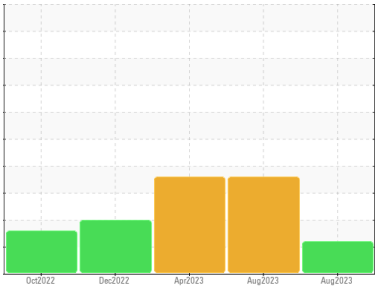
PROBLEM SUMMARY

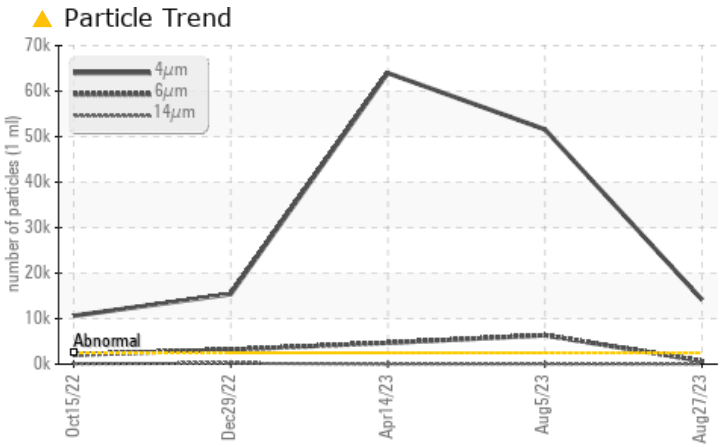
Sample Rating Trend



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

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	SEVERE	SEVERE
Particles >4µm		ASTM D7647	>2500	**14162**	51588	63977
Particles >6µm		ASTM D7647	>640	**686**	6360	4684
Oil Cleanliness		ISO 4406 (c)	>18/16/13	**21/17/12**	23/20/12	23/19/11

Customer Id: VMASSEY
Sample No.: WC0810844
Lab Number: 02579215
Test Package: MAR 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

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
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

05 Aug 2023 Diag: Kevin Marson

ISO

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.All 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

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

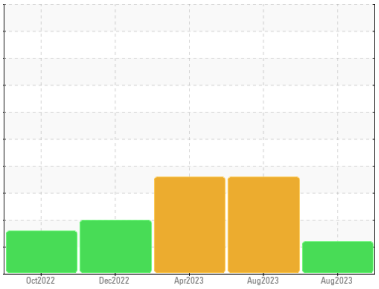
ISO

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

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
We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

Contamination
There is a moderate 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		**WC0810844**	WC0810851	WC0763476
Sample Date		Client Info		**27 Aug 2023**	05 Aug 2023	14 Apr 2023
Machine Age	hrs	Client Info		**58836**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Not Changd**	Oil Added	N/A
Sample Status				**ABNORMAL**	SEVERE	SEVERE

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	<1
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	4
Copper	ppm	ASTM D5185(m)	>50	**52**	50	▲ 42
Tin	ppm	ASTM D5185(m)	>5	**2**	2	▲ 2
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

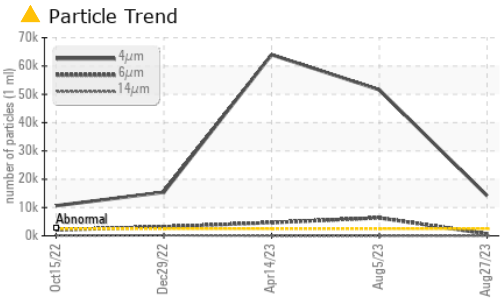
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**0**	<1	<1
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)	1	**0**	0	0
Magnesium	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Calcium	ppm	ASTM D5185(m)	100	**104**	102	108
Phosphorus	ppm	ASTM D5185(m)	670	**701**	692	718
Zinc	ppm	ASTM D5185(m)	850	**867**	848	861
Sulfur	ppm	ASTM D5185(m)	1600	**1626**	1627	1687
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

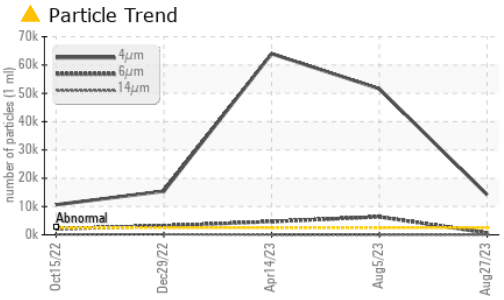
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**1**	1	1
Sodium	ppm	ASTM D5185(m)		**<1**	<1	<1
Potassium	ppm	ASTM D5185(m)	>20	**0**	<1	<1

