

# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id **229037-603258** Component

Natural Gas Engine Fluid RDL-3647 (--- 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

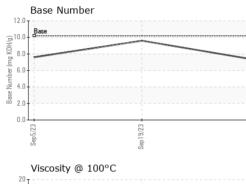
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

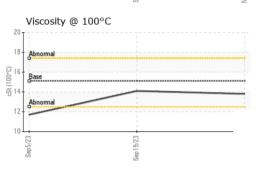
SAMPLE INFOR	ΜΔΤΙΩΝ	method	limit/base	current	history1	history2
		Client Info	mmbase	GFL0100372	GFL0093405	GFL0080388
Sample Number Sample Date		Client Info		30 Nov 2023	GFL0093405 19 Sep 2023	05 Sep 2023
Machine Age	hrs	Client Info		2095	2039	2030
Oil Age	hrs	Client Info		0	600	400
Oil Changed	1115	Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
· · · · ·						
CONTAMINAT	ION	method	limit/base		history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	2	7	32
Chromium	ppm	ASTM D5185m	>4	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m		<1	0	5
Lead	ppm	ASTM D5185m	>30	0	6	<b>A</b> 35
Copper	ppm		>35	<1	3	12
Tin	ppm	ASTM D5185m	>4	0	1	4
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 50	current 0	8	25
	ppm ppm				· · · · · · · · · · · · · · · · · · ·	
Boron		ASTM D5185m	50	0 0 53	8	25 0 72
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	0 0 53 <1	8 0 59 1	25 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	0 0 53	8 0 59 1 921	25 0 72 2 419
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	0 0 53 <1 891 994	8 0 59 1 921 1179	25 0 72 2 419 1652
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	0 0 53 <1 891 994 975	8 0 59 1 921 1179 1064	25 0 72 2 419 1652 979
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870	0 0 53 <1 891 994 975 1171	8 0 59 1 921 1179 1064 1265	25 0 72 2 419 1652 979 1151
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	0 0 53 <1 891 994 975	8 0 59 1 921 1179 1064	25 0 72 2 419 1652 979
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870	0 0 53 <1 891 994 975 1171	8 0 59 1 921 1179 1064 1265	25 0 72 2 419 1652 979 1151
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	50 5 50 0 560 1510 780 870 2040 >+100	0 0 53 <1 891 994 975 1171 2851	8 0 59 1 921 1179 1064 1265 3871	25 0 72 2 419 1652 979 1151 3791
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	50 5 50 0 560 1510 780 870 2040 >+100	0 0 53 <1 891 994 975 1171 2851 current	8 0 59 1 921 1179 1064 1265 3871 history1	25 0 72 2 419 1652 979 1151 3791 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 <b>limit/base</b> >+100	0 0 53 <1 891 994 975 1171 2851 current 4	8 0 59 1 921 1179 1064 1265 3871 history1 15	25 0 72 2 419 1652 979 1151 3791 history2 36
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	50 5 50 0 560 1510 780 870 2040 <b>limit/base</b> >+100	0 0 53 <1 891 994 975 1171 2851 current 4 4 4 4	8 0 59 1 921 1179 1064 1265 3871 <b>history1</b> 15 6	25 0 72 2 419 1652 979 1151 3791 history2 36 24
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 <b>limit/base</b> >+100	0 0 53 <1 891 994 975 1171 2851 current 4 4 4 4	8 0 59 1 921 1179 1064 1265 3871 <b>history1</b> 15 6 3 3	25 0 72 2 419 1652 979 1151 3791 history2 36 24 11
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 <b>limit/base</b> >20 <b>limit/base</b>	0 0 53 <1 891 994 975 1171 2851 current 4 4 4 <1 current	8 0 59 1 921 1179 1064 1265 3871 <b>history1</b> 15 6 3 3 <b>history1</b>	25 0 72 2 419 1652 979 1151 3791 history2 36 24 11 1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 <b>limit/base</b> >20 <b>limit/base</b>	0 0 53 <1 891 994 975 1171 2851 <u>current</u> 4 4 4 <1 <u>current</u> 0.1	8 0 59 1 921 1179 1064 1265 3871 history1 15 6 3 3 3 <i>history1</i> 0	25 0 72 2 419 1652 979 1151 3791 history2 36 24 11 11 history2 0.1
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 ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 2040 2040 >+100 >20 Limit/base	0 0 53 <1 891 994 975 1171 2851 <i>current</i> 4 4 4 <1 <i>current</i> 0.1 5.8	8 0 59 1 921 1179 1064 1265 3871 history1 15 6 3 3 history1 0 5.8	25 0 72 2 419 1652 979 1151 3791 history2 36 24 11 history2 0.1 8.7
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 ppm ppm	ASTM D5185m ASTM D5185m	50 50 50 150 1510 780 870 2040 <b>imit/base</b> >+100 \$-20 <b>imit/base</b> >20	0 0 53 <1 891 994 975 1171 2851 <u>current</u> 4 4 4 <1 <u>current</u> 0.1 5.8 17.8	8 0 59 1 921 1179 1064 1265 3871 history1 15 6 3 3 history1 0 5.8 20.5	25 0 72 2 419 1652 979 1151 3791 history2 36 24 11 history2 0.1 8.7 18.3
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	50 5 50 0 560 1510 780 870 2040 2040 2040 2040 2040 2040 20 20 20 20 20 20 20 20 20 20 20 20 20	0 0 53 <1 891 994 975 1171 2851 Current 4 4 4 <1 current 0.1 5.8 17.8	8 0 59 1 921 1179 1064 1265 3871 history1 15 6 3 3 history1 0 5.8 20.5 history1	25 0 72 2 419 1652 979 1151 3791 history2 36 24 11 history2 0.1 8.7 18.3 history2



# **OIL ANALYSIS REPORT**

VISUAL





	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		*Visual	>0.1	NEG	NEG	NEG
	Free Water	scalar	*Visual	20.1	NEG	NEG	NEG
				line it /le e e e			
	FLUID PROI Visc @ 100°C	cSt	method ASTM D445	limit/base	current 13.8	history1 14.1	history2 11.7
	GRAPHS	031	A31101 D445	15.1	13.0	14.1	11.7
	Ferrous Alloys	,					
	35						
	30 - chromium						
	25						
10110-0	20 15						
	<sup>•</sup> 15						
	10-						
	5						
	Sep 5/23	Sep 19/23		Nov30/23			
0000			Alterative or the dat assessed in the same				
	and the state of t		101	0/23			
	0	:2/6					
	Sep 5/23	Sep 19/23		Nov30/23			
					Base Numb	er	
	Viscosity @ 10(			12.0	I	er	
	Viscosity @ 100			12.0	Base Numb	er	
	Viscosity @ 100			12.0	I	er	
1100001	Viscosity @ 100			12.0	I	er	
0+ /100001	Viscosity @ 100			12.0	I	er	
100000170-	Viscosity @ 100			12.0 (0) (0) (0) (0) (0) (0) (0) (0) (0) (0	I	er	
100001	Viscosity @ 100			12.0	I	er	
-04 (1000c)	Viscosity @ 100	0°C		12.0 10.0 (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(	Base		
	Viscosity @ 100	0°C		12.0 10.0 (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(	Base		
	Viscosity @ 100			12.0 10.0 (0) 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10	I	er Septions	
10°00(1/170°	Viscosity @ 100	2°0 8 <sup>60</sup> 13/33	on Ave. Ca	12.0 (0)HOX B0U 10.0 (0)HOX B0U 100 K0 100 K0 100 100 K0 100 K0 1	Base EXISTER	Sep 19/23	auls Vallev Haul
10 BUD 17 TOT	Viscosity @ 100	2°0 8 <sup>60</sup> 13/33		12.0 (0)HOX B0U 10.0 (0)HOX B0U 100 K0 100 K0 100 100 K0 100 K0 1	Base EXISTER		
	Viscosity @ 100	0°C	l :07 l ed :11 l	12.0 10.0	Base EXISTER	nvironmental - 892 - Pr 405 East Airport	Industrial Ro auls Valley, (
	Viscosity @ 100	0°C	l :07 l ed :11 l	12.0 10.0	Base EXISTER	nvironmental - 892 - Pa 405 East Airport P	

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)

Certificate L2367

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F: