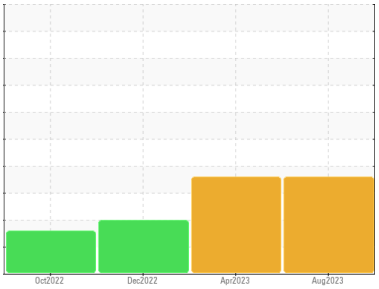
PROBLEM SUMMARY

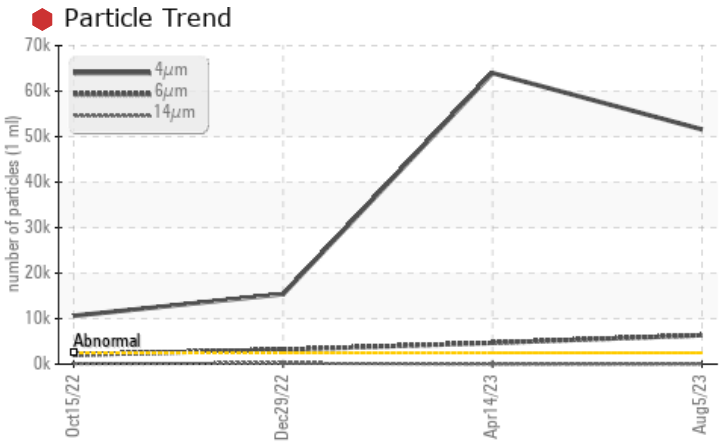
Sample Rating Trend



ISO

Area
Steering Gears
Machine Id
Steering Gear Starboard
Component
Rear Right Steering
Fluid
PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. The filter change at the time of sampling has been noted. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	SEVERE	ABNORMAL
Particles >4µm		ASTM D7647	>2500	**51588**	63977	15396
Particles >6µm		ASTM D7647	>640	**6360**	4684	3175
Oil Cleanliness		ISO 4406 (c)	>18/16/13	**23/20/12**	23/19/11	21/19/15

Customer Id: VMASSEY
Sample No.: WC0810851
Lab Number: 02575993
Test Package: MAR 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
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Kevin.Marson@wearcheck.com

To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Check Breathers	---	---	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

14 Apr 2023 Diag: Kevin Marson

WEAR

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.Copper and tin ppm levels are noted. All other component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the fluid. The AN level is acceptable for this fluid. The fluid is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

29 Dec 2022 Diag: Kevin Marson

ISO

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.All component wear rates are normal. Oil Cleanliness are abnormally high. Particles >14µm are abnormally high. Particles >21µm are abnormally high. Particles >4µm are abnormally high. Particles >6µm are abnormally high. The AN level is acceptable for this fluid. The fluid is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

15 Oct 2022 Diag: Wes Davis

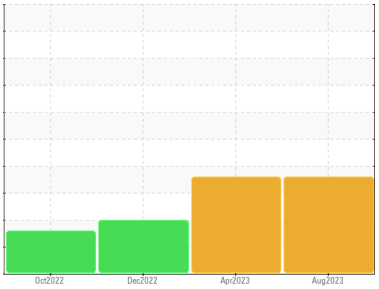
ISO

The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.All component wear rates are normal. Oil Cleanliness are abnormally high. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high. The AN level is acceptable for this fluid. The fluid is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
Steering Gears
Machine Id
Steering Gear Starboard
Component
Rear Right Steering
Fluid
PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (--- GAL)

DIAGNOSIS

Recommendation

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. The filter change at the time of sampling has been noted. Resample in 30-45 days to monitor this situation.

Wear

All component wear rates are normal.

Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the fluid.

Fluid Condition

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0810851**	WC0763476	WC0763490
Sample Date		Client Info		**05 Aug 2023**	14 Apr 2023	29 Dec 2022
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Oil Added**	N/A	Oil Added
Sample Status				**SEVERE**	SEVERE	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>50	**1**	1	<1
Chromium	ppm	ASTM D5185(m)	>15	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>5	**<1**	<1	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>5	**<1**	<1	<1
Lead	ppm	ASTM D5185(m)	>10	**4**	4	1
Copper	ppm	ASTM D5185(m)	>50	**50**	▲ 42	12
Tin	ppm	ASTM D5185(m)	>5	**2**	▲ 2	<1
Antimony	ppm	ASTM D5185(m)		**0**	<1	<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

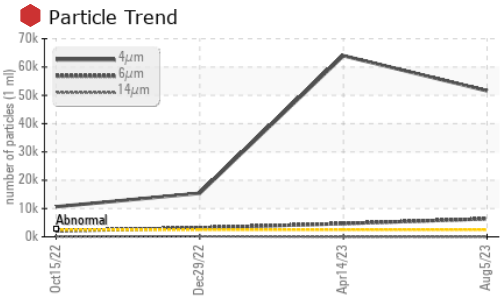
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)	1	**0**	0	0
Magnesium	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Calcium	ppm	ASTM D5185(m)	100	**102**	108	108
Phosphorus	ppm	ASTM D5185(m)	670	**692**	718	710
Zinc	ppm	ASTM D5185(m)	850	**848**	861	852
Sulfur	ppm	ASTM D5185(m)	1600	**1627**	1687	1711
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

