

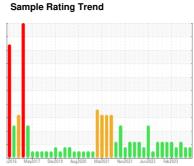
OIL ANALYSIS REPORT



NEW FLYER 1224

Component **Diesel Engine**

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





DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

Light fuel dilution occurring. No other contaminants were detected in the oil.

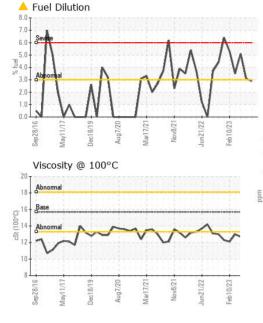
Fluid Condition

The condition of the oil is acceptable for the time in service.

CATION FF HAL CLIN	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0830250	WC0811607	WC0791352
Sample Date		Client Info		11 Aug 2023	30 Jun 2023	16 May 2023
Machine Age	kms	Client Info		816509	0	800845
Oil Age	kms	Client Info		0	0	0
Oil Changed	KIIIS	Client Info		N/A	N/A	N/A
		Ciletit IIIIO		MARGINAL	ABNORMAL	ABNORMAL
Sample Status						
CONTAMINATION	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	18	25	33
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	<1
Silver	ppm	ASTM D5185(m)	>2	0	0	0
Aluminum	ppm	ASTM D5185(m)	>15	1	1	2
Lead	ppm	ASTM D5185(m)	>25	<1	<1	<1
Copper	ppm	ASTM D5185(m)	>100	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>4	0	0	<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
Boron	ppm	ASTM D5185(m)		_	4	<1
	ppiii	ASTIVI DOTOS(III)		1	<1	< 1
Barium	ppm	ASTM D5185(m)		1 0	0	0
		. ,				
Barium Molybdenum	ppm	ASTM D5185(m)		0	0	0
Barium	ppm ppm	ASTM D5185(m) ASTM D5185(m)		0 58	0 58	0 59
Barium Molybdenum Manganese	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		0 58 <1	0 58 <1	0 59 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		0 58 <1 966	0 58 <1 952	0 59 <1 948
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		0 58 <1 966 1019	0 58 <1 952 1055	0 59 <1 948 1052
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		0 58 <1 966 1019 1035	0 58 <1 952 1055 1071	0 59 <1 948 1052 1056
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185(m)		0 58 <1 966 1019 1035 1166	0 58 <1 952 1055 1071 1199	0 59 <1 948 1052 1056 1186
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base	0 58 <1 966 1019 1035 1166 2496	0 58 <1 952 1055 1071 1199 2474	0 59 <1 948 1052 1056 1186 2492
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base >25	0 58 <1 966 1019 1035 1166 2496	0 58 <1 952 1055 1071 1199 2474 <1	0 59 <1 948 1052 1056 1186 2492 <1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)		0 58 <1 966 1019 1035 1166 2496 <1	0 58 <1 952 1055 1071 1199 2474 <1 history1	0 59 <1 948 1052 1056 1186 2492 <1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)		0 58 <1 966 1019 1035 1166 2496 <1 current	0 58 <1 952 1055 1071 1199 2474 <1 history1	0 59 <1 948 1052 1056 1186 2492 <1 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	>25	0 58 <1 966 1019 1035 1166 2496 <1 current 3	0 58 <1 952 1055 1071 1199 2474 <1 history1 4	0 59 <1 948 1052 1056 1186 2492 <1 history2 4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) MASTM D5185(m) MASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>25 >20	0 58 <1 966 1019 1035 1166 2496 <1 current 3 2	0 58 <1 952 1055 1071 1199 2474 <1 history1 4 2 0	0 59 <1 948 1052 1056 1186 2492 <1 history2 4 3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	>25 >20 >3.0	0 58 <1 966 1019 1035 1166 2496 <1 current 3 2 <1 ▲ 2.9	0 58 <1 952 1055 1071 1199 2474 <1 history1 4 2 0 ▲ 3.1	0 59 <1 948 1052 1056 1186 2492 <1 history2 4 3 0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	>25 >20 >3.0 limit/base	0 58 <1 966 1019 1035 1166 2496 <1 current 3 2 <1 ▲ 2.9 current 0.5	0 58 <1 952 1055 1071 1199 2474 <1 history1 4 2 0 ▲ 3.1 history1	0 59 <1 948 1052 1056 1186 2492 <1 history2 4 3 0 ▲ 5.1 history2 0.9
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7593* method ASTM D7593*	>25 >20 >3.0 limit/base >6	0 58 <1 966 1019 1035 1166 2496 <1 current 3 2 <1 ▲ 2.9 current	0 58 <1 952 1055 1071 1199 2474 <1 history1 4 2 0 ▲ 3.1 history1 0.7	0 59 <1 948 1052 1056 1186 2492 <1 history2 4 3 0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7844* ASTM D7824*	>25 >20 >3.0 Imit/base >6 >20	0 58 <1 966 1019 1035 1166 2496 <1 current 3 2 <1 ▲ 2.9 current 0.5 8.4	0 58 <1 952 1055 1071 1199 2474 <1 history1 4 2 0 ▲ 3.1 history1 0.7 9.4	0 59 <1 948 1052 1056 1186 2492 <1 history2 4 3 0 ▲ 5.1 history2 0.9 10.4



OIL ANALYSIS REPORT



VISUAL		method	method limit/base		nt	h	istory	1	hi	story2	
Emulsified Water	scalar	calar Visual*		>0.2 NEG		NEG			NEG		
ree Water	scalar	Visual*		NEG		NEG			NEG		
FLUID PROPERTIES		method	d limit/ba	ase curre	nt	history1			history2		
/isc @ 100°C	cSt	ASTM D7279	9(m) 15.7	13.6		13.4			▲ 12.7		
GRAPHS											
Iron (ppm)			nersano.	Lead (pp	m)						
Severe				50 - Severe							
				40							
Abnormal				Abnormal							
				20							
~~~	~~	$\sim$	W	10							
777	-12//	3/21-	1/23	0 191/	61/4	/20	12/2	3/21	122	1/23	
Sep28/16 May11/17 Dec18/19	Mar17/21	Nov8/21 Jun21/22	Feb10/23	Sep28/16 May11/17	Dec18/19	Aug7/20	Mar17/21	Nov8/21	Jun21/22	Feb10/23	
Aluminum (ppm)				Chromiu	m (ppn	n)					
Severe				Severe							
•				8							
Abnormal				Abnormal	ЩШ.						
-				4							
			******	2			~				
717	12/	727	73	0 19 1	- GL/	720	12/	<b>*</b> 12/	727	× 52	
Sep28/16 May11/17 Dec18/19	Mar17/21	Nov8/21 Jun21/22	Feb10/23	Sep28/16 May11/17	Dec18/19	Aug7/20	Mar17/21	Nov8/21	Jun21/22	Feb10/23	
Copper (ppm)				Silicon (p	pm)						
Severe				Severe							
				40							
AL			11 1111	Abnormal	шш.						
Abnormal				20					À		
			****	10-			M		11		
17	<u>√-</u> 2	22	23	0	- 6L		21	\$-1z	7 22	33	
Sep28/16 May11/17 Dec18/19	Mar17/21	Nov8/21 Jun21/22	Feb 10/23	Sep28/16 May11/17	Dec18/19	Aug7/20	Mar17/21	Nov8/21	Jun21/22	Feb10/23	
Viscosity @ 100°C		-		▲ Fuel Dilu					-		



CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5628901

(0.001) 14 (3.001) 14

mdd

: WC0830250

: 02575841

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received : 15 Aug 2023 Diagnosed

Diagnostician : Wes Davis Test Package : MOB 1 ( Additional Tests: PercentFuel )

: 16 Aug 2023

0.0

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.