MAR II WEAR CHECK

OIL ANALYSIS REPORT

WEAR	ATTENTION
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
HAWBOLDT CENTRAL HYDRAULIC POWER SYSTEM (S/N 1632)
Component
Hydraulic System
Fluid
PETRO CANADA HYDREX MV 32 (3600 LTR)

RECOMMENDATION

We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition.

WEAR

Copper ppm levels are noted. All other component wear rates are normal.

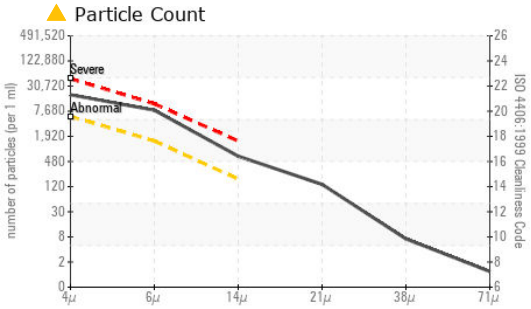
CONTAMINATION

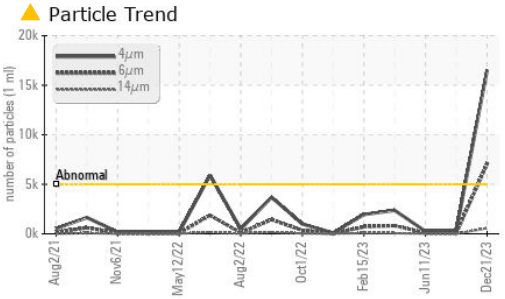
There is a moderate amount of particulates (2 to 100 microns in size) present in the oil.

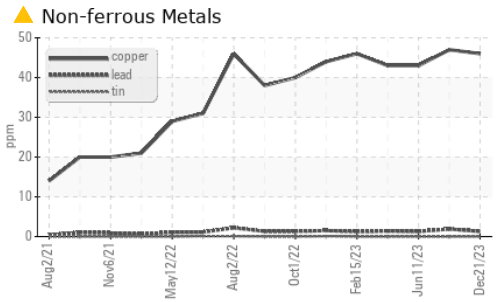
FLUID CONDITION

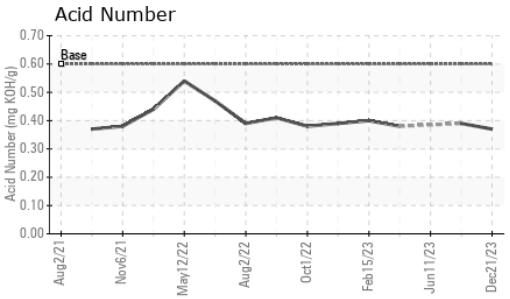
The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

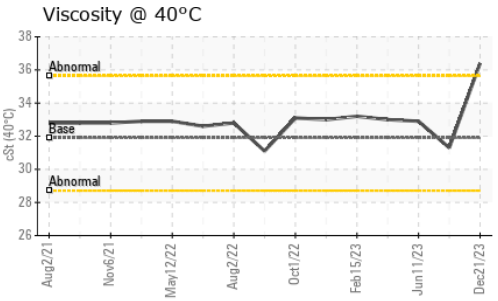
Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0883763	WC0757634	WC0761465
Sample Date		Client Info		21 Dec 2023	20 Sep 2023	11 Jun 2023
Machine Age	hrs	Client Info		0	6077	5292
Oil Age	hrs	Client Info		0	0	5292
Filter Age	hrs	Client Info		0	0	925
Oil Changed		Client Info		N/A	Not Changd	Not Changd
Filter Changed		Client Info		N/A	Not Changd	Not Changd
Sample Status				ABNORMAL	ATTENTION	ATTENTION
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	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	<1
Aluminum	ppm	ASTM D5185(m)	>10	<1	0	<1
Lead	ppm	ASTM D5185(m)	>20	1	2	1
Copper	ppm	ASTM D5185(m)	>20	▲ 46	▲ 47	▲ 43
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185(m)	>15	0	0	0
Potassium	ppm	ASTM D5185(m)	>20	4	0	0
Water		WC Method	>0.05	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	▲ 16516	295	248
Particles >6µm		ASTM D7647	>1300	▲ 7072	80	73
Particles >14µm		ASTM D7647	>160	▲ 564	5	8
Particles >21µm		ASTM D7647	>40	▲ 120	2	3
Particles >38µm		ASTM D7647	>10	6	1	0
Particles >71µm		ASTM D7647	>3	1	1	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 21/20/16	15/13/10	15/13/10
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	VLITE	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
Sodium	ppm	ASTM D5185(m)		0	<1	<1
Boron	ppm	ASTM D5185(m)	0	0	<1	<1
Barium	ppm	ASTM D5185(m)	0	0	<1	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	0	<1
Calcium	ppm	ASTM D5185(m)	50	47	48	47
Phosphorus	ppm	ASTM D5185(m)	330	361	371	380
Zinc	ppm	ASTM D5185(m)	430	435	452	445
Sulfur	ppm	ASTM D5185(m)	760	980	941	938
Acid Number (AN)	mg KOH/g	ASTM D974*	0.60	0.37	0.39	---
Visc @ 40°C	cSt	ASTM D7279(m)	31.9	36.4	31.3	32.9

