WEAR CONTAMINATION FLUID CONDITION

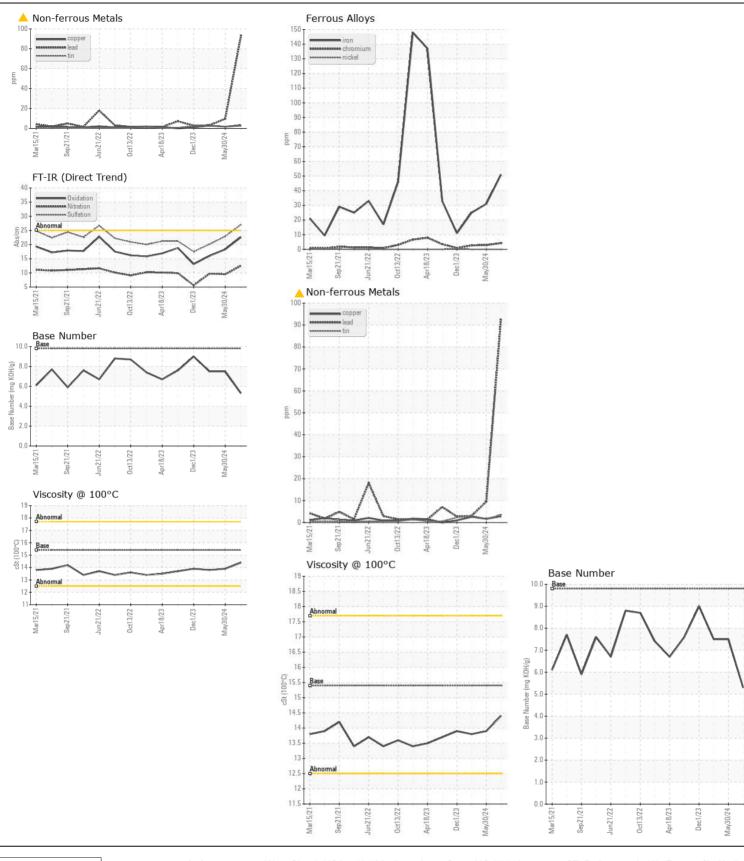
ABNORMAL NORMAL NORMAL

Machine Id

527029-734

Component
Diesel Engine

CONTAMINATION  There is no indication of any contamination in the oil.  Fuel  Water  Glycol  Soot %  Nitration Abs.  Sulfation Sulfation Abs.  Silt Sca Debris Sca Sand/Dirt Sca	Client Info Client Info S Client Info S Client Info S Client Info O M ASTM D5185n ASTM D5185n ASTM D5185n ASTM D5185n ASTM D5185n M ASTM D5185n M ASTM D5185n ASTM D5185n M	n >100 n >20 n >4 n >3 n >20 n >40 n >3 n >20 n >40 n NONE NONE	GFL0120903 02 Jul 2024 15376 655 655 Changed Changed ABNORMAL  51 4 0 0 0 3 ▲ 93 3 4 0 NONE	History1 GFL0120859 30 May 2024 15117 450 450 Not Changd NORMAL  31 3 0 0 0 2 10 2 2 0	History2 GFL010304 17 Jan 202 14521 575 575 Changed Changed ABNORMA 25 3 0 0 3 3 3 3
corrective action is recommended at this time. Resample at the next service interval to monitor.    Machine Age   hrs   Oil Age   hrs   Filter Age   hrs   Oil Changed   Filter Age   hrs   Oil Changed   Filter Changed   Sample Status	Client Info S Client Info Client Info Client Info Client Info Client Info Client Info Om ASTM D5185n Om ASTM D5185n	n >100 n >20 n >4 n >3 n >20 n >40 n >330 n >15 n NONE NONE	15376 655 655 Changed Changed ABNORMAL 51 4 0 0 0 3 ▲ 93 3 4 0 NONE	15117 450 450 Not Changd Not Changd NORMAL 31 3 0 0 2 10 2	14521 575 575 Changed Changed ABNORMA 25 3 0 0 0 3 3 3
Service interval to monitor.    Machine Age   hrs	S Client Info Client Info Client Info Client Info Client Info Client Info Om ASTM D5185r Om ASTM D5185r	n >100 n >20 n >4 n >3 n >20 n >40 n >330 n >15 n NONE NONE	655 655 Changed Changed ABNORMAL  51 4 0 0 3 ▲ 93 3 4 0 NONE	15117 450 450 Not Changd Not Changd NORMAL 31 3 0 0 2 10 2	575 575 Changed Changed ABNORMA 25 3 0 0 3 3 3
NEAR The lead level is abnormal. All other component wear rates are normal.  NEAR The lead level is abnormal. All other component wear rates are normal.  Nickel por Titanium por Silver por Aluminum por Copper por Tin Vanadium por Vanadium	Client Info Client Info Client Info Client Info Client Info Om ASTM D5185r Om ASTM D5185r	n >100 n >20 n >4 n >3 n >20 n >40 n >3 n >15 n NONE NONE	655 Changed Changed ABNORMAL  51 4 0 0 3  93 3 4 0 NONE	450 Not Changd Not Changd NORMAL  31 3 0 0 2 10 2 2	Changed Changed ABNORMA  25  3  0  0  3  3  3
NEAR The lead level is abnormal. All other component wear rates are normal.  The lead level is abnormal. All other component wear rates are normal.  Iron ppr Chromium ppr Silver ppr Aluminum ppr Aluminum ppr Vanadium Vater Glycol Soot % Nitration Abs Sulfation Abs Sulfa	Client Info ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r Client Info Cl	n >100 n >20 n >4 n >3 n >20 n >40 n >330 n >15 n NONE NONE	Changed Changed ABNORMAL  51 4 0 0 3 ▲ 93 3 4 0 NONE	Not Changd Not Changd NORMAL 31 3 0 0 0 2 10 2	Changed Changed ABNORMA  25 3 0 0 3 3 3
