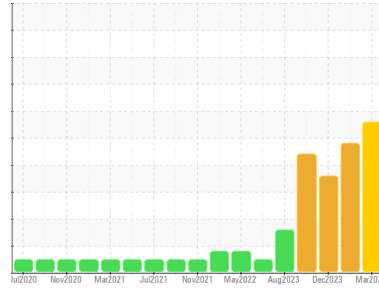




Machine Id  
**0858**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON HP 15W40 (24 LTR)**



**DIAGNOSIS**

**Recommendation**  
We advise that you check for the source of the coolant leak. We advise that you check for faulty combustion, plugged air filters, or aftercoolers. The oil 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**  
Fuel content negligible. Test for glycol is positive. There is a light concentration of glycol present in the oil. There is an abnormal amount of solids and carbon present in the oil.

**Fluid Condition**  
The oil is no longer serviceable due to the presence of contaminants.

**SAMPLE INFORMATION**

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>PC0082785</b>	PC0082830	PC0077853
Sample Date	Client Info	<b>12 Mar 2024</b>	08 Jan 2024	04 Dec 2023
Machine Age	kms	Client Info	1005281	991610
Oil Age	kms	Client Info	13671	15557
Oil Changed	Client Info	<b>Changed</b>	Changed	Not Chngd
Sample Status		<b>SEVERE</b>	ABNORMAL	ATTENTION

**CONTAMINATION**

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

**WEAR METALS**

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m) >100	<b>73</b>	77	54
Chromium	ppm	ASTM D5185(m) >20	<b>2</b>	3	2
Nickel	ppm	ASTM D5185(m) >4	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Silver	ppm	ASTM D5185(m) >3	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185(m) >20	<b>9</b>	11	8
Lead	ppm	ASTM D5185(m) >40	<b>6</b>	6	3
Copper	ppm	ASTM D5185(m) >330	<b>7</b>	7	4
Tin	ppm	ASTM D5185(m) >15	<b>0</b>	<1	0
Antimony	ppm	ASTM D5185(m)	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185(m)	<b>0</b>	0	0

**ADDITIVES**

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m) 0	<b>10</b>	10	8
Barium	ppm	ASTM D5185(m) 0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185(m) 60	<b>71</b>	70	68
Manganese	ppm	ASTM D5185(m) 0	<b>0</b>	<1	0
Magnesium	ppm	ASTM D5185(m) 1010	<b>1021</b>	1020	1037
Calcium	ppm	ASTM D5185(m) 1070	<b>1200</b>	1209	1204
Phosphorus	ppm	ASTM D5185(m) 1150	<b>1042</b>	1079	1101
Zinc	ppm	ASTM D5185(m) 1270	<b>1249</b>	1265	1309
Sulfur	ppm	ASTM D5185(m) 2060	<b>2495</b>	2669	2658
Lithium	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	<1

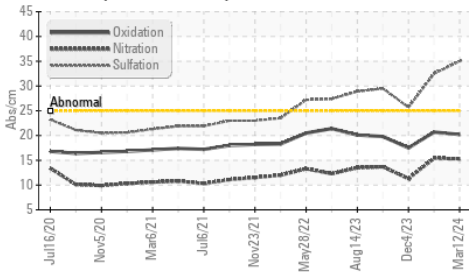
**CONTAMINANTS**

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m) >25	<b>9</b>	9	7
Sodium	ppm	ASTM D5185(m)	<b>272</b>	213	130
Potassium	ppm	ASTM D5185(m) >20	<b>1</b>	2	1
Fuel	%	ASTM D7593* >5	<b>0.7</b>	1.1	1.4
Glycol	%	ASTM D7922*	<b>0.025</b>	0.025	0.017

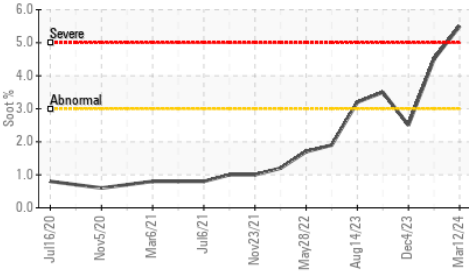
**INFRA-RED**

method	limit/base	current	history1	history2	
Soot %	%	ASTM D7844* >3	<b>5.5</b>	4.5	2.5
Nitration	Abs/cm	ASTM D7624* >20	<b>15.3</b>	15.4	11.3
Sulfation	Abs./1mm	ASTM D7415* >30	<b>35.0</b>	32.5	25.7

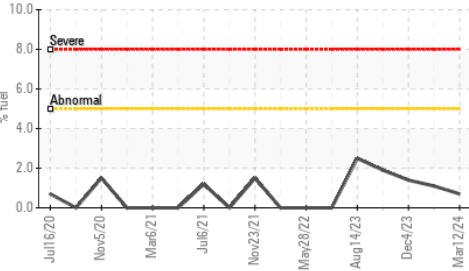
▲ FT-IR (Direct Trend)



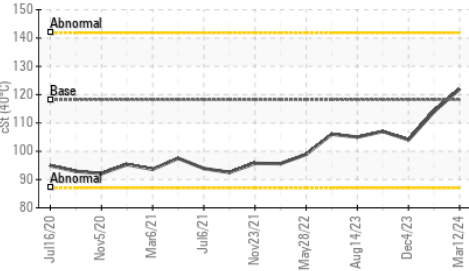
▲ Soot %



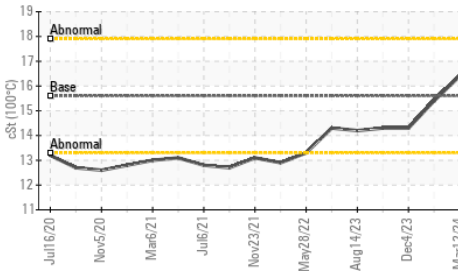
Fuel Dilution



Viscosity @ 40°C



Viscosity @ 100°C



**FLUID DEGRADATION**

method	limit/base	current	history1	history2	
Oxidation	Abs./1mm ASTM D7414*	>25	20.2	20.7	17.5

**VISUAL**

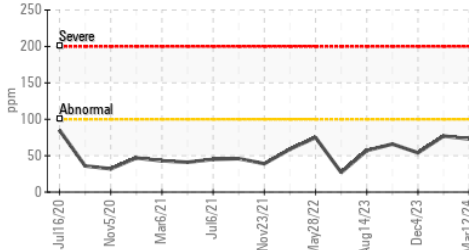
method	limit/base	current	history1	history2	
Emulsified Water	scalar Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar Visual*		NEG	NEG	NEG

**FLUID PROPERTIES**

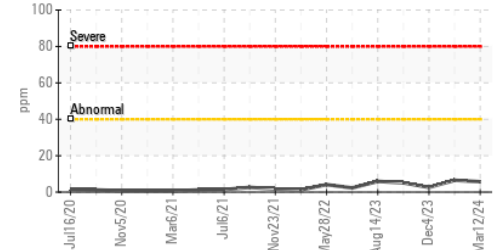
method	limit/base	current	history1	history2	
Visc @ 40°C	cSt ASTM D7279(m)	118.2	122	114	104
Visc @ 100°C	cSt ASTM D7279(m)	15.6	16.4	15.4	14.3
Viscosity Index (VI)	Scale ASTM D2270*	139	144	141	140

**GRAPHS**

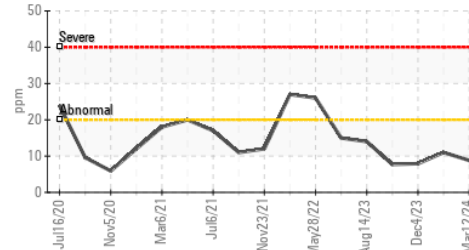
Iron (ppm)



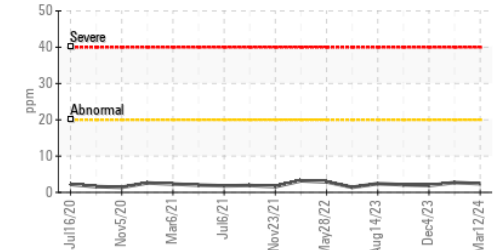
Lead (ppm)



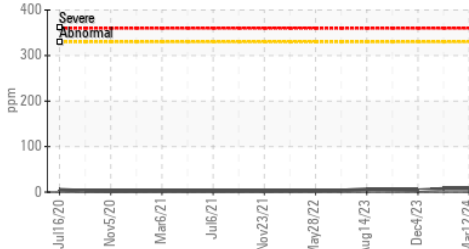
Aluminum (ppm)



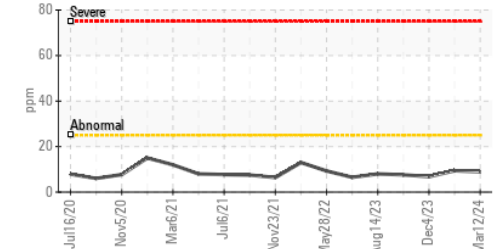
Chromium (ppm)



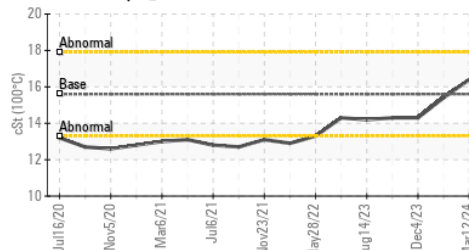
Copper (ppm)



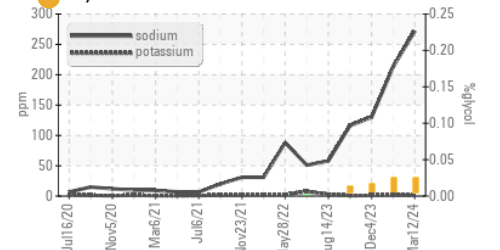
Silicon (ppm)



Viscosity @ 100°C



Glycol Contamination



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : PC0082785  
**Lab Number** : 02626863  
**Unique Number** : 5759995  
**Test Package** : MOB 1 ( Additional Tests: FuelDilution, Glycol, KV40, PercentFuel, VI )

**Received** : 05 Apr 2024  
**Tested** : 10 Apr 2024  
**Diagnosed** : 10 Apr 2024 - Wes Davis

**Metrobus Transit**  
 25 Messenger Drive  
 St. John's, NL  
 CA A1B 0H6

Contact: Danny Oliver  
 danny.oliver@metrobus.com  
 T: (709)570-2025  
 F:

To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.