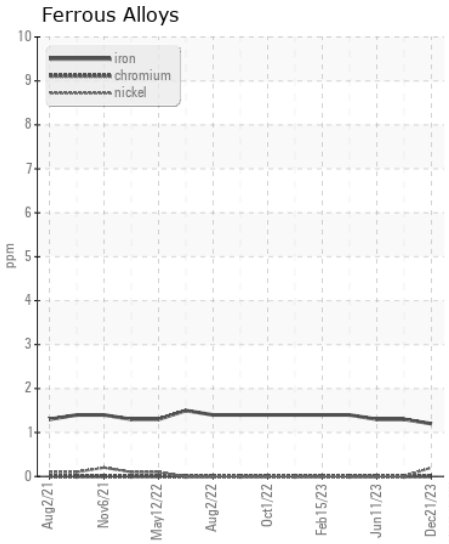


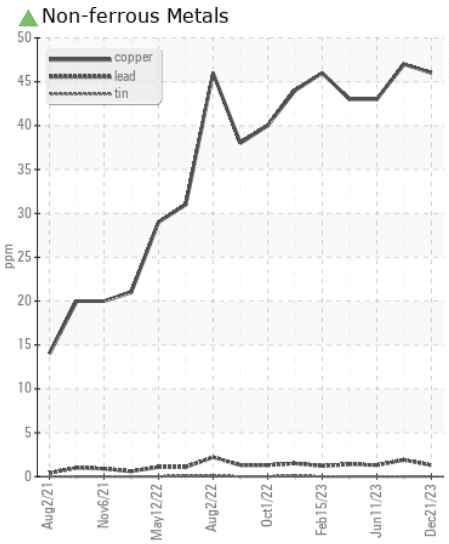


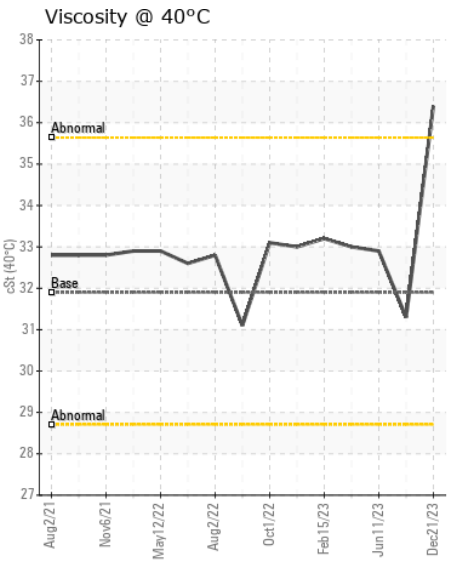


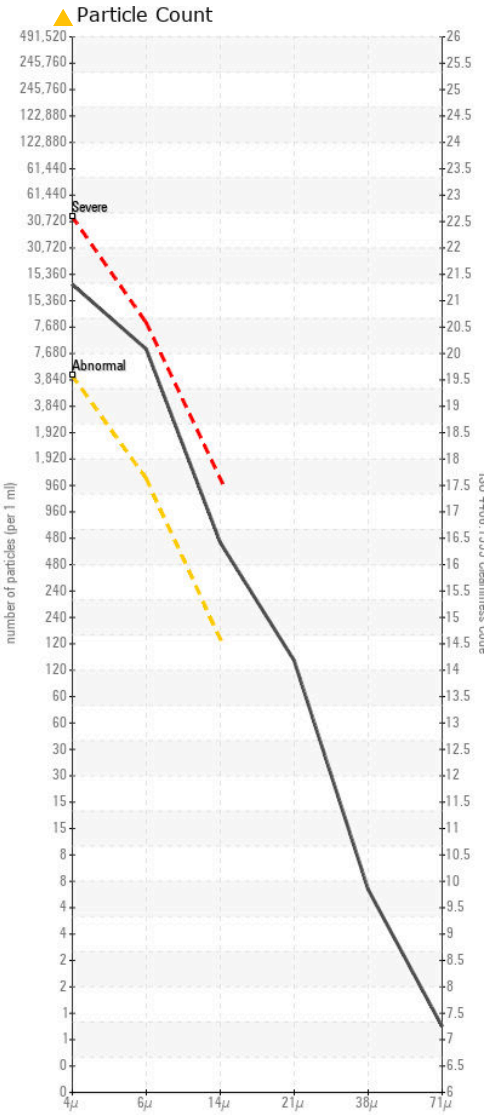


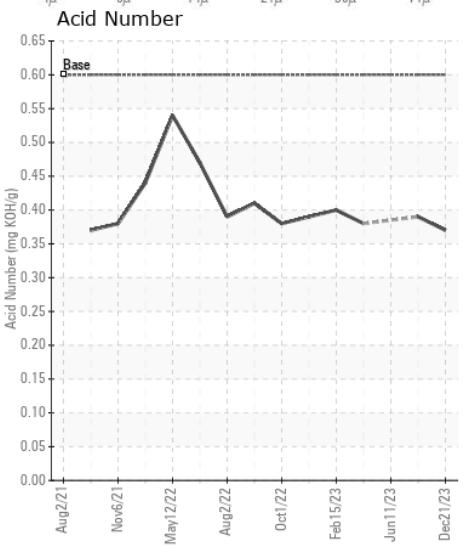












CALA
ISO 17025:2017 Accredited Laboratory

Laboratory	: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9	**Canadian Coast Guard - John Cabot**	
Sample No.	: WC0883763	**Recieved**	: 11 Jan 2024
Lab Number	: 02608167	**Diagnosed**	: 15 Jan 2024
Unique Number	: 5709253	**Diagnostician**	: Kevin Marson
Test Package	: MAR 2		

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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.