VEAR The lead level is abnormal. All other component wear rates are normal.  Iron ppr Chromium ppr Nickel ppr Titanium ppr Silver ppr Aluminum ppr Vanadium ppr Vallow Metal sca Yellow Metal sca Yellow Motal sca Silicon ppr Fuel Water Glycol Soot % % Nitration Abs Sulfation Abs Sulfati	Client Info  Om ASTM D5185r	n >100 n >20 n >4 n >3 n >20 n >40 n >330 n >15 n NONE NONE	Changed ABNORMAL  51 4 0 0 3 ▲ 93 3 4 0 NONE	Not Changd NORMAL 31 3 0 0 0 2 10 2	Changed ABNORMA 25 3 0 0 0 3 3 3
VEAR  The lead level is abnormal. All other component wear rates are normal.  The lead level is abnormal. All other component wear rates are normal.  The lead level is abnormal. All other component wear rates are normal.  If no ppr Titanium ppr Aluminum ppr Lead ppr Copper ppr Tin ppr Vanadium Valer Glycol Soot % % Nitration Abs Sulfation Abs Sulfa	ASTM D5185r	n >100 n >20 n >4 n >3 n >20 n >40 n >330 n >15 n NONE NONE	51 4 0 0 0 3 ▲ 93 3 4 0 NONE	31 3 0 0 0 2 10 2	25 3 0 0 0 3 3 3
The lead level is abnormal. All other component wear rates are normal.  The lead level is abnormal. All other component wear rates are normal.  The lead level is abnormal. All other component wear rates are normal.  Titanium ppr Silver ppr Aluminum ppr Lead ppr Copper ppr Tin ppr Vanadium Als Silicon ppr Vanadium ppr Van	ASTM D5185r	n >20 n >4 n >3 n >20 n >40 n >330 n >15 n NONE NONE	51 4 0 0 0 3 • 93 3 4 0 NONE	31 3 0 0 0 2 10 2	25 3 0 0 0 0 3 3
The lead level is abnormal. All other component wear rates are normal.  Chromium ppr Nickel ppr Titanium ppr Aluminum ppr Aluminum ppr Copper ppr Tin ppr Vanadium ppr White Metal sca Yellow Metal sca Yellow Metal sca Yellow Metal sca Yellow Metal sca Scand ppr Eugle Water Glycol Scot % Nitration Abs Sulfation Abs/Sulfation Abs/Sulfation Abs/Sulfation Abs/Sulfation Abs/Sulfation Abs/Sulfation Abs/Sulfation Abs/Sulfation Scand/Dirt scand Appearance scand Dirt scand Appearance scand Dirt scand Appearance scand Dirt scand Appearance scand Dirt sc	ASTM D5185r	n >20 n >4 n >3 n >20 n >40 n >330 n >15 n NONE NONE	4 0 0 0 3 ▲ 93 3 4 0 NONE	3 0 0 0 2 10 2	3 0 0 0 3 3
Chromium ppr Nickel ppr Titanium ppr Aluminum ppr Aluminum ppr Copper ppr Tin ppr Vanadium Vanadium ppr Vanadium Vanadium ppr Vanadium Vanadiu	ASTM D5185r	n >20 n >4 n >3 n >20 n >40 n >330 n >15 n NONE NONE	4 0 0 0 3 ▲ 93 3 4 0 NONE	3 0 0 0 2 10 2	3 0 0 0 3 3
The lead level is abnormal. All other component wear rates are normal.  Nickel ppr Titanium ppr Silver ppr Aluminum ppr Copper ppr Tin ppr Vanadium ppr Vanadium ppr Vanadium ppr Value Metal sca Yellow Metal sca Silicon ppr Fuel Water Glycol Soot % % Nitration Abs Sulfation Abs Sulfation Abs Silt sca Sand/Dirt sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca  FLUID CONDITION  The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.  Sodium ppr Boron ppr Boron ppr Boron ppr Boron ppr Boron ppr Molybdenum ppr Molybdenum ppr	ASTM D5185r	n >4 n >3 n >20 n >40 n >33 n >20 n >40 n >330 n >15 n NONE NONE	0 0 0 3 ▲ 93 3 4 0 NONE	0 0 0 2 10 2	0 0 0 3 3 3
