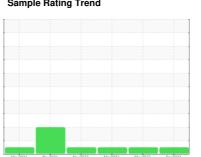


OIL ANALYSIS REPORT

Sample Rating Trend









DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

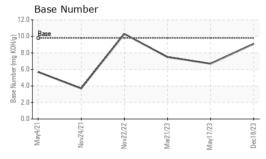
Fluid Condition

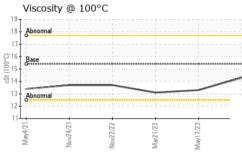
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method Imilibase current history1 history2	N 30P 13W4U (- GAL)	May2021	Nov2021 Nov2022	! Mar2023 May2023	Dec2023	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0105752	GFL0081448	GFL0057324
Machine Age hrs Client Info 10601 9754 9547 8892 Oil Age hrs Client Info 9754 9547 8892 Oil Changed Client Info Not Changd Changed Change			Client Info		18 Dec 2023	17 May 2023	21 Mar 2023
Oil Age hrs Client Info 9754 9547 8892 Oil Changed Sample Status Client Info Not Changed Cha	•	hrs	Client Info		10601		9547
Client Info Not Changed Changed Changed NORMAL NORMAL NORMAL		hrs	Client Info		9754	9547	8892
CONTAMINATION	-		Client Info				
Fuel WC Method S3.0 <1.0 <1.0 <1.0 <1.0 <1.0	-						Ü
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 2 33 8 Chromium ppm ASTM D5185m >5 0 2 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >5 0 2 <1 Nickel ppm ASTM D5185m >4 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>75	2	33	8
Description Description	Chromium	ppm	ASTM D5185m	>5	0	2	<1
Silver	Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	<1
Lead	Silver	ppm	ASTM D5185m	>2	0	<1	0
Copper ppm ASTM D5185m >100 14 2 1 Tin ppm ASTM D5185m >4 <1	Aluminum	ppm	ASTM D5185m	>15	1	2	<1
Tin	Lead	ppm	ASTM D5185m	>25	0	0	0
Trin	Copper		ASTM D5185m	>100	14	2	1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 19 4 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 -1 -1 1 Magnese ppm ASTM D5185m 0 -1 -1 1 Magnesium ppm ASTM D5185m 1010 877 930 886 Calcium ppm ASTM D5185m 1070 977 999 1064 Phosphorus ppm ASTM D5185m 1150 970 993 905 Zinc ppm ASTM D5185m 2060 2979 3408 2869 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 <		ppm	ASTM D5185m	>4	<1	<1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 55 55 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 60 55 55 Manganese ppm ASTM D5185m 0 <1 <1 1 Magnesium ppm ASTM D5185m 1010 877 930 886 Calcium ppm ASTM D5185m 1070 977 999 1064 Phosphorus ppm ASTM D5185m 1150 970 993 905 Zinc ppm ASTM D5185m 1270 1182 1265 1129 Sulfur ppm ASTM D5185m 2060 2979 3408 2869 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 4 4 Sodium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >6	Boron	ppm	ASTM D5185m	0	19	4	2
Manganese ppm ASTM D5185m 0 <1 <1 1 Magnesium ppm ASTM D5185m 1010 877 930 886 Calcium ppm ASTM D5185m 1070 977 999 1064 Phosphorus ppm ASTM D5185m 1150 970 993 905 Zinc ppm ASTM D5185m 1270 1182 1265 1129 Sulfur ppm ASTM D5185m 2060 2979 3408 2869 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 4 4 Sodium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.7 0.6 Nitration Abs/cm *ASTM D7415 </td <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td>0</td> <td>0</td>	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 877 930 886 Calcium ppm ASTM D5185m 1070 977 999 1064 Phosphorus ppm ASTM D5185m 1150 970 993 905 Zinc ppm ASTM D5185m 1270 1182 1265 1129 Sulfur ppm ASTM D5185m 2060 2979 3408 2869 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 4 4 Sodium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >6 0.1 0.7 0.6 Nitration Abs/cm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION *ASTM D7414 >25 <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>60</td> <th>60</th> <td>55</td> <td>55</td>	Molybdenum	ppm	ASTM D5185m	60	60	55	55
Calcium ppm ASTM D5185m 1070 977 999 1064 Phosphorus ppm ASTM D5185m 1150 970 993 905 Zinc ppm ASTM D5185m 1270 1182 1265 1129 Sulfur ppm ASTM D5185m 2060 2979 3408 2869 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 4 4 Sodium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 4.4 10.7 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION <td< td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th><1</th><td><1</td><td>1</td></td<>	Manganese	ppm	ASTM D5185m	0	<1	<1	1
Phosphorus ppm ASTM D5185m 1150 970 993 905 Zinc ppm ASTM D5185m 1270 1182 1265 1129 Sulfur ppm ASTM D5185m 2060 2979 3408 2869 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 4 4 Sodium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 4.4 10.7 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Magnesium	ppm	ASTM D5185m	1010	877	930	886
Zinc ppm ASTM D5185m 1270 1182 1265 1129 Sulfur ppm ASTM D5185m 2060 2979 3408 2869 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 4 4 Sodium ppm ASTM D5185m <1	Calcium	ppm	ASTM D5185m	1070	977	999	1064
Sulfur ppm ASTM D5185m 2060 2979 3408 2869 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 4 4 Sodium ppm ASTM D5185m >20 2 2 0 Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 4.4 10.7 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.1 19.2	Phosphorus	ppm	ASTM D5185m	1150	970	993	905
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 4 4 Sodium ppm ASTM D5185m <1	Zinc	ppm	ASTM D5185m	1270	1182	1265	1129
Silicon ppm ASTM D5185m >25 9 4 4 Sodium ppm ASTM D5185m <1 6 2 Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 4.4 10.7 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.1 19.2	Sulfur	ppm	ASTM D5185m	2060	2979	3408	2869
Sodium ppm ASTM D5185m <1 6 2 Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 4.4 10.7 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.1 19.2	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 4.4 10.7 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.1 19.2	Silicon	ppm	ASTM D5185m	>25	9	4	4
INFRA-RED	Sodium	ppm	ASTM D5185m		<1	6	2
Soot % % *ASTM D7844 >6 0.1 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 4.4 10.7 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.1 19.2	Potassium	ppm	ASTM D5185m	>20	2	2	0
Nitration Abs/cm *ASTM D7624 >20 4.4 10.7 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.1 19.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.1 19.2	Soot %	%	*ASTM D7844	>6	0.1	0.7	0.6
Sulfation Abs/.1mm *ASTM D7415 >30 17.7 22.5 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.1 19.2	Nitration	Abs/cm	*ASTM D7624	>20	4.4	10.7	10.6
Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.1 19.2	Sulfation						
	FLUID DEGRAD	OATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.2	20.1	19.2



OIL ANALYSIS REPORT

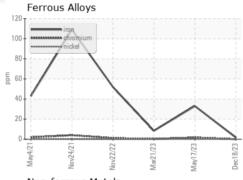


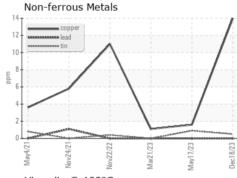


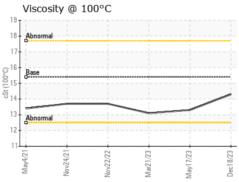
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

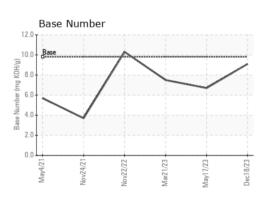
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.3	13.3	13.1

GRAPHS













Laboratory Sample No. Lab Number Unique Number : 10795680

: GFL0105752 : 06040451

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

: 20 Dec 2023 : 21 Dec 2023 Diagnostician : Don Baldridge

Test Package : FLEET (Additional Tests: FT-IR(Diff)) 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)

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

Submitted By: Frank Wolak