

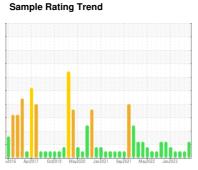
# **OIL ANALYSIS REPORT**



# NEW FLYER 1211

Component **Diesel Engine** 

SAFETY-KLEEN PERFORMANCE PLUS XHD-7 15W40 (--- GAL)





### **DIAGNOSIS**

#### Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

#### Wear

All component wear rates are normal.

#### Contamination

There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

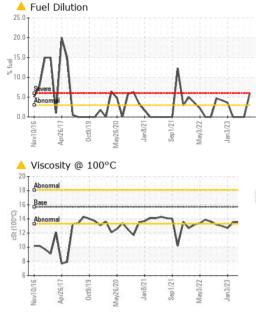
#### Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

			17 0012010 May2020			
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0830240	WC0830179	WC0791321
Sample Date		Client Info		19 Oct 2023	13 Jul 2023	02 May 2023
Machine Age	kms	Client Info		816644	811509	0
Oil Age	kms	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>75	14	18	22
Chromium	ppm	ASTM D5185(m)	>5	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>4	0	0	0
Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Silver	ppm	ASTM D5185(m)	>2	<1	0	0
Aluminum	ppm	ASTM D5185(m)	>15	5	3	4
Lead	ppm	ASTM D5185(m)	>25	1	2	5
Copper	ppm	ASTM D5185(m)	>100	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>4	0	<1	<1
Antimony	ppm	ASTM D5185(m)		0	0	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
				000		,
Boron	ppm	ASTM D5185(m)		1	<1	<1
Boron Barium	ppm ppm					_
Barium		ASTM D5185(m)		1	<1	<1
Barium Molybdenum	ppm	ASTM D5185(m) ASTM D5185(m)		1 <1	<1	<1
Barium Molybdenum Manganese	ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		1 <1 56	<1 0 56	<1 0 61
Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		1 <1 56 0	<1 0 56 <1	<1 0 61 <1
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		1 <1 56 0 910	<1 0 56 <1 964	<1 0 61 <1 948
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185(m)		1 <1 56 0 910 976	<1 0 56 <1 964 1038	<1 0 61 <1 948 1007
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185(m)		1 <1 56 0 910 976 933	<1 0 56 <1 964 1038 1070	<1 0 61 <1 948 1007 1069
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185(m)		1 <1 56 0 910 976 933 1119	<1 0 56 <1 964 1038 1070	<1 0 61 <1 948 1007 1069
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base	1 <1 56 0 910 976 933 1119 2343 <1	<1 0 56 <1 964 1038 1070 1197 2530	<1 0 61 <1 948 1007 1069 1141 2460
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)		1 <1 56 0 910 976 933 1119 2343 <1	<1 0 56 <1 964 1038 1070 1197 2530 <1	<1 0 61 <1 948 1007 1069 1141 2460
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base	1 <1 56 0 910 976 933 1119 2343 <1 current	<1 0 56 <1 964 1038 1070 1197 2530 <1	<1 0 61 <1 948 1007 1069 1141 2460 <1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base	1 <1 56 0 910 976 933 1119 2343 <1 current 3	<1 0 56 <1 964 1038 1070 1197 2530 <1 history1	<1 0 61 <1 948 1007 1069 1141 2460 <1 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm	ASTM D5185(m)	limit/base >25	1 <1 56 0 910 976 933 1119 2343 <1 current 3 2	<1 0 56 <1 964 1038 1070 1197 2530 <1 history1 4 2	<1 0 61 <1 948 1007 1069 1141 2460 <1 history2 4 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm	ASTM D5185(m)	limit/base >25 >20	1 <1 56 0 910 976 933 1119 2343 <1 current 3 2 <1	<1 0 56 <1 964 1038 1070 1197 2530 <1 history1 4 2 <1	<1 0 61 <1 948 1007 1069 1141 2460 <1 history2 4 2 <1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185(m)	limit/base >25 >20 >3.0	1 <1 56 0 910 976 933 1119 2343 <1 current 3 2 <1	<1 0 56 <1 964 1038 1070 1197 2530 <1 history1 4 2 <1 <1.0	<1 0 61 <1 948 1007 1069 1141 2460 <1 history2 4 2 <1 <1.0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185(m)	limit/base >25 >20 >3.0 limit/base	1	<1 0 56 <1 964 1038 1070 1197 2530 <1 history1 4 2 <1 <1.0 history1	<1 0 61 <1 948 1007 1069 1141 2460 <1 history2 4 2 <1 <1.0 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185(m) ASTM D7593*  method  ASTM D7844*	limit/base >25 >20 >3.0 limit/base >6	1	<1 0 56 <1 964 1038 1070 1197 2530 <1 history1 4 2 <1 <1.0 history1 0.5	<1 0 61 <1 948 1007 1069 1141 2460 <1 history2 4 2 <1 <1.0 history2 0.7
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185(m) ASTM D7844* ASTM D7624*	limit/base >25 >20 >3.0 limit/base >6 >20	1	<1 0 56 <1 964 1038 1070 1197 2530 <1 history1 4 2 <1 <1.0 history1 0.5 9.1	<1 0 61 <1 948 1007 1069 1141 2460 <1 history2 4 2 <1 <1.0 history2 0.7 9.9



## **OIL ANALYSIS REPORT**



VISUAL		method	limit/base	current	history1	histor
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPERT	ΓIES	method	limit/base	current	history1	histor
√isc @ 100°C	cSt	ASTM D7279(m)	15.7	<b>12.6</b>	13.4	13.5
GRAPHS						
Iron (ppm)				Lead (ppm)		
Severe			50	Smiara		
			40			
Abnormal			튑31			
1			20	0		
111	ΛΛ	M	11			
7000	' V ~		<u> </u>			_/\
Apr26/17 0ct9/19 May26/20	Jan8/21	Sep1/21 May3/22		Nov10/16 Apr26/17	May26/20 Jan8/21 Sep1/21	May3/22 Jan3/23
≥ ₹ ≥ S Aluminum (ppm)	-	2	10.	≗ ₹ Chromium (	Σ	2 7
I i i i i i i i i i i i i i i i i i i i			12	, I i i i i i i i i i i i i i i i i i i	>p.ii)	
Severe			10	Severe		
100000000000000000000000000000000000000			11111	3		
Abnormal			Ed (	Abnormal		
			1111	10001000		
			<i>~</i>	M	~~~	-
Nov10/16 Apr26/17 Oct9/19	Jan8/21-	Sep 1/21	3	Nov10/16	May26/20 - Jan8/21 - Sep1/21 -	May3/22
2 7 2	Ъ	May Se	5	2 4	Σ	Mar
Copper (ppm)			60	Silicon (ppm	) :	
Severe			50	Severe		
			40	)		
Ahnormal			E 30	Abnormal		
Contonia			20		$\Lambda$	٨
			10	^^^	1/1	V
717	V21	22 23	3		720	72
Nov10/16 Apr26/17 0ct9/19 May26/20	Jan8/21	Sep1	3	Nov10/ Apr26, Oct9/	May26/20 Jan8/21 Sep1/21	May3/ Jan3/
Viscosity @ 100°C	2			Fuel Dilution	_	
Abnormal			25.0	The minute		
Base			20.0	l A		
Abnormal		7~~	3 15.0 2 10.0	\\\\\		
A	V	1	3º 10.0	- / / /		
7/			5.0	Abnormal	M	n n
U				O CONTONIA	ALV	-11



CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5667990

: WC0830240 : 02590911

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received : 23 Oct 2023 Diagnosed

: 24 Oct 2023 Diagnostician : Wes Davis **Test Package**: MOB 1 (Additional Tests: FuelDilution, PercentFuel)

**CITY OF HAMILTON** 2200 UPPER JAMES,, MOUNTAIN TRANSIT STOREROOM MOUNT HOPE, ON CA LOR 1W0

Contact: Jeff Parr jeff.parr@hamilton.ca T: (905)546-2424 F: (905)679-4502

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.