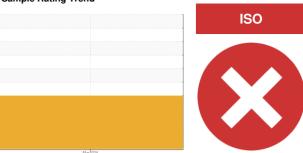


## **PROBLEM SUMMARY**

Sample Rating Trend



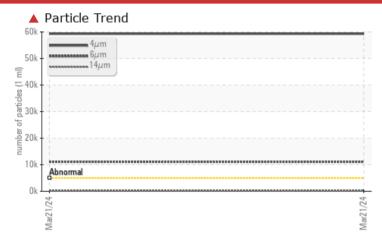
Machine Id

# **TOPWERK TOP WERK**

Component **Hydraulic System** 

AW HYDRAULIC OIL ISO 46 (--- GAL)

### **COMPONENT CONDITION SUMMARY**



### RECOMMENDATION

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. 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.

PROBLEMATIC TEST RESULTS								
Sample Status			SEVERE					
Particles >4µm	ASTM D7647	>5000	▲ 59318					
Particles >6µm	ASTM D7647	>1300	<b>11114</b>					
Oil Cleanliness	ISO 4406 (c)	>19/17/14	<b>23/21/15</b>					

Customer Id: UNIGOR Sample No.: ST

Lab Number: 02627365 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

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

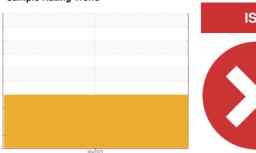
RECOMMENDED ACTIONS							
<b>Action</b> Change Filter	Status	Date	Done By	<b>Description</b> We recommend you service the filters on this component.			
Resample			?	Resample in 30-45 days to monitor this situation.			
Information Required			?	Please specify the brand, type, and viscosity of the oil on your next sample. 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.			

## HISTORICAL DIAGNOSIS



## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id

# TOPWERK TOP WERK

**Hydraulic System** 

AW HYDRAULIC OIL ISO 46 (--- GAL)

## DIAGNOSIS

#### Recommendation

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. 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

