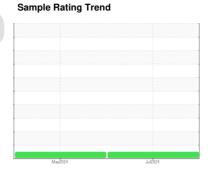


OIL ANALYSIS REPORT



Machine Id

MACK 10082
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

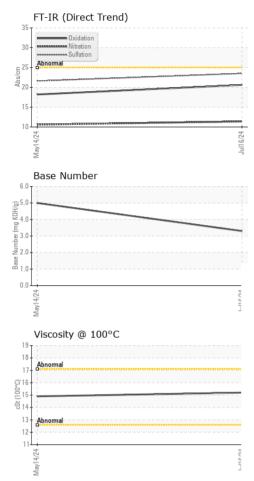
Fluid Condition

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

SAMPLE INFORMATION method limit/base current history1 history2	10 (GAL)			May2024	Jul2024		
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Client Info	Sample Number		Client Info		SBP0007384	SBP0007311	
Machine Age hrs Client Info 7056 6581 Dil Age hrs Client Info 475 404 Dil Age hrs Client Info 475 404 Dil Changed Changed Changed Sample Status NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method NORMAL NORMAL Wear WC Method NORMAL NORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM DS185m 55 11 10 Chromium ppm ASTM DS185m 55 <1 <1 Chromium ppm ASTM DS185m 55 0 <1 Silver ppm ASTM DS185m 55 0 <1 Silver ppm ASTM DS185m 55 0 0 Aluminum ppm ASTM DS185m 525 4 3 Lead ppm ASTM DS185m 540 <1 <1 Copper ppm ASTM DS185m 540 <1 <1 Copper ppm ASTM DS185m 5150 <1 <1 Vanadium ppm ASTM DS185m 50 <1 <1 Vanadium ppm ASTM DS185m 0 0 0 ADDITIVES method limit/base current history1 history2 ASTM DS185m Do <1 ADDITIVES method limit/base current history1 history2 ASTM DS185m Do <1 ADDITIVES method limit/base current history1 history2 ASTM DS185m Do <1 ADDITIVES method limit/base current history1 history2 ASTM DS185m Do <1							
Dil Age	•	hrs					
Client Info Changed NORMAL NORM					475	404	
NORMAL NORMAL CONTAMINATION method limit/base current history1 history2	-				_		
Water WC Method >0.1 NEG NEG	-						
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 11 10	CONTAMINATIO	N	method	limit/base	current	history1	history2
Process	Water		WC Method	>0.1	NEG	NEG	
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Sickel	ron	ppm	ASTM D5185m	>50	11	10	
Silver	Chromium	ppm	ASTM D5185m	>5	<1	<1	
Silver	Nickel	ppm	ASTM D5185m	>4	<1	0	
Aluminum	Fitanium	ppm	ASTM D5185m	>5	0	<1	
Aluminum	Silver	ppm	ASTM D5185m	>3	0	0	
Copper	Aluminum		ASTM D5185m	>25	4	3	
Copper	_ead	ppm	ASTM D5185m	>40	<1	<1	
Azanadium ppm ASTM D5185m 0 <1 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 4 7 Barium ppm ASTM D5185m 0 <1 Molybdenum ppm ASTM D5185m 52 56 Manganese ppm ASTM D5185m 550 628 Magnesium ppm ASTM D5185m 550 628 Phosphorus ppm ASTM D5185m 697 832 Phosphorus ppm ASTM D5185m 967 1205 Sulfur ppm ASTM D5185m 2284 3221 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >20 3	Copper	ppm	ASTM D5185m	>150	<1	<1	
ADDITIVES	Γin	ppm	ASTM D5185m	>4	0	0	
ADDITIVES	/anadium	ppm	ASTM D5185m		0	<1	
Soron ppm ASTM D5185m Q C C C C C C C C C	Cadmium	ppm	ASTM D5185m		0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 52 56 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m		4	7	
Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 550 628 Calcium ppm ASTM D5185m 1612 1896 Phosphorus ppm ASTM D5185m 697 832 Zinc ppm ASTM D5185m 967 1205 Sulfur ppm ASTM D5185m 2284 3221 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 9 12 Godium ppm ASTM D5185m >20 3 1 Potassium ppm ASTM D5185m >20 3 1 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 0 0 Witration Abs/cmm *ASTM D7624	Barium	ppm	ASTM D5185m		0	<1	
Magnesium ppm ASTM D5185m 550 628 Calcium ppm ASTM D5185m 1612 1896 Phosphorus ppm ASTM D5185m 697 832 Zinc ppm ASTM D5185m 967 1205 Sulfur ppm ASTM D5185m 2284 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 12 Sodium ppm ASTM D5185m 6 3 Potassium ppm ASTM D5185m >20 3 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 Sulfation Abs/.1mm *ASTM D7624 >20 11.4 10.6 FLUID DEGRADATION meth	Molybdenum	ppm	ASTM D5185m		52	56	
Calcium ppm ASTM D5185m 1612 1896 Phosphorus ppm ASTM D5185m 697 832 Zinc ppm ASTM D5185m 967 1205 Sulfur ppm ASTM D5185m 2284 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 12 Sodium ppm ASTM D5185m 6 3 Potassium ppm ASTM D5185m >20 3 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 Nitration Abs/.mm *ASTM D7415 >30 23.5 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation	Manganese	ppm	ASTM D5185m		0	<1	
Phosphorus ppm ASTM D5185m 697 832 Zinc ppm ASTM D5185m 967 1205 Sulfur ppm ASTM D5185m 2284 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 12 Sodium ppm ASTM D5185m 6 3 Potassium ppm ASTM D5185m >20 3 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 Nitration Abs/cm *ASTM D7624 >20 11.4 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 21.6 FLUID DEGRADATION method limit/base current history1 history2	Magnesium	ppm	ASTM D5185m		550	628	
Soulfur ppm ASTM D5185m 967 1205	Calcium	ppm	ASTM D5185m		1612	1896	
Sulfur ppm ASTM D5185m 2284 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 12 Sodium ppm ASTM D5185m 6 3 Potassium ppm ASTM D5185m >20 3 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 Nitration Abs/cm *ASTM D7624 >20 11.4 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.6 18.2	Phosphorus	ppm	ASTM D5185m		697	832	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 12 Sodium ppm ASTM D5185m 6 3 Potassium ppm ASTM D5185m >20 3 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 Nitration Abs/cm *ASTM D7624 >20 11.4 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.6 18.2	Zinc	ppm	ASTM D5185m		967	1205	
Silicon ppm ASTM D5185m >25 9 12	Sulfur	ppm	ASTM D5185m		2284	3221	
Sodium ppm ASTM D5185m 6 3 Potassium ppm ASTM D5185m >20 3 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 Nitration Abs/cm *ASTM D7624 >20 11.4 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.6 18.2	CONTAMINANTS	5	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 Nitration Abs/cm *ASTM D7624 >20 11.4 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.6 18.2	Silicon	ppm	ASTM D5185m	>25	9	12	
INFRA-RED	Sodium	ppm	ASTM D5185m		6	3	
Soot % % *ASTM D7844 0 0 Nitration Abs/cm *ASTM D7624 >20 11.4 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.6 18.2	Potassium	ppm	ASTM D5185m	>20	3	1	
Nitration Abs/cm *ASTM D7624 > 20 11.4 10.6 Sulfation Abs/.1mm *ASTM D7615 > 30 23.5 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 20.6 18.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 23.5 21.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.6 18.2	Soot %	%	*ASTM D7844		0	0	
FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 20.6 18.2	Nitration	Abs/cm	*ASTM D7624	>20	11.4	10.6	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	23.5	21.6	
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 3.3 5.0	Oxidation	Abs/.1mm	*ASTM D7414	>25	20.6	18.2	
	Base Number (BN)	mg KOH/g	ASTM D2896		3.3	5.0	

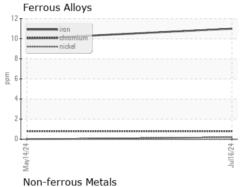


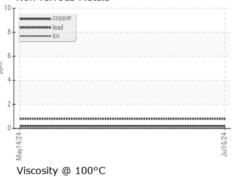
OIL ANALYSIS REPORT

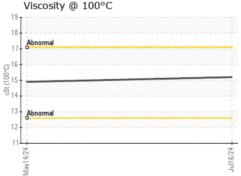


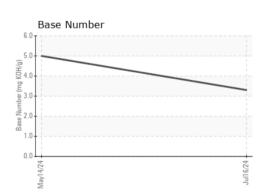
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	

FLUID PROPER	RIIES	method		history1	history2
Visc @ 100°C	cSt	ASTM D445	15.2	14.9	













Certificate 12367

Laboratory Sample No.

Test Package : FLEET

: SBP0007384 Lab Number : 06241260 Unique Number : 11130094

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received Tested Diagnosed

: 18 Jul 2024 : 19 Jul 2024

: 19 Jul 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)

T:

F: