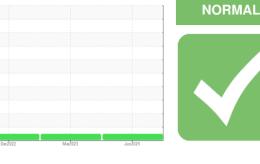


OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 728099 FREIGHTLINER M2 106 Component Diesel Engine

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SAMPLE INFORMATION method

Fluid TIER 15W40 (--- GAL)

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.

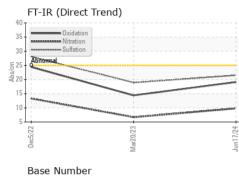
Fluid Condition

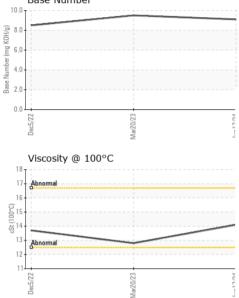
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		methoa	iimit/base	current	nistory i	nistory∠
Sample Number		Client Info		GFL0115212	GFL0061445	GFL0061444
Sample Date		Client Info		17 Jun 2024	20 Mar 2023	05 Dec 2022
Machine Age	hrs	Client Info		3495	748	907
Oil Age	hrs	Client Info		24	907	907
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
-				-		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	c	method	limit/base	current	history1	history2
	_0					
Iron	ppm	ASTM D5185m	>80	30	37	186
Chromium	ppm	ASTM D5185m	>5	1	1	5
Nickel	ppm	ASTM D5185m	>2	<1	<1	2
Titanium	ppm	ASTM D5185m		2	<1	<1
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>30	5	6	28
Lead	ppm	ASTM D5185m	>30	2	<1	6
Copper	ppm	ASTM D5185m	>150	1	3	8
Tin	ppm	ASTM D5185m	>5	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	current 17	history1 17	history2 56
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	17	17	56
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	17 0	17 0	56 0
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 66	17 0 69	56 0 109
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 66 <1	17 0 69 <1	56 0 109 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 66 <1 1010	17 0 69 <1 924	56 0 109 2 781
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 66 <1 1010 1318	17 0 69 <1 924 1259	56 0 109 2 781 1717
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 66 <1 1010 1318 1143	17 0 69 <1 924 1259 1098	56 0 109 2 781 1717 993
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 66 <1 1010 1318 1143 1459	17 0 69 <1 924 1259 1098 1310	56 0 109 2 781 1717 993 1208
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 66 <1 1010 1318 1143 1459 3216 current	17 0 69 <1 924 1259 1098 1310 3838 history1	56 0 109 2 781 1717 993 1208 3720 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base	17 0 66 <1 1010 1318 1143 1459 3216 <i>current</i> 7	17 0 69 <1 924 1259 1098 1310 3838 history1 8	56 0 109 2 781 1717 993 1208 3720 history2 15
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	17 0 66 <1 1010 1318 1143 1459 3216 current	17 0 69 <1 924 1259 1098 1310 3838 history1	56 0 109 2 781 1717 993 1208 3720 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ypm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base >20	17 0 66 <1 1010 1318 1143 1459 3216 current 7 2	17 0 69 <1 924 1259 1098 1310 3838 history1 8 8 8	56 0 109 2 781 1717 993 1208 3720 history2 15 14
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ypm	ASTM D5185m ASTM D5185m	limit/base >20 >20 limit/base	17 0 66 <1 1010 1318 1143 1459 3216 current 7 2 2 2 2	17 0 69 <1 924 1259 1098 1310 3838 history1 8 8 8 <1 history1	56 0 109 2 781 1717 993 1208 3720 history2 15 14 8 <i>history2</i>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ytts	ASTM D5185m ASTM D5185m	limit/base >20 >20 limit/base >3	17 0 66 <1 1010 1318 1143 1459 3216 <u>current</u> 7 2 2 2 <u>current</u> 0.2	17 0 69 <1 924 1259 1098 1310 3838 history1 8 8 8 <1 history1 0.2	56 0 109 2 781 1717 993 1208 3720 history2 15 14 8 8 history2 1.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm VTS	ASTM D5185m ASTM D5185m	limit/base >20 >20 limit/base >3 >20	17 0 66 <1 1010 1318 1143 1459 3216 <i>current</i> 7 2 2 2 <i>current</i> 0.2 9.8	17 0 69 <1 924 1259 1098 1310 3838 history1 8 8 8 <1 history1 0.2 6.7	56 0 109 2 781 1717 993 1208 3720 history2 15 15 14 8 <i>history2</i> 1.1 1.1 13.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ypm ypm	ASTM D5185m ASTM D5185m	limit/base >20 >20 Imit/base >20 >20 >30	17 0 66 <1 1010 1318 1143 1459 3216 <u>current</u> 7 2 2 2 2 <u>current</u> 0.2 9.8 21.5	17 0 69 <1 924 1259 1098 1310 3838 history1 8 8 8 <1 history1 0.2 6.7 18.9	56 0 109 2 781 1717 993 1208 3720 history2 15 14 8 <u>history2</u> 1.1 1.1 13.3 28.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRA	ppm ppm ppm ppm ppm ppm ppm ppm ypm ypm	ASTM D5185m ASTM D5185m	limit/base >20 >20 limit/base >3 >20	17 0 66 <1 1010 1318 1143 1459 3216 Current 7 2 2 2 Current 0.2 9.8 21.5 Current	17 0 69 <1 924 1259 1098 1310 3838 history1 8 8 8 <1 history1 0.2 6.7	56 0 109 2 781 1717 993 1208 3720 history2 15 14 8 history2 1.1 1.1 13.3 28.1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm JTS ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415	limit/base >20 >20 Imit/base >20 >20 >30	17 0 66 <1 1010 1318 1143 1459 3216 <u>current</u> 7 2 2 2 2 <u>current</u> 0.2 9.8 21.5 <u>current</u> 19.1	17 0 69 <1 924 1259 1098 1310 3838 history1 8 8 8 8 <1 history1 0.2 6.7 18.9 history1 14.4	56 0 109 2 781 1717 993 1208 3720 history2 15 14 8 history2 1.1 13.3 28.1 history2 24.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRA	ppm ppm ppm ppm ppm ppm ppm ppm NTS ppm ppm ppm ppm ppm ppm NTS	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7615	limit/base >20 >20 imit/base >3 >20 >30 >30	17 0 66 <1 1010 1318 1143 1459 3216 Current 7 2 2 2 Current 0.2 9.8 21.5 Current	17 0 69 <1 924 1259 1098 1310 3838 history1 8 8 8 8 <1 history1 0.2 6.7 18.9 history1	56 0 109 2 781 1717 993 1208 3720 history2 15 14 8 history2 1.1 1.1 13.3 28.1 history2



OIL ANALYSIS REPORT





VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
						NONE
						NONE
						NONE
						NONE
						NONE
						NORML
						NORML
			>0.2			NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		14.1	12.8	13.7
GRAPHS						
Ferrous Alloys						
iron						
chromium						
150						
E 100						
50						
50-	-					
0						
	0/23 -		7/24 -			
Dec	Mar2		Jun1			
Non-ferrous Meta	als					
neessaaaaaaaa lead						
tin						
6						
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0	23	And and a sector sector sector	24			
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0 Dec5/22	Mar20/23		Jun17/24			
0				Base Number		
Viscosity @ 100°			42/L1 unr			
Viscosity @ 100°			10.0			
Viscosity @ 100°			10.0			
Viscosity @ 100°			10.0			
Viscosity @ 100°			10.0			
Viscosity @ 100°			10.0			
Viscosity @ 100°			0.0 0.8 0.0 0.0 0.0 0.0			
Viscosity @ 100°			10.0 (0)HOX Bull bull bar hox Bull bull bar hox Bull bar hox Bull hox Bul			
Viscosity @ 100°	c		10.0 (6,000) 000 000 000 (0,000) 000 000 000 000 000 000 000 000 000			
Viscosity @ 100°			10.0 (0)HOX Bull bull bar hox Bull bull bar hox Bull bar hox Bull hox Bul		Mar2023	
Viscosity @ 100°	C Mar20/23 -		10.0 (0,000) Base Numuko Base Numuko Numuko Base Numuko Numuko Base Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuk	Dec5/22	Mar20/23	and Panida Havi
Viscosity @ 100°	C ECOO27EW 01 Madiso		10.0 (0)(HO) 80 (0)(HO) 80() 30 (0)(HO) 80() 30 (0)(HO) 80() 30 (0)(HO) 80() 30 (0)(HO) 80() 40 (0)(HO) 80() 4	Dec5/22	ccroczew ronmental - 642- Gra	
Viscosity @ 100°	C Mar20/23 -	ved : 2	10.0 (0,000) Base Numuko Base Numuko Numuko Base Numuko Numuko Base Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuko Numuk	Dec5/22	ccroczew ronmental - 642- Gra	and Rapids Haul n Nash Ave S Lowell,
	Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	Yellow Metal scalar Precipitate scalar Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Fluid PROPERTIES Visc @ 100°C Visc @ 100°C cSt GRAPHS Ferrous Alloys Image: Stream of the stream	Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual Debris scalar *Visual Sand/Dirt scalar *Visual Appearance scalar *Visual Odor scalar *Visual Emulsified Water scalar *Visual Free Water scalar *Visual Free Water scalar *Visual Free Water scalar *Visual Ferrous Alloys GRAPHS Ferrous Alloys Official	Yellow Metal scalar *Visual NONE Precipitate scalar *Visual NONE Silt scalar *Visual NONE Debris scalar *Visual NONE Sand/Dirt scalar *Visual NONE Appearance scalar *Visual NORE Odor scalar *Visual NORML Odor scalar *Visual NORML Odor scalar *Visual NORML Emulsified Water scalar *Visual >0.2 Free Water scalar *Visual >0.2 Ferew Water scalar *Visual >0.2 Visc @ 100°C cSt ASTM D445 GRAPHS Serrous Alloys	Yellow Metal scalar *Visual NONE NONE Precipitate scalar *Visual NONE NONE Silt scalar *Visual NONE NONE Debris scalar *Visual NONE NONE Sand/Dirt scalar *Visual NONE NONE Appearance scalar *Visual NORE NORE Appearance scalar *Visual NORML NORML Odor scalar *Visual NORML NORML Odor scalar *Visual NORML NORML Odor scalar *Visual >0.2 NEG Free Water scalar *Visual >0.2 NEG Fereous Alloys - - - - Output cs ASTM D445 14.1 GRAPHS - - - - Output copy - - - - Output copy - - - - - Ou	Yellow Metal scalar *Visual 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 Free Water scalar *Visual >0.2 NEG NEG FlUID PROPERTIES method limit/base current history1 Visc @ 100°C cSt ASTM D445 14.1 12.8 GRAPHS Scalar Scalar Scalar Scalar Scalar Scalar Scalar Scalar Scalar Scalar Scalar



Certificate 12367

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

Test Package : FLEET

Report Id: GFL642 [WUSCAR] 06216467 (Generated: 06/22/2024 00:24:16) Rev: 1

Submitted By: See also GFL642B - Jessica Shearer

T:

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