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

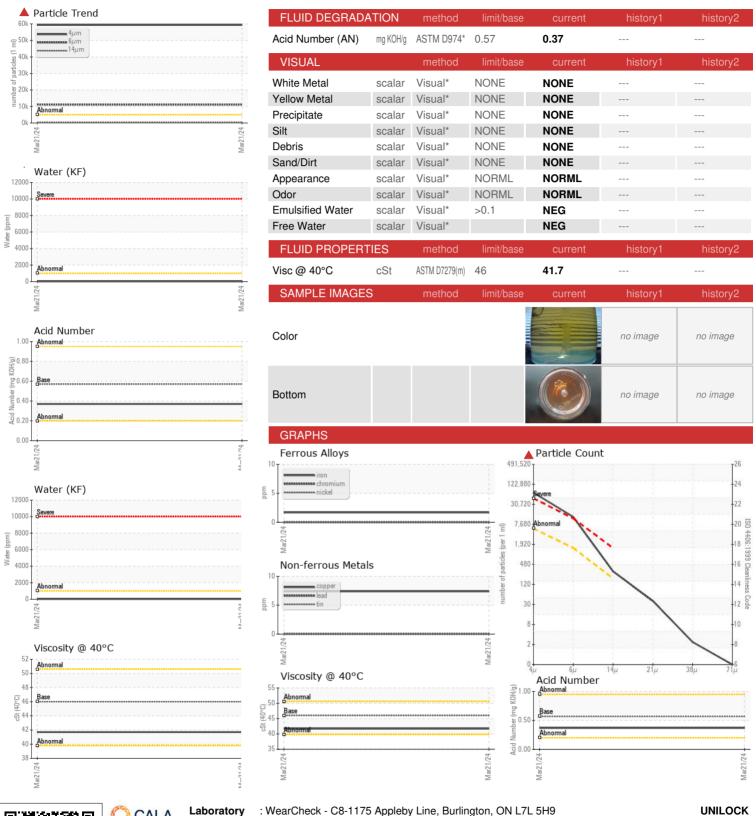
### **Fluid Condition**

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

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           Boron         ppm         ASTM D5185(m)         5         4             Barium         ppm         ASTM D5185(m)         5         0             Molybdenum         ppm         ASTM D5185(m)         5         <1					Mar2024		
Sample Number   Client Info   ST	SAMPLE INFORM	MATION	mothod	limit/basa	ourrent	history1	hietory?
Sample Date   Client Info   21 Mar 2024             Machine Age   hrs   Client Info   0           Oil Age   hrs   Client Info   0         Oil Changed   Client Info   N/A         Sample Status   SEVERE         WEAR METALS   method   limit/base   current   history1   history2     Iron   ppm   ASTM 56185m   >20   2         Chromium   ppm   ASTM 56185m   >10   0         Titanium   ppm   ASTM 56185m   >10   0         Titanium   ppm   ASTM 56185m   >10   0         Lead   ppm   ASTM 56185m   >10   0         Copper   ppm   ASTM 56185m   >10   0         Antimony   ppm   ASTM 56185m   >10   0         Antimony   ppm   ASTM 56185m   0   0         ARTHORIAN   ppm   ASTM 56185m   0   0         ADDITIVES   method   limit/base   current   history1   history2     Boron   ppm   ASTM 56185m   5   4         Barium   ppm   ASTM 56185m   5   0         ADDITIVES   method   limit/base   current   history1   history2     Braind   ppm   ASTM 56185m   5   0         ASTM 56185m   50   323         ASTM 56185m   50   323         Calcium   ppm   ASTM 56185m   25   14         Calcium   ppm   ASTM 56185m   25   14         Calcium   ppm   ASTM 56185m   25   14         Calcium   ppm   ASTM 56185m   20   80         Calcium   ppm   ASTM 56185m   20   323         Calcium   ppm   ASTM 56185m   20   323         Calcium   ppm   ASTM 56185m   20   323         Calcium   ppm   ASTM 56185m   20   420         Calcium   ppm   ASTM 56185m   20   20   40         Calcium   ppm   ASTM 56185m   20   20   40		MATION		IIIIII/Dase		HISTORYT	HISTOLÄS
Machine Age					_		
Oil Age         hrs         Client Info         N/A            Oil Changed         Client Info         N/A            Sample Status         SEVERE            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM DS185(m)         >20         2             Chromium         ppm         ASTM DS185(m)         >10         0             Nickel         ppm         ASTM DS185(m)         >10         0             Aluminum         ppm         ASTM DS185(m)         >10         0             Aluminum         ppm         ASTM DS185(m)         >10         0             Aluminum         ppm         ASTM DS185(m)         >10         0             Copper         ppm         ASTM DS185(m)         >10         0             Tin         ppm         ASTM DS185(m)         0              Vanadium         ppm         ASTM DS185(m) <t< td=""><td>•</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	•						
Oil Changed Sample Status         Client Info         N/A             WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         >20         2             Nickel         ppm         ASTM D5185(m)         >10         0             Nickel         ppm         ASTM D5185(m)         >10         0             Rilver         ppm         ASTM D5185(m)         >10         0             Alluminum         ppm         ASTM D5185(m)         >10         0             Alluminum         ppm         ASTM D5185(m)         >10         0             Lead         ppm         ASTM D5185(m)         >10         0             Copper         ppm         ASTM D5185(m)         >75         7             Tin         ppm         ASTM D5185(m)         0              Astmatinum         ppm         ASTM D5185(m)         0					-		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         >20         2             Chromium         ppm         ASTM D5185(m)         >10         0             Nickel         ppm         ASTM D5185(m)         >10         0             Titanium         ppm         ASTM D5185(m)         >10         0             Aluminum         ppm         ASTM D5185(m)         >10         0             Aluminum         ppm         ASTM D5185(m)         >10         0             Aluminum         ppm         ASTM D5185(m)         >10         0             Lead         ppm         ASTM D5185(m)         >10         0              Lead         ppm         ASTM D5185(m)         >10         0              Vanadium         ppm         ASTM D5185(m)         0              Beryllium <td< td=""><td>•</td><td>nrs</td><td></td><td></td><td>-</td><td></td><td></td></td<>	•	nrs			-		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM DS185(m)         >20         2             Chromium         ppm         ASTM DS185(m)         >10         0             Nickel         ppm         ASTM DS185(m)         >10         0             Silver         ppm         ASTM DS185(m)         >10         0             Aluminum         ppm         ASTM DS185(m)         >0         0             Tin         ppm         ASTM DS185(m)         0              Vanadium         ppm         ASTM DS185(m)         0              Beryllium         ppm         ASTM DS185(m)			Client Info				