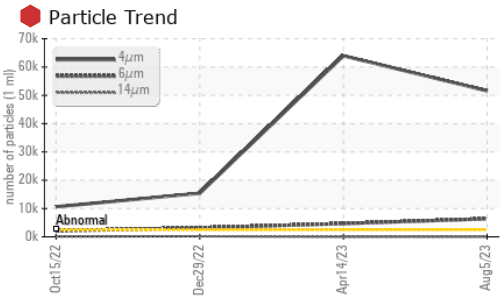
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**1**	1	<1
Sodium	ppm	ASTM D5185(m)		**<1**	<1	0
Potassium	ppm	ASTM D5185(m)	>20	**<1**	<1	<1

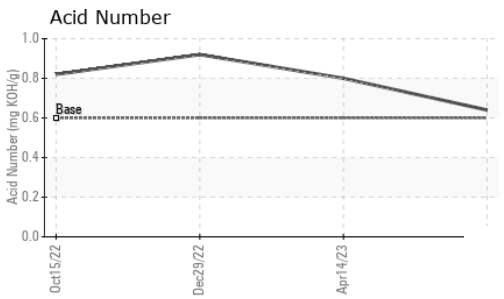
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	**51588**	63977	▲ 15396
Particles >6µm	ASTM D7647	>640	**6360**	▲ 4684	▲ 3175
Particles >14µm	ASTM D7647	>80	**32**	13	▲ 205
Particles >21µm	ASTM D7647	>20	**5**	3	▲ 47
Particles >38µm	ASTM D7647	>4	**1**	1	3
Particles >71µm	ASTM D7647	>3	**0**	1	1
Oil Cleanliness	ISO 4406 (c)	>18/16/13	**23/20/12**	23/19/11	▲ 21/19/15

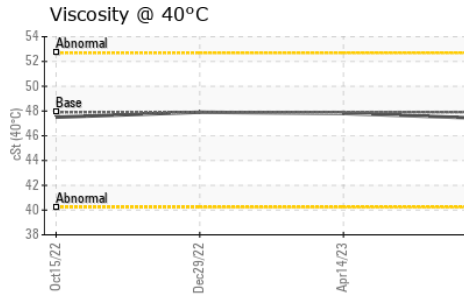
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.60	**0.64**	0.80	0.92

OIL ANALYSIS REPORT





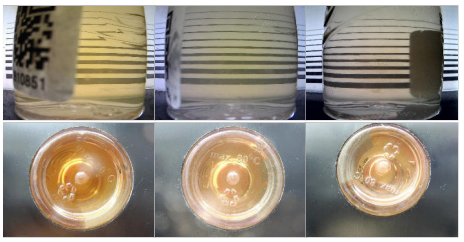




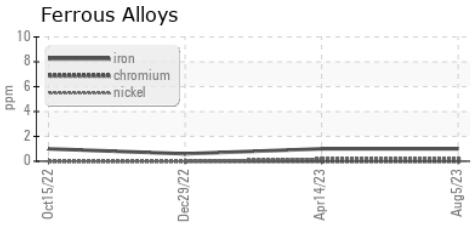
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**NORML**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

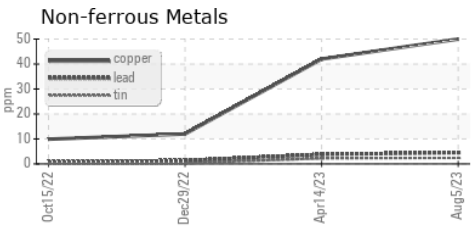
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	47.9	**47.4**	47.8	47.9

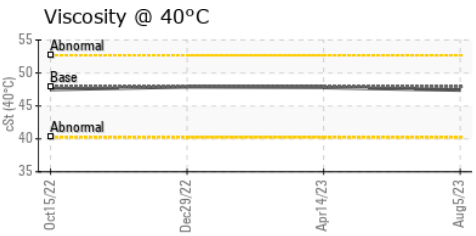
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

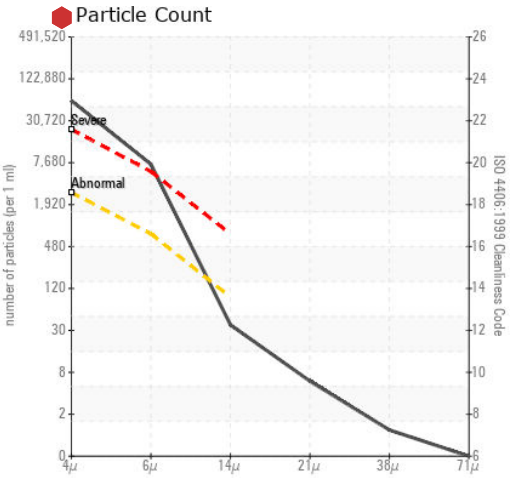


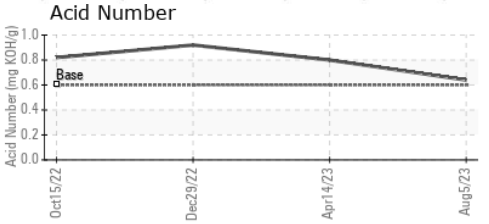
GRAPHS











ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0810851 **Received** : 15 Aug 2023
Lab Number : 02575993 **Diagnosed** : 16 Aug 2023
Unique Number : 5629053 **Diagnostician** : Kevin Marson
Test Package : MAR 2 (Additional Tests: PrtCount)

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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