

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

QC230213IND2

Component Hydraulic System Fluid AW HYDRAULIC OIL ISO 68 (--- GAL)

DIAGNOSIS

Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

Fluid Condition

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

																								12
																								2
																								17
																								1
																								4
																								1
																								2
																								4
																								17
																								÷
																								1
_	 	 . 4	 		1			4			4	 		-	1	 	 	1.	-	-	4	 		

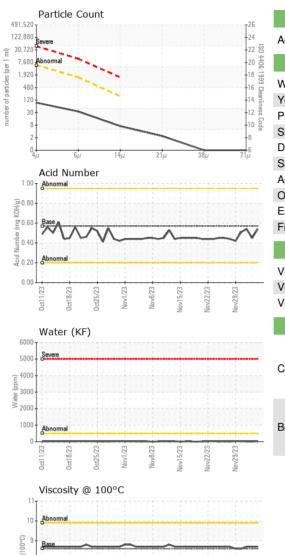


12023 Oct2023 Nov2023 Nov2023 Nov2023 Nov2023 Nov2023 Nov2023

Sample Number Client Info WC0883402 WC0883401 WC0883333 Sample Date Client Info 05 Dec 2023 04 Dec 2023 01 Dec 2023 Machine Age hrs Client Info 0 0 0 0 Oil Age hrs Client Info 0 0 0 0 0 Oil Age hrs Client Info 0 0 0 0 0 Oil Changed Client Info N/A N/A N/A N/A N/A Sample Status Imathod Imathod NORMAL NORMAL NORMAL WEAR METALS method Imit/base current history1 history1 Iron ppm ASTM D5185(m) >20 0 0 0 Kekel ppm ASTM D5185(m) >20 0 0 0 Iron ppm ASTM D5185(m) >20 0 0 0 0 Kekel ppm ASTM D5185(m) >20	-	01 Dec 20 0 N/A NORMAL	04 Dec 2023 0					
Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info 0 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status Imathematical NORMAL NORMAL NORMAL WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185(m) >20 0 0 0 Chromium ppm ASTM D5185(m) >20 0 0 0 Nickel ppm ASTM D5185(m) >20 0 0 0 Titanium ppm ASTM D5185(m) >20 0 0 0	_	0 0 N/A NORMAL	0			Client Info		Sample Number
Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A Sample Status Image Image Image Image NORMAL NORMAL WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185(m) >20 0 0 0 Chromium ppm ASTM D5185(m) >20 0 0 0 Nickel ppm ASTM D5185(m) >20 0 0 0 Titanium ppm ASTM D5185(m) >20 0 0 0		0 N/A NORMAL		05 Dec 2023		Client Info		Sample Date
Oil Changed Client Info N/A N/A N/A Sample Status Image: Client Info N/A NORMAL NORMAL NORMAL WEAR METALS method limit/base current history1 history1 history1 Iron ppm ASTM D5185(m) >20 0 0 0 Chromium ppm ASTM D5185(m) >20 0 0 0 Nickel ppm ASTM D5185(m) >20 0 0 0 Titanium ppm ASTM D5185(m) >20 0 0 0		N/A NORMAL	0	0		Client Info	hrs	Machine Age
Sample StatusImage: StatusNORMALNORMALNORMALNORMALWEAR METALSmethodlimit/basecurrenthistory1history1IronppmASTM D5185(m)>20000ChromiumppmASTM D5185(m)>20000NickelppmASTM D5185(m)>20000TitaniumppmASTM D5185(m)000		NORMAL		0		Client Info	hrs	Oil Age
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185(m) >20 0 0 0 Chromium ppm ASTM D5185(m) >20 0 0 0 Nickel ppm ASTM D5185(m) >20 0 0 0 Titanium ppm ASTM D5185(m) 0 0 0 0			N/A	N/A		Client Info		Oil Changed
Iron ppm ASTM D5185(m) >20 0 0 0 Chromium ppm ASTM D5185(m) >20 0 0 0 0 Nickel ppm ASTM D5185(m) >20 0 0 0 0 Titanium ppm ASTM D5185(m) >20 0 0 0	ry2		NORMAL	NORMAL				Sample Status
Chromium ppm ASTM D5185(m) >20 0 0 0 Nickel ppm ASTM D5185(m) >20 0 0 0 Titanium ppm ASTM D5185(m) O 0 0 0		histor	history1	current	limit/base	method		WEAR METALS
Nickel ppm ASTM D5185(m) >20 0 0 0 Titanium ppm ASTM D5185(m) O 0 0 0		0	0	0	>20	ASTM D5185(m)	ppm	Iron
Titanium ppm ASTM D5185(m) 0 0 0		0	0	0	>20	ASTM D5185(m)	ppm	Chromium
		0	0	0	>20	ASTM D5185(m)	ppm	Nickel
		0	0	0		ASTM D5185(m)	ppm	Titanium
		<1	<1	<1		ASTM D5185(m)	ppm	Silver
Aluminum ppm ASTM D5185(m) >20 <1 0 0		0	0	<1	>20	ASTM D5185(m)		Aluminum
Lead ppm ASTM D5185(m) >20 <1 <1 0		0	<1	<1				Lead
Copper ppm ASTM D5185(m) >20 <1		<1	<1	<1	>20			
Tin ppm ASTM D5185(m) >20 <1								
Antimony ppm ASTM D5185(m) 0 0						. /		Antimony
Vanadium ppm ASTM D5185(m) 0 0 0						× 7		•
Beryllium ppm ASTM D5185(m) 0 0 0		0						
Cadmium ppm ASTM D5185(m) 0 0 0								
ADDITIVES method limit/base current history1 history	ry2	histor	history1	current	limit/base	method		ADDITIVES
Boron ppm ASTM D5185(m) 5 <1 <1 <1		<1	<1	<1	5	ASTM D5185(m)	ppm	Boron
Barium ppm ASTM D5185(m) 5 <1 <1 <1		<1	<1	<1	5	ASTM D5185(m)	ppm	Barium
Molybdenum ppm ASTM D5185(m) 5 0 0 0		0	0	0	5	ASTM D5185(m)	ppm	Molybdenum
Manganese ppm ASTM D5185(m) 0 0		0	0	0		ASTM D5185(m)	ppm	
Magnesium ppm ASTM D5185(m) 25 0 <1		0	<1	0	25	ASTM D5185(m)		Magnesium
Calcium ppm ASTM D5185(m) 200 40 42 43		43	42	40	200	ASTM D5185(m)		Calcium
Phosphorus ppm ASTM D5185(m) 300 324 336 344		344	336	324	300			Dha an hanna
		427	421	413	370			Phosphorus
ZINC ppm ASIMUDIOS(m) 370 413 421 427						ASTIVI DST85(M)	ppm	Zinc
				-	2500	ASTM D5185(m) ASTM D5185(m)	ppm ppm	Zinc
		689	685	677	2500	ASTM D5185(m)	ppm	Zinc Sulfur
Sulfur ppm ASTM D5185(m) 2500 677 685 689	ry2	689 <1	685 <1	677 <1		ASTM D5185(m) ASTM D5185(m)	ppm ppm	Zinc Sulfur Lithium
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) <1	ry2	689 <1 histor	685 <1 history1	677 <1 current	limit/base	ASTM D5185(m) ASTM D5185(m) method	ppm ppm	Zinc Sulfur Lithium CONTAMINANTS
