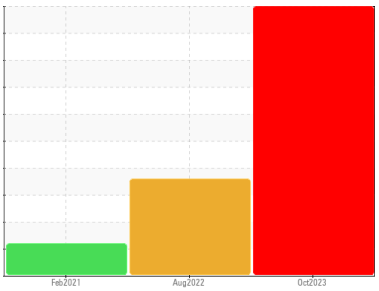
PROBLEM SUMMARY

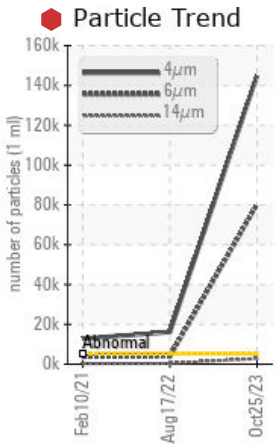
Sample Rating Trend

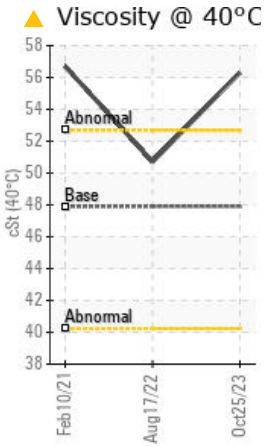


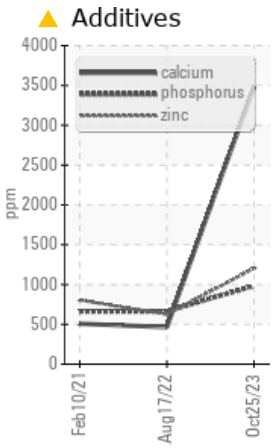
ISO

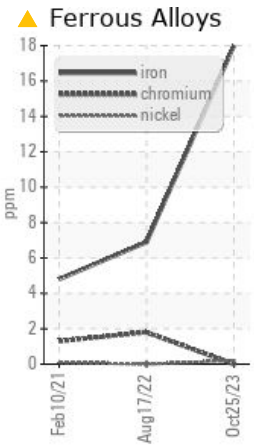
Machine Id
OR645
Component
Hydraulic System
Fluid
PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (--- GAL)

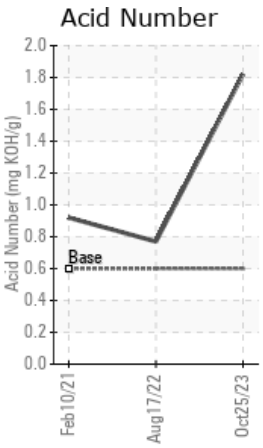
COMPONENT CONDITION SUMMARY











RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. 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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. The fluid was specified as PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL, however, a fluid match indicates that this fluid is SAE 75W80 Tractor TDH Fluid. Please confirm the oil type and grade on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	ABNORMAL	ABNORMAL
Iron	ppm	ASTM D5185(m)	>20	▲ **18**	7	5
Magnesium	ppm	ASTM D5185(m)	0	▲ **97**	13	15
Calcium	ppm	ASTM D5185(m)	100	▲ **3484**	464	508
Phosphorus	ppm	ASTM D5185(m)	670	▲ **982**	663	662
Zinc	ppm	ASTM D5185(m)	850	▲ **1201**	626	803
Sulfur	ppm	ASTM D5185(m)	1600	▲ **2921**	1779	1833
Particles >4µm		ASTM D7647	>5000	● **144814**	▲ 16087	▲ 12838
Particles >6µm		ASTM D7647	>1300	● **80249**	▲ 4073	▲ 3744
Particles >14µm		ASTM D7647	>160	● **2746**	▲ 351	▲ 250
Particles >21µm		ASTM D7647	>40	● **524**	▲ 87	54
Particles >38µm		ASTM D7647	>10	▲ **34**	6	2
Particles >71µm		ASTM D7647	>3	▲ **6**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	● **24/24/19**	▲ 21/19/16	▲ 21/19/15
Visc @ 40°C	cSt	ASTM D7279(m)	47.9	▲ **56.3**	50.7	56.7
Viscosity Index (VI)	Scale	ASTM D2270*	192	▲ **141**	159	156

Customer Id: GFL286
Sample No.: PC0077009
Lab Number: 02592087
Test Package: IND 2

To manage this report scan the QR code

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Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Alert	---	---	?	The fluid was specified as PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL, however, a fluid match indicates that this fluid is SAE 75W80 Tractor TDH Fluid. Please confirm the oil type and grade on your next sample.
Information Required	---	---	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
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 Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

VISUAL METAL

17 Aug 2022 Diag: Kevin Marson

We advise that you check all areas where contaminants can enter the system. We advise that you check for visible metal particles in the oil. 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. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. We suspect that the abnormal contaminant(s) is the result of incorrect sampling technique. DISCLAIMER: Interpretation of laboratory tests is based on sample, as received from client. Source of sample and sampling technique cannot be verified.Light concentration of visible metal present. 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. Light concentration of visible dirt/debris present in the oil. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report

ISO

10 Feb 2021 Diag: Wes Davis

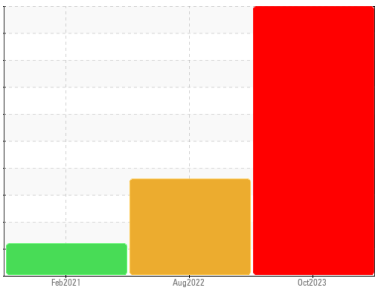
The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.All component wear rates are normal. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

LUBE 360 DIAGNOSTICS

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
OR645
Component
Hydraulic System
Fluid
PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. 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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. The fluid was specified as PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL, however, a fluid match indicates that this fluid is SAE 75W80 Tractor TDH Fluid. Please confirm the oil type and grade on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

Iron ppm levels are marginal. All other component wear rates are normal.

Contamination

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

Fluid Condition

The viscosity of the oil is higher than normal, possibly indicating the addition of a heavier grade of oil. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PC0077009**	PC0061383	PC0039568
Sample Date		Client Info		**25 Oct 2023**	17 Aug 2022	10 Feb 2021
Machine Age	hrs	Client Info		**0**	12350	10837
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	Not Changd	Not Changd
Sample Status				**SEVERE**	ABNORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	▲ **18**	7	5
Chromium	ppm	ASTM D5185(m)	>10	**0**	2	1
Nickel	ppm	ASTM D5185(m)	>10	**<1**	0	<1
Titanium	ppm	ASTM D5185(m)		**0**	<1	0
Silver	ppm	ASTM D5185(m)		**<1**	0	<1
Aluminum	ppm	ASTM D5185(m)	>10	**3**	1	1
Lead	ppm	ASTM D5185(m)	>10	**4**	<1	<1
Copper	ppm	ASTM D5185(m)	>75	**5**	<1	<1
Tin	ppm	ASTM D5185(m)	>10	**<1**	0	0
Antimony	ppm	ASTM D5185(m)		**<1**	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)	0	**2**	2	3
Barium	ppm	ASTM D5185(m)	0	**1**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	<1	<1
Manganese	ppm	ASTM D5185(m)	1	**2**	0	0
Magnesium	ppm	ASTM D5185(m)	0	▲ **97**	13	15
Calcium	ppm	ASTM D5185(m)	100	▲ **3484**	464	508
Phosphorus	ppm	ASTM D5185(m)	670	▲ **982**	663	662
Zinc	ppm	ASTM D5185(m)	850	▲ **1201**	626	803
Sulfur	ppm	ASTM D5185(m)	1600	▲ **2921**	1779	1833
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

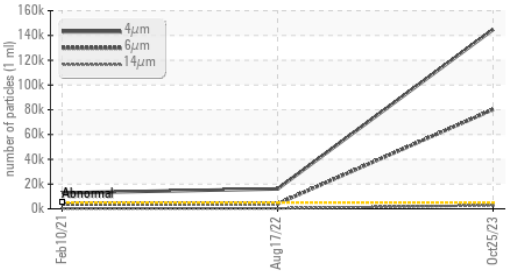
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**16**	4	3
Sodium	ppm	ASTM D5185(m)		**2**	5	4
Potassium	ppm	ASTM D5185(m)	>20	**<1**	<1	<1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	⬢ **144814**	▲ 16087	▲ 12838
Particles >6µm		ASTM D7647	>1300	⬢ **80249**	▲ 4073	▲ 3744
Particles >14µm		ASTM D7647	>160	⬢ **2746**	▲ 351	▲ 250
Particles >21µm		ASTM D7647	>40	⬢ **524**	▲ 87	54
Particles >38µm		ASTM D7647	>10	▲ **34**	6	2
Particles >71µm		ASTM D7647	>3	▲ **6**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	⬢ **24/24/19**	▲ 21/19/16	▲ 21/19/15

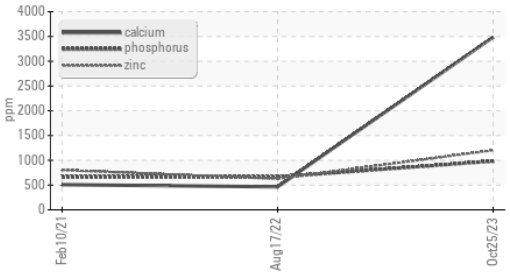
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.60	**1.82**	0.77	0.92

OIL ANALYSIS REPORT

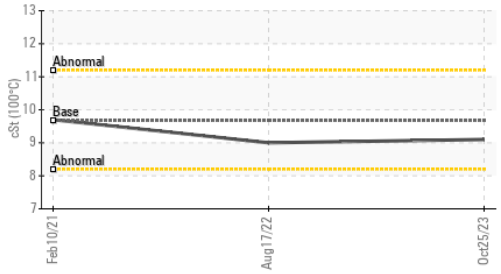
Particle Trend



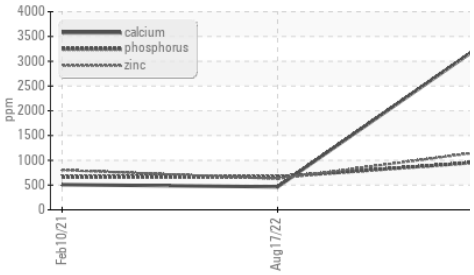
Additives



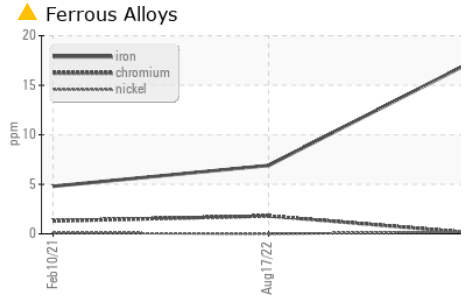
Viscosity @ 100°C



Additives

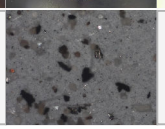


Ferrous Alloys



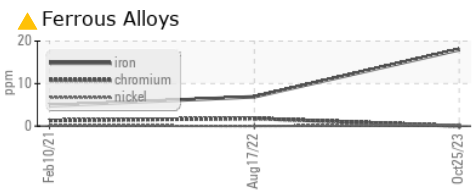
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	▲ VLITE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	▲ VLITE	NONE
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*	>0.1	**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	▲ **56.3**	50.7	56.7
Visc @ 100°C	cSt	ASTM D7279(m)	9.67	**9.1**	9	9.7
Viscosity Index (VI)	Scale	ASTM D2270*	192	▲ **141**	159	156

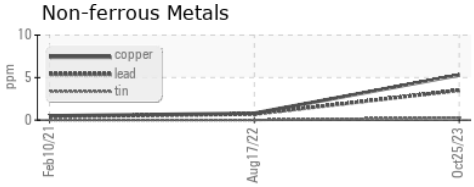
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter			*no image*		*no image*

GRAPHS

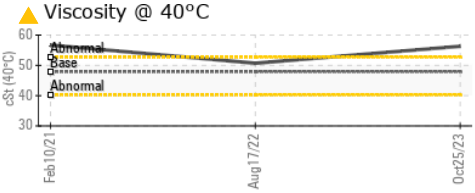
Ferrous Alloys



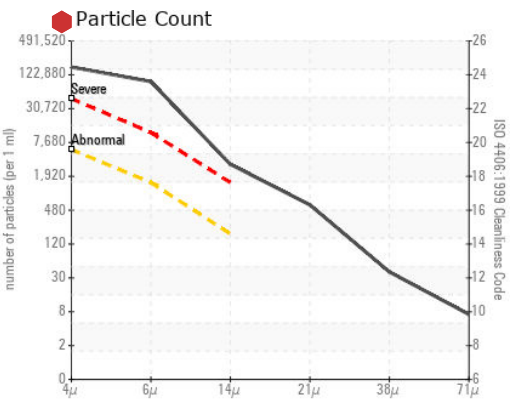
Non-ferrous Metals



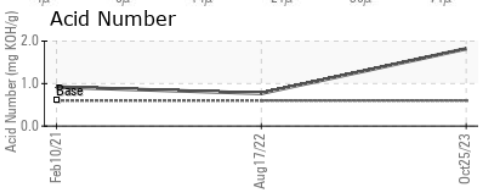
Viscosity @ 40°C



Particle Count



Acid Number



CALA Testing Accreditation No. 1005078
ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Green Infrastructure and Partners Inc (GIPI) - 286 - Shoring & Foundations
Sample No. : PC0077009 **Received** : 26 Oct 2023
Lab Number : 02592087 **Diagnosed** : 27 Oct 2023
Unique Number : 5669166 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: KV100, TAN Man, VI)

151 Ram Forest Rd,
Stouffville, ON
CA L4A 2G8
Contact: Bill Acton
bacton@gipi.com
T:
F:

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.