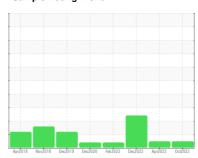


OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 7 Component **Hydraulic System**

PETRO CANADA CALFLO AF (23 GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

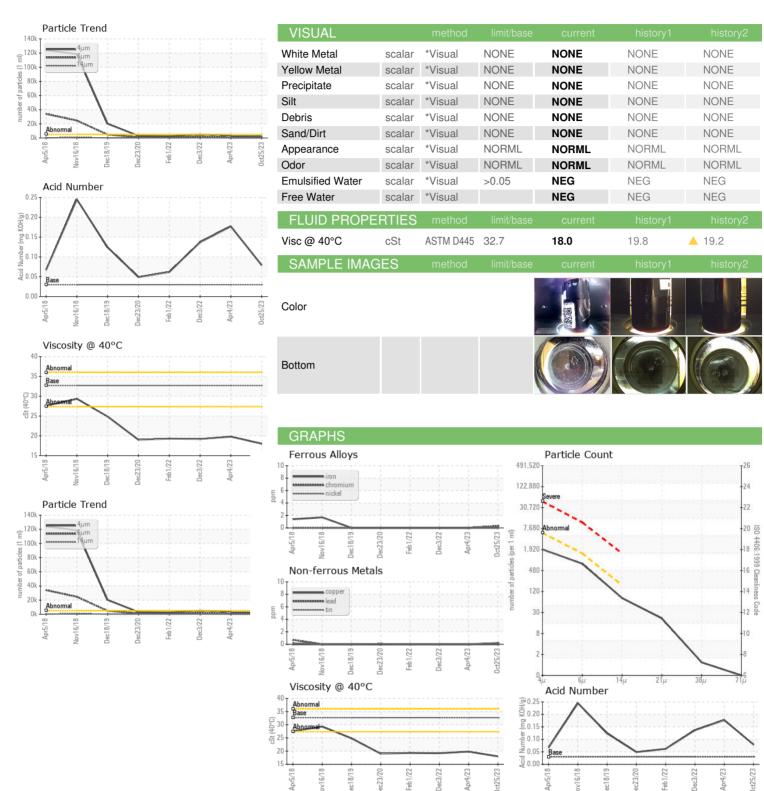
Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Machine Age yrs Client Info 4 3 3 Oil Age yrs Client Info 4 0 0 Oil Changed Client Info N/A N/A N/A Filtered Sample Status method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 0 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Silver ppm ASTM D5185m >20 <1			Apr2018 1	lov2018 Dec2019 Dec20	20 Feb2022 Dec2022 Apr2023	Oct2023	
Sample Date Client Info 25 Oct 2023 04 Apr 2023 03 Dec 2022	SAMPLE INFOR	MATION	Method	limit/base	current	history1	history2
Machine Age yrs Client Info 4 3 3 Oil Age yrs Client Info 4 0 0 Oil Changed Client Info N/A N/A N/A Filtered Sample Status method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 0 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Silver ppm ASTM D5185m >20 0 0 0 Jistory ppm ASTM D5185m >20 <1	Sample Number		Client Info		PCA0096791	PCA0088487	PCA0067939
Oil Age yrs Client Info N/A N/A N/A Filtered Sample Status Client Info N/A N/A N/A Filtered WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 0 Chromium ppm ASTM D5185m >20 0 0 0 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Silver ppm ASTM D5185m >20 0 0 0 Aluminum ppm ASTM D5185m >20 0 0 0 Lead ppm ASTM D5185m >20 0 0 0 Copper ppm ASTM D5185m >20 <1	Sample Date		Client Info		25 Oct 2023	04 Apr 2023	03 Dec 2022
Oil Changed Sample Status	Machine Age	yrs	Client Info		4	3	3
NORMAL NORMAL NORMAL ATTENTION	Oil Age	yrs	Client Info		4	0	0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 0 Chromium ppm ASTM D5185m >20 <1 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Titanium ppm ASTM D5185m 0 0 0 0 Aluminum ppm ASTM D5185m >20 <1 0 0 0 Aluminum ppm ASTM D5185m >20 <1 0 0 0 Lead ppm ASTM D5185m >20 <1 0 0 0 Lead ppm ASTM D5185m >20 <1 0 0 0 0 Antimony ppm ASTM D5185m >20 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Oil Changed		Client Info		N/A	N/A	Filtered
Iron	Sample Status				NORMAL	NORMAL	ATTENTION
Chromium ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Iron	ppm	ASTM D5185m	>20	0	0	0
Titanium ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Chromium	ppm	ASTM D5185m	>20	<1	0	0
Silver	Nickel	ppm	ASTM D5185m	>20	0	0	0
Aluminum ppm ASTM D5185m >20 <1	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >20 0 0 0 Copper ppm ASTM D5185m >20 <1 0 0 Tin ppm ASTM D5185m >20 <1 0 0 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 20 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 0 0 <1 0 Calcium ppm ASTM D5185m 0 0 <1 0	Silver	ppm	ASTM D5185m		0	0	0
Copper ppm ASTM D5185m >20 -1 0 0 Tin ppm ASTM D5185m >20 -1 0 0 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 20 0 0 Barium ppm ASTM D5185m 0 20 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 0 0 <1 0 Calcium ppm ASTM D5185m 0 0 <1 0 Valifur ppm ASTM D5185m 0 20 0 <1	Aluminum	ppm	ASTM D5185m	>20	<1	0	0
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Tin ppm ASTM D5185m >20 <1 0 0 0 Antimony ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 0 0 Manganesium ppm ASTM D5185m 0 0 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 3 0 0 0 CONTAMINANTS method limit/base current history1 history2 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D5185m >20 0 0 0 0 FLUID CLEANLINESS method limit/base current history1 history2 Particles >6μm ASTM D7647 >5000 1697 2508 △ 5057 Particles >6μm ASTM D7647 >1300 661 626 △ 1849 Particles >14μm ASTM D7647 >1300 661 626 △ 1849 Particles >21μm ASTM D7647 >10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Copper	ppm	ASTM D5185m	>20	<1	0	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 20 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganesium ppm ASTM D5185m 0 0 <1		ppm	ASTM D5185m	>20	<1	0	0
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 20 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 0 0 <1 0 Calcium ppm ASTM D5185m 0 0 <1 0 Phosphorus ppm ASTM D5185m 270 239 202 190 Zinc ppm ASTM D5185m 0 20 0 <1 Sulfur ppm ASTM D5185m 10 0 0 0 CONTAMINANTS method limit/base current history1 hi	Antimony	ppm	ASTM D5185m				
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 20 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 0 0 <1 0 Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 Zinc ppm ASTM D5185m 0 20 0 <1 Sulfur ppm ASTM D5185m 0 20 0 <1 Silicon ppm ASTM D5185m >15 2 <1 2 Sodium ppm ASTM D5185m >20 0 0	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 20 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 20 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
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Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 0 0 <1 0 Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 270 239 202 190 Zinc ppm ASTM D5185m 0 20 0 <1 Sulfur ppm ASTM D5185m 10 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 <1	Barium	ppm	ASTM D5185m	0	20	0	0
Magnesium ppm ASTM D5185m 0 0 <1	Molybdenum	ppm	ASTM D5185m	0	0	0	0
Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 270 239 202 190 Zinc ppm ASTM D5185m 0 20 0 <1 Sulfur ppm ASTM D5185m 10 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 <1 2 Sodium ppm ASTM D5185m 3 0 <1 0 Potassium ppm ASTM D5185m >20 0 0 0 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 1697 2508 △ 5057 Particles >6µm ASTM D7647 >1300 661 626 △ 1849 Particles >21µm ASTM D7647 >40 <th>Manganese</th> <th>ppm</th> <th>ASTM D5185m</th> <th>0</th> <th>0</th> <th><1</th> <th>0</th>	Manganese	ppm	ASTM D5185m	0	0	<1	0
Phosphorus ppm ASTM D5185m 270 239 202 190 Zinc ppm ASTM D5185m 0 20 0 <1	Magnesium	ppm	ASTM D5185m	0	0	<1	0
Zinc ppm ASTM D5185m 0 20 0 <1	Calcium	ppm	ASTM D5185m	0	0	0	0
Zinc ppm ASTM D5185m 0 20 0 <1	Phosphorus	ppm	ASTM D5185m	270	239	202	190
Sulfur ppm ASTM D5185m 10 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 <1 2 Sodium ppm ASTM D5185m 3 0 <1 2 Potassium ppm ASTM D5185m >20 0 0 0 0 FLUID CLEANLINESS method limit/base limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 1697 2508 5057 Particles >6µm ASTM D7647 >1300 661 626 1849 Particles >14µm ASTM D7647 >160 69 66 247 Particles >21µm ASTM D7647 >40 18 24 76 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >19/17/14 18/17/13 19/16/13	Zinc		ASTM D5185m	0	20	0	<1
Silicon ppm ASTM D5185m >15 2 <1	Sulfur		ASTM D5185m	10	0	0	0
Sodium ppm ASTM D5185m 3 0 <1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 3 0 <1 Potassium ppm ASTM D5185m >20 0 0 0 FLUID CLEANLINESS method limit/base current limit/base current history1 history2 Particles >4μm ASTM D7647 >5000 1697 2508 5057 Particles >6μm ASTM D7647 >1300 661 626 1849 Particles >14μm ASTM D7647 >160 69 66 247 Particles >21μm ASTM D7647 >40 18 24 76 Particles >38μm ASTM D7647 >3 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >19/17/14 18/17/13 19/16/13 20/18/15 FLUID DEGRADATION method limit/base current history1 history2	Silicon	ppm	ASTM D5185m	>15	2	<1	2
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Particles >4μm ASTM D7647 >5000 1697 2508 ▲ 5057 Particles >6μm ASTM D7647 >1300 661 626 ▲ 1849 Particles >14μm ASTM D7647 >160 69 66 ▲ 247 Particles >21μm ASTM D7647 >40 18 24 ▲ 76 Particles >38μm ASTM D7647 >10 1 1 1 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >19/17/14 18/17/13 19/16/13 ▲ 20/18/15 FLUID DEGRADATION method limit/base current history1 history2	Potassium		ASTM D5185m	>20	0	0	0
Particles >6μm ASTM D7647 >1300 661 626 ▲ 1849 Particles >14μm ASTM D7647 >160 69 66 ▲ 247 Particles >21μm ASTM D7647 >40 18 24 ▲ 76 Particles >38μm ASTM D7647 >10 1 1 1 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >19/17/14 18/17/13 19/16/13 ▲ 20/18/15 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANI	LINESS	s method_	limit/base	current	history1	history2
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Particles >21μm ASTM D7647 >40 18 24 ▲ 76 Particles >38μm ASTM D7647 >10 1 1 1 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >19/17/14 18/17/13 19/16/13 ▲ 20/18/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	661	626	▲ 1849
Particles >38μm ASTM D7647 >10 1 1 1 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >19/17/14 18/17/13 19/16/13 Δ 20/18/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>160	69	66	<u> </u>
Particles >38μm ASTM D7647 >10 1 1 1 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >19/17/14 18/17/13 19/16/13 Δ 20/18/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>40	18	24	▲ 76
Oil Cleanliness ISO 4406 (c) >19/17/14 18/17/13 19/16/13 ▲ 20/18/15 FLUID DEGRADATION method limit/base current history1 history2	•					1	
Oil Cleanliness ISO 4406 (c) >19/17/14 18/17/13 19/16/13 ▲ 20/18/15 FLUID DEGRADATION method limit/base current history1 history2	•		ASTM D7647	>3	0	0	0
					18/17/13	19/16/13	△ 20/18/15
Acid Number (AN) mg KOH/g ASTM D8045 0.03 0.079 0.177 0.137	FLUID DEGRAI	/OITAC	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.03	0.079		0.137



OIL ANALYSIS REPORT







Laboratory Sample No. Lab Number

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 **Unique Number**

: PCA0096791 : 05994297 : 10722657 Test Package : IND 2

Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Received

Diagnosed

Diagnostician

: 31 Oct 2023

: 01 Nov 2023

: Don Baldridge

GALLAGHER CORPORATION

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