

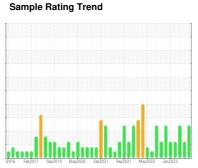
OIL ANALYSIS REPORT



NEW FLYER 0820

Component **Diesel Engine**

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





DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. 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 high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

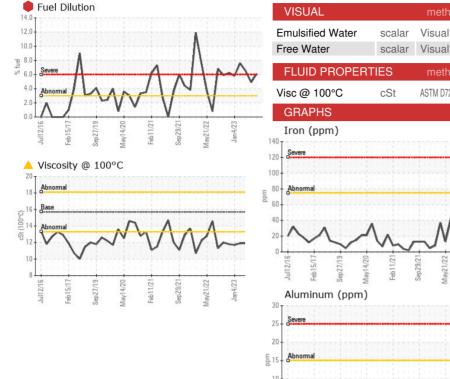
▲ Fluid Condition

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

E PLUS XHD-7 15W40 (GAL)	12016 Feb201	7 Sep2019 May2020	Feb 2021 Sep 2021 May 2022 .	Jan 2023	
SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0830330	WC0811608	WC0791243
Sample Date		Client Info		13 Aug 2023	03 Jul 2023	18 May 2023
Machine Age	kms	Client Info		0	119098	118225
Oil Age	kms	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	ABNORMAL	SEVERE
CONTAMINATION		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	14	20
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	2	<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
Beryllium Cadmium	ppm ppm	ASTM D5185(m) ASTM D5185(m)		0	0	0
			limit/base			
Cadmium ADDITIVES		ASTM D5185(m)	limit/base	0	0	0
Cadmium ADDITIVES Boron	ppm	ASTM D5185(m) method	limit/base	0 current	0 history1	0 history2
Cadmium ADDITIVES Boron Barium	ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base	current	0 history1 <1	0 history2 <1
Cadmium ADDITIVES Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m)	limit/base	0 current 1 0	0 history1 <1 0	0 history2 <1 0
Cadmium ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	0 current 1 0 54	0 history1 <1 0 57	0 history2 <1 0 58
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	0 current 1 0 54 <1	0 history1 <1 0 57 <1	0 history2 <1 0 58 <1
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	0 current 1 0 54 <1 889	0 history1 <1 0 57 <1 947	0 history2 <1 0 58 <1 936
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base	0 current 1 0 54 <1 889 956	0 history1 <1 0 57 <1 947 1040	0 history2 <1 0 58 <1 936 1052
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base	0 current 1 0 54 <1 889 956 930	0 history1 <1 0 57 <1 947 1040 1077	0 history2 <1 0 58 <1 936 1052 1055
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base	0 current 1 0 54 <1 889 956 930 1078	0 history1 <1 0 57 <1 947 1040 1077 1178	0 history2 <1 0 58 <1 936 1052 1055 1176
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base	0 current 1 0 54 <1 889 956 930 1078 2300	0 history1 <1 0 57 <1 947 1040 1077 1178 2497	0 history2 <1 0 58 <1 936 1052 1055 1176 2526
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm	ASTM D5185(m) method ASTM D5185(m)		0 current 1 0 54 <1 889 956 930 1078 2300 <1 current	0 history1 <1 0 57 <1 947 1040 1077 1178 2497 <1	0 history2 <1 0 58 <1 936 1052 1055 1176 2526 <1
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base	0 current 1 0 54 <1 889 956 930 1078 2300 <1	0 history1 <1 0 57 <1 947 1040 1077 1178 2497 <1 history1	0 history2 <1 0 58 <1 936 1052 1055 1176 2526 <1 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm	ASTM D5185(m) method ASTM D5185(m) Method ASTM D5185(m)	limit/base	0 current 1 0 54 <1 889 956 930 1078 2300 <1 current 3	0 history1 <1 0 57 <1 947 1040 1077 1178 2497 <1 history1 3	0 history2 <1 0 58 <1 936 1052 1055 1176 2526 <1 history2 4
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base >25	0 current 1 0 54	0 history1 <1 0 57 <1 947 1040 1077 1178 2497 <1 history1 3	0 history2 <1 0 58 <1 936 1052 1055 1176 2526 <1 history2 4
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base >25 >20	0 current 1 0 54 <1 889 956 930 1078 2300 <1 current 3 2 <1	0 history1 <1 0 57 <1 947 1040 1077 1178 2497 <1 history1 3 1 <1	0 history2 <1 0 58 <1 936 1052 1055 1176 2526 <1 history2 4 2 0
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D7593* method	limit/base >25 >20 >3.0 limit/base	0 current 1 0 54 <1 889 956 930 1078 2300 <1 current 3 2 <1 6.1 current	0 history1 <1 0 57 <1 947 1040 1077 1178 2497 <1 history1 3 1 <1 △ 4.9 history1	0 history2 <1 0 58 <1 936 1052 1055 1176 2526 <1 history2 4 2 0 ● 6.5 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D7593* method ASTM D7844*	limit/base >25 >20 >3.0 limit/base >6	0 current 1 0 54 <1 889 956 930 1078 2300 <1 current 3 2 <1 6.1 current 0.4	0 history1 <1 0 57 <1 947 1040 1077 1178 2497 <1 history1 3 1 <1 △ 4.9 history1 0.2	0 history2 <1 0 58 <1 936 1052 1055 1176 2526 <1 history2 4 2 0 6.5 history2 0.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel	ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D7593* method	limit/base >25 >20 >3.0 limit/base	0 current 1 0 54 <1 889 956 930 1078 2300 <1 current 3 2 <1 6.1 current	0 history1 <1 0 57 <1 947 1040 1077 1178 2497 <1 history1 3 1 <1 △ 4.9 history1	0 history2 <1 0 58 <1 936 1052 1055 1176 2526 <1 history2 4 2 0 ● 6.5 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D7844* ASTM D7624*	limit/base >25 >20 >3.0 limit/base >6 >20	0 current 1 0 54 <1 889 956 930 1078 2300 <1 current 3 2 <1 6.1 current 0.4 9.9	0 history1 <1 0 57 <1 947 1040 1077 1178 2497 <1 history1 3 1 <1 4.9 history1 0.2 8.5	0 history2 <1 0 58 <1 936 1052 1055 1176 2526 <1 history2 4 2 0 ● 6.5 history2 0.2 8.8



OIL ANALYSIS REPORT



VISUAL		method	limit/ba	ase current	history	1 h	istory	
mulsified Water	scalar	Visual*	>0.2	NEG	NEG		NEG	
Free Water scalar		Visual*		NEG	NEG	NE	NEG	
FLUID PROPERT	TES	method	limit/ba		history		istory	
isc @ 100°C	cSt	ASTM D7279(m)	15.7	<u> </u>	<u>▲</u> 12.3	<u> </u>	9	
GRAPHS				1 d /	\			
Iron (ppm)	-11005555		741305	Lead (ppm) 		1111	
Severe	A11 111	1000		50 - Severe				
Abnormal				40				
			++++-	Abnormal				
^ ^ /		M	111111	10	100000000000000000000000000000000000000			
~~	W	~\ <u>'</u>	~~			/	L	
Jul12/16 Feb15/17 Sep27/19 May14/20	Feb11/21	Sep29/21	Jan 4/23	Jul12/16 Feb15/17	Sep27/19 May14/20 Feb11/21	Sep29/21 May21/22	Jan 4/23	
Aluminum (ppm)	ш.	S M		Chromium	_	S M	-	
Severe				12				
				10 - 0				
Abnormal				E aliminiti				
				Abnormal	* * * * * * * * * * * * * * * * * * * *	+		
~^ -/	10	~		2	Λ.			
717	12/	127	723			712/	123	
Jul12/16 Feb15/17 Sep27/19 May14/20	Feb11/21	Sep29/21	Jan 4/23	Jul12/16-	Sep27/19 May14/20 Feb11/21	Sep29/21 May21/22	Jan4/23	
Copper (ppm)			*****	Silicon (ppi	m)			
Severe				50 Severe				
				40 -				
Abnormal				Abnormal		A.	H	
				20	٨	N١		
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Jui12/16 Feb15/17 Sep27/19	Feb11/21-	Sep29/21.	Jan 4/23	Jul12/16	Sep27/19 May14/20 Feb11/21	Sep29/21	Jan4/23	
Viscosity @ 100°C		Se May	,	ਤ ± ● Fuel Dilutio		Se. May	Ϋ́	
7333577777777			111111	14.0				
Abnormal				10.0		Mark 1		
Base	> A			g 8.0+	111111111111111	/\		
Abnormal	4/	11/1-			$-\Lambda$	MI	W	
V	V	4 V V	13333	Abnormal	WY	/~ V		
				Λ /	V Y	A A		
Jul12/16 Feb15/17 Sep27/19 -	Feb11/21-	Sep29/21-	Jan 4/23 +	Juli 2/16	Sep27/19 May14/20 Feb11/21-	Sep29/21- May21/22-	Jan4/23	



CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5629176

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : WC0830330 : 02576116

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

Received : 16 Aug 2023 Diagnosed Diagnostician : Kevin Marson

: 17 Aug 2023 Test Package : MOB 1 (Additional Tests: 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

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.

F: (905)679-4502