Titanium por Silver ppr Aluminum ppr Lead ppr Copper ppr Tin ppr Vanadium ppr White Metal sca Yellow Metal sca Yellow Metal sca Yellow Metal sca Yellow Metal sca Scand/Dirt scandium ppr Potassium ppr Potassium ppr Fuel Water Glycol Soot % Nitration Abs. Silt scand/Dirt scandidates that there is suitable alkalinity remaining in the soil. Sodium ppr Boron ppr Molybdenum ppr Molybd	ASTM D5185r	n >3 n >20 n >40 n >330 n >15 n NONE NONE	0 0 3 \$\rightarrow\$ 93 3 4 0 NONE	0 0 2 10 2 2	0 0 3 3 3 3
Silver ppr Aluminum ppr Lead ppr Copper ppr Tin ppr Vanadium ppr White Metal sca Yellow Metal sca Yellow Metal sca Silicon ppr Potassium ppr Fuel Water Glycol Soot % Nitration Abs Sulfation Abs Sulfation Abs Sulfation Abs Silt sca Debris sca Sand/Dirt sca Appearance codor sca Emulsified Water sca  FLUID CONDITION The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.	om ASTM D5185r alar *Visual om ASTM D5185r om ASTM D5185r alar ASTM D5185r	n >3 n >20 n >40 n >330 n >15 n NONE NONE	0 3 • 93 3 4 0 NONE	0 2 10 2 2	0 3 3 3
Aluminum por Lead ppr Copper ppr Tin ppr Vanadium ppr White Metal sca Yellow Metal sca Naturation of Abs. Silicon ppr Fuel Water Glycol Soot % % Nitration Abs. Silt sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca Yellow Metal Yellow Metal Yellow Metal Yellow Metal Sca Yellow Metal Y	ASTM D5185r	n >20 n >40 n >330 n >15 n NONE NONE	3 • 93 3 4 0 NONE	2 10 2 2	3 3
Lead ppr Copper ppr Tin ppr Vanadium ppr White Metal sca Yellow Metal sca Silicon ppr Potassium ppr Fuel Water Glycol Soot % Nitration Abs/ Sulfation Abs/ Silt sca Debris sca Debris sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca	ASTM D5185r	n >40 n >330 n >15 n NONE NONE	93 3 4 0 NONE	10 2 2	3
Copper Tin ppr Vanadium ppr White Metal sca Yellow Metal	ASTM D5185r ASTM D5185r ASTM D5185r alar *Visual alar *Visual ASTM D5185r ASTM D5185r ASTM D5185r	NONE NONE NONE	3 4 0 NONE	2 2	3
Vanadium White Metal sca Yellow Metal sca Yellow Metal sca Yellow Metal sca Silicon ppr Potassium ppr Fuel Water Glycol Soot % Nitration Abs/ Sulfation Abs/ Silt sca Debris sca Sand/Dirt sca Appearance odor Emulsified Water sca  LUID CONDITION The BN result indicates that there is suitable alkalinity remaining in the oil.  Silt potable sca Sodium ppr Boron ppr Boron ppr Molybdenum ppr Molybdenum ppr Molybdenum ppr	om ASTM D5185r alar *Visual alar *Visual  ASTM D5185r om ASTM D5185r om ASTM D5185r	NONE NONE NONE	0 NONE		2
White Metal Scale Yellow Metal Potassium Scale Yellow Metal Potassium Poper Glycol Scot % Nitration Abstraction Abst	alar *Visual alar *Visual om ASTM D5185r om ASTM D5185r	NONE NONE >25	NONE	0	3
There is no indication of any contamination in the oil.  Silicon ppr Potassium ppr Fuel Water Glycol Soot % % Nitration Abs/ Silt sca Debris sca Sand/Dirt sca Appearance odor sca Emulsified Water sca  Solum ppr Boron ppr Boron ppr Barium ppr Molybdenum ppr	alar *Visual om ASTM D5185r om ASTM D5185r	NONE >25			0
CONTAMINATION There is no indication of any contamination in the oil.  Silicon ppr Potassium ppr Fuel Water Glycol Soot % % Nitration Abs/ Sulfation Abs/ Silt sca Debris sca Sand/Dirt sca Appearance Sca Codor sca Emulsified Water sca  Sodium ppr Boron ppr Boron ppr Barium ppr Molybdenum ppr	om ASTM D5185r om ASTM D5185r	n >25	NONE	NONE	NON
