

OIL ANALYSIS REPORT









Machine Id MACK 10094 Component Natural Gas Engine Fluid PETRO CANADA 15W40 (--- GAL)

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

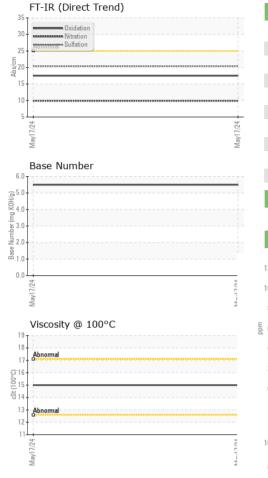
Fluid Condition

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

Sample Date Client Info 17 May 2024	10 (GAL)				May2024		
Sample Date Client Info 17 May 2024	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 77774 Oil Age hrs Client Info 451 Oil Changed Client Info Changed Sample Status Image: Control of More Mark CONTAMINATION method limit/base current history1 history2 Water WC Method 0.1 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m 55 <1	Sample Number		Client Info		SBP0007346		
Oil Age hrs Client Info 451 Oil Changed Client Info Changed Sample Status NORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 11 Chromium ppm ASTM D5185m >50 11 Chromium ppm ASTM D5185m >5 <1 Chromium ppm ASTM D5185m >5 <1 Ilianium ppm ASTM D5185m >25 4 Calcad ppm ASTM D5185m >4 <1 Valuadium ppm	Sample Date		Client Info		17 May 2024		
Contamped Client Info Changed Changed Contamped Contam	Machine Age	hrs	Client Info		7774		
NORMAL	Oil Age	hrs	Client Info		451		
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG	Oil Changed		Client Info		Changed		
Water WC Method >0.1 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 11 Chromium ppm ASTM D5185m >5 <1 Nickel ppm ASTM D5185m >5 <1 Titanium ppm ASTM D5185m >3 <1 Silver ppm ASTM D5185m >3 <1 Aluminum ppm ASTM D5185m >40 <1 Lead ppm ASTM D5185m >40 <1 Copper ppm ASTM D5185m >4 <1 Capper ppm ASTM D5185m 0 <1 Capper ppm ASTM D5185m 0 <th< td=""><td>Sample Status</td><td></td><td></td><td></td><td>NORMAL</td><td></td><td></td></th<>	Sample Status				NORMAL		
WEAR METALS	CONTAMINATION	1	method	limit/base	current	history1	history2
Irron	Water		WC Method	>0.1	NEG		
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>50	11		
Nickel	Chromium	ppm	ASTM D5185m	>5	<1		
Silver	Nickel		ASTM D5185m	>4	<1		
Silver	Titanium		ASTM D5185m	>5	<1		
Aluminum	Silver		ASTM D5185m	>3	<1		
Lead	Aluminum		ASTM D5185m	>25	4		
Copper ppm ASTM D5185m >150 <1 Tin ppm ASTM D5185m >4 <1	Lead		ASTM D5185m	>40	<1		
Vanadium ppm ASTM D5185m <1 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 12 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 52 Manganese ppm ASTM D5185m 0 Manganesium ppm ASTM D5185m 534 Calcium ppm ASTM D5185m 1597 Phosphorus ppm ASTM D5185m 953 Zinc ppm ASTM D5185m 953 Sulfur ppm ASTM D5185m 25 12 CONTAMINANTS method limit/base current <	Copper	ppm	ASTM D5185m	>150	<1		
Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 12 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 52 Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 534 Calcium ppm ASTM D5185m 1597 Phosphorus ppm ASTM D5185m 953 Zinc ppm ASTM D5185m 2582 Sulfur ppm ASTM D5185m 2582 CONTAMINANTS method limit/base current history1 history2 Sodium ppm ASTM D5185m >20 3	Tin	ppm	ASTM D5185m	>4	<1		
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1		
Barium	Cadmium	ppm	ASTM D5185m		0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 52 Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 534 Calcium ppm ASTM D5185m 1597 Phosphorus ppm ASTM D5185m 788 Zinc ppm ASTM D5185m 953 Sulfur ppm ASTM D5185m 2582 CONTAMINANTS method limit/base current history1 history2 Scilicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >25 12 Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D741	Boron	ppm	ASTM D5185m		12		
Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 534 Calcium ppm ASTM D5185m 1597 Phosphorus ppm ASTM D5185m 788 Zinc ppm ASTM D5185m 953 Sulfur ppm ASTM D5185m 2582 CONTAMINANTS method limit/base current history1 history2 Scilicon ppm ASTM D5185m >25 12 Scodium ppm ASTM D5185m >20 3 Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Sulfation Abs/:nm	Barium	ppm	ASTM D5185m		0		
Magnesium ppm ASTM D5185m 534 Calcium ppm ASTM D5185m 1597 Phosphorus ppm ASTM D5185m 788 Zinc ppm ASTM D5185m 953 Sulfur ppm ASTM D5185m 2582 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION <t< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td></td><td>52</td><td></td><td></td></t<>	Molybdenum	ppm	ASTM D5185m		52		
Calcium ppm ASTM D5185m 1597 Phosphorus ppm ASTM D5185m 788 Zinc ppm ASTM D5185m 953 Sulfur ppm ASTM D5185m 2582 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs	Manganese	ppm	ASTM D5185m		0		
Phosphorus ppm ASTM D5185m 788 Zinc ppm ASTM D5185m 953 Sulfur ppm ASTM D5185m 2582 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Magnesium	ppm	ASTM D5185m		534		
Sulfur ppm ASTM D5185m 953 Sulfur ppm ASTM D5185m 2582 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Calcium	ppm	ASTM D5185m		1597		
Sulfur ppm ASTM D5185m 2582 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Phosphorus	ppm	ASTM D5185m		788		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Zinc	ppm	ASTM D5185m		953		
Silicon ppm ASTM D5185m >25 12	Sulfur	ppm	ASTM D5185m		2582		
Sodium ppm ASTM D5185m 4 Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Silicon	ppm	ASTM D5185m	>25	12		
INFRA-RED	Sodium	ppm	ASTM D5185m		4		
Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Potassium	ppm	ASTM D5185m	>20	3		
Nitration Abs/cm *ASTM D7624 >20 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Soot %	%	*ASTM D7844		0.1		
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Nitration	Abs/cm	*ASTM D7624	>20	9.9		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.4		
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 5.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.5		
	Base Number (BN)	mg KOH/g	ASTM D2896		5.5		

