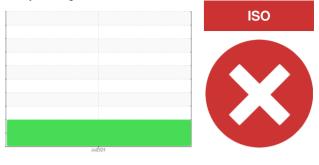
Sample Rating Trend

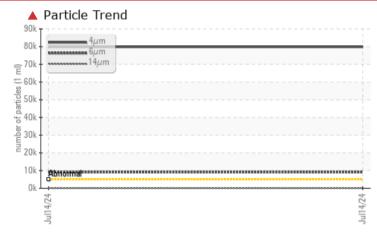


PROBLEM SUMMARY



Machine Id **170640** Component **Drive End Hoist** Fluid **GEAR OIL LS 80W90 (--- GAL)**

COMPONENT CONDITION SUMMARY



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. 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. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) GEAR OIL LS 80W90. Please confirm. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Customer Id: EXXSTJ Sample No.: PP Lab Number: 02647939 Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Kevin Marson +1 (289)291-4644 x4644 <u>Kevin.Marson@wearcheck.com</u>

To change component or sample information: Gloria Gonzalez +1 (289)291-4643 x4643 gloria.gonzalez@wearcheck.com

PROBLEMATIC TEST RESULTS

Sample Status		SEVERE	
Particles >4µm	ASTM D7647 >5	5000 A 79824	
Particles >6µm	ASTM D7647 >1	300 A 9058	
Oil Cleanliness	ISO 4406 (c) >1	9/17/14 🔺 23/20/14	

RECOMMENDED ACTIONS					
Action	Status	Date	Done By	Description	
Change Filter			?	We recommend you service the filters on this component.	
Resample			?	Resample in 30-45 days to monitor this situation.	
Alert			?	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.	
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 Seals			?	Check seals and/or filters for points of contaminant entry.	

Report Id: EXXSTJ [WCAMIS] 02647939 (Generated: 07/16/2024 10:24:09) Rev: 1

HISTORICAL DIAGNOSIS



OIL ANALYSIS REPORT



Machine Id **170640** Component **Drive End Hoist** Fluid **GEAR OIL LS 80W90 (--- 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. 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. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) GEAR OIL LS 80W90. Please confirm. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal.

Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PP		
Sample Date		Client Info		14 Jul 2024		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				SEVERE		
CONTAMINATION	٧	method	limit/base	current	history1	history2
Water		WC Method	>0.05	NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>171	17		
Chromium	ppm	ASTM D5185(m)	>4	<1		
Nickel	ppm	ASTM D5185(m)	>4	<1		
Titanium	ppm	ASTM D5185(m)		0		
Silver	ppm	ASTM D5185(m)		0		
Aluminum	ppm	ASTM D5185(m)	>7	<1		
Lead	ppm	ASTM D5185(m)	>87	0		
Copper	ppm	ASTM D5185(m)	>95	<1		
Tin	ppm	ASTM D5185(m)	>5	0		
Antimony	ppm	ASTM D5185(m)		0		
Vanadium	ppm	ASTM D5185(m)		0		
Beryllium	ppm	ASTM D5185(m)		0		
Cadmium	ppm	ASTM D5185(m)		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base	current 159	history1	history2
	ppm ppm					
Boron Barium	ppm	ASTM D5185(m)		159		
Boron		ASTM D5185(m) ASTM D5185(m)		159 <1		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		159 <1 0		
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	150	159 <1 0 <1		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	150 10 70	159 <1 0 <1 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	150	159 <1 0 <1 <1 6	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	150 10 70 2000	159 <1 0 <1 <1 6 984	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	150 10 70 2000 50	159 <1 0 <1 <1 6 984 10	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	150 10 70 2000 50	159 <1 0 <1 <1 6 984 10 23178		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	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 D5185(m)	150 10 70 2000 50 20000	159 <1 0 <1 <1 6 984 10 23178 4 x		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	150 10 70 2000 50 20000 imit/base	159 <1 0 <1 <1 6 984 10 23178 4 <u>current</u>	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	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 D5185(m)	150 10 70 2000 50 20000 imit/base	159 <1 0 <1 <1 6 984 10 23178 4 x	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	150 10 70 2000 50 20000 limit/base >32	159 <1 0 <1 <1 6 984 10 23178 4 Current <1 2	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	150 10 70 2000 50 20000 limit/base >32 >20	159 <1 0 <1 <1 6 984 10 23178 4 current <1 2 2	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	150 10 70 2000 50 20000 limit/base >32 >20	159 <1 0 <1 <1 6 984 10 23178 4 Current 2 2 2		 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	150 10 70 2000 50 20000 limit/base >32 >20 limit/base >5000	159 <1 0 <1 <1 6 984 10 23178 4 Current <1 2 2 2 Current	 history1 history1 	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	150 10 70 2000 50 20000 limit/base >32 limit/base >20 limit/base >5000 >1300 >160	159 <1 0 <1 <1 6 984 10 23178 4 Current <1 2 2 Current <1 2 2 Current <1 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 Current <1 2 2 2 2 Current <1 2 2 2 2 2 2 2 2 2 2 2 2 2	 history1 history1 	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	150 10 70 2000 50 20000 limit/base >32 limit/base >20 limit/base >5000 >1300 >160	159 <1 0 <1 <1 6 984 10 23178 4 Current <1 2 2 Current ×1 2 ×1 3 ×1 4		 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >6µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	150 10 70 2000 50 20000 imit/base >32 imit/base >20 imit/base >32 i	159 <1 0 <1 <1 6 984 10 23178 4 Current <1 2 2 Current ↓ 79824 ↓ 9058 118 13		 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	150 10 70 2000 50 20000 imit/base >32 imit/base >20 imit/base >32 i mit/base >32 i mit/base	159 <1 0 <1 <1 6 984 10 23178 4 Current <1 2 2 Current ↓ 79824 ↓ 9058 118 13 2		 history2 history2 history2