There is no indication of any contamination in the oil.  Potassium Fuel Water Glycol Soot % % Nitration Abs/ Sulfation Abs/ Silt sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water Codor sca Emulsified Water Sodium ppr Boron ppr Boron ppr Barium ppr Molybdenum ppr Molybdenum ppr	ASTM D5185r			NONE	NONI
There is no indication of any contamination in the oil.  Potassium Fuel  Water Glycol Soot % Nitration Abs/ Sulfation Abs/ Silt sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water Codor sca Emulsified Water Soot % Nitration Abs/ Silt sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca  LUID CONDITION  The BN result indicates that there is suitable alkalinity remaining in the iil. The condition of the oil is suitable for further service.  Potassium ppr Soot % No Nitration Abs/ Sulfation Abs/ Sodium ppr Boron ppr Boron ppr Molybdenum ppr	ASTM D5185r		16	8	<u>^</u> 29
There is no indication of any contamination in the oil.  Fuel  Water  Glycol  Soot % %  Nitration Abs/ Silt sca  Debris sca  Sand/Dirt sca  Appearance sca  Odor sca  Emulsified Water  Glycol  Soit % %  Nitration Abs/ Silt sca  Debris sca  Sand/Dirt sca  Appearance sca  Odor sca  Emulsified Water sca  LUID CONDITION  The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.  Sodium ppr  Boron ppr  Boron ppr  Molybdenum ppr  Molybdenum ppr			1	0	0
Water Glycol Soot % % Nitration Abs/ Sulfation Abs/ Silt sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca  FLUID CONDITION The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.  Water Glycol Soot % % Nitration Abs/ Sulfation Abs/ Sulfation Abs/ Sulfation Abs/ Solit sca Emulsified Water sca  Sodium ppr Boron ppr Boron ppr Molybdenum ppr Molybdenum ppr	WC Method	d >5	<1.0	<1.0	<1.0
Glycol Soot % % Nitration Abs/ Sulfation Abs/ Silt sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca  LUID CONDITION The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.  Glycol Soot % % Nitration Abs/ Sulfation Abs/ Sodium ppr Boron ppr Boron ppr Barium ppr Molybdenum ppr	WC Method		NEG	NEG	NEG
Soot % Nitration Abs. Sulfation Abs. Silt sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca  FLUID CONDITION The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is suitable for further service.  Soot % Nitration Abs. Sulfation Abs. Sodium permits sca Boron permits arium permits pe	WC Method		NEG	NEG	NEG
Sulfation Abs/ Silt sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca  FLUID CONDITION The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is suitable for further service.  Sulfation Abs/ Silt sca Sand/Dirt sca Emulsified Water sca  Sodium ppr Boron ppr Barium ppr Molybdenum ppr	*ASTM D784	4 >3	1.3	0.7	0.7
Silt sca Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca  FLUID CONDITION  The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is suitable for further service.  Sodium ppr Boron ppr Boron ppr Molybdenum ppr Molybdenum ppr	s/cm *ASTM D762	4 >20	12.5	9.5	9.7