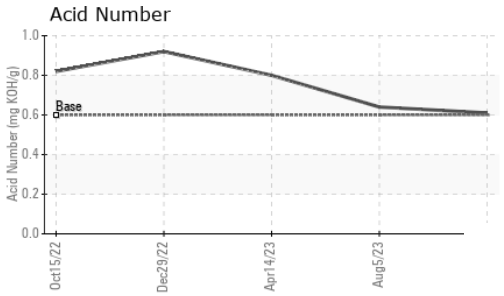
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	▲ **14162**	⬢ 51588	⬢ 63977
Particles >6µm		ASTM D7647	>640	▲ **686**	⬢ 6360	▲ 4684
Particles >14µm		ASTM D7647	>80	**26**	32	13
Particles >21µm		ASTM D7647	>20	**5**	5	3
Particles >38µm		ASTM D7647	>4	**1**	1	1
Particles >71µm		ASTM D7647	>3	**1**	0	1
Oil Cleanliness		ISO 4406 (c)	>18/16/13	▲ **21/17/12**	⬢ 23/20/12	⬢ 23/19/11

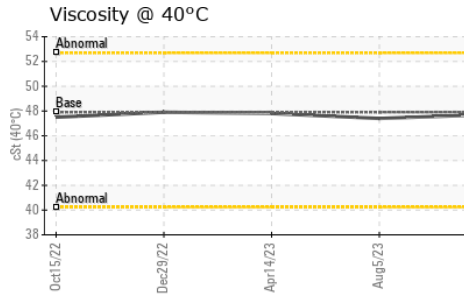
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.60	**0.61**	0.64	0.80

OIL ANALYSIS REPORT





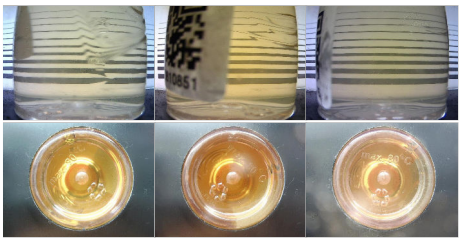




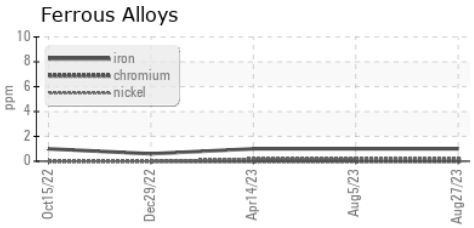
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**NONE**	VLITE	NONE
Sand/Dirt	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

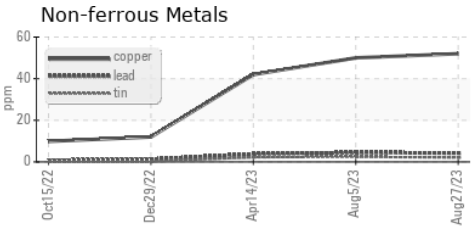
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	47.9	**47.7**	47.4	47.8

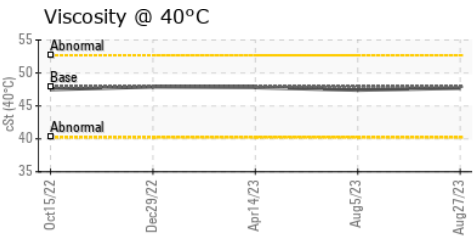
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

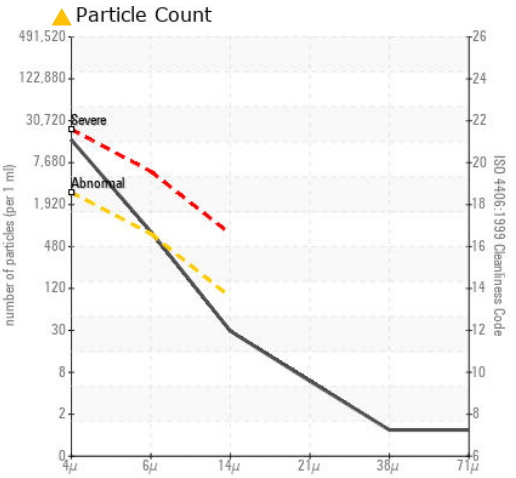


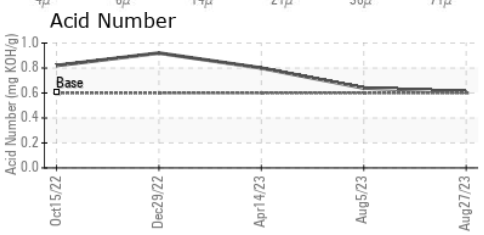
GRAPHS











ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0810844 **Received** : 29 Aug 2023
Lab Number : 02579215 **Diagnosed** : 30 Aug 2023
Unique Number : 5632275 **Diagnostician** : Wes Davis
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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