

OIL ANALYSIS REPORT

Sample Rating Trend

FUEL



Area [1486116] **NEW FLYER 0923**

Diesel Engine

SAFETY-KLEEN PERFORMANCE

SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0849853	WC0830186	WC0811472
Sample Date		Client Info		24 Aug 2023	10 Jul 2023	04 Jun 2023
Machine Age	kms	Client Info		382081	372228	364750
Oil Age	kms	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	SEVERE
CONTAMINATIO	NC	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	49	33	20
Chromium	ppm	ASTM D5185(m)	>5	2	1	<1
Nickel	ppm	ASTM D5185(m)	>4	0	0	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	3	4	4
Lead	ppm	ASTM D5185(m)	>25	<1	<1	0
Copper	ppm	ASTM D5185(m)	>100	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>4	0	0	0
Antimony	ppm	ASTM D5185(m)		<1	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)		1	1	<1
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		61	59	60
Manganese	ppm	ASTM D5185(m)		<1	<1	<1
Magnesium	ppm	ASTM D5185(m)		981	978	938
Calcium	ppm	ASTM D5185(m)		1028	1021	1019
Phosphorus	ppm	ASTM D5185(m)		1030	1038	1046
Zinc	ppm	ASTM D5185(m)		1189	1187 2433	1143
Sulfur Lithium	ppm ppm	ASTM D5185(m) ASTM D5185(m)		2395 <1	2433 <1	2439 <1
CONTAMINANT		method	limit/base	current	history1	history2
Silicon		ASTM D5185(m)	>25		5	3
Sodium	ppm ppm	ASTM D5185(m)	>20	5 9	9	5
Potassium	ppm	ASTM D5185(m)	>20	9 6	9 7	5 4
Fuel	%	ASTM D5165(iii) ASTM D7593*	>3.0	▲ 4.6	4.9	÷ 6
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>6	1.5	0.9	0.6
Nitration	Abs/cm	ASTM D7644 ASTM D7624*	>20	14.7	12.7	10.6
Sulfation	Abs/.1mm	ASTM D7024 ASTM D7415*	>30	30.8	26.6	23.5
FLUID DEGRAD		method	limit/base	current		
TEOD DEGRAL			mmubase		history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	31.5	27.7	23.7

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

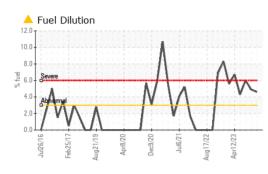
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

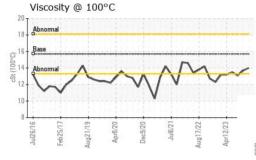
Fluid Condition

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

Contact/Location: Jeff Parr - HAMHAM

OIL ANALYSIS REPORT





	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	Visual*	NONE	NONE		
٨	Yellow Metal	scalar	Visual*	NONE	NONE		
Λ	Precipitate	scalar	Visual*	NONE	NONE		
1.W	Silt	scalar	Visual*	NONE	NONE		
	Debris	scalar	Visual*	NONE	NONE		
	Sand/Dirt	scalar	Visual*	NONE	NONE		
5/23	Appearance	scalar	Visual*	NORML	NORML		
Apr12/23	Odor	scalar	Visual*	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
	Free Water	scalar	Visual*	2 0.L	NEG	NEG	NEG
	FLUID PROPERT		method	limit/base			
	Visc @ 100°C	cSt	ASTM D7279(m)	15.7	current	history1 13.7	history2
V	GRAPHS	COL	AGTIM B7273(III)	13.7	14.0	10.7	10:1
	Iron (ppm)				Lead (ppm)		
	150 T		111111111111	6		100000000000000000000000000000000000000	
Apr12/23 .	Severe			5			
Apr1	Abnormal			4 84.3			
10	50-			2			
	Ann	0-	$\Lambda \wedge$				
							3.3
	Jui26/16 Feb25/17 Aug21/19	Dec9/20	Jul6/21 Aug17/22 Anr12/23		Jul26/16 Feb25/17 Aug21/19	Apr8/20 Dec9/20 Jul6/21	Aug17/22
	P.	D	Au		- 4		Aun
	Aluminum (ppm)			1	Chromium (pp	om)	
	25 Severe			1	Sminn		
	20 -				8		
	15 - Abnormal			H H	6 - Abnormal		
	10				4		
			\sim			$\sim \sim$	\sim
		Dec9/20	Jul6/21			Apr8/20	1/22
	Jul26/16 Feb25/17 Aug21/19 Apr8/20	Dect	Jul6/21 Aug17/22 Anr12/23		Jul26/16 Feb25/17 Aug21/19	Apré Decs	Aug17/22 Apr12/23
	Copper (ppm)				Silicon (ppm)		
	250 T			6	0 T 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	100000000000000000000000000000000000000	
	200 - Severe			5		*****	
ud d	150			4 ਛ_3			
dd	100 - Abnormal			8.3 2			
	50				0		
			2				
	Jul26/16 Feb25/17 Aug21/19 Apr8/20	Dec9/20	Jul6/21 Aug17/22 Anr12/23		Jul26/16 Feb25/17 Aug21/19	Apr8/20 Dec9/20 Jul6/21	Aug17/22 Apr12/23
			Aug		- 4	A D ,	Aug
	Viscosity @ 100°C			12.	Fuel Dilution		
	Abnormal			12.		101000 Lond	
Ę.	5 16 Base		wanaaniaanaad				٨
0017	5 16 Base 2 14 Abnormal 3 12		M	e.	0 - Severe		MA
Q	* *	VV	V V	4.	0	NV	
	10			2.			
	ul26/16 eb25/17 ug21/19	9/20 -	Jul6/21- g17/22 -			Apr8/20 Dec9/20 - Jul6/21 -	1/22
	Jul26/16 - Feb25/17 - Aug21/19 - Apr8/20 -	Dec9/20	Jul6/21 Aug17/22 Anr12/23	5	Jul26/16 Feb25/17 Aug21/19	Apri Dec	Aug17/22
	10000 10000 (07 7		1.00				1070 - 1000
oratory	: WearCheck - C8-11						OF HAMILTON
nple No.		Receive		Aug 2023	2200 UPPEI	R JAMES,, MOUNTAIN	
Number		Diagnos		Aug 2023 rin Marson		MOL	JNT HOPE, ON CA LOR 1W
que Number st Package	: MOB 1 (Additional 1	Diagnos				C	ontact: Jeff Par
I Packade							

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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CALA

ISO 17025:2017 Accredited Laboratory

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