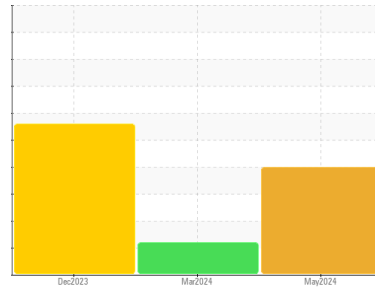


PROBLEM SUMMARY

Sample Rating Trend



FUEL



Machine Id

141 (S/N 73591295)

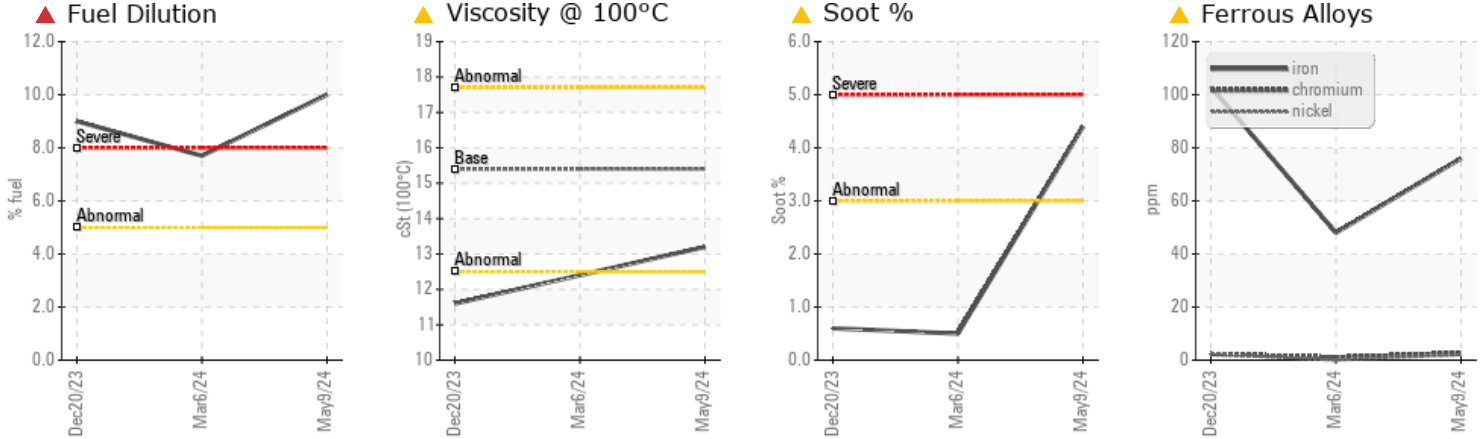
Component

Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check the fuel injection system. We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	SEVERE
Nickel	ppm	ASTM D5185m	>4	▲ 2	0	2
Fuel	%	ASTM D3524	>5	▲ 10.0	▲ 7.7	▲ 9.0
Soot %	%	*ASTM D7844	>3	▲ 4.4	0.5	0.6
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 13.2	▲ 12.4	▲ 11.6

Customer Id: MCCPAR
Sample No.: PCA0093083
Lab Number: 06217832
Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Combustion	---	---	?	We advise that you check for faulty combustion, plugged air filters, or aftercoolers.
Check Fuel/injector System	---	---	?	We advise that you check the fuel injection system.

HISTORICAL DIAGNOSIS

FUEL



06 Mar 2024 Diag: Wes Davis

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

view report



FUEL



20 Dec 2023 Diag: Sean Felton

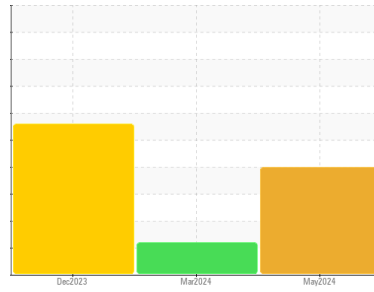
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Cylinder, crank, or cam shaft wear is indicated. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. There is a high amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

view report



OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id
141 (S/N 73591295)

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil. There is an abnormal amount of solids and carbon present in the oil.

Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PCA0093083	PCA0093084	PCA0093081
Sample Date	Client Info		09 May 2024	06 Mar 2024	20 Dec 2023
Machine Age	mls	Client Info	629928	629928	618566
Oil Age	mls	Client Info	20511	11362	23920
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			SEVERE	ABNORMAL	SEVERE

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.2	NEG	NEG	NEG
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	76	48	▲ 103
Chromium	ppm	ASTM D5185m >20	3	1	2
Nickel	ppm	ASTM D5185m >4	▲ 2	0	2
Titanium	ppm	ASTM D5185m	<1	0	<1
Silver	ppm	ASTM D5185m >3	<1	0	0
Aluminum	ppm	ASTM D5185m >20	5	3	● 6
Lead	ppm	ASTM D5185m >40	2	<1	1
Copper	ppm	ASTM D5185m >330	3	1	2
Tin	ppm	ASTM D5185m >15	<1	<1	<1
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	<1	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	6	7	32
Barium	ppm	ASTM D5185m 0	1	0	<1
Molybdenum	ppm	ASTM D5185m 60	59	59	57
Manganese	ppm	ASTM D5185m 0	1	<1	1
Magnesium	ppm	ASTM D5185m 1010	778	802	285
Calcium	ppm	ASTM D5185m 1070	1120	1170	1557
Phosphorus	ppm	ASTM D5185m 1150	931	970	834
Zinc	ppm	ASTM D5185m 1270	1133	1169	1026
Sulfur	ppm	ASTM D5185m 2060	2673	3341	2541

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	16	8	▲ 26
Sodium	ppm	ASTM D5185m	2	2	4
Potassium	ppm	ASTM D5185m >20	4	<1	4
Fuel	%	ASTM D3524 >5	▲ 10.0	▲ 7.7	▲ 9.0

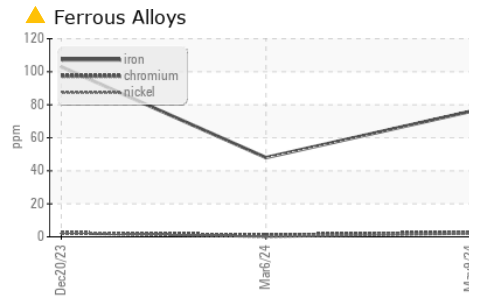
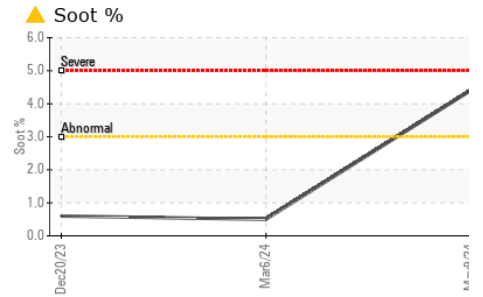
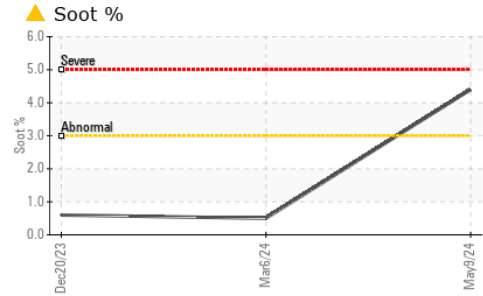
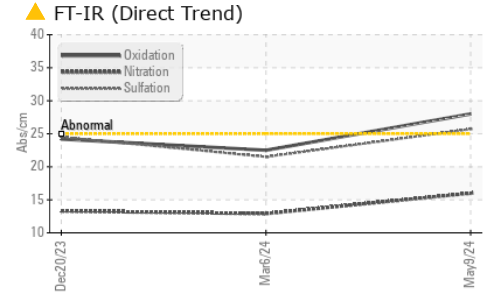
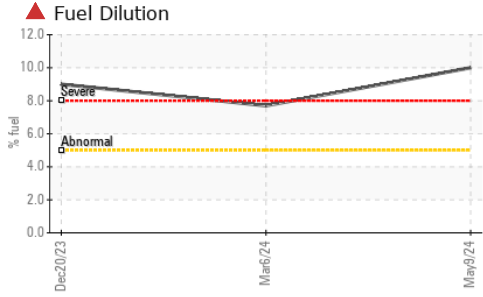
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	▲ 4.4	0.5	0.6
Nitration	Abs/cm	*ASTM D7624 >20	16.0	12.9	13.3
Sulfation	Abs/.1mm	*ASTM D7415 >30	25.7	21.5	24.5

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	28.0	22.5	24.2
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	4.9	7.2	6.2

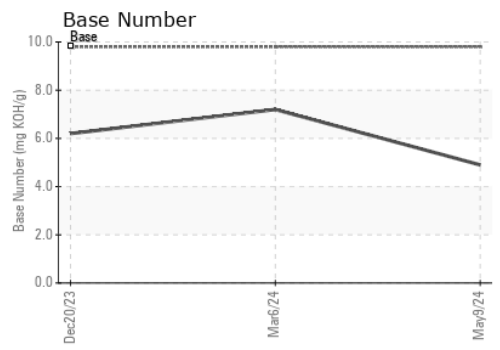
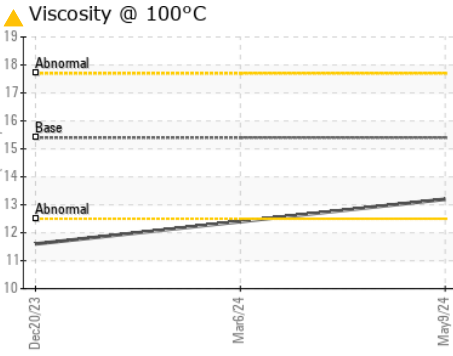
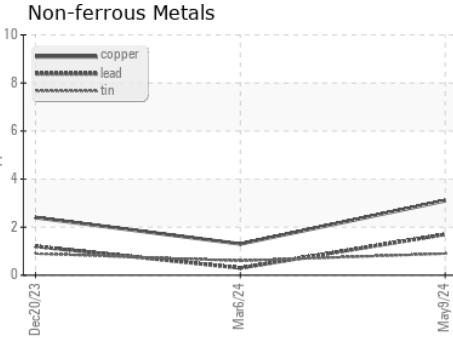
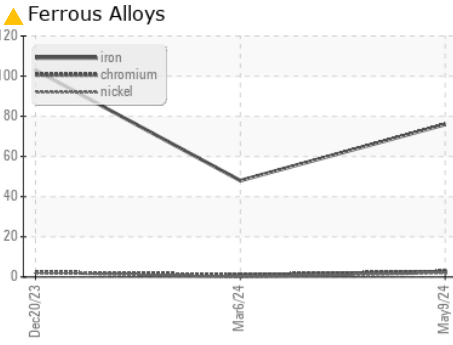
OIL ANALYSIS REPORT



PARAMETER	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	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

PARAMETER	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 13.2	▲ 12.4

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0093083
Lab Number : 06217832
Unique Number : 11096029
Test Package : FLEET (Additional Tests: PercentFuel)
Received : 24 Jun 2024
Tested : 27 Jun 2024
Diagnosed : 27 Jun 2024 - Jonathan Hester

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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)