Pron	Sample Status				SEVERE		
Chromium         ppm         ASTM D5185(m)         >10         0             Nickel         ppm         ASTM D5185(m)         >10         0             Titanium         ppm         ASTM D5185(m)         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185(m) >10 0	Iron	ppm	ASTM D5185(m)	>20	2		
Titanium   ppm   ASTM D5185(m)	Chromium	ppm	ASTM D5185(m)	>10	0		
Silver	Nickel	ppm	ASTM D5185(m)	>10	0		
Aluminum         ppm         ASTM D5185(m)         >10         <1             Lead         ppm         ASTM D5185(m)         >10         0             Copper         ppm         ASTM D5185(m)         >75         7             Tin         ppm         ASTM D5185(m)         >10         0             Antimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         5         4             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         4             Barium         ppm         ASTM D5185(m)         5         0             Maloybdenum         ppm         ASTM D5185(m)         5         14 <td< td=""><td>Titanium</td><td>ppm</td><td>ASTM D5185(m)</td><td></td><td>&lt;1</td><td></td><td></td></td<>	Titanium	ppm	ASTM D5185(m)		<1		
Lead         ppm         ASTM D5185(m)         >10         0             Copper         ppm         ASTM D5185(m)         >75         7             Tin         ppm         ASTM D5185(m)         10         0             Antimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         5         4             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         4             Barium         ppm         ASTM D5185(m)         5         4             Molybdenum         ppm         ASTM D5185(m)         25         14             Magnesium         ppm         ASTM D5185(m)         20         80	Silver	ppm	ASTM D5185(m)		0		
Copper         ppm         ASTM D5185(m)         >75         7             Tin         ppm         ASTM D5185(m)         >10         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           Boron         ppm         ASTM D5185(m)         5         4             Barium         ppm         ASTM D5185(m)         5         4             Manganesium         ppm         ASTM D5185(m)         5         4             Magnesium         ppm         ASTM D5185(m)         20         80             Calcium         ppm         ASTM D5185(m)         20         80 <td>Aluminum</td> <td>ppm</td> <td>ASTM D5185(m)</td> <td>&gt;10</td> <td>&lt;1</td> <td></td> <td></td>	Aluminum	ppm	ASTM D5185(m)	>10	<1		
Tin ppm ASTM D5185(m) >10 0 Antimony ppm ASTM D5185(m) 0 0	Lead	ppm	ASTM D5185(m)	>10	0		
Antimony ppm ASTM D5185(m) 0	Copper	ppm	ASTM D5185(m)	>75	7		
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           Boron         ppm         ASTM D5185(m)         5         4             Barium         ppm         ASTM D5185(m)         5         4             Molybdenum         ppm         ASTM D5185(m)         5         <1             Manganese         ppm         ASTM D5185(m)         25         14             Manganesium         ppm         ASTM D5185(m)         20         80             Calcium         ppm         ASTM D5185(m)         20         80             Phosphorus         ppm         ASTM D5185(m)         370         420             Sulfur         ppm         ASTM D5185(m)         2500         787	Tin	ppm	ASTM D5185(m)	>10	0		
Beryllium	Antimony	ppm	ASTM D5185(m)		0		
Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         4             Barium         ppm         ASTM D5185(m)         5         0             Molybdenum         ppm         ASTM D5185(m)         5         <1	Vanadium	ppm	ASTM D5185(m)		0		
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         4             Barium         ppm         ASTM D5185(m)         5         0             Molybdenum         ppm         ASTM D5185(m)         5         <1	Beryllium	ppm	ASTM D5185(m)		0		
Boron   ppm   ASTM D5185(m)   5   4             Molybdenum   ppm   ASTM D5185(m)   5   0           Manganese   ppm   ASTM D5185(m)   5   <1           Magnesium   ppm   ASTM D5185(m)   25   14           Calcium   ppm   ASTM D5185(m)   200   80           Phosphorus   ppm   ASTM D5185(m)   300   323           Zinc   ppm   ASTM D5185(m)   370   420           Sulfur   ppm   ASTM D5185(m)   2500   787           Lithium   ppm   ASTM D5185(m)   2500   787           CONTAMINANTS   method   limit/base   current   history1   history2       Sodium   ppm   ASTM D5185(m)   >20   2           Sodium   ppm   ASTM D5185(m)   >20   2           Water   %   ASTM D5185(m)   >20   <1           Water   %   ASTM D60304*   >0.1   0.002           FLUID CLEANLINESS   method   limit/base   current   history1   history2       Particles >4μm   ASTM D7647   >5000   \$59318           Particles >21μm   ASTM D7647   >160   261           Particles >38μm   ASTM D7647   >40   34           Particles >71μm   ASTM D7647   >10   2	Cadmium	ppm	ASTM D5185(m)		0		
Barium         ppm         ASTM D5185(m)         5         0             Molybdenum         ppm         ASTM D5185(m)         5         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum   ppm   ASTM D5185(m)   5   <1         Manganese   ppm   ASTM D5185(m)   0   0       Magnesium   ppm   ASTM D5185(m)   25   14         Calcium   ppm   ASTM D5185(m)   200   80         Phosphorus   ppm   ASTM D5185(m)   300   323         Zinc   ppm   ASTM D5185(m)   370   420         Sulfur   ppm   ASTM D5185(m)   2500   787         Lithium   ppm   ASTM D5185(m)   2500   787         Lithium   ppm   ASTM D5185(m)   2500   787         Lithium   ppm   ASTM D5185(m)   200   2         Sodium   ppm   ASTM D5185(m)   >20   2         Sodium   ppm   ASTM D5185(m)   >20   2         Vater   %   ASTM D5185(m)   >20   <1         Water   %   ASTM D5084*   >0.1   0.002         ppm Water   ppm   ASTM D6304*   >1000   17        FLUID CLEANLINESS   method   limit/base   current   history1   history2     Particles >4μm   ASTM D7647   >5000   ↑ 59318         Particles >6μm   ASTM D7647   >160   261         Particles >21μm   ASTM D7647   >40   34         Particles >38μm   ASTM D7647   >3   0         Particles >71μm   ASTM D7647   >3   0         Particles >71μm   ASTM D7647   >3   0	Boron	ppm	ASTM D5185(m)	5	4		
Manganese         ppm         ASTM D5185(m)         25         14             Calcium         ppm         ASTM D5185(m)         200         80             Phosphorus         ppm         ASTM D5185(m)         300         323             Zinc         ppm         ASTM D5185(m)         370         420             Sulfur         ppm         ASTM D5185(m)         2500         787             Lithium         ppm         ASTM D5185(m)         2500         787             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >20         2             Sodium         ppm         ASTM D5185(m)         >20         2             Potassium         ppm         ASTM D5185(m)         >20         <1	Barium	ppm	ASTM D5185(m)	5	0		
Magnesium         ppm         ASTM D5185(m)         25         14             Calcium         ppm         ASTM D5185(m)         200         80             Phosphorus         ppm         ASTM D5185(m)         300         323             Zinc         ppm         ASTM D5185(m)         370         420             Sulfur         ppm         ASTM D5185(m)         2500         787             Lithium         ppm         ASTM D5185(m)         2500         787             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >20         2             Sodium         ppm         ASTM D5185(m)         >20         <1	Molybdenum	ppm	ASTM D5185(m)	5	<1		
Calcium         ppm         ASTM D5185(m)         200         80             Phosphorus         ppm         ASTM D5185(m)         300         323             Zinc         ppm         ASTM D5185(m)         370         420             Sulfur         ppm         ASTM D5185(m)         2500         787             Lithium         ppm         ASTM D5185(m)         2500         2             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >20         2             Sodium         ppm         ASTM D5185(m)         >20         <1	Manganese	ppm	ASTM D5185(m)		0		
Phosphorus         ppm         ASTM D5185(m)         300         323             Zinc         ppm         ASTM D5185(m)         370         420             Sulfur         ppm         ASTM D5185(m)         2500         787             Lithium         ppm         ASTM D5185(m)         2500         787             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >20         2             Sodium         ppm         ASTM D5185(m)         >20         <1             Potassium         ppm         ASTM D6304*         >0.1         0.002             Water         %         ASTM D6304*         >0.1         0.002             ppm Water         ppm         ASTM D6304*         >1000         17             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647	Magnesium	ppm	ASTM D5185(m)	25	14		
Zinc         ppm         ASTM D5185(m)         370         420             Sulfur         ppm         ASTM D5185(m)         2500         787             Lithium         ppm         ASTM D5185(m)         <1	Calcium	ppm	ASTM D5185(m)	200	80		
Sulfur ppm ASTM D5185(m) 2500 787 Lithium ppm ASTM D5185(m) <1	Phosphorus	ppm	ASTM D5185(m)	300	323		
Lithium ppm ASTM D5185(m) <1	Zinc	ppm	ASTM D5185(m)	370	420		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >20         2             Sodium         ppm         ASTM D5185(m)         >20         <1	Sulfur	ppm	ASTM D5185(m)	2500	787		
Silicon ppm ASTM D5185(m) >20 2 Sodium ppm ASTM D5185(m) 0 Sodium ppm ASTM D5185(m) >20 <1 Sodium ppm ASTM D5185(m) >20 <1 Sodium ppm ASTM D5185(m) >20 <1 Sodium ppm ASTM D6304* >0.1 0.002 Sodium ppm ASTM D6304* >1000 17 Sodium ppm ASTM D6304* >1000 17 Sodium ppm ASTM D7647 >5000	Lithium	ppm	ASTM D5185(m)		<1		
Sodium         ppm         ASTM D5185(m)         0             Potassium         ppm         ASTM D5185(m)         >20         <1	CONTAMINANTS	3	method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185(m)         0             Potassium         ppm         ASTM D5185(m)         >20         <1	Silicon	maa	ASTM D5185(m)	>20	2		
Potassium         ppm         ASTM D5185(m)         >20         <1             Water         %         ASTM D6304*         >0.1         0.002             ppm Water         ppm         ASTM D6304*         >1000         17             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         Δ 59318             Particles >6μm         ASTM D7647         >1300         Δ 11114             Particles >14μm         ASTM D7647         >160         261             Particles >21μm         ASTM D7647         >40         34             Particles >38μm         ASTM D7647         >10         2             Particles >71μm         ASTM D7647         >3         0			. ,				
Water         %         ASTM D6304*         >0.1         0.002             ppm Water         ppm         ASTM D6304*         >1000         17             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         Δ 59318             Particles >6μm         ASTM D7647         >1300         Δ 11114             Particles >14μm         ASTM D7647         >160         261             Particles >21μm         ASTM D7647         >40         34             Particles >38μm         ASTM D7647         >10         2             Particles >71μm         ASTM D7647         >3         0			, ,	>20			
ppm Water         ppm         ASTM D6304*         >1000         17             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         ▲ 59318             Particles >6μm         ASTM D7647         >1300         ▲ 11114             Particles >14μm         ASTM D7647         >160         261             Particles >21μm         ASTM D7647         >40         34             Particles >38μm         ASTM D7647         >10         2             Particles >71μm         ASTM D7647         >3         0			. ,				
Particles >4μm       ASTM D7647       >5000       ▲ 59318           Particles >6μm       ASTM D7647       >1300       ▲ 11114           Particles >14μm       ASTM D7647       >160       261           Particles >21μm       ASTM D7647       >40       34           Particles >38μm       ASTM D7647       >10       2           Particles >71μm       ASTM D7647       >3       0							
Particles >6μm       ASTM D7647       >1300       ▲ 11114           Particles >14μm       ASTM D7647       >160       261           Particles >21μm       ASTM D7647       >40       34           Particles >38μm       ASTM D7647       >10       2           Particles >71μm       ASTM D7647       >3       0	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >6μm       ASTM D7647       >1300       ▲ 11114           Particles >14μm       ASTM D7647       >160       261           Particles >21μm       ASTM D7647       >40       34           Particles >38μm       ASTM D7647       >10       2           Particles >71μm       ASTM D7647       >3       0	Particles >4um		ASTM D7647	>5000	<b>▲</b> 59318		
Particles >14μm       ASTM D7647       >160       261           Particles >21μm       ASTM D7647       >40       34           Particles >38μm       ASTM D7647       >10       2           Particles >71μm       ASTM D7647       >3       0							
Particles >21μm       ASTM D7647       >40       34           Particles >38μm       ASTM D7647       >10       2           Particles >71μm       ASTM D7647       >3       0							
Particles >38μm       ASTM D7647       >10       2           Particles >71μm       ASTM D7647       >3       0							
Particles >71μm   ASTM D7647   >3   <b>0</b>	•						
·	•				2		
	Particles >/1iim						



## **OIL ANALYSIS REPORT**





CALA ISO 17025:2017 Accredited Laboratory

Laboratory

Sample No. Lab Number

: ST : 02627365

Unique Number : 5760497

Diagnosed Test Package : IND 2 ( Additional Tests: KF ) 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.

Received

**Tested** 

: 08 Apr 2024

: 10 Apr 2024

: 10 Apr 2024 - Wes Davis

37 GORMLEY ROAD EAST

GORMLEY, ON CA L0H 1G0 Contact: Virgilio Marcial

virgilio.marcial@unilock.com T: (905)715-3055

F: (905)887-1224

Contact/Location: Virgilio Marcial - UNIGOR