Debris sca Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca  **LUID CONDITION**  The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.  Debris sca Sand/Dirt sca Appearance odder Emulsified Water sca  Sodium ppr Boron ppr Barium ppr Molybdenum ppr	s/.1mm *ASTM D741	5 >30	27.0	22.9	20.1
Sand/Dirt sca Appearance sca Odor sca Emulsified Water sca  **ELUID CONDITION**  The BN result indicates that there is suitable alkalinity remaining in the sil. The condition of the oil is suitable for further service.  Sodium ppr Boron ppr Barium ppr Molybdenum ppr	alar *Visual	NONE	NONE	NONE	NON
Appearance odor sca Emulsified Water sca  **ELUID CONDITION**  The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.  Appearance odder scale and present the scale alkalinity remaining in the oil. The condition of the oil is suitable for further service.  Appearance odder scale alkalinity remaining in the oil is suitable for further service.	alar *Visual	NONE	NONE	NONE	NON
Codor sca Emulsified Water sca  LUID CONDITION  The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is suitable for further service.  Odor sca Emulsified Water sca  Sodium ppr Boron ppr Barium ppr Molybdenum ppr	alar *Visual	NONE		NONE	NON
Emulsified Water sca  FLUID CONDITION  The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is suitable for further service.  Emulsified Water scale ppr  Boron ppr  Barium ppr  Molybdenum ppr	alar *Visual	NORML	1	NORML	NORN
The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is suitable for further service.  Sodium ppr Boron ppr Barium ppr Molybdenum ppr		NORML	NORML	NORML	NORN
he BN result indicates that there is suitable alkalinity remaining in the il. The condition of the oil is suitable for further service.  Boron Barium ppr Molybdenum ppr	alar *Visual	>0.2	NEG	NEG	NEG
he BN result indicates that there is suitable alkalinity remaining in the il. The condition of the oil is suitable for further service.  Barium ppr Molybdenum ppr	om ASTM D5185r	n	7	6	4
il. The condition of the oil is suitable for further service.  Molybdenum ppr	om ASTM D5185r	n 0	2	0	6
Molybdenum ppr	om ASTM D5185r	n 0	<1	<1	2
Manganese nnr			63	62	59
			1	<1	3
<b>Magnesium</b> ppr			1022	964	883
<b>Calcium</b> ppr	A C T A D T A C T	n 1070	1215	1176	1046
Phosphorus ppr			1116	1074	930
Zinc ppr	ASTM D5185r	1270	1349	1282	1232
Sulfur ppr	om ASTM D5185n		3142	3278	2818
	ASTM D5185r ASTM D5185r ASTM D5185r	2060	22.6	18.3	16.0
Base Number (BN) mg K Visc @ 100°C cSt	ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r *ASTM D741	2060 4 >25	5.3	7.5	7.5 13.8







Certificate L2367

Laboratory Sample No.

: GFL0120903 Lab Number : 06229542 Unique Number : 11113035 Test Package : FLEET

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

**Tested** Diagnosed

: 05 Jul 2024 : 09 Jul 2024 : 09 Jul 2024 - Don Baldridge

GFL Environmental - 622 - Traverse City Hauling

160 Hughes Dr Traverse City, MI US 49686

Contact: GARY BREWER

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)

T: F: