

OIL ANALYSIS REPORT

Sample Rating Trend





MACK 129059-SW8904

Component

Diesel Engine

MOBIL DELVAC ELITE 15W40 (--- GAL)

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

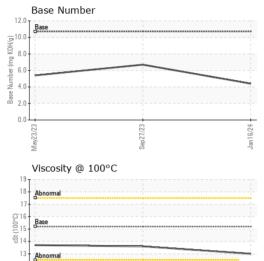
Fluid Condition

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

Sample Number Client Info GFL0095473 GFL0095443 GFL0077252 Gample Date Client Info 16 Jan 2024 27 Sep 2023 23 May 2023 28 May 2023 21 MoRMAL NORMAL NOR	15W40 (GAL	-)	Ma	May2023 Sap2023 Jan2024					
Client Info	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2		
Machine Age	Sample Number		Client Info		GFL0095473	GFL0095443	GFL0077252		
Dil Age	Sample Date		Client Info		16 Jan 2024	27 Sep 2023	23 May 2023		
Dil Age	Machine Age	hrs	Client Info		10224				
Contained Client Info Changed Changed Changed NORMAL NORMAL NORMAL NORMAL	Oil Age	hrs	Client Info		500	500	588		
CONTAMINATION	-		Client Info		Changed	Changed	Changed		
Fuel	Sample Status				_				
Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limil/base current history1 history2 Iron ppm ASTM D5185m >120 4 <1 23 Chromium ppm ASTM D5185m >20 <1 0 <1 Nickel ppm ASTM D5185m >5 <1 0 <1 Silver ppm ASTM D5185m >2 <1 0 <1 Silver ppm ASTM D5185m >20 3 3 9 Lead ppm ASTM D5185m >40 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	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		
Chromium	Glycol		WC Method		NEG	NEG	NEG		
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2		
Nickel	Iron	ppm	ASTM D5185m	>120	4	<1	23		
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	0	<1		
Titanium	Nickel	ppm	ASTM D5185m	>5	<1	0	1		
Aluminum	Titanium	ppm	ASTM D5185m	>2	<1	<1	0		
Lead	Silver	ppm	ASTM D5185m	>2	<1	0	<1		
Copper ppm ASTM D5185m >330 <1 0 3 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	3	3	9		
Copper	Lead	ppm	ASTM D5185m	>40	0	<1	<1		
STIN ppm ASTM D5185m >15 <1 <1 <1 <1 <1 <1 <1	Copper		ASTM D5185m	>330	<1	0	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 56 108 40 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 125 114 93 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 620 628 621 Calcium ppm ASTM D5185m 1157 1161 1236 Phosphorus ppm ASTM D5185m 786 833 869 Sulfur ppm ASTM D5185m 3095 3160 3204 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4					<1	<1	<1		
ADDITIVES	Vanadium		ASTM D5185m		0	0	<1		
Boron ppm ASTM D5185m Do Do Do Do Do Do Do D	Cadmium				0	0	0		
Barium	ADDITIVES		method	limit/base	current	history1	history2		
Molybdenum ppm ASTM D5185m 125 114 93 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 620 628 621 Calcium ppm ASTM D5185m 1157 1161 1236 Phosphorus ppm ASTM D5185m 668 685 715 Zinc ppm ASTM D5185m 786 833 869 Sulfur ppm ASTM D5185m 3095 3160 3204 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 6 Sodium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % * ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.1mm *ASTM D7	Boron	ppm	ASTM D5185m		56	108	40		
Manganese ppm ASTM D5185m 0 <1 <1 Calcium ppm ASTM D5185m 620 628 621 Calcium ppm ASTM D5185m 1157 1161 1236 Phosphorus ppm ASTM D5185m 668 685 715 Zinc ppm ASTM D5185m 786 833 869 Sulfur ppm ASTM D5185m 3095 3160 3204 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 6 Sodium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEG	Barium	ppm	ASTM D5185m		0	0	0		
Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 620 628 621 Calcium ppm ASTM D5185m 1157 1161 1236 Phosphorus ppm ASTM D5185m 668 685 715 Zinc ppm ASTM D5185m 786 833 869 Sulfur ppm ASTM D5185m 3095 3160 3204 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 6 Sodium ppm ASTM D5185m >0 2 6 Potassium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/:1mm <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>125</th> <td>114</td> <td>93</td>	Molybdenum	ppm	ASTM D5185m		125	114	93		
Magnesium ppm ASTM D5185m 620 628 621 Calcium ppm ASTM D5185m 1157 1161 1236 Phosphorus ppm ASTM D5185m 668 685 715 Zinc ppm ASTM D5185m 786 833 869 Sulfur ppm ASTM D5185m 3095 3160 3204 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 6 Sodium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/.mm *ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.mm *ASTM D7415 >30 20.1 17.7 20.9	•	ppm	ASTM D5185m		0	<1	<1		
Calcium ppm ASTM D5185m 1157 1161 1236 Phosphorus ppm ASTM D5185m 668 685 715 Zinc ppm ASTM D5185m 786 833 869 Sulfur ppm ASTM D5185m 3095 3160 3204 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 6 Sodium ppm ASTM D5185m 0 2 6 Potassium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/.1mm *ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9	-				620	628	621		
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Zinc ppm ASTM D5185m 786 833 869 Sulfur ppm ASTM D5185m 3095 3160 3204 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 6 Sodium ppm ASTM D5185m 0 2 6 Potassium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/.mm *ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7	Phosphorus						715		
Sulfur ppm ASTM D5185m 3095 3160 3204 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 6 Sodium ppm ASTM D5185m 0 2 6 Potassium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 14.2 20.6	•		ASTM D5185m		786	833	869		
Silicon ppm ASTM D5185m >25 4 4 6 Sodium ppm ASTM D5185m 0 2 6 Potassium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 14.2 20.6	Sulfur						3204		
Sodium ppm ASTM D5185m 0 2 6 Potassium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 14.2 20.6	CONTAMINAN	ITS	method	limit/base	current	history1	history2		
Potassium ppm ASTM D5185m >20 5 3 23 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 14.2 20.6	Silicon	ppm	ASTM D5185m	>25	4	4	6		
INFRA-RED	Sodium	ppm	ASTM D5185m		0	2	6		
Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 14.2 20.6	Potassium	ppm	ASTM D5185m	>20	5	3	23		
Nitration Abs/cm *ASTM D7624 >20 10.2 8.0 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 14.2 20.6	INFRA-RED		method	limit/base	current	history1	history2		
Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 14.2 20.6	Soot %	%	*ASTM D7844	>4	0.2	0.1	0.3		
Sulfation Abs/.1mm *ASTM D7415 >30 20.1 17.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 14.2 20.6	Nitration	Abs/cm	*ASTM D7624	>20	10.2	8.0	12.1		
Oxidation Abs/.1mm *ASTM D7414 >25 17.7 14.2 20.6									
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2		
	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.7	14.2	20.6		
	Base Number (BN)								



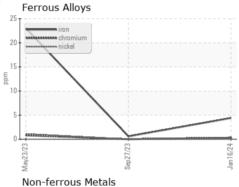
OIL ANALYSIS REPORT

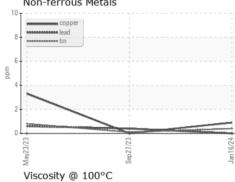


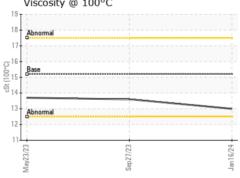
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

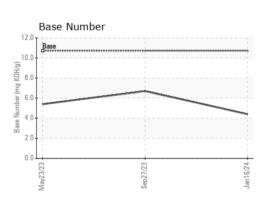
FLUID PROPI	ERITES	method	ilmit/base		nistory i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.2	13.0	13.6	13.7

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10846021 Test Package : FLEET

: GFL0095473 : 06069344

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 24 Jan 2024 Diagnosed

: 26 Jan 2024 Diagnostician : Sean Felton

GFL Environmental - 981 - Port Arthur Hauling

1000 S Business Park Dr Port Arthur, TX US 77640

Contact: MICHAEL KAY mkay@gflenv.com T: (336)660-9331

* - 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)