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0	ry2	689 <1 histor 0	685 <1 history1 0	677 <1 current 0	limit/base >15	ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m)	ppm ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0	ry2	689 <1 histor 0 0	685 <1 history1 0 0	677 <1 current 0 0	limit/base >15	ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m)	ppm ppm ppm ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0 Sodium ppm ASTM D5185(m) >15 0 0 0	ry2	689 <1 histor 0 0 0	685 <1 history1 0 0 0	677 <1 current 0 0 0	limit/base >15 >20	ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	ppm ppm ppm ppm ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) < <1 <1 <1 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0 Sodium ppm ASTM D5185(m) >20 0 0 0	ry2	689 <1 histor 0 0 0 0 0	685 <1 <u>history1</u> 0 0 0 0 0.001	677 <1 current 0 0 0 0 0 0.002	limit/base >15 >20 >0.05	ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304*	ppm ppm ppm ppm ppm %	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0 Sodium ppm ASTM D5185(m) >20 0 0 0 Potassium ppm ASTM D5185(m) >20 0 0 0 Water % ASTM D6304* >0.05 0.002 0.001 0.001		689 <1 histor 0 0 0 0 0.001 11	685 <1 <u>history1</u> 0 0 0 0.001 10	677 <1 <u>current</u> 0 0 0 0 0.002 22	limit/base >15 >20 >0.05 >500	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304*	ppm ppm ppm ppm ppm % ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0 Sodium ppm ASTM D5185(m) >20 0 0 0 Potassium ppm ASTM D5185(m) >20 0 0 0 Water % ASTM D6304* >0.05 0.002 0.001 0.001 ppm Water ppm ASTM D6304* >500 22 10 11		689 <1 histor 0 0 0 0.001 11 histor	685 <1 <u>history1</u> 0 0 0 0.001 10 <u>history1</u>	677 <1 current 0 0 0 0 0.002 22 22 current	limit/base >15 >20 >0.05 >500 limit/base	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D6304*	ppm ppm ppm ppm ppm % ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0 Sodium ppm ASTM D5185(m) >15 0 0 0 Potassium ppm ASTM D5185(m) >20 0 0 0 Water % ASTM D6304* >0.05 0.002 0.001 0.001 ppm Water ppm ASTM D6304* >500 22 10 11 FLUID CLEANLINESS method limit/base current history1 history1		689 <1 histor 0 0 0 0.001 11 histor 83	685 <1 0 0 0 0 0 0.001 10 history1 204	677 <1 current 0 0 0 0 0.002 22 22 current 80	limit/base >15 >20 >0.05 >500 limit/base >5000	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D6304* ASTM D6304	ppm ppm ppm ppm ppm % ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185(m) >15 0 0 0 Sodium ppm ASTM D5185(m) >15 0 0 0 Potassium ppm ASTM D5185(m) >20 0 0 0 Water % ASTM D6304* >0.05 0.002 0.001 0.001 ppm Water ppm ASTM D6304* >500 22 10 11 FLUID CLEANLINESS method limit/base current history1 history Particles >4µm ASTM D7647 >5000 80 204 83		689 <1 histor 0 0 0 0 0 0 0 0 0 0 1 1 1 83 83 33	685 <1 history1 0 0 0 0 0.001 10 history1 204 100	677 <1 current 0 0 0 0 0.002 22 22 current 80 30	limit/base >15 >20 >0.05 >500 limit/base >5000 >1300	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647	ppm ppm ppm ppm ppm % ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0 0 Sodium ppm ASTM D5185(m) >15 0		689 <1 histor 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 83 83 33 6	685 <1 history1 0 0 0 0 0.001 10 history1 204 100 26	677 <1 current 0 0 0 0 0.002 22 22 current 80 30 6	limit/base >15 >20 >0.05 >500 limit/base >5000 >1300 >160	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5304* ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647 ASTM D7647	ppm ppm ppm ppm ppm % ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0 Sodium ppm ASTM D5185(m) >20 0 0 0 Potassium ppm ASTM D5185(m) >20 0 0 0 Water % ASTM D6304* >0.05 0.002 0.001 0.001 ppm Water ppm ASTM D6304* >500 22 10 11 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >5000 80 204 83 Particles >6µm ASTM D7647 >1300		689 <1 histor 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 83 83 83 6 4	685 <1 history1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	677 <1 current 0 0 0 0 0.002 22 22 current 80 30 6 2	limit/base >15 >20 >0.05 >500 limit/base >5000 >1300 >160 >40	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	ppm ppm ppm ppm ppm % ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm
Sulfur ppm ASTM D5185(m) 2500 677 685 689 Lithium ppm ASTM D5185(m) 2500 677 685 689 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185(m) >15 0 0 0 Sodium ppm ASTM D5185(m) >15 0 0 0 Potassium ppm ASTM D5185(m) >20 0 0 0 Water % ASTM D6304* >0.05 0.002 0.001 0.001 ppm Water ppm ASTM D6304* >500 22 10 11 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >5000 80 204 83 Particles >6µm ASTM D7647 >1300 30 100 33 Particles >14µm ASTM D7647 160 6		689 <1 histor 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 83 83 83 6 4 0	685 <1 0 0 0 0 0.001 10 history1 204 100 26 12 3	677 <1 current 0 0 0 0 0.002 22 22 current 80 30 6 2 2 0	limit/base >15 >20 >0.05 >500 limit/base >5000 >1300 >160 >40 >10	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	ppm ppm ppm ppm ppm % ppm	Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm Particles >21µm Particles >38µm



