

## **OIL ANALYSIS REPORT**



### Machine Id

#### 813109 Component 1 Diesel Engine Fluid DIESEL ENGINE OIL SAE 40 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) DIESEL ENGINE OIL SAE 40. Please confirm. Please specify the component make and model with your next sample.

#### 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	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0123769	GFL0112997	
Sample Date		Client Info		25 Jun 2024	16 Apr 2024	
Machine Age	hrs	Client Info		1550	1181	
Oil Age	hrs	Client Info		369	1181	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	0.2	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>100	18	76	motory
-	ppm			10 <1	2	
Chromium Nickel	ppm	ASTM D5185m ASTM D5185m	>20 >4	2	20	
Titanium	ppm ppm	ASTM D5185m		2 <1	0	
Silver	ppm	ASTM D5185m	>3	<1 <1	0	
Aluminum	ppm	ASTM D5185m	>20	1	4	
Lead	ppm	ASTM D5185m	>20	0	0	
Copper	ppm	ASTM D5185m	>330	6	32	
Tin	ppm	ASTM D5185m	>15	0	4	
Vanadium	ppm	ASTM D5185m	>15	۰ <1	0	
	ppm			<b>~</b> 1	0	
Cadmium	nnm	ASTM D5185m		0	0	
	ppm	ASTM D5185m		0	0	
ADDITIVES	ppm	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	250	current 5	history1 53	
ADDITIVES Boron Barium		method ASTM D5185m ASTM D5185m	250 10	current 5 0	history1 53 0	history2
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	250	current 5 0 70	history1 53 0 123	history2
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	current 5 0 70 1	history1 53 0 123 7	history2 
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	current 5 0 70 1 1090	history1 53 0 123 7 776	history2  
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	current           5           0           70           1           1090           1266	history1 53 0 123 7 776 1521	history2   
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	current           5           0           70           1           1090           1266           1144	history1 53 0 123 7 776 1521 766	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	current           5           0           70           1           1090           1266           1144           1401	history1 53 0 123 7 776 1521 766 985	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	current           5           0           70           1           1090           1266           1144	history1 53 0 123 7 776 1521 766 985 2506	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	current           5           0           70           1           1090           1266           1144           1401           3766           current	history1 53 0 123 7 776 1521 766 985 2506 history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	current           5           0           70           1           1090           1266           1144           1401           3766           current           20	history1         53         0         123         7         776         1521         766         985         2506         history1         ▲ 93	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250	current           5           0           70           1           1090           1266           1144           1401           3766           current           20           4	history1 53 0 123 7 776 1521 766 985 2506 0 152506 0 152506 0 152506 0 152506 0 152506 0 152506 0 152506 0 15250 0 15250 155500 155500 155000 1555000 1555000 1555000 1555000 1555000 1555000 1555000 1555000 1555000 155500000000	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	current           5           0           70           1           1090           1266           1144           1401           3766           current           20	history1 53 0 123 7 776 1521 766 985 2506 history1 ▲ 93 3 10	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216	current           5           0           70           1           1090           1266           1144           1401           3766           current           20           4	history1 53 0 123 7 776 1521 766 985 2506 0 152506 0 152506 0 152506 0 152506 0 152506 0 152506 0 152506 0 15250 0 15250 155500 155500 155000 1555000 1555000 1555000 1555000 1555000 1555000 1555000 1555000 1555000 155500000000	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20	current           5           0           70           1           1090           1266           1144           1401           3766           current           20           4           2	history1 53 0 123 7 776 1521 766 985 2506 history1 ▲ 93 3 10	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20 <b>limit/base</b>	current           5           0           70           1           1090           1266           1144           1401           3766           current           20           4           2           current	history1         53         0         123         7         776         1521         766         985         2506         history1         ●33         10         history1	history2 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >216 >20 <b>limit/base</b>	current           5           0           70           1           1090           1266           1144           1401           3766           current           20           4           2           current           0.6	history1         53         0         123         7         776         1521         766         985         2506         history1         ● 93         3         10         history1         1.1	history2 history2 history2 history2 history2
ADDITIVES 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	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>iimit/base</b> >25 >216 >20 <b>iimit/base</b> >3 >20	current           5           0           70           1           1090           1266           1144           1401           3766           current           20           4           2           current           0.6           8.2	history1         53         0         123         7         776         1521         766         985         2506         history1         ● 93         3         10         history1         1.1         13.4	history2   history2                        history2
ADDITIVES 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	method           ASTM D5185m           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >216 >20 <b>imit/base</b> >3 >20	current           5           0           70           1           1090           1266           1144           1401           3766           current           20           4           2           current           0.6           8.2           20.1	history1         53         0         123         7         776         1521         766         985         2506         history1         ● 93         3         10         history1         1.1         13.4         26.1	history2  history2            history2



14.0

Base Number (mg KOH/g) 0.0 0.0 0.0 0.0 Base

2.0 0.0 Apr16/24

18 17. Abnormal

16 () 15 () 10 () 15 13 13 Base Abnormal 12 11 10 Apr16/24

# **OIL ANALYSIS REPORT**

	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	
		scalar				NONE	
		scalar	*Visual				
		scalar		NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
5/24		scalar	*Visual	NORML	NORML	NORML	
	Odor	scalar	*Visual	NORML	NORML	NORML	
		scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar			NEG	NEG	
				lipsit/bees			biotom 0
							history2
		cSt	ASTM D445	14.4	14.0	11.0	
	Ferrous Alloys						
~	iron						
C 1 C 1	chromium						
1	50						
	30-						
	20 -						
	10 -	Construction in the state of the state of the state	THE OWNER AND ADDRESS OF THE OWNER				
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Y C	<sup>35</sup> T						
	30 - copper						
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	_ 20						
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			*****	1.Shawarang			
	6/24			5/24			
	Aprl			Jun2			
		С			Base Number		
	17			14.0	[]		
	d.			12.0	Abnormal		
				( <sup>B</sup> /H0.0			
				B.0	Base		
	83 13			6.0	Abnomal		
	Abnormal			N 82 4.0	d		
	11			2.0			
	10						
	Apr16/24			Jun25/24	Apr16/24 -		Jun25/24 -
				C-4			
		Appearance Odor Emulsified Water Free Water FLUID PROP Visc @ 100°C GRAPHS Ferrous Alloys Tor Non-ferrous Meta State Comparison State Stat	Precipitate scalar Silt scalar Debris scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Non-ferrous Metals Visc @ 100°C cSt GRAPHS Ferrous Alloys Usc @ 100°C cSt Construction Content of the scalar Free Water scalar Visc @ 100°C to the scalar Precipitate scalar Ferrous Alloys Visc @ 100°C to the scalar Content of the scalar Ferrous Metals Visc @ 100°C to the scalar Precipitate scalar Ferrous Metals	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 Fere Water scalar *Visual Fere Water scalar *Visual Fere Water scalar *Visual Fere Water scalar *Visual Full D PROPERTIES method Visc @ 100°C cSt ASTM D445 GRAPHS Ferrous Alloys	Precipitate scalar *Visual NONE Sit scalar *Visual NONE Sand/Dirt scalar *Visual NONE Appearance scalar *Visual NORML Odor scalar *Visual NORML Scalar *Visual NORML Odor scalar *Visual NORML Odor scalar *Visual NORML Emulsified Water scalar *Visual NORML Scalar *Visual NORML Odor scalar *Visual NORML Emulsified Water scalar *Visual NORML Scalar *Visual NORML Scalar *Visual NORML Scalar *Visual NORML Scalar *Visual NORML Emulsified Water scalar *Visual NORML Scalar *Visual NORML Emulsified Water scalar *Visual * Visc@ 100°C cSt ASTM D445 14.4 GRAPHS Ferrous Alloys Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C	Precipitate scalar 'Visual NONE NONE Site scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Appearance scalar 'Visual NORML NORML Odor scalar 'Visual NORML NORML Emulsified Water scalar 'Visual NORML NORML NORML Site @ 100°C cst ASTM D445 14.4 14.0 GRAPHS Ferrous Alloys Mon-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C Tenus field of the scalar 'Visual NORML NOR	Precipitale scalar Visual NONE NONE NONE NONE Sitt scalar Visual NONE NONE NONE NONE Sand/Dirt scalar Visual NONE NONE NONE Appearance scalar Visual NORML NORML NORML NORML Emulsified Water scalar Visual NORML NORML NORML Emulsified Water scalar Visual NORML NORML NORML Tree Water scalar Visual NORML NORML NORML Tree Water scalar Visual NORML NORML NORML NEG NEG Free Water scalar Visual NORM NORM NORM NORM Neg 100°C cSt ASTM D445 14.4 14.0 11.0 CAPAPAS Ferrous Metals Uscosity @ 100°C Viscosity @ 100°C Uscosity @ 100°C Non-ferrous Metals

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Submitted By: David McCall Page 2 of 2