

OIL ANALYSIS REPORT

NORMAL

Machine Id

MACK 3300 Component Diesel Engine PETRO CANADA DURON SHP 15W40 (10 GAL)

SAMPLE INFORMATION method



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

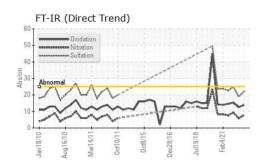
Sample Number		Client Info		GFL0036725	GFL0019851	GFL0023964			
Sample Date		Client Info		01 Dec 2021	24 Aug 2021	02 Jul 2021			
Machine Age	hrs	Client Info		0	0	25016			
Oil Age	hrs	Client Info		0	0	0			
Oil Changed		Client Info		Changed	Not Changd	Changed			
Sample Status				NORMAL	NORMAL	NORMAL			
CONTAMINAT	ION	method	limit/base	current	history1	history2			
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0			
Water				<1.0 NEG	NEG	NEG			
		WC Method	>0.2						
Glycol		WC Method		NEG	NEG	NEG			
WEAR METAL	S	method	limit/base	current	history1	history2			
Iron	ppm	ASTM D5185m	>120	33	15	27			
Chromium	ppm	ASTM D5185m	>20	2	2	1			
Nickel	ppm	ASTM D5185m	>5	<1	0	0			
Titanium	ppm	ASTM D5185m	>2	<1	0	<1			
Silver	ppm	ASTM D5185m	>2	0	<1	0			
Aluminum	ppm	ASTM D5185m	>20	4	5	0			
Lead	ppm	ASTM D5185m	>40	<1	<1	<1			
Copper	ppm	ASTM D5185m	>330	2	2	9			
Tin	ppm	ASTM D5185m	>15	<1	<1	1			
Antimony	ppm	ASTM D5185m		0	0	0			
Vanadium	ppm	ASTM D5185m		0	0	0			
Cadmium	ppm	ASTM D5185m		0	0	0			
ADDITIVES		method	limit/base	current	history1	history2			
Boron	ppm	ASTM D5185m	0	2	5	7			
Barium	ppm	ASTM D5185m	0	0	0	0			
Molybdenum	ppm	ASTM D5185m	60	57	58	60			
Manganese	ppm	ASTM D5185m	0	<1	<1	<1			
Magnesium	ppm	ASTM D5185m	1010	957	956	913			
Calcium	ppm	ASTM D5185m	1070	1031	1060	999			
Phosphorus	ppm	ASTM D5185m	1150	1032	1061	965			
Zinc	ppm	ASTM D5185m	1270	1141	1201	1146			
Sulfur	ppm	ASTM D5185m	2060	2606	2816	2504			
CONTAMINAN	TS	method	limit/base	current	history1	history2			
Silicon	ppm	ASTM D5185m		5	2	3			
Sodium	ppm	ASTM D5185m		3	2	2			
Potassium	ppm	ASTM D5185m	>20	1	<1	<1			
INFRA-RED		method	limit/base	current	history1	history2			
	0/	*ASTM D7844	>4		1.4				
Soot %	%			2.5		3.1 9.3			
Nitration	Abs/cm	*ASTM D7624		7.8	5.8				
Sulfation	Abs/.1mm	*ASTM D7415		22	18.9	25			
FLUID DEGRA		method	limit/base	current	history1	history2			
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.9	12.6	15.4			
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.4	9.2	8.8			
:23:32) Rev: 1				Contact/Location: JAMES KRESGE - GFL036					

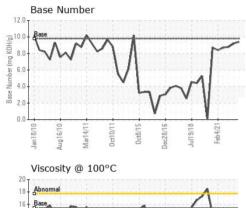
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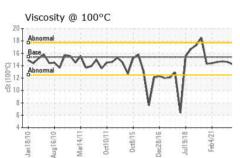
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	VISUAL		method	limit/base	current	history1	history2	
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
and the second s	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
1	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
14-~~	Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
non	Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
V>	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
0ct8/15 - ec28/16 - Jul19/18 - Feb4/21 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
0ct8/15 Dec28/16 Jul19/18 Feb4/21	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	NEG	
vitront control cont					nea			
I	FLUID PROPE		method	limit/base	current	history1	history2	
	Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.6	14.7	
LNI	GRAPHS							
V V	Iron (ppm)			100	Lead (ppm)			
	300 250 Severe			100	Severe			
0ct8/15 Dec28/16 Jul19/18 Feb4/21	200 -			80	free free fre			
Ju F	Abnormal			E 60	Abarrat			
	100			4444	Turituri			
	50	~~	~	~~ 20			M	
1		12	/16-	C	/10/	//11 /15 /16	/18	
ATE	Jan 18/10 Aug 16/10 Mar14/11 Oct10/11	0ct8/15	Dec28/16 Jul19/18 Feh4/21	3	Jan 18/10 Aug 16/10 Marl 4/11	Oct10/11 Oct8/15 Dec28/16	Jul19/18 Feb4/21	
101	Aluminum (ppm)				Chromium (pp		-	
V	⁵⁰ Severe			50	• • • • • • • • • • • • • • • • • • •	•••• / 127200005111123		
	40			44444	Severe			
	= ³⁰			_ 30)			
0ct8/15 Dec28/16 Jul19/18 Feb4/21	a 20 - Abnormal			³⁰ 20	Abnormal	••••••••••	· · · · · · · · · · · · · · · · · · ·	
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	Jan1 Aug1 Mari Oct1	00	Juli Fai	-	Jan1 Aug1 Mari	Oct Oct Dec2	Fel	
	Copper (ppm)				Silicon (ppm)			
	400 Severe			80		100000000000000000000000000000000000000		
	300 -			60				
	톱 200 -			틆 40				
					Abnormal			
	100			20				
	₀ L <u>ana ya Ana na na</u>			(2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
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		0	Ju J			Dec 0	۹ ۲	
	Viscosity @ 100°C			10.0	Base Number			
	Abnormal		-		Pass			
	P15	1		(6)(10.0 HO) HO KON Bayes Mumper Base Base 2.0	I A AI	$\gamma \Lambda$	~	
	(5, 15 Abnormal \$5 10	V \	~11	.6.0		VI		
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		11111	Y	88 2.0 88 0.0		V	· V	
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	Jan18/10 Aug16/10 Mar14/11 Oct10/11	0ct8/15	Jul19/18 Feh4/21	1	Jan 18/10 Aug 16/10 Marl 4/11	0ct10/11 0ct8/15 Dec28/16	Jul19/18 Feb4/21	
			o ,		r v z	0 0		
Laboratory	: WearCheck USA - 501	Madiso	n Ave., Cary	, NC 27513	GFL Envi	ronmental - 036 ·	- North Wilksbord	
NAB Sample No.	: GFL0036725	Recei		' Dec 2021			489 Boone Trai	
Lab Number		Teste		B Dec 2021		,	Wilkesboro, NC	
Unique Number		Diagr	iosed : 08	Dec 2021 - W	les Davis	Contract. 14	US 28659	
tificate L2367 Test Package	: MOB1+ Contact: JAMES KRES , contact Customer Service at 1-800-237-1369. jkresge@gflenv.c							
discuss this cample report								
discuss this sample report, Denotes test methods that						jkres	ge@glienv.com T:	

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