

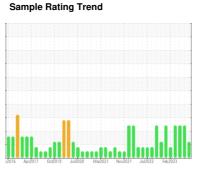
OIL ANALYSIS REPORT



NEW FLYER 0901

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

Metal levels are typical for a new component breaking in.

Contamination

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

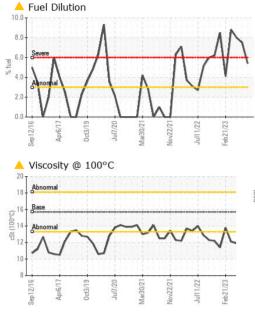
Fluid Condition

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

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0830325	WC0811343	WC0811527
Sample Date		Client Info		21 Aug 2023	07 Jul 2023	31 May 2023
Machine Age	kms	Client Info		106819	0	0
Oil Age	kms	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	SEVERE	SEVERE
CONTAMINATION	١	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	16	14	19
Chromium	ppm	ASTM D5185(m)	>5	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>4	0	<1	0
Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Silver	ppm	ASTM D5185(m)	>2	0	0	0
Aluminum	ppm	ASTM D5185(m)	>15	2	1	2
Lead	ppm	ASTM D5185(m)	>25	3	<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	<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
		(/		•	O .	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	. ,	limit/base			history2 <1
		method	limit/base	current	history1	
Boron	ppm	method ASTM D5185(m)	limit/base	current 1	history1 <1	<1
Boron Barium	ppm ppm	method ASTM D5185(m) ASTM D5185(m)	limit/base	current 1 0	history1 <1 0	<1
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	current 1 0 55	history1 <1 0 54	<1 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	current 1 0 55 <1	history1 <1 0 54 <1	<1 0 57 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	current 1 0 55 <1 900	history1 <1 0 54 <1 896	<1 0 57 <1 913
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	current 1 0 55 <1 900 962	history1 <1 0 54 <1 896 959	<1 0 57 <1 913 999
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base	current 1 0 55 <1 900 962 961	history1 <1 0 54 <1 896 959 982	<1 0 57 <1 913 999 1012
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base	current 1 0 55 <1 900 962 961 1089	history1 <1 0 54 <1 896 959 982 1111	<1 0 57 <1 913 999 1012 1131
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base	current 1 0 55 <1 900 962 961 1089 2347	history1 <1 0 54 <1 896 959 982 1111 2306	<1 0 57 <1 913 999 1012 1131 2343
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)		current 1 0 55 <1 900 962 961 1089 2347 <1	history1 <1 0 54 <1 896 959 982 1111 2306 <1	<1 0 57 <1 913 999 1012 1131 2343 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base	current 1 0 55 <1 900 962 961 1089 2347 <1 current	history1 <1 0 54 <1 896 959 982 1111 2306 <1 history1	<1 0 57 <1 913 999 1012 1131 2343 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base	current 1 0 55 <1 900 962 961 1089 2347 <1 current 3	history1 <1 0 54 <1 896 959 982 1111 2306 <1 history1 3	<1 0 57 <1 913 999 1012 1131 2343 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base >25	current 1 0 55 <1 900 962 961 1089 2347 <1 current 3	history1 <1 0 54 <1 896 959 982 1111 2306 <1 history1 3 5	<1 0 57 <1 913 999 1012 1131 2343 <1 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	limit/base >25 >20	current 1 0 55 <1 900 962 961 1089 2347 <1 current 3 2 0	history1 <1 0 54 <1 896 959 982 1111 2306 <1 history1 3 5	<1 0 57 <1 913 999 1012 1131 2343 <1 history2 3 7
Boron 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	method ASTM D5185(m)	limit/base >25 >20 >3.0	current 1 0 55 <1 900 962 961 1089 2347 <1 current 3 2 0 • 5.4	history1 <1 0 54 <1 896 959 982 1111 2306 <1 history1 3 5 3	<1 0 57 <1 913 999 1012 1131 2343 <1 history2 3 7 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D7593* method ASTM D7593*	limit/base >25 >20 >3.0 limit/base	current 1 0 555 <1 900 962 961 1089 2347 <1 current 3 2 0 ▲ 5.4 current	history1 <1 0 54 <1 896 959 982 1111 2306 <1 history1 3 5 3 ↑7.5 history1 0.6	<1 0 57 <1 913 999 1012 1131 2343 <1 history2 3 7 3 • 8 history2 0.7
Boron 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	method ASTM D5185(m)	limit/base >25 >20 >3.0 limit/base >6	current 1 0 555 <1 900 962 961 1089 2347 <1 current 3 2 0 ▲ 5.4 current 0.5	history1 <1 0 54 <1 896 959 982 1111 2306 <1 history1 3 5 3 ↑ 7.5 history1	<1 0 57 <1 913 999 1012 1131 2343 <1 history2 3 7 3 • 8 history2
Boron 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	method ASTM D5185(m) ASTM D7593* method ASTM D7593*	limit/base >25 >20 >3.0 limit/base >6 >20	current 1 0 55 <1 900 962 961 1089 2347 <1 current 3 2 0 ▲ 5.4 current 0.5 10.0	history1 <1 0 54 <1 896 959 982 1111 2306 <1 history1 3 5 3 ▼ 7.5 history1 0.6 10.6	<1 0 57 <1 913 999 1012 1131 2343 <1 history2 3 7 3 • 8 history2 0.7 10.6