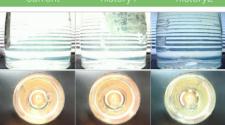
OIL ANALYSIS REPORT

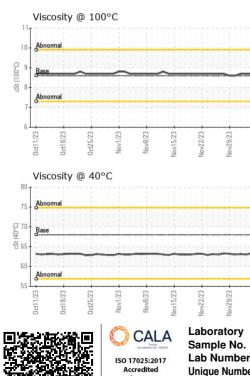


		ام م الدم میں	line it //s s s s		la internet	bieten (O
FLUID DEGRADA		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.57	0.54	0.45	0.54
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	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
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	68	63.3	63.0	63.1
Visc @ 100°C	cSt	ASTM D7279(m)	8.6	8.7	8.7	8.7
Viscosity Index (VI)	Scale	ASTM D2270*	96	110	110	110
SAMPLE IMAGES	3	method	limit/base	current	history1	history2
			-		THE AN	[

Color

Bottom





: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 WearCheck Quality Control Sample Results : WC0883402 Received : 05 Dec 2023 Lab Number : 02600966 Diagnosed : 06 Dec 2023 Burlington, ON Accredited Laboratory Unique Number : 5694051 Diagnostician : Wes Davis CA Test Package : IND 2 (Additional Tests: KF, KV100, TAN Man, VI) Contact: Dorian Anderson To discuss this sample report, contact Customer Service at 1-800-268-2131. dorian.anderson@wearcheck.com Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (289)291-4652 Validity of results and interpretation are based on the sample and information as supplied. F: (905)569-8605

Submitted By: ?

Page 2 of 2