

# **OIL ANALYSIS REPORT**

# T

# Sample Rating Trend





# NEW FLYER 1203

**Diesel Engine** 

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

### DIAGNOSIS

#### Recommendation

The oil change at the time of sampling has been noted. 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

The oil is no longer serviceable due to the presence of contaminants.

Sample Number   Client Info   WC0877885   WC0878095   WC089090   Sample Date   Client Info   O4 Apr 2024   27 Feb 2024   10 Jan 200   20 Jan 200   Age   kms   Client Info   O 0	E PLUS XHD-7 15W40	( GAL)	12017 Jan20	20 Aug2020 Mar2021	Nov2021 Jul2022 Feb2023	0et2023	
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age	Sample Number		Client Info		WC0877885	WC0878095	WC089096
Dil Age	Sample Date		Client Info		04 Apr 2024	27 Feb 2024	10 Jan 2024
Client Info	Machine Age	kms	Client Info		914537	905879	895133
CONTAMINATION	Oil Age	kms	Client Info		0	0	0
CONTAMINATION         method         limit/base         current         history1         history1           Water         WC Method         0.2         NEG         NEG         NEG           Alycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1           ron         ppm         ASTM D5185(m)         >75         12         17         16           Chromium         ppm         ASTM D5185(m)         >5         -1         <1	Oil Changed		Client Info		Changed	Changed	N/A
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1           ron         ppm         ASTM D5185(m)         >75         12         17         16           Chromium         ppm         ASTM D5185(m)         >5         <1         <1         <1         <1           Nickel         ppm         ASTM D5185(m)         >4         0         <1         0           Silver         ppm         ASTM D5185(m)         >2         0         0         0           Aluminum         ppm         ASTM D5185(m)         >2         0         <1         <1           Lead         ppm         ASTM D5185(m)         >2         0         <1         <1           Lead         ppm         ASTM D5185(m)         >2         0         <1         <1           Capad         ppm         ASTM D5185(m)         >4         0         0         0           Apademach         ppm         ASTM D5185(m)         0         0         0         0	Sample Status				ABNORMAL	ABNORMAL	NORMAL
WEAR METALS	CONTAMINATION	٧	method	limit/base	current	history1	history2
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Pron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185(m)         >5         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2         <2 </td <td>WEAR METALS</td> <td></td> <td>method</td> <td>limit/base</td> <td>current</td> <td>history1</td> <td>history2</td>	WEAR METALS		method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185(m)	>75	12	17	16
Description	Chromium	ppm	ASTM D5185(m)	>5	<1	<1	<1
Saliver	Nickel	ppm	ASTM D5185(m)	>4	0	<1	0
Aluminum ppm ASTM D5185(m) >15 1 2 2 2 Lead ppm ASTM D5185(m) >25 0 <1 <1 Copper ppm ASTM D5185(m) >25 0 <1 <1 Copper ppm ASTM D5185(m) >100 <1 <1 <1 Copper ppm ASTM D5185(m) >4 0 0 0 0 Antimony ppm ASTM D5185(m) 0 0 0 0 Antimony ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 58 58 58 57 Calcium ppm ASTM D5185(m) 58 58 58 57 Calcium ppm ASTM D5185(m) 949 932 935 Calcium ppm ASTM D5185(m) 993 968 1016 Calcium ppm ASTM D5185(m) 993 968 1016 Calcium ppm ASTM D5185(m) 984 992 992 Zinc ppm ASTM D5185(m) 984 992 992 Zinc ppm ASTM D5185(m) 1156 1178 1142 CONTAMINANTS method limit/base current history1 history	Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Lead         ppm         ASTM D5185(m)         >25         0         <1         <1           Copper         ppm         ASTM D5185(m)         >100         <1         <1         <1           Tin         ppm         ASTM D5185(m)         >4         0         0         0           Antimony         ppm         ASTM D5185(m)         0         0         0         0           Vanadium         ppm         ASTM D5185(m)         0         0         0         0           Beryllium         ppm         ASTM D5185(m)         0         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Barium         ppm         ASTM D5185(m)         41         1         <1         <1           Barium         ppm         ASTM D5185(m)         58         58         57            Barium         ppm         ASTM D5185(m)         949         932         935           Calcium         ppm         ASTM D5185(m)         993         968         1016	Silver	ppm	ASTM D5185(m)	>2	0	0	0
Lead         ppm         ASTM D5185(m)         >2.25         0         <1         <1           Copper         ppm         ASTM D5185(m)         >10.0         <1         <1         <1           Tin         ppm         ASTM D5185(m)         >4         0         0         0           Antimony         ppm         ASTM D5185(m)         0         0         0         0           Vanadium         ppm         ASTM D5185(m)         0         0         0         0           Beryllium         ppm         ASTM D5185(m)         0         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Barium         ppm         ASTM D5185(m)         0         0         0         0           Barium         ppm         ASTM D5185(m)         58         58         57         0           Manganese         ppm         ASTM D5185(m)         949         932         935           Calcium         ppm         ASTM D5185(m)         984         992         992	Aluminum	ppm	ASTM D5185(m)	>15	1	2	2
Copper         ppm         ASTM D5185(m)         >100         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1 </td <td>Lead</td> <td>ppm</td> <td></td> <td>&gt;25</td> <td>0</td> <td>&lt;1</td> <td>&lt;1</td>	Lead	ppm		>25	0	<1	<1
Tin	Copper		ASTM D5185(m)	>100	<1	<1	<1
Antimony         ppm         ASTM D5185(m)         0         0         0           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         history1           Boron         ppm         ASTM D5185(m)         <1         1         <1           Barium         ppm         ASTM D5185(m)         0         0         0           Molybdenum         ppm         ASTM D5185(m)         58         58         57           Manganese         ppm         ASTM D5185(m)         949         932         935           Calcium         ppm         ASTM D5185(m)         993         968         1016           Phosphorus         ppm         ASTM D5185(m)         984         992         992           Zinc         ppm         ASTM D5185(m)         1156         1178         1142           Sulfur         ppm         ASTM D5185(m)         <1         <1         <1	Tin		ASTM D5185(m)		0	0	0
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         history1           Boron         ppm         ASTM D5185(m)         <1         1         <1           Barium         ppm         ASTM D5185(m)         0         0         0           Molybdenum         ppm         ASTM D5185(m)         58         58         57           Manganese         ppm         ASTM D5185(m)         949         932         935           Calcium         ppm         ASTM D5185(m)         993         968         1016           Phosphorus         ppm         ASTM D5185(m)         984         992         992           Zinc         ppm         ASTM D5185(m)         1156         1178         1142           Sulfur         ppm         ASTM D5185(m)         2542         2605         2591           Lithium         ppm         ASTM D5185(m)         <1         <1         <	Antimony				0	0	0
Description	Vanadium	ppm	ASTM D5185(m)		0	0	0
Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185(m)         <1	Beryllium		ASTM D5185(m)		0	0	0
Soron   ppm   ASTM D5185(m)   Carriage   Carriage   ASTM D5185(m)   Carriage   Carria	Cadmium	ppm	ASTM D5185(m)		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185(m)         58         58         57           Manganese         ppm         ASTM D5185(m)         <1	Boron	ppm	ASTM D5185(m)		<1	1	<1
Manganese         ppm         ASTM D5185(m)         <1         0         0           Magnesium         ppm         ASTM D5185(m)         949         932         935           Calcium         ppm         ASTM D5185(m)         993         968         1016           Phosphorus         ppm         ASTM D5185(m)         984         992         992           Zinc         ppm         ASTM D5185(m)         1156         1178         1142           Sulfur         ppm         ASTM D5185(m)         2542         2605         2591           Lithium         ppm         ASTM D5185(m)         <1	Barium	ppm	ASTM D5185(m)		0	0	0
Magnesium         ppm         ASTM D5185(m)         949         932         935           Calcium         ppm         ASTM D5185(m)         993         968         1016           Phosphorus         ppm         ASTM D5185(m)         984         992         992           Zinc         ppm         ASTM D5185(m)         1156         1178         1142           Sulfur         ppm         ASTM D5185(m)         2542         2605         2591           Lithium         ppm         ASTM D5185(m)         <1	Molybdenum	ppm	ASTM D5185(m)		58	58	57
Calcium         ppm         ASTM D5185(m)         993         968         1016           Phosphorus         ppm         ASTM D5185(m)         984         992         992           Zinc         ppm         ASTM D5185(m)         1156         1178         1142           Sulfur         ppm         ASTM D5185(m)         2542         2605         2591           Lithium         ppm         ASTM D5185(m)         <1	Manganese	ppm	ASTM D5185(m)		<1	0	0
Phosphorus         ppm         ASTM D5185(m)         984         992         992           Zinc         ppm         ASTM D5185(m)         1156         1178         1142           Sulfur         ppm         ASTM D5185(m)         2542         2605         2591           Lithium         ppm         ASTM D5185(m)         <1	Magnesium	ppm	ASTM D5185(m)		949	932	935
Zinc         ppm         ASTM D5185(m)         1156         1178         1142           Sulfur         ppm         ASTM D5185(m)         2542         2605         2591           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185(m)         >25         2         4         3           Sodium         ppm         ASTM D5185(m)         <1         2         1           Potassium         ppm         ASTM D5185(m)         >20         <1         <1         0           Fuel         %         ASTM D7593*         >3.0         3.6         3.6         <1.0           INFRA-RED         method         limit/base         current         history1         history3           Soot %         %         ASTM D7844*         >6         0.5         0.6         0.5           Nitration         Abs/cm         ASTM D7624*         >20         8.3         9.0         8.2	Calcium	ppm	ASTM D5185(m)		993	968	1016
Sulfur         ppm         ASTM D5185(m)         2542         2605         2591           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185(m)         >25         2         4         3           Sodium         ppm         ASTM D5185(m)         >25         2         4         3           Potassium         ppm         ASTM D5185(m)         >20         <1	Phosphorus	ppm	ASTM D5185(m)		984	992	992
Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history3           Silicon         ppm         ASTM D5185(m)         >25         2         4         3           Sodium         ppm         ASTM D5185(m)         <1	Zinc	ppm	ASTM D5185(m)		1156	1178	1142
CONTAMINANTS         method         limit/base         current         history1         history3           Silicon         ppm         ASTM D5185(m)         >25         2         4         3           Sodium         ppm         ASTM D5185(m)         <1	Sulfur	ppm	ASTM D5185(m)		2542	2605	2591
Silicon         ppm         ASTM D5185(m)         >25         2         4         3           Sodium         ppm         ASTM D5185(m)         <1         2         1           Potassium         ppm         ASTM D5185(m)         >20         <1         <1         0           Fuel         %         ASTM D7593*         >3.0         ▲ 3.6         ▲ 3.6         <1.0           INFRA-RED         method         limit/base         current         history1         history3           Soot %         %         ASTM D7844*         >6         0.5         0.6         0.5           Nitration         Abs/cm         ASTM D7624*         >20         8.3         9.0         8.2	Lithium	ppm	ASTM D5185(m)			<1	
Sodium         ppm         ASTM D5185(m)         <1         2         1           Potassium         ppm         ASTM D5185(m)         >20         <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185(m)         >20         <1         <1         0           Fuel         %         ASTM D7593*         >3.0         ▲ 3.6         ▲ 3.6         <1.0           INFRA-RED         method         limit/base         current         history1         history           Soot %         %         ASTM D7844*         >6         0.5         0.6         0.5           Nitration         Abs/cm         ASTM D7624*         >20         8.3         9.0         8.2	Silicon	ppm	ASTM D5185(m)	>25	2		
Fuel       %       ASTM D7593*       >3.0       ▲ 3.6       ▲ 3.6       <1.0         INFRA-RED       method       limit/base       current       history1       history1         Soot %       %       ASTM D7844*       >6       0.5       0.6       0.5         Nitration       Abs/cm       ASTM D7624*       >20       8.3       9.0       8.2	Sodium	ppm	ASTM D5185(m)		<1	2	1
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >6         0.5         0.6         0.5           Nitration         Abs/cm         ASTM D7624*         >20         8.3         9.0         8.2	Potassium	ppm	\ /	>20	<1		0
Soot %         %         ASTM D7844*         >6 <b>0.5</b> 0.6         0.5           Nitration         Abs/cm         ASTM D7624*         >20 <b>8.3</b> 9.0         8.2	Fuel	%	ASTM D7593*	>3.0	<b>△</b> 3.6	▲ 3.6	<1.0
Nitration         Abs/cm         ASTM D7624*         >20         8.3         9.0         8.2	INFRA-RED		method	limit/base	current	history1	history2
	Soot %	%	ASTM D7844*	>6	0.5	0.6	0.5
Sulfation Abs/.1mm ASTM D7415* >30 <b>19.9</b> 20.5 20.0	Nitration	Abs/cm	ASTM D7624*	>20	8.3	9.0	8.2
	Sulfation	Abs/.1mm	ASTM D7415*	>30	19.9	20.5	20.0



# **OIL ANALYSIS REPORT**





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No.

: WC0877885 Lab Number : 02627649 Unique Number : 5760781

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9

Received : 09 Apr 2024 **Tested** : 10 Apr 2024 Diagnosed

2200 UPPER JAMES,, MOUNTAIN TRANSIT STOREROOM : 10 Apr 2024 - Wes Davis Test Package : MOB 1 ( Additional Tests: PercentFuel )

MOUNT HOPE, ON Contact: Jeff Parr jeff.parr@hamilton.ca

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.

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**CITY OF HAMILTON**