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OIL ANALYSIS REPORT

4μm 6μm 14μm	Acid Number (AN)	mg KOH/g	ASTM D974*		1.48		
	VISUAL						
bnormal			method	limit/base	current	history1	history2
booma	White Metal	scalar	Visual*	NONE	VLITE		
	Yellow Metal		Visual*	NONE	NONE		
	Precipitate	scalar	Visual*	NONE	NONE		
	Silt		Visual*	NONE	LIGHT		
Juli 4/24	Debris	scalar	Visual*	NONE	NONE		
article Trend	Sand/Dirt	scalar	Visual*	NONE	NONE		
	Appearance	scalar	Visual*	NORML	NORML		
	Odor	scalar	Visual*	NORML	NORML		
	Emulsified Water Free Water	scalar	Visual* Visual*	>0.05	NEG NEG		
		scalar					
	FLUID PROPERT	TIES	method	limit/base	current	history1	history2
inemal	Visc @ 40°C	cSt	ASTM D7279(m)	140	142		
Juli 4/24 -	SAMPLE IMAGES	S	method	limit/base	current	history1	history2
न् cid Number	Color					no image	no image
	Bottom				war so e	no image	no image
	GRAPHS						
- 1	Ferrous Alloys				Particle Count		
E	20 15			491,52			T ²⁶
iscosity @ 40°C	E 10-			122,88	Severe		-24
bnomal	5-			30,72			-22
	24 24			5 Ē 7,68	Abnormal		-20
	Jul14/24			Jul14/24 (per 1 ml)		•	-18
888	Non-ferrous Metal	s		Jul14/24. 1661 [m]	/		-20 -18 -16
bnormal	¹⁰ T			5	•		-14
	E c			quin		1	-12
<i>PC</i> / <i>P</i> 11	5. 5.			3	1		
3	0				3+		10
	Jul14/24			Jul14/24	2-		
	-			٦٢	ο 4μ 6μ	14µ 21µ	38µ 71µ
	Viscosity @ 40°C				Acid Number	0.000	
	160			Acid Number (mg KOH/g)	Ì		
	(Ĵ. 150 67 성 140 - 0 Base			ມີ ມີ	D +		
	ی 140 + م 130 - Abnormal			qm0.	5		
	120			Acid			
	Jul14/24			Jul14/24	Jul14/24		
Laboratory Sample No. Laboratory Laboratory Unique Number Test Package To discuss this sample report	: 5813491 : MAR 2 (Additional Te	Recei Teste Diagr ests: Botte	ived : 15 d : 16 iosed : 16 om, TAN Ma	5 Jul 2024 6 Jul 2024 5 Jul 2024 - Kev 5 n)	Hebron-Mate in Marson	ials and Repair Coordin, S Conta am.m.maher@e	uite 1000, 100 New G St. John`s, N CA A1C 6K ct: Liam Mahe

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Contact/Location: Liam Maher - EXXSTJ Page 4 of 4