OIL ANALYSIS REPORT



VISUAL		method	limit/b	oase	curre	nt	h	istory	1	h	istory2	
Emulsified Water Free Water	scalar Visual*		>0.2		NEG NEG		NEG NEG			NEG NEG		
FLUID PROPERTI			limit/b	limit/base cu		nt history1			1	history2		
Visc @ 100°C	cSt	ASTM D7279(m)	15.7	4	12.1		<u> </u>	.9	4	1 1.	9	
GRAPHS												
Iron (ppm)			127202	60	Lead (pp	m)						
Severe				50-	Severe							
Abnormal				40 -								
				ᇤ30-	Abnormal							
mM	M			20 -								
v 7	V	~	~	0	~/~	6				2	3	
Sep12/16 Apr6/17 Oct3/19	Mar30/21	Nov22/21	reb 2 1/23		Sep12/16 Apr6/17	0ct3/19	Jul7/20	Mar30/21	Nov22/21	Jul11/22	Feb21/23	
Aluminum (ppm)					Chromiu	m (pį	pm)	_	_			
Severe			1 1 1 1 1	12 -	Severe							
				8-								
Abnormal				mdd 6-	Abnormal	щ			щ			
				4-								
~~~	<u> </u>	^	~~	2-	~~	N	\	~~	<u> </u>	~	~	
Sep12/16 Apr6/17 Oct3/19	Mar30/21-	Nov22/21	Feb21/23	0-	Sep12/16 Apr6/17	Oct3/19	Jul7/20	Mar30/21	Nov22/21	Jul11/22	Feb21/23	
Copper (ppm)	Σ	ž i	₽.		Silicon (p		,	Σ	ž	Ť	굔	
			11111	60-								
Severe				50 - 40 -	Severe							
				튭30-	Alexandria							
Abnormal - a				20-	Abnormal							
				10-	1		~	~~	~~			
ep12/16 Apr6/17 Oct3/19	30/21	Nov22/21-	F62/1/23	0 -	ep12/16-	Oct3/19	Jul7/20	30/21	12/27	Jul11/22	1/23	
co.	Mar30/2	Nov22/2 Jul11/2	Feb.Z		Sep12/1	0	Jul	Mar30/2	Nov22/2	Jul	Feb21/2	
Viscosity @ 100°C			77777	10.0	್ Fuel Dilu	tion						
Abnormal 0				8.0 -	10000000		1				11	
Base			THE RESIDENCE OF THE PARTY OF T	6.0 ·	Severe	-	4		-	7	4	
Abnormal	77	M	1	8.0.9 8.0.9	Abnormal	1	1	٨		V		
V V				2.0 -	1//	1	1	1	-			
91	21-	22	F7	0.0	91 12	6		<u>_</u>	لٍا	- 22	23	
Sep12/16 Apr6/17 Oct3/19	Mar30/21	Nov22/21	reb21/23		Sep12/16 Apr6/17	Oct3/19	Jul7/20	Mar30/21	Nov22/21	Jul11/22	Feb21/23	



**CALA** ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5631049

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : 02577989

: WC0830325

Received : 24 Aug 2023 Diagnosed : 25 Aug 2023 Diagnostician : Wes Davis

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

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.

F: (905)679-4502 Contact/Location: Jeff Parr - HAMHAM