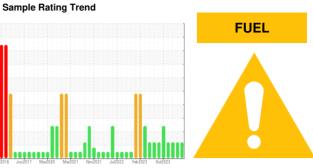


# **OIL ANALYSIS REPORT**





## Machine Id **NEW FLYER 1221**

**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

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

Client Info	E PLUS XHD-7 15W40	( GAL)	v2016 Jun20	17 Mar2020 Mar2021	Nov2021 Jul2022 Feb2023	0et2023	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age   kms	Sample Number		Client Info		WC0917544	WC0891158	WC0891124
Dil Age	Sample Date		Client Info		28 Mar 2024	15 Feb 2024	07 Jan 2024
Cilichanged   Cilich Info   N/A   ABNORMAL   ABNORMA	Machine Age	kms	Client Info		875985	866592	858756
ABNORMAL   ABNORMAL	Oil Age	kms	Client Info		0	0	0
CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.2         NEG         NEG         NEG         NEG           Silycol         WC Method         NEG         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM DS185(m)         >5         <1	Oil Changed		Client Info		N/A	N/A	N/A
Water         WC Method         >0.2         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185(m)         >75         14         13         14           Chromium         ppm         ASTM D5185(m)         >5         <1	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
WEAR METALS	CONTAMINATION	١	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185(m)         >75         14         13         14           Chromium         ppm         ASTM D5185(m)         >5         <1	Water		WC Method	>0.2	NEG	NEG	NEG
Pop	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185(m)	>75	14	13	14
Description	Chromium	ppm	ASTM D5185(m)	>5	<1	<1	<1
Saliver	Nickel	ppm	ASTM D5185(m)	>4	0	<1	0
Aluminum   ppm	Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Lead         ppm         ASTM D5185(m)         >25         <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	Silver	ppm			0	0	0
Copper         ppm         ASTM D5188[m]         >100         <1         <1         <1           Fin         ppm         ASTM D5185(m)         >4         0         0         0           Antimony         ppm         ASTM D5185(m)         0         0         0           Vanadium         ppm         ASTM D5185(m)         0         0         0           Boron         ppm         ASTM D5185(m)         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0           Boron         ppm         ASTM D5185(m)         0         0         0         0           Boron         ppm         ASTM D5185(m)         0 <td>Aluminum</td> <td>ppm</td> <td>ASTM D5185(m)</td> <td>&gt;15</td> <th>1</th> <td>2</td> <td>1</td>	Aluminum	ppm	ASTM D5185(m)	>15	1	2	1
Tin	_ead	ppm	ASTM D5185(m)	>25	<1	<1	<1
Antimony   ppm   ASTM D5185(m)   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Copper	ppm	ASTM D5185(m)	>100	<1	<1	<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           Barium         ppm         ASTM D5185(m)         <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	Γin	ppm	ASTM D5185(m)	>4	0	0	0
Beryllium	Antimony	ppm	ASTM D5185(m)		0	0	0
Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         <1         <1         <1         <1           Barium         ppm         ASTM D5185(m)         0         0         0         0           Molybdenum         ppm         ASTM D5185(m)         56         55         56           Manganese         ppm         ASTM D5185(m)         938         896         921           Magnesium         ppm         ASTM D5185(m)         990         932         1005           Phosphorus         ppm         ASTM D5185(m)         960         969         964           Zinc         ppm         ASTM D5185(m)         2373         2543         2499           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >20         <1         1         1         2           Potassium	Vanadium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES	Beryllium	ppm	ASTM D5185(m)		0	0	0
Soron   ppm   ASTM D5185(m)   c1   c1   c1   c3   c3   c3   c3   c4   c4   c4   c4	Cadmium	ppm	ASTM D5185(m)		0	0	0
Description	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185(m)         56         55         56           Manganese         ppm         ASTM D5185(m)         0         0         0           Magnesium         ppm         ASTM D5185(m)         938         896         921           Calcium         ppm         ASTM D5185(m)         990         932         1005           Phosphorus         ppm         ASTM D5185(m)         960         969         964           Zinc         ppm         ASTM D5185(m)         2373         2543         2499           Lithium         ppm         ASTM D5185(m)         <1         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         2         3         3           Sodium         ppm         ASTM D5185(m)         >20         <1         1         1         2           Potassium         ppm         ASTM D5185(m)         >20         <1         1         4           Fuel         %         ASTM D7693*         >3.0         4.7         5.3         4.9	Boron	ppm	ASTM D5185(m)		<1	<1	<1
Manganese         ppm         ASTM D5185(m)         0         0         0           Magnesium         ppm         ASTM D5185(m)         938         896         921           Calcium         ppm         ASTM D5185(m)         990         932         1005           Phosphorus         ppm         ASTM D5185(m)         960         969         964           Zinc         ppm         ASTM D5185(m)         1154         1123         1122           Sulfur         ppm         ASTM D5185(m)         2373         2543         2499           Lithium         ppm         ASTM D5185(m)         <1         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         2         3         3           Sodium         ppm         ASTM D5185(m)         >20         <1         1         1         2           Potassium         ppm         ASTM D5185(m)         >20         <1         1         4         4.9           INFRA-RED         method         limit/base         current         history1         history2	Barium	ppm	ASTM D5185(m)		0	0	0
Magnesium         ppm         ASTM D5185(m)         938         896         921           Calcium         ppm         ASTM D5185(m)         990         932         1005           Phosphorus         ppm         ASTM D5185(m)         960         969         964           Zinc         ppm         ASTM D5185(m)         1154         1123         1122           Sulfur         ppm         ASTM D5185(m)         2373         2543         2499           Lithium         ppm         ASTM D5185(m)         <1	Molybdenum	ppm	ASTM D5185(m)		56	55	56
Calcium         ppm         ASTM D5185(m)         990         932         1005           Phosphorus         ppm         ASTM D5185(m)         960         969         964           Zinc         ppm         ASTM D5185(m)         1154         1123         1122           Sulfur         ppm         ASTM D5185(m)         2373         2543         2499           Lithium         ppm         ASTM D5185(m)         <1	Manganese	ppm	ASTM D5185(m)		0	0	0
Phosphorus         ppm         ASTM D5185(m)         960         969         964           Zinc         ppm         ASTM D5185(m)         1154         1123         1122           Sulfur         ppm         ASTM D5185(m)         2373         2543         2499           Lithium         ppm         ASTM D5185(m)         <1	Magnesium	ppm	ASTM D5185(m)		938	896	921
Zinc         ppm         ASTM D5185(m)         1154         1123         1122           Sulfur         ppm         ASTM D5185(m)         2373         2543         2499           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         2         3         3           Sodium         ppm         ASTM D5185(m)         >20         <1         1         2           Potassium         ppm         ASTM D5185(m)         >20         <1         1         4           Fuel         %         ASTM D7593*         >3.0         4.7         5.3         4.9           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >6         0.5         0.4         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.3         8.7	Calcium	ppm	ASTM D5185(m)		990	932	1005
Sulfur         ppm         ASTM D5185(m)         2373         2543         2499           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         2         3         3           Sodium         ppm         ASTM D5185(m)         >20         <1         1         2           Potassium         ppm         ASTM D5185(m)         >20         <1         1         4           Fuel         %         ASTM D7593*         >3.0         4.7         5.3         4.9           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >6         0.5         0.4         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.3         8.7	Phosphorus	ppm	ASTM D5185(m)		960	969	964
Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         2         3         3           Sodium         ppm         ASTM D5185(m)         1         1         2           Potassium         ppm         ASTM D5185(m)         >20         <1	Zinc	ppm	ASTM D5185(m)		1154	1123	1122
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         2         3         3           Sodium         ppm         ASTM D5185(m)         1         1         2           Potassium         ppm         ASTM D5185(m)         >20         <1	Sulfur	ppm	ASTM D5185(m)		2373	2543	2499
Silicon   ppm   ASTM D5185(m)   >25   2   3   3	Lithium	ppm	ASTM D5185(m)		<1	<1	<1
Sodium         ppm         ASTM D5185(m)         1         1         2           Potassium         ppm         ASTM D5185(m)         >20         <1         1         4           Fuel         %         ASTM D7593*         >3.0         4.7         ▲ 5.3         ▲ 4.9           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >6         0.5         0.4         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.3         8.7	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185(m)         >20         <1	Silicon	ppm	ASTM D5185(m)	>25	2	3	3
Fuel % ASTM D7593* >3.0	Sodium	ppm	ASTM D5185(m)		1	1	2
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >6         0.5         0.4         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.3         8.7	Potassium	ppm	ASTM D5185(m)	>20	<1		4
Soot %         %         ASTM D7844*         >6 <b>0.5</b> 0.4         0.4           Nitration         Abs/cm         ASTM D7624*         >20 <b>8.7</b> 8.3         8.7	Fuel	%	ASTM D7593*	>3.0	<b>4.7</b>	▲ 5.3	<b>▲</b> 4.9
Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.3         8.7	INFRA-RED		method	limit/base	current	history1	history2
Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.3         8.7	Soot %	%	ASTM D7844*	>6	0.5	0.4	0.4
	Nitration	Abs/cm					8.7
	Sulfation						



## **OIL ANALYSIS REPORT**







Laboratory Sample No.

Lab Number : 02626564

: WC0917544

To discuss this sample report, contact Customer Service at 1-800-268-2131.

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Unique Number : 5759696

Test Package : MOB 1 ( Additional Tests: PercentFuel )

Received **Tested** Diagnosed

: 04 Apr 2024 : 05 Apr 2024 : 05 Apr 2024 - Wes Davis

2200 UPPER JAMES,, MOUNTAIN TRANSIT STOREROOM MOUNT HOPE, ON CA LOR 1W0

CITY OF HAMILTON

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

F: (905)679-4502

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.

Contact/Location: Jeff Parr - HAMHAM