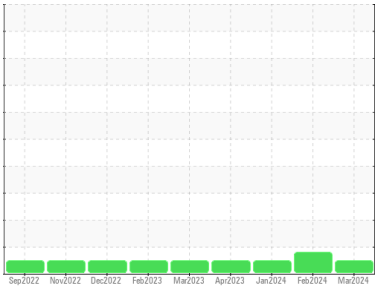
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
Liberty 1
Component
Natural Gas Engine
Fluid
PETRO CANADA SENTRON LD 3000 (--- GAL)

DIAGNOSIS

Recommendation
No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
Fuel content negligible. 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 AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PCA0117137**	PCA0111968	PCA0103417
Sample Date		Client Info		**01 Mar 2024**	02 Feb 2024	02 Jan 2024
Machine Age	hrs	Client Info		**70196**	69528	69211
Oil Age	hrs	Client Info		**11986**	11318	67974
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**NORMAL**	ATTENTION	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.1	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	**0**	4	2
Chromium	ppm	ASTM D5185m	>4	**0**	0	<1
Nickel	ppm	ASTM D5185m	>2	**0**	<1	0
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>9	**2**	1	2
Lead	ppm	ASTM D5185m	>30	**<1**	15	0
Copper	ppm	ASTM D5185m	>35	**0**	2	<1
Tin	ppm	ASTM D5185m	>4	**<1**	<1	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	5	**0**	0	<1
Barium	ppm	ASTM D5185m	1	**0**	0	0
Molybdenum	ppm	ASTM D5185m	2	**<1**	<1	1
Manganese	ppm	ASTM D5185m	1	**<1**	<1	0
Magnesium	ppm	ASTM D5185m	5	**9**	16	10
Calcium	ppm	ASTM D5185m	1220	**1179**	1406	1264
Phosphorus	ppm	ASTM D5185m	298	**270**	327	316
Zinc	ppm	ASTM D5185m	350	**342**	396	328
Sulfur	ppm	ASTM D5185m	1995	**2240**	2329	2444

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+100	**1**	1	2
Sodium	ppm	ASTM D5185m		**1**	2	0
Potassium	ppm	ASTM D5185m	>20	**1**	2	2
Fuel	%	ASTM D3524	>4.0	**0.2**	0.2	0.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0**	0	0
Nitration	Abs/cm	*ASTM D7624	>20	**3.3**	5.7	3.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	**13.8**	19.0	13.9

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**7.3**	14.4	7.6
Acid Number (AN)	mg KOH/g	ASTM D8045	0.86	**0.28**	1.44	0.268
Base Number (BN)	mg KOH/g	ASTM D2896	3.9	**3.93**	2.52	3.17

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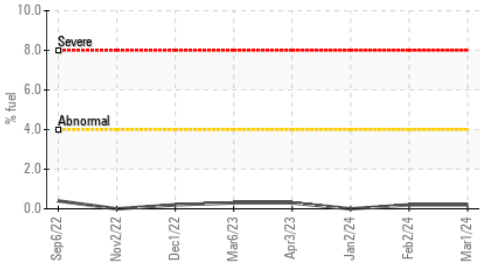
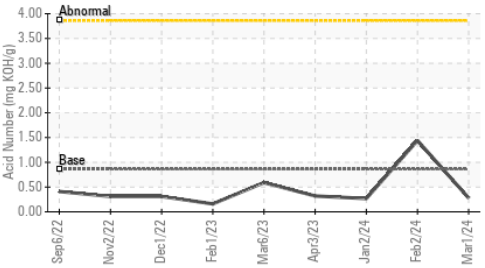
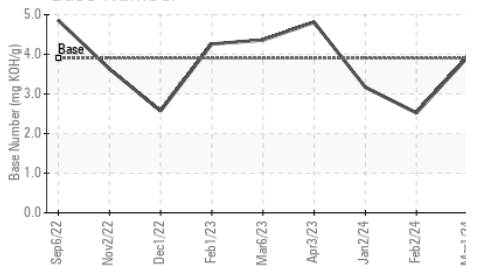
Fuel Dilution



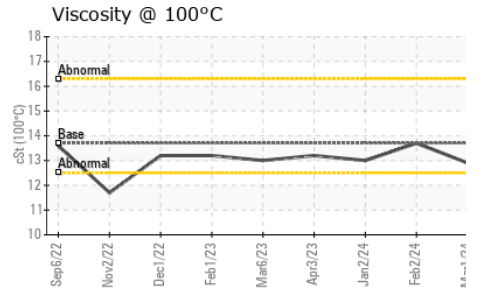
Acid Number



Base Number



Viscosity @ 100°C

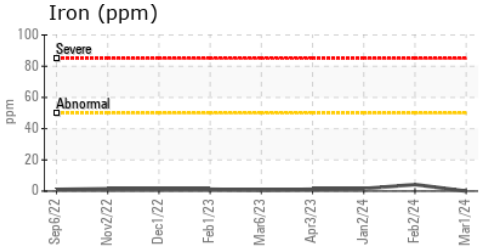


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

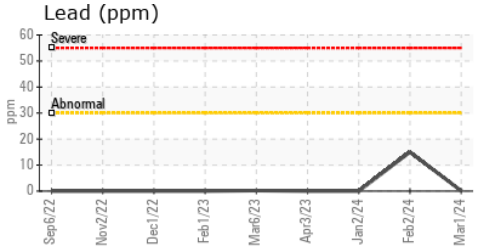
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.7	**12.9**	13.7	13.0

GRAPHS

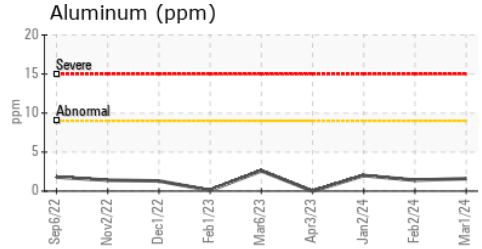
Iron (ppm)



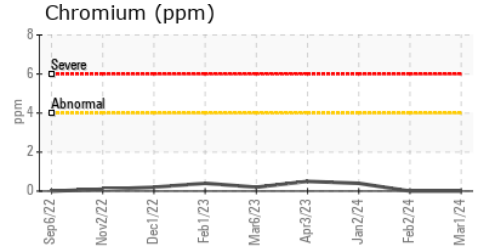
Lead (ppm)



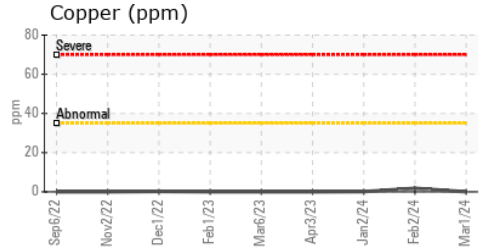
Aluminum (ppm)



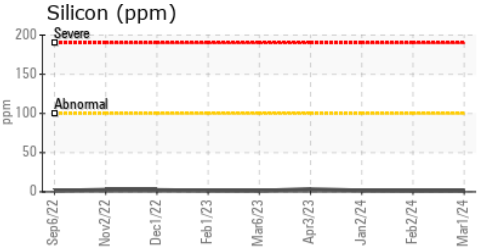
Chromium (ppm)



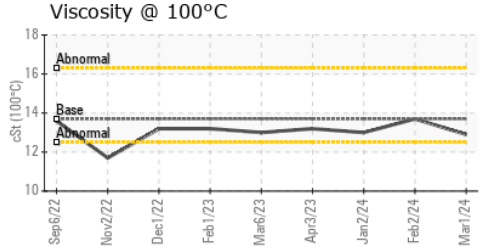
Copper (ppm)



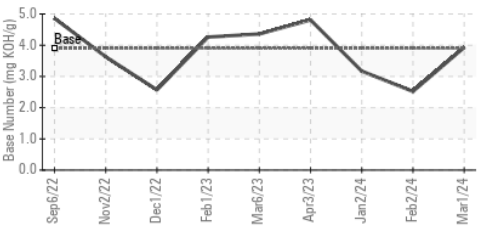
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0117137
Lab Number : 06113704
Unique Number : 10917201
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

Received : 08 Mar 2024
Tested : 12 Mar 2024
Diagnosed : 12 Mar 2024 - Wes Davis

ENERVEST OPERATING - LIBERTY
318 SINGLETON ROAD
NORA, VA
US 24272
Contact: Service Manager

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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