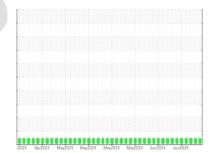


# **OIL ANALYSIS REPORT**

## Sample Rating Trend







Machine Id QC240415IND2

**Hydraulic System** 

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.

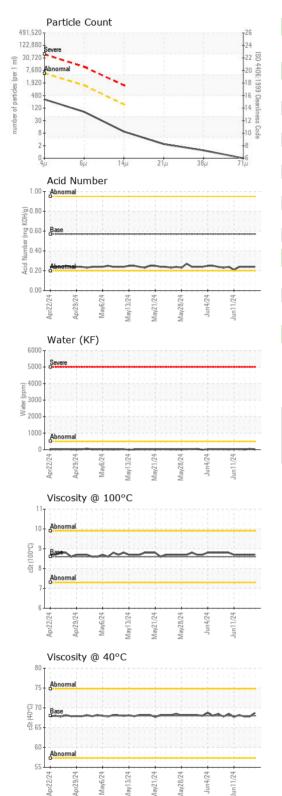
### **Fluid Condition**

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

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0948175	WC0948172	WC0948171
Sample Date		Client Info		17 Jun 2024	14 Jun 2024	13 Jun 2024
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	0	0	0
Chromium	ppm	ASTM D5185(m)	>20	0	0	0
Nickel	ppm	ASTM D5185(m)	>20	<1	0	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>20	0	0	0
Lead	ppm	ASTM D5185(m)	>20	0	0	0
Copper	ppm	ASTM D5185(m)	>20	0	0	0
Tin	ppm	ASTM D5185(m)	>20	0	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)	5	0	0	0
Barium	ppm	ASTM D5185(m)	5	0	0	0
			•		•	•
Molybdenum		, ,	5	0	0	0
Molybdenum Manganese	ppm	ASTM D5185(m)	5	0	0	0
Manganese	ppm	ASTM D5185(m) ASTM D5185(m)		0	0	0
Manganese Magnesium	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	25	0 <1	0	0 <1
Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	25 200	0 <1 49	0 0 47	0 <1 46
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	25 200 300	0 <1 49 233	0 0 47 228	0 <1 46 234
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185(m)	25 200 300 370	0 <1 49 233 300	0 0 47 228 292	0 <1 46 234 296
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	25 200 300	0 <1 49 233 300 5374	0 0 47 228 292 5131	0 <1 46 234 296 5232
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	25 200 300 370 2500	0 <1 49 233 300 5374	0 0 47 228 292 5131 <1	0 <1 46 234 296 5232 <1
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	25 200 300 370 2500	0 <1 49 233 300 5374 <1 current	0 0 47 228 292 5131 <1	0 <1 46 234 296 5232 <1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  method  ASTM D5185(m)	25 200 300 370 2500	0 <1 49 233 300 5374 <1 current 0	0 0 47 228 292 5131 <1 history1	0 <1 46 234 296 5232 <1 history2 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  method  ASTM D5185(m) ASTM D5185(m)	25 200 300 370 2500 limit/base >15	0 <1 49 233 300 5374 <1 current 0 0	0 0 47 228 292 5131 <1 history1 0	0 <1 46 234 296 5232 <1 history2 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  method  ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	25 200 300 370 2500 limit/base >15	0 <1 49 233 300 5374 <1 current 0 0 0	0 0 47 228 292 5131 <1 history1 0 0	0 <1 46 234 296 5232 <1 history2 0 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m) ASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)	25 200 300 370 2500 limit/base >15 >20 >0.05	0 <1 49 233 300 5374 <1 current 0 0 0 0.001	0 0 47 228 292 5131 <1 history1 0 0 0	0 <1 46 234 296 5232 <1 history2 0 0 0 0.001
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304*	25 200 300 370 2500 limit/base >15 >20 >0.05 >500	0 <1 49 233 300 5374 <1 current 0 0 0 0.001 13	0 0 47 228 292 5131 <1 history1 0 0 0 0.004	0 <1 46 234 296 5232 <1 history2 0 0 0 0 0.001 9
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium Water ppm Water  FLUID CLEANLIN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D6304* ASTM D6304*	25 200 300 370 2500 limit/base >15 >20 >0.05 >500 limit/base	0 <1 49 233 300 5374 <1 current 0 0 0 0.001 13 current	0 0 47 228 292 5131 <1 history1 0 0 0 0.004 45 history1	0 <1 46 234 296 5232 <1 history2 0 0 0 0.001 9 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D6304* ASTM D6304*  method ASTM D6304*	25 200 300 370 2500 limit/base >15 >20 >0.05 >500 limit/base >5000	0 <1 49 233 300 5374 <1 current 0 0 0 0.001 13 current 278	0 0 47 228 292 5131 <1 history1 0 0 0 0.004 45 history1 383	0 <1 46 234 296 5232 <1 history2 0 0 0 0.001 9 history2 298
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m) ASTM D5185(m)  MASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304*  MASTM D6304* ASTM D7647 ASTM D7647	25 200 300 370 2500 limit/base >15 >20 >0.05 >500 limit/base >5000 >1300	0 <1 49 233 300 5374 <1 current 0 0 0 0.001 13 current 278 70	0 0 47 228 292 5131 <1 history1 0 0 0 0.004 45 history1 383 106	0 <1 46 234 296 5232 <1 history2 0 0 0 0.001 9 history2 298 82
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium Water ppm Water  FLUID CLEANLIN Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m) ASTM D5185(m)  ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647 ASTM D7647	25 200 300 370 2500 limit/base >15 >20 >0.05 >500 limit/base >5000 >1300 >160	0 <1 49 233 300 5374 <1 current 0 0 0 0.001 13 current 278 70 8	0 0 47 228 292 5131 <1 history1 0 0 0 0.004 45 history1 383 106 9	0 <1 46 234 296 5232 <1 history2 0 0 0 0.001 9 history2 298 82 8
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m) ASTM D5185(m)  MASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304*  MASTM D6304* ASTM D7647 ASTM D7647	25 200 300 370 2500 limit/base >15 >20 >0.05 >500 limit/base >5000 >1300 >160	0 <1 49 233 300 5374 <1 current 0 0 0 0.001 13 current 278 70	0 0 47 228 292 5131 <1 history1 0 0 0 0.004 45 history1 383 106	0 <1 46 234 296 5232 <1 history2 0 0 0 0.001 9 history2 298 82
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium Water ppm Water  FLUID CLEANLIN Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m) ASTM D5185(m)  ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	25 200 300 370 2500 limit/base >15 >20 >0.05 >500 limit/base >5000 >1300 >160 >40 >10	0 <1 <1 <49	0 0 47 228 292 5131 <1 history1 0 0 0 0.004 45 history1 383 106 9	0 <1 46 234 296 5232 <1 history2 0 0 0 0.001 9 history2 298 82 8
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium Water ppm Water  FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m)  MASTM 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	25 200 300 370 2500 limit/base >15 >20 >0.05 >500 limit/base >5000 >1300 >160 >40 >10	0 <1 49 233 300 5374 <1 current 0 0 0 0.001 13 current 278 70 8 2	0 0 47 228 292 5131 <1 history1 0 0 0 0.004 45 history1 383 106 9 3	0 <1 46 234 296 5232 <1 history2 0 0 0 0 0.001 9 history2 298 82 8 3



# **OIL ANALYSIS REPORT**



	TION					
FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.57	0.24	0.24	0.24
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
<b>Emulsified Water</b>	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	68.7	67.8	67.8
Visc @ 100°C	cSt	ASTM D7279(m)	8.6	8.7	8.7	8.7
Viscosity Index (VI)	Scale	ASTM D2270*	96	97	99	99
SAMPLE IMAGES	3	method	limit/base	current	history1	history2
Color						
Bottom						



CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No.

Unique Number : 5799859

: WC0948175 Lab Number : 02642320

To discuss this sample report, contact Customer Service at 1-800-268-2131.

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 WearCheck Quality Control Sample Results

Received : 17 Jun 2024 **Tested** : 18 Jun 2024

Diagnosed : 19 Jun 2024 - Kevin Marson Test Package : IND 2 ( Additional Tests: KF, KV100, VI )

CA Contact: Dorian Anderson dorian.anderson@wearcheck.com T: (289)291-4652

F: (905)569-8605

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.

Submitted By: ?

Burlington, ON