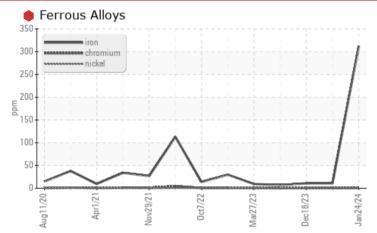
PROBLEM SUMMARY

727016-596

Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 15W40 (--- LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIO	C TEST	RESULT	S			
Sample Status				SEVERE	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>100	e 312	11	11

Customer Id: GFL650 Sample No.: GFL0077786 Lab Number: 06072158 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Don Baldridge +1 don.b505@comcast.net

To change component or sample information: Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u>

RECOMMENDED ACTIONS							
Action	Status	Date	Done By	Description			
Change Fluid			?	Oil and filter change at the time of sampling has been noted.			
Change Filter			?	Oil and filter change at the time of sampling has been noted.			
Resample			?	We recommend an early resample to monitor this condition.			

HISTORICAL DIAGNOSIS



27 Dec 2023 Diag: Wes Davis

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



view report



18 Dec 2023 Diag: Jonathan Hester

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

30 Aug 2023 Diag: Wes Davis



Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





OIL ANALYSIS REPORT

Sample Rating Trend

WEAR \mathbf{X}

Machine Id 727016-596

Component

Diesel Engine Fluid

DIESEL ENGINE OIL SAE 15W40 (--- LTR)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

🛡 Wear

An increase in the iron level is noted. Cylinder, crank, or cam shaft wear is indicated.

Contamination

There is no indication of any contamination in the oil.

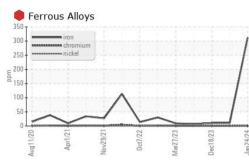
Fluid Condition

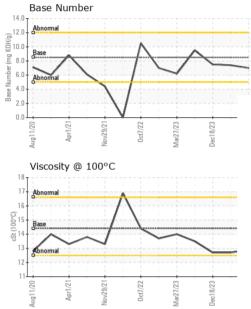
The BN result indicates that there is suitable alkalinity remaining in the oil.

		Aug2020	Apr2021 Nov2021	Oct2022 Mar2023 Dec2023	Jan2024	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0077786	GFL0077768	GFL0077771
Sample Date		Client Info		24 Jan 2024	27 Dec 2023	18 Dec 2023
Machine Age	mls	Client Info		240038	237345	236652
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				SEVERE	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	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	ම 312	11	11
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	19	16	17
Lead	ppm	ASTM D5185m	>40	9	3	3
Copper	ppm	ASTM D5185m	>330	24	4	1
Tin	ppm	ASTM D5185m	>15	3	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	<1	3	2
D ·			10	0	0	0
Barium	ppm	ASTM D5185m	10	-	0	0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	100	59	61	60
				59 6		
Molybdenum	ppm	ASTM D5185m			61	60
Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m	100	6	61 <1	60 0
Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	100 450	6 939	61 <1 981	60 0 896
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	100 450 3000	6 939 1078	61 <1 981 1139	60 0 896 1056
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	100 450 3000 1150	6 939 1078 981	61 <1 981 1139 1037	60 0 896 1056 920
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	100 450 3000 1150 1350	6 939 1078 981 1194	61 <1 981 1139 1037 1282	60 0 896 1056 920 1184
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	100 450 3000 1150 1350 4250	6 939 1078 981 1194 2856	61 <1 981 1139 1037 1282 3111	60 0 896 1056 920 1184 3053
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	100 450 3000 1150 1350 4250 limit/base	6 939 1078 981 1194 2856 current	61 <1 981 1139 1037 1282 3111 history1	60 0 896 1056 920 1184 3053 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	100 450 3000 1150 1350 4250 Iimit/base >25	6 939 1078 981 1194 2856 <u>current</u> 10	61 <1 981 1139 1037 1282 3111 history1 8	60 0 896 1056 920 1184 3053 history2 8
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	100 450 3000 1150 1350 4250 limit/base >25 >158	6 939 1078 981 1194 2856 <u>current</u> 10 2	61 <1 981 1139 1037 1282 3111 history1 8 <1	60 0 896 1056 920 1184 3053 history2 8 0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 ASTM D5185m	100 450 3000 1150 1350 4250 limit/base >25 >158 >20	6 939 1078 981 1194 2856 <u>current</u> 10 2 <1	61 <1 981 1139 1037 1282 3111 history1 8 <1 0	60 0 896 1056 920 1184 3053 history2 8 0 2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	100 450 3000 1150 1350 4250 limit/base >25 >158 >20	6 939 1078 981 1194 2856 <u>current</u> 10 2 <1 < <u>current</u>	61 <1 981 1139 1037 1282 3111 history1 8 <1 0 history1	60 0 896 1056 920 1184 3053 history2 8 0 2 kistory2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	100 450 3000 1150 4250 limit/base >25 >158 >20 limit/base >3	6 939 1078 981 1194 2856 <u>current</u> 10 2 <1 <u>current</u> 1.8	61 <1 981 1139 1037 1282 3111 history1 8 <1 0 history1 1.4	60 0 896 1056 920 1184 3053 history2 8 0 2 2 history2 1.2
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	100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 >20	6 939 1078 981 1194 2856 <u>current</u> 10 2 <1 <u>current</u> 1.8 1.8 14.6	61 <1 981 1139 1037 1282 3111 history1 8 <1 0 history1 1.4 1.4 12.8	60 0 896 1056 920 1184 3053 history2 8 0 2 kistory2 1.2 1.2 11.6
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	100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >3 >20 >30	6 939 1078 981 1194 2856 <u>current</u> 10 2 <1 <u>current</u> 1.8 1.8 14.6 25.8	61 <1 981 1139 1037 1282 3111 history1 8 <1 0 history1 1.4 12.8 23.0	60 0 896 1056 920 1184 3053 history2 8 0 2 <u>history2</u> 1.2 1.2 1.2 11.6 21.2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm TS 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 ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415	100 450 3000 1150 1350 4250 Imit/base >25 >158 >20 Imit/base >3 >20 >30 >30	6 939 1078 981 1194 2856 Current 10 2 <1 Current 1.8 14.6 25.8 Current	61 <1 981 1139 1037 1282 3111 history1 8 <1 0 history1 1.4 12.8 23.0 history1	60 0 896 1056 920 1184 3053 history2 8 0 2 <u>history2</u> 1.2 11.6 21.2 history2



OIL ANALYSIS REPORT





	VISUAL		method	limit/base	current	history1	history2
1	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
Dec18/23 Jan24/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Dec	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	RTIES	method	limit/base	current	history1	history2
\wedge	Visc @ 100°C	cSt	ASTM D445	14.4	12.9	12.7	12.7
	GRAPHS						
	Ferrous Alloys						
53	iron						
Dec18/23	300 - chromium						
	250-						
E	200 150						
				T			
	100	$\mathbf{\Lambda}$					
	50	5					
	Z1 Z1	22	23	24			
-	Aug11/20 - Apr1/21 -	0ct7/22	Mar27/23 Dec18/23	Jan 24/24			
	⊲ ≃ Non-ferrous Metal		2 0	7			
8/23	25 T	0.000					
Dec18/23	20 - copper						
	20 tin						
	15			1			
	الله 10-	٨		1			
		1		1/			
	5 X	VA		1			
		1 Alexandre	-				
	Aug11/20 Apr1/21 Nov29/21	0ct7/22	Mar27/23 Dec18/23	Jan24/24			
			Ma	Jai			
	Viscosity @ 100°C	• 			Base Number		
				14.0	Abromat		
	17 Abnormal	Λ		12.0			
		\backslash		0.0 KOH(0) 8.0 kOH(0)	Base	Λ	\wedge
	(2-15- Base tg 14	1	~~~	B.0	$\langle \rangle$	\sum	$/ \subseteq$
		\sim		4 6.0 M	Abnormal		
	13 Abnormal		\sim	e 4.0	•	$\backslash /$	
	12-			2.0		\mathbf{N}	
		22	23	0.0	21	22 23	53
	5 5	VIE	Mar27/23 Dec18/23	Jan 24/24	Aug11/20 Apr1/21	Nov29/21 0ct7/22	Dec18/23
	Aug11/20 Apr1/21 Nov29/21	0ct7/22	De	- ai	AL	~ 2	
Laboratory Sample No. Lab Number Unique Number Test Package	: WearCheck USA - 5 : GFL0077786 : 06072158		son Ave., Ca d : 26 . ed : 30 .			ironmental - 650 - V 7825 Parham	West Point Hau

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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