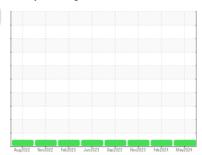


OIL ANALYSIS REPORT

Sample Rating Trend









DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

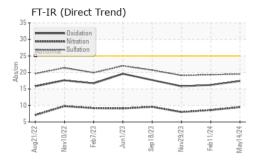
Fluid Condition

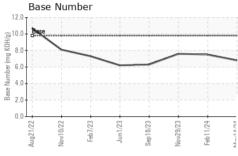
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

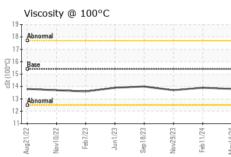
Sample Date	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 14847 14207 13597 Oil Age hrs Client Info 640 605 566 Oil Changed Client Info Changed Changed Changed Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >3.0 <1.0	Sample Number		Client Info		GFL0115060	GFL0106704	GFL0097690
Oil Age hrs Client Info 640 605 566 Oil Changed Client Info Changed Changed<	Sample Date		Client Info		14 May 2024	11 Feb 2024	29 Nov 2023
Oil Changed Sample Status Client Info Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL NORMAL	Machine Age	hrs	Client Info		14847	14207	13597
Oil Changed Sample Status Client Info Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL NORMAL	Oil Age	hrs	Client Info		640	605	566
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2	-		Client Info		Changed	Changed	Changed
Fuel	Sample Status						_
Water Glycol WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 15 9 9 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1 0 <1 <1 Silver ppm ASTM D5185m >2 <1 0 0 <1 <1 Silver ppm ASTM D5185m >2 <1 0 0 <1 <1 0 0 Aluminum ppm ASTM D5185m >2 0 <1 0 <1 1 0 <1 <1 0 <1 1 1 <1 0 <1 <1 0 <1 <1 0 <1 <1 0 <1 <1 <1 <1 <1 <1 <	CONTAMINATIO	NC	method	limit/base	current	history1	history2
Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 15 9 9 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1 0 <1 <1 Silver ppm ASTM D5185m >2 <1 0 <1 <1 Silver ppm ASTM D5185m >2 <1 0 <1 <1 Aluminum ppm ASTM D5185m >2 <1 0 <1 <1 Lead ppm ASTM D5185m >2 <1 0 <1 <1 Copper ppm ASTM D5185m >330 <1 2 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Iron	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>90	15	9	9
Silver	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Titanium ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 7 2 2 2 Lead ppm ASTM D5185m >30 <1 0 <1 Copper ppm ASTM D5185m >330 <1 2 1 Tin ppm ASTM D5185m >15 <1 0 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1			ASTM D5185m	>2	<1	0	
Aluminum ppm ASTM D5185m >20 7 2 2 Lead ppm ASTM D5185m >40 <1	Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum			ASTM D5185m	>2	<1	0	0
Lead ppm ASTM D5185m >40 <1 0 <1 Copper ppm ASTM D5185m >330 <1 2 1 Tin ppm ASTM D5185m >15 <1 0 <1 Vanadium ppm ASTM D5185m 0 <1 <1 <1 Cadmium ppm ASTM D5185m 0 0 <1 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 3 2 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 41 0 <1 0 0 Magnesium ppm ASTM D5185m 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0			ASTM D5185m	>20	7	2	2
Copper ppm ASTM D5185m >330 <1 2 1 Tin ppm ASTM D5185m >15 <1				>40	<1		<1
Tin			ASTM D5185m	>330	<1	2	1
Vanadium ppm ASTM D5185m 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 3 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 973 971 963 Calcium ppm ASTM D5185m 1070 1033 1155 1074 Phosphorus ppm ASTM D5185m 1270 1309 1371 1282 Sulfur ppm ASTM D5185m 2060 3473 3273 2770 CONTAMINANTS method limit/base current history1 <					<1		<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 3 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 59 62 59 Manganese ppm ASTM D5185m 0 <1							<1
Boron							
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 59 62 59 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 973 971 963 Calcium ppm ASTM D5185m 1070 1033 1155 1074 Phosphorus ppm ASTM D5185m 1150 1018 1131 1042 Zinc ppm ASTM D5185m 1270 1309 1371 1282 Sulfur ppm ASTM D5185m 2060 3473 3273 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 59 62 59 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 973 971 963 Calcium ppm ASTM D5185m 1070 1033 1155 1074 Phosphorus ppm ASTM D5185m 1150 1018 1131 1042 Zinc ppm ASTM D5185m 1270 1309 1371 1282 Sulfur ppm ASTM D5185m 2060 3473 3273 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624	Boron	ppm	ASTM D5185m	0	2	3	2
Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 973 971 963 Calcium ppm ASTM D5185m 1070 1033 1155 1074 Phosphorus ppm ASTM D5185m 1150 1018 1131 1042 Zinc ppm ASTM D5185m 1270 1309 1371 1282 Sulfur ppm ASTM D5185m 2060 3473 3273 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7415	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 973 971 963 Calcium ppm ASTM D5185m 1070 1033 1155 1074 Phosphorus ppm ASTM D5185m 1150 1018 1131 1042 Zinc ppm ASTM D5185m 1270 1309 1371 1282 Sulfur ppm ASTM D5185m 2060 3473 3273 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION *ASTM D7414	Molybdenum	ppm	ASTM D5185m	60	59	62	59
Calcium ppm ASTM D5185m 1070 1033 1155 1074 Phosphorus ppm ASTM D5185m 1150 1018 1131 1042 Zinc ppm ASTM D5185m 1270 1309 1371 1282 Sulfur ppm ASTM D5185m 2060 3473 3273 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION	Manganese	ppm	ASTM D5185m	0	<1	0	<1
Phosphorus ppm ASTM D5185m 1150 1018 1131 1042 Zinc ppm ASTM D5185m 1270 1309 1371 1282 Sulfur ppm ASTM D5185m 2060 3473 3273 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Magnesium	ppm	ASTM D5185m	1010	973	971	963
Zinc ppm ASTM D5185m 1270 1309 1371 1282 Sulfur ppm ASTM D5185m 2060 3473 3273 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m 6 4 4 Potassium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414	Calcium	ppm	ASTM D5185m	1070	1033	1155	1074
Zinc ppm ASTM D5185m 1270 1309 1371 1282 Sulfur ppm ASTM D5185m 2060 3473 3273 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m 6 4 4 Potassium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414	Phosphorus	ppm	ASTM D5185m	1150	1018	1131	1042
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m 6 4 4 Potassium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 16.2 15.8		ppm	ASTM D5185m	1270	1309	1371	1282
Silicon ppm ASTM D5185m >25 7 5 5 Sodium ppm ASTM D5185m 6 4 4 Potassium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 16.2 15.8	Sulfur	ppm	ASTM D5185m	2060	3473	3273	2770
Sodium ppm ASTM D5185m 6 4 4 Potassium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 16.2 15.8	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 11 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 16.2 15.8	Silicon	ppm	ASTM D5185m	>25	7	5	5
INFRA-RED	Sodium	ppm	ASTM D5185m		6	4	4
Soot % % *ASTM D7844 >6 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 16.2 15.8	Potassium	ppm	ASTM D5185m	>20	11	1	2
Nitration Abs/cm *ASTM D7624 >20 9.5 8.6 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 16.2 15.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 16.2 15.8	Soot %	%	*ASTM D7844	>6	0.2	0.2	0.2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 16.2 15.8	Nitration	Abs/cm	*ASTM D7624	>20	9.5	8.6	8.0
Oxidation Abs/.1mm *ASTM D7414 >25 17.4 16.2 15.8				>30			
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.4	16.2	15.8
					6.8	7.5	7.6



OIL ANALYSIS REPORT



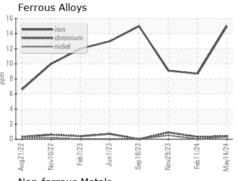


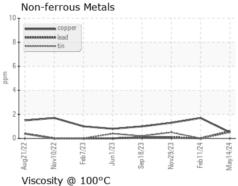


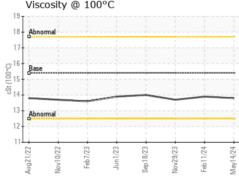
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

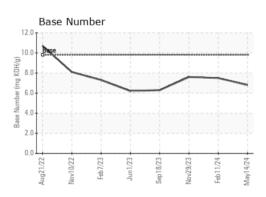
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.9	13.7

GRAPHS













Certificate 12367

Laboratory Sample No. Unique Number : 11046985 Test Package : FLEET

: GFL0115060 Lab Number : 06190233

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 24 May 2024 **Tested** Diagnosed

: 28 May 2024 : 28 May 2024 - Wes Davis

GFL Environmental - 405 - Arbor Hills 7811 Chubb Rd

NORTHVILLE, MI US 48168 Contact: John Nahal jnahal@gflenv.com

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: GFL405 [WUSCAR] 06190233 (Generated: 05/28/2024 09:08:21) Rev: 1

Submitted By: John Nahal

T:

F: