

OIL ANALYSIS REPORT

Sample Rating Trend



726061-4

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

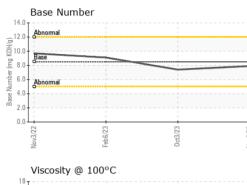
Fluid Condition

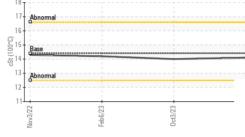
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		Nov202	2 Feb2023	Oct2023 N	vv2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0083893	GFL0083904	GFL0061555
Sample Date		Client Info		08 Nov 2023	03 Oct 2023	06 Feb 2023
Machine Age	mls	Client Info		241872	226339	226339
Oil Age	mls	Client Info		241872	226339	226339
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	48	55	20
Chromium	ppm	ASTM D5185m	>5	1	2	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>30	4	5	3
Lead	ppm	ASTM D5185m	>30	<1	<1	0
Copper	ppm	ASTM D5185m	>150	3	4	<1
Tin	ppm	ASTM D5185m	>5	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 11	history1 5	history2 12
	ppm ppm					
Boron		ASTM D5185m	250	11	5	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	11 <1	5 0	12 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	11 <1 62	5 0 61	12 0 65
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	11 <1 62 <1	5 0 61 <1	12 0 65 <1
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	11 <1 62 <1 921	5 0 61 <1 1004	12 0 65 <1 857
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	11 <1 62 <1 921 1155	5 0 61 <1 1004 1151	12 0 65 <1 857 1153
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 ASTM D5185m	250 10 100 450 3000 1150	11 <1 62 <1 921 1155 1017	5 0 61 <1 1004 1151 1048	12 0 65 <1 857 1153 1032
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	250 10 100 450 3000 1150 1350	11 <1 62 <1 921 1155 1017 1263	5 0 61 <1 1004 1151 1048 1307	12 0 65 <1 857 1153 1032 1222
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	250 10 100 450 3000 1150 1350 4250	11 <1 62 <1 921 1155 1017 1263 2988	5 0 61 <1 1004 1151 1048 1307 3142	12 0 65 <1 857 1153 1032 1222 3153
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	250 10 100 450 3000 1150 1350 4250	11 <1 62 <1 921 1155 1017 1263 2988 current	5 0 61 <1 1004 1151 1048 1307 3142 history1	12 0 65 <1 857 1153 1032 1222 3153 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	250 10 100 450 3000 1150 1350 4250 limit/base >20	11 <1 62 <1 921 1155 1017 1263 2988 current 12	5 0 61 <1 1004 1151 1048 1307 3142 history1 14	12 0 65 <1 857 1153 1032 1222 3153 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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	250 10 100 450 3000 1150 1350 4250 limit/base >20 >216	11 <1 62 <1 921 1155 1017 1263 2988 current 12 0	5 0 61 <1 1004 1151 1048 1307 3142 history1 14 5	12 0 65 <1 857 1153 1032 1222 3153 history2 4 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >20 >216 >20	11 <1 62 <1 921 1155 1017 1263 2988 current 12 0 4	5 0 61 <1 1004 1151 1048 1307 3142 history1 14 5 3	12 0 65 <1 857 1153 1032 1222 3153 history2 4 1 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 imit/base >20 >216 >20 imit/base	11 <1 62 <1 921 1155 1017 1263 2988 current 12 0 4	5 0 61 <1 1004 1151 1048 1307 3142 history1 14 5 3 3 history1	12 0 65 <1 857 1153 1032 1222 3153 history2 4 1 3 3
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 ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >20 >216 >20 limit/base >3	11 <1 62 <1 921 1155 1017 1263 2988 <u>current</u> 12 0 4 <u>current</u>	5 0 61 <1 1004 1151 1048 1307 3142 history1 14 5 3 3 <u>history1</u> 0.1	12 0 65 <1 857 1153 1032 1222 3153 history2 4 1 3 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	250 10 100 450 3000 1150 1350 4250 Iimit/base >20 >216 >20 >216 >20 Iimit/base >3 >20	111 <1 62 <1 921 1155 1017 1263 2988 current 12 0 4 current 0.1 7.6	5 0 61 <1 1004 1151 1048 1307 3142 history1 14 5 3 3 history1 0.1 8.6	12 0 65 <1 857 1153 1032 1222 3153 history2 4 1 3 <u>history2</u> 0.1 6.8
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	250 10 100 450 3000 1150 1350 4250 imit/base >20 >216 >20 imit/base >3 >20 >30	11 <1 62 <1 921 1155 1017 1263 2988 <u>current</u> 12 0 4 <u>current</u> 0.1 7.6 18.7	5 0 61 <1 1004 1151 1048 1307 3142 history1 14 5 3 3 history1 0.1 8.6 18.8	12 0 65 <1 857 1153 1032 1222 3153 history2 4 1 3 <u>history2</u> 0.1 6.8 17.8
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	250 10 100 450 3000 1150 1350 4250 imit/base >20 >216 >20 imit/base >3 >20 >30 imit/base	11 <1 62 <1 921 1155 1017 1263 2988 Current 12 0 4 Current 0.1 7.6 18.7 Current	5 0 61 <1 1004 1151 1048 1307 3142 history1 14 5 3 history1 0.1 8.6 18.8 history1	12 0 65 <1 857 1153 1032 1222 3153 history2 4 1 3 bistory2 0.1 6.8 17.8 history2



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	
Nov8/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Nov	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	limit/base	current	history1	history2	
	Visc @ 100°C	cSt	ASTM D445	14.4	14.1	14.0	14.2	
	GRAPHS							
	Ferrous Alloys							
	50 iron							
	nickel	/						
	40-	/						
	5 30	/						
	20							
	10-							
	0							
	Nov3/22		0ct3/23 -	Nov8/23				
	Reb		Oct	Nov				
	Non-ferrous Meta	als						
	10 copper							
	8 - Research lead							
	udd							
	4							
	2							
				and the second se				
	0 0 0		CO CO					
	Nov3/22 Feb6/23		0ct3/23	Nov8/23				
	Z Viscosity @ 100°	c	-	2				
	¹⁸ T			14.0	Base Number			
	17- Abnormal			12.0	Abnormal			
	16-				ч			
ő	£ 15			X IO.U	Base			
	5 15 - Base 3 14 -			E 0.0				
c	1			(b)(H0) 8.0 9.0 Mmper 8.0 8.0 8.0 8.0 8.0 8.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Abnormal			
	13 Abnormal		1					
	12-			2.0				
	11		/23	0.0	727	23-	23	
	Nov3/22 Feb6/23		0ct3/23	Nov8/23	Nov3/22	Feb 6/23	0ct3/23	
Laboratory	: WearCheck USA -	501 Madi	son Ave Ca	rv. NC 27513	GFL Envi	ronmental - 652 - Fre	dericksburg Hauling	
Sample No.	: GFL0083893	Received	d :13	Nov 2023			4 Houser Drive	
Lab Number	: 06005388	ed :15 l	Nov 2023			dericksburg, VA		
Unique Number	: 10739150	Diagnost	ician : We	s Davis	US 22408 Contact: WILLIAM MILO			
Test Package	: FLEET contact Customer Ser	vice at 1-9	00-237-1360	2		Contact: WILLIAM MILO wmilo@gflenv.com		
sample report, c	Joniaci Gustomer Ser	nce al 1-0	00-237-1303	7.		VVIII	no@gnenv.com	

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

Submitted By: TECHNICIAN ACCOUNT

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