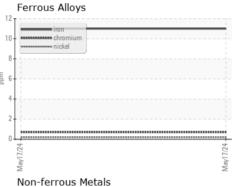


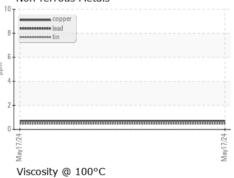
OIL ANALYSIS REPORT

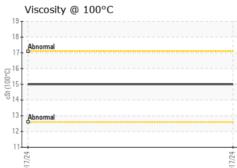


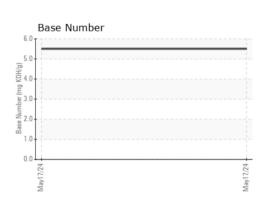
VISUAL		method	limit/base	current	history1	history2
*100/12		momod	mmt bacc	oan one	111010171	111010172
White Metal	scalar	*Visual	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE		
Appearance	scalar	*Visual	NORML	NORML		
Odor	scalar	*Visual	NORML	NORML		
Emulsified Water	scalar	*Visual	>0.1	NEG		
Free Water	scalar	*Visual		NEG		
FLUID DDODEDI			11 11 11		11.0	1:

I LOID I HOI LITTILO		method		History	Thotoly2	
Visc @ 100°C	cSt	ASTM D445	15.0			













Certificate 12367

Laboratory Sample No.

Test Package : FLEET

: SBP0007346 Lab Number : 06185615

Unique Number : 11036941

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 20 May 2024 **Tested** Diagnosed

: 22 May 2024 : 22 May 2024 - Wes Davis

FCC ENVIRONMENTAL SERVICES NEBRASKA LLC 59902 N 16TH ST OMAHA, NE US 68110

Contact: TROY BEAN troy.bean@fccenvironmental.com

To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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