
Particles >38µm	ASTM D7647 >10	0	0	0
Particles >71µm	ASTM D7647 >3	0	0	0
Oil Cleanliness	ISO 4406 (c) >19/17/14	19/16/12	16/12/9	17/15/12

OIL ANALYSIS REPORT

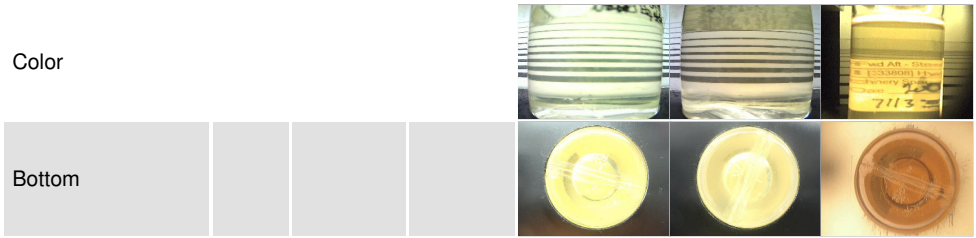


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.57	0.48	0.38	0.26

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	32.7	31.6	31.9
Visc @ 100°C	cSt	ASTM D7279(m)	5.4	6.2	6.1	6.1
Viscosity Index (VI)	Scale	ASTM D2270*	102	141	144	141

SAMPLE IMAGES



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0052580 **Received** : 13 Sep 2023
Lab Number : **02582124** **Diagnosed** : 14 Sep 2023
Unique Number : 5643189 **Diagnostician** : 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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