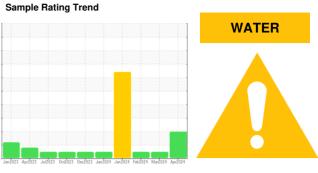


OIL ANALYSIS REPORT





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

Moderate concentration of visible dirt/debris present in the oil. There is a light concentration of water present in the oil.

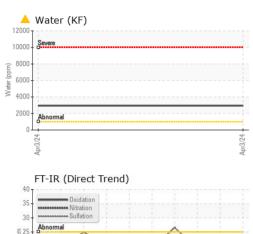
Fluid Condition

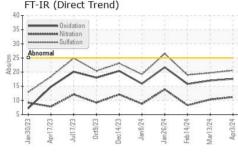
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

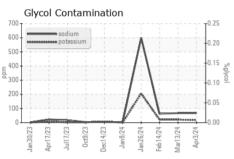
Client Info	GEO LD 15W40 (GAL) Jandozs Audozz Judozz Ocdozz Oudozz Jundoz4 Jundoz4 Febrioz4 Mudoz4 Audoz4 Febrioz4 Mudoz4 Audoz4 Febrioz4 Mudoz4 Febrioz4 Mudoz4 Febrioz4 Mudoz4 Febrioz4 Mudoz4 Febrioz4 Febrio									
Client Info	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2			
Machine Age hrs	Sample Number		Client Info		GFL0117203	GFL0114021	GFL0109823			
Dil Age	Sample Date		Client Info		03 Apr 2024	13 Mar 2024	14 Feb 2024			
Dil Changed Client Info	Machine Age	hrs	Client Info		16050	15918	15760			
Bample Status method limit/base current history1 history2 ron ppm ASTM D5185m >50 20 15 12 Chromium ppm ASTM D5185m >4 2 <1	Oil Age	hrs	Client Info		0	0	0			
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 20 15 12 Chromium ppm ASTM D5185m >4 2 <1	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd			
Description	Sample Status				ABNORMAL	NORMAL	NORMAL			
Chromium ppm ASTM D5185m >4 2 <1 1 Nickel ppm ASTM D5185m >2 <1 0 <1 Titanium ppm ASTM D5185m >2 <1 0 <0 Siliver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 3 <1 3 Lead ppm ASTM D5185m >30 3 <1 3 Copper ppm ASTM D5185m >4 <1 0 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 8 12	WEAR METAL	S	method	limit/base	current	history1	history2			
Nickel	ron	ppm	ASTM D5185m	>50	20	15	12			
Description	Chromium	ppm	ASTM D5185m	>4	2	<1	1			
Saliver	Nickel	ppm	ASTM D5185m	>2	<1	0	<1			
Aluminum ppm ASTM D5185m >9 3 2 2 2 Lead ppm ASTM D5185m >30 3 <1 3 Copper ppm ASTM D5185m >355 18 15 13 Fin ppm ASTM D5185m >4 <1 0 <1 Vanadium ppm ASTM D5185m >0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m 50 0 0 0 Barium ppm ASTM D5185m 50 0 0 0 ADDITIVES 50 8 12 27 Barium ppm ASTM D5185m 50 57 51 54 Wanganese ppm ASTM D5185m 50 57 51 54 Wanganese ppm ASTM D5185m 50 57 51 54 Wanganesium ppm ASTM D5185m 50 578 516 560 Calcium ppm ASTM D5185m 50 578 516 560 Calcium ppm ASTM D5185m 50 793 731 789 Zinc ppm ASTM D5185m 870 1052 905 998 Sulfur ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m >0 11 4 6 Sodium ppm ASTM D5185m >0 11 4 6 Sodium ppm ASTM D5185m >0 10 1 1 4 6 Sodium ppm ASTM D5185m >0 10 1 1 4 6 Sodium ppm ASTM D5185m >0 10 1 1 4 6 Sodium ppm ASTM D5185m >0 10 1 1 4 6 Sodium ppm ASTM D5185m >0 10 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 4 6 Sodium ppm ASTM D5185m >0 1 1 1 0 0 0 INFRA-RED method limit/base current history1 history2 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7844 0.1 0.1 0 0 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm 'ASTM D7414 >25 17.6 17.0 15.8	Titanium	ppm	ASTM D5185m		0	0	0			
Lead ppm ASTM D5185m >30 3 <1 3 Copper ppm ASTM D5185m >35 18 15 13 Tin ppm ASTM D5185m >4 <1 0 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 50 8 12 27 Boron ppm ASTM D5185m 50 0 0 0 Boron ppm ASTM D5185m 50 57 51 54 Boron ppm ASTM D5185m 50 57 51 54 Manganese ppm ASTM D5185m 50 578 516 560 Calcium ppm ASTM D5185m 560 578 516 560 Calcium ppm ASTM D5185m 780 793 731 789 Zinc ppm ASTM D5185m 870 1052 9	Silver	ppm	ASTM D5185m	>3	0	0	0			
Copper ppm ASTM D5185m >35 18 15 13 Tin ppm ASTM D5185m >4 <1	Aluminum	ppm	ASTM D5185m	>9	3	2	2			
Tin	_ead	ppm	ASTM D5185m	>30	3	<1	3			
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 5 0 0 0 Barium ppm ASTM D5185m 5 0 0 0 Molybdenum ppm ASTM D5185m 50 57 51 54 Manganese ppm ASTM D5185m 60 578 516 560 Magnesium ppm ASTM D5185m 660 578 516 560 Calcium ppm ASTM D5185m 780 793 731 789 Pince ppm ASTM D5185m 780 793 731 789 Post ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 hist	Copper	ppm	ASTM D5185m	>35	18	15	13			
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 8 12 27 Barium ppm ASTM D5185m 50 0 0 0 Molybdenum ppm ASTM D5185m 50 57 51 54 Manganese ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>4	<1	0	<1			
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	<1			
Boron	Cadmium	ppm	ASTM D5185m		0	0	0			
Barium ppm ASTM D5185m 5 0 0 0 Molybdenum ppm ASTM D5185m 50 57 51 54 Manganese ppm ASTM D5185m 50 578 516 560 Calcium ppm ASTM D5185m 560 578 516 560 Calcium ppm ASTM D5185m 780 793 731 789 Phosphorus ppm ASTM D5185m 70 1052 905 998 Zinc ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Godium ppm ASTM D5185m >20 18 21 21 Vater % ASTM D5185m >20 18 21 21 Water % ASTM D5185m >20	ADDITIVES		method	limit/base	current	history1	history2			
Molybdenum ppm ASTM D5185m 50 57 51 54 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 578 516 560 Calcium ppm ASTM D5185m 1510 1764 1476 1540 Phosphorus ppm ASTM D5185m 780 793 731 789 Zinc ppm ASTM D5185m 870 1052 905 998 Zinc ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Godium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 Opm Water ppm ASTM D7844	Boron	ppm	ASTM D5185m	50	8	12	27			
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 578 516 560 Calcium ppm ASTM D5185m 1510 1764 1476 1540 Phosphorus ppm ASTM D5185m 780 793 731 789 Zinc ppm ASTM D5185m 870 1052 905 998 Sulfur ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 ppm Water ppm ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 <t< td=""><td>Barium</td><td>ppm</td><td>ASTM D5185m</td><td>5</td><td>0</td><td>0</td><td>0</td></t<>	Barium	ppm	ASTM D5185m	5	0	0	0			
Magnesium ppm ASTM D5185m 560 578 516 560 Calcium ppm ASTM D5185m 1510 1764 1476 1540 Phosphorus ppm ASTM D5185m 780 793 731 789 Zinc ppm ASTM D5185m 870 1052 905 998 Sulfur ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 opm Water ppm ASTM D6304 >1000 2940 Soot % *ASTM D7844 <t< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td>50</td><td>57</td><td>51</td><td>54</td></t<>	Molybdenum	ppm	ASTM D5185m	50	57	51	54			
Calcium ppm ASTM D5185m 1510 1764 1476 1540 Phosphorus ppm ASTM D5185m 780 793 731 789 Zinc ppm ASTM D5185m 870 1052 905 998 Sulfur ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 opm Water ppm ASTM D6304 >1000 2940 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/:mm	Manganese	ppm	ASTM D5185m	0	<1	<1	<1			
Phosphorus ppm ASTM D5185m 780 793 731 789 Zinc ppm ASTM D5185m 870 1052 905 998 Sulfur ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 opm Water ppm ASTM D6304 >1000 2940 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/.1mm *ASTM D7415 >30 <td>Magnesium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>560</td> <td>578</td> <td>516</td> <td>560</td>	Magnesium	ppm	ASTM D5185m	560	578	516	560			
Zinc ppm ASTM D5185m 870 1052 905 998 Sulfur ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m >20 18 21 21 Potassium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 opm Water ppm ASTM D6304 >1000 2940 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7415 <td< td=""><td>Calcium</td><td>ppm</td><td>ASTM D5185m</td><td>1510</td><td>1764</td><td>1476</td><td>1540</td></td<>	Calcium	ppm	ASTM D5185m	1510	1764	1476	1540			
Sulfur ppm ASTM D5185m 2040 3096 2419 2588 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m 67 67 62 Potassium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 opm Water ppm ASTM D6304 >1000 2940 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25	Phosphorus	ppm	ASTM D5185m	780	793	731	789			
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m >20 18 21 21 Potassium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 opm Water ppm ASTM D6304 >1000 2940 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 <	Zinc	ppm	ASTM D5185m	870	1052	905	998			
Solicon ppm ASTM D5185m >+100 11 4 6 Sodium ppm ASTM D5185m 67 67 62 Potassium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 opm Water ppm ASTM D6304 >1000 2940 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8	Sulfur	ppm	ASTM D5185m	2040	3096	2419	2588			
Sodium ppm ASTM D5185m 67 67 62 Potassium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 opm Water ppm ASTM D6304 >1000 2940 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8	CONTAMINAN	TS	method	limit/base	current	history1	history2			
Potassium ppm ASTM D5185m >20 18 21 21 Water % ASTM D6304 >0.1 0.294 opm Water ppm ASTM D6304 >1000 2940 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8	Silicon	ppm	ASTM D5185m	>+100	11	4	6			
Water % ASTM D6304 >0.1 ▲ 0.294 opm Water ppm ASTM D6304 >1000 ▲ 2940 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8	Sodium	ppm	ASTM D5185m		67	67	62			
Oppm Water ppm ASTM D6304 >1000 ▲ 2940 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8	Potassium	ppm	ASTM D5185m	>20	18	21	21			
INFRA-RED	Water	%	ASTM D6304	>0.1	△ 0.294					
Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8	opm Water	ppm	ASTM D6304	>1000	2940					
Nitration Abs/cm *ASTM D7624 >20 11.2 10.3 8.3 Sulfation Abs/.1mm *ASTM D7615 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8	INFRA-RED		method	limit/base	current	history1	history2			
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current bistory1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8	Soot %	%	*ASTM D7844		0.1	0	0			
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 19.7 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8	Nitration	Abs/cm	*ASTM D7624	>20	11.2	10.3	8.3			
Oxidation Abs/.1mm *ASTM D7414 >25 17.6 17.0 15.8										
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2			
	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.6	17.0	15.8			
	Base Number (BN)				5.0	5.4	7.9			

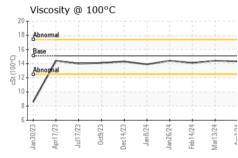


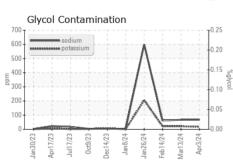
OIL ANALYSIS REPORT

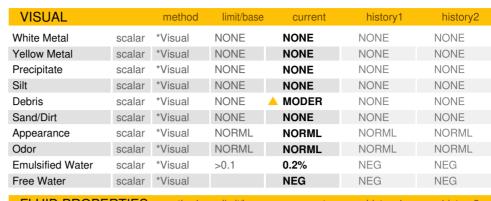






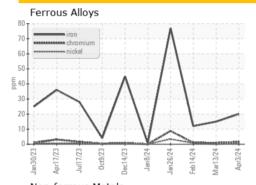


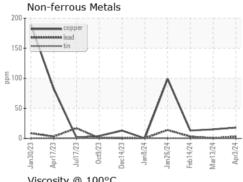


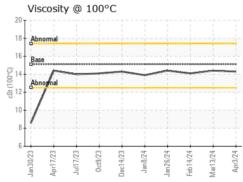


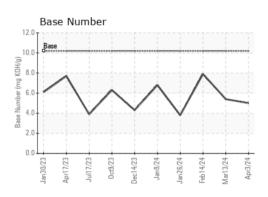
FLUID PROPE	ERITES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.3	14.4	14.1

GRAPHS













Certificate 12367

Laboratory Sample No.

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

: GFL0117203 Lab Number : 06140841 Unique Number: 10965649

Received **Tested**

: 08 Apr 2024 : 10 Apr 2024 Diagnosed

: 10 Apr 2024 - Sean Felton

7801 East Truman Road Kansas City, MO US 64126 Contact: Loyce Stewart

loyce.stewart@gflenv.com

GFL Environmental - 836 - Kansas City Hauling

Test Package : FLEET (Additional Tests: Glycol, KF) 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)

Report Id: GFL836 [WUSCAR] 06140841 (Generated: 04/10/2024 09:02:34) Rev: 1

Contact/Location: GFL823,834,836,837,840 - Loyce Stewart - GFL836

T:

F: