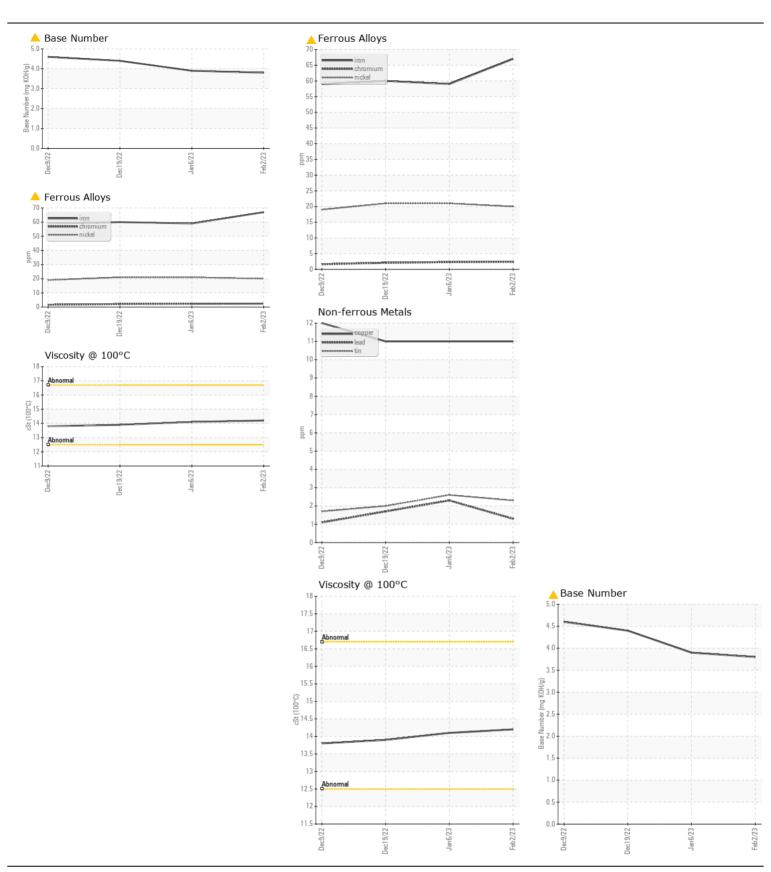
WEAR CONTAMINATION **FLUID CONDITION** **ABNORMAL** NORMAL **ABNORMAL**

GFL/WCA Rent 449

Total	Component Diesel Engine							
Test	Fluid							
Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. Machine Age hrs Client Info 2038 1859 1899 1899 1899 1899 1899 1899 1899 1999								
Sample Date Client Info 0 2 Feb 2023 6 Jan 2023 19 bes 2025 7 Jan 2023 7 Jan 2	Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next		UOM		Limit/Abn		-	
CONTAMINATION CONTAMINATIO		•						
Oil Age hrs Client Info 190 1858 1699 1690 1696 1699 1696 1699 1690 1699			le es					
Filter Age								
Oil Changed Client Info Changed Chang								
Filter Changed Sample Status			nrs			-		
Name							_	Ü
Iron		•		Client Info		_	Ü	Ü
Valve wear is indicated. All other component wear rates are normal. Chromium ppm ASTM D5165m 20 4 20 2 2 2 2 2 1 1 1 1 1		Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Nicke	WEAR	Iron	ppm	ASTM D5185m	>100	67	59	60
Note Pirm ASTM D5185m 3 3 4	Valve wear is indicated. All other component wear rates are normal.	Chromium	ppm	ASTM D5185m	>20	2	2	2
Silver ppm		Nickel	ppm	ASTM D5185m	>4	4 20	<u> </u>	<u></u> 21
Aluminum ppm ASTM D5185m 2-20 4 3 4		Titanium	ppm	ASTM D5185m		3	3	4
Lead ppm ASTM DS185m 340 1 2 2 2		Silver	ppm	ASTM D5185m	>3	0	<1	<1
Copper		Aluminum	ppm	ASTM D5185m	>20	4	3	4
Tin		Lead	ppm	ASTM D5185m	>40	1	2	2
Vanadium Vanadium Vanadium White Metal Scalar Visual NONE NONE		Copper	ppm	ASTM D5185m	>330	11	11	11
White Metal Yellow Metal Scalar Visual NONE NONE NONE NONE NONE NONE NONE NON		Tin	ppm	ASTM D5185m	>15	2	3	2
Vellow Metal Scalar Visual NONE NONE NONE NONE NONE		Vanadium	ppm	ASTM D5185m		0	0	0
Potassium ppm ASTM D5185m 2-2 11 8 11		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Potassium ppm ASTM D5185m > 20 7 4 4 4		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Potassium ppm ASTM D5185m > 20 7 4 4 4	CONTABUNATION	0'''		AOTA DE LOS	0.5			
Fue WC Method So VC Method So VC Method NeG	CONTAMINATION							
Water	There is no indication of any contamination in the oil.		ppm					
Glycol WC Method NEG NEG NEG Soot % % 'ASTM D7844 3 0.9 0.9 1								
Soot % % 'ASTM D7844 >3					>0.2			
Nitration Abs/cm *ASTM D7624 >20 13.3 13.2 14.2		-	0/		0			
Sulfation Abs/.fmm *ASTM D7415 >30 27.0 26.9 29.5								
Silt Scalar *Visual NONE NORML NORML								
Debris Scalar *Visual NONE NONE NONE NONE Sand/Dirt Scalar *Visual NONE NORML N								
Sand/Dirt Scalar *Visual NONE NONE NONE NONE Appearance Scalar *Visual NORML NORM								
Appearance								
Odor scalar *Visual NORML NORML </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>								
Emulsified Water scalar *Visual >0.2 NEG NEG NEG								
FLUID CONDITION Boron ppm ASTM D5185m 9 10 10 Boron ppm ASTM D5185m 21 22 36 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 97 97 99 Magnesium ppm ASTM D5185m 3 2 3 Magnesium ppm ASTM D5185m 688 715 688 Calcium ppm ASTM D5185m 1407 1551 1517 Phosphorus ppm ASTM D5185m 732 749 720 Zinc ppm ASTM D5185m 936 935 867 Sulfur ppm ASTM D5185m 2310 2545 2615 Oxidation Abs/.1mm "ASTM D7414">ASTM D7414 >25 26.2 26.0 28.7 Base Number (BN) mg KOH/g ASTM D2896 3.8 3.9 4.4								
Boron ppm ASTM D5185m 21 22 36	<u></u>		Scalar	Visuai	>0.2	NEG	NEG	NEG
The BN level is low. The condition of the oil is acceptable for the time in service. Barium ppm ASTM D5185m 97 97 99	FLUID CONDITION	Sodium	ppm	ASTM D5185m		9	10	10
Molybdenum ppm ASTM D5185m 97 97 99	Ti Bill III Ti III Ci III Ci III	Boron	ppm	ASTM D5185m		21	22	36
Molybdenum ppm ASIM D5185m 97 99 Manganese ppm ASTM D5185m 3 2 3 Magnesium ppm ASTM D5185m 688 715 688 Calcium ppm ASTM D5185m 1407 1551 1517 Phosphorus ppm ASTM D5185m 732 749 720 Zinc ppm ASTM D5185m 936 935 867 Sulfur ppm ASTM D5185m 2310 2545 2615 Oxidation Abs/.1mm *ASTM D7414 >25 26.2 26.0 28.7 Base Number (BN) mg KOH/g ASTM D2896 3.8 3.9 4.4	·	Barium	ppm	ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 688 715 688 Calcium ppm ASTM D5185m 1407 1551 1517 Phosphorus ppm ASTM D5185m 732 749 720 Zinc ppm ASTM D5185m 936 935 867 Sulfur ppm ASTM D5185m 2310 2545 2615 Oxidation Abs/.1mm *ASTM D7414 >25 26.2 26.0 28.7 Base Number (BN) mg KOH/g ASTM D2896 △ 3.8 △ 3.9 4.4		Molybdenum	ppm	ASTM D5185m		97	97	99
Calcium ppm ASTM D5185m 1407 1551 1517 Phosphorus ppm ASTM D5185m 732 749 720 Zinc ppm ASTM D5185m 936 935 867 Sulfur ppm ASTM D5185m 2310 2545 2615 Oxidation Abs/.1mm *ASTM D7414 >25 26.2 26.0 28.7 Base Number (BN) mg KOH/g ASTM D2896 A 3.8 3.9 4.4		Manganese	ppm	ASTM D5185m		3	2	3
Calcium ppm ASTM D5185m 1407 1551 1517 Phosphorus ppm ASTM D5185m 732 749 720 Zinc ppm ASTM D5185m 936 935 867 Sulfur ppm ASTM D5185m 2310 2545 2615 Oxidation Abs/.1mm *ASTM D7414 >25 26.2 26.0 28.7 Base Number (BN) mg KOH/g ASTM D2896 A 3.8 3.9 4.4		Magnesium	ppm	ASTM D5185m		688	715	688
Zinc ppm ASTM D5185m 936 935 867 Sulfur ppm ASTM D5185m 2310 2545 2615 Oxidation Abs/.1mm *ASTM D7414 >25 26.2 26.0 28.7 Base Number (BN) mg KOH/g ASTM D2896 ▲ 3.8 ▲ 3.9 4.4		Calcium	ppm			1407	1551	1517
Sulfur ppm ASTM D5185m 2310 2545 2615 Oxidation Abs/.1mm *ASTM D7414 >25 26.2 26.0 28.7 Base Number (BN) mg KOH/g ASTM D2896 ▲ 3.8 ▲ 3.9 4.4		Phosphorus	ppm	ASTM D5185m		732	749	720
Oxidation Abs/.1mm *ASTM D7414 >25 26.2 26.0 28.7 Base Number (BN) mg KOH/g ASTM D2896 A 3.8 3.9 4.4		Zinc	ppm	ASTM D5185m		936	935	867
Base Number (BN) mg KOH/g ASTM D2896 ▲ 3.8 ▲ 3.9 4.4		Sulfur	ppm	ASTM D5185m		2310	2545	2615
		Oxidation	Abs/.1mm	*ASTM D7414	>25	26.2	26.0	28.7
Visc @ 100°C cSt ASTM D445 14.1 13.9		Base Number (BN)	mg KOH/g	ASTM D2896		▲ 3.8	▲ 3.9	4.4
		Visc @ 100°C	cSt	ASTM D445		14.2	14.1	13.9





Certificate L2367

Laboratory Sample No. Lab Number **Unique Number**

: GFL0046901

: 05762767 : 10332375 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 08 Feb 2023

Diagnosed : 10 Feb 2023 Diagnostician : Don Baldridge GFL Environmental - 9999 - Moved No Longer Used Units

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)

US

T:

F:

Contact: