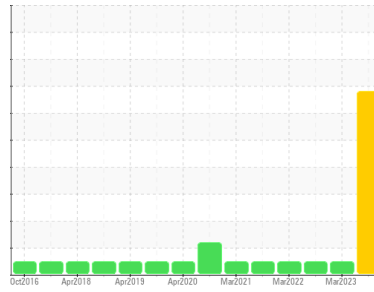




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area
3000 Series
 Machine Id
Freightliner 3801T

Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (26 LTR)

DIAGNOSIS

▲ Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

▲ Wear

Aluminum ppm levels are severe. Iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated. Piston wear is indicated.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0915064	WC0797604	WC0738226
Sample Date	Client Info		06 Apr 2024	17 Mar 2023	01 Oct 2022
Machine Age	mls	Client Info	236575	207007	193012
Oil Age	mls	Client Info	13052	13995	17913
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			SEVERE	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		0	---	---
Iron	ppm	ASTM D5185(m) >75	▲ 101	43	52
Chromium	ppm	ASTM D5185(m) >5	3	3	2
Nickel	ppm	ASTM D5185(m) >4	<1	<1	0
Titanium	ppm	ASTM D5185(m) >2	0	<1	<1
Silver	ppm	ASTM D5185(m) >2	0	0	0
Aluminum	ppm	ASTM D5185(m) >15	▲ 30	9	8
Lead	ppm	ASTM D5185(m) >25	0	<1	<1
Copper	ppm	ASTM D5185(m) >100	7	2	3
Tin	ppm	ASTM D5185(m) >4	0	<1	<1
Antimony	ppm	ASTM D5185(m)	0	0	0
Vanadium	ppm	ASTM D5185(m)	0	0	0
Beryllium	ppm	ASTM D5185(m)	0	0	0
Cadmium	ppm	ASTM D5185(m)	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m) 0	3	3	2
Barium	ppm	ASTM D5185(m) 0	0	0	0
Molybdenum	ppm	ASTM D5185(m) 60	61	64	62
Manganese	ppm	ASTM D5185(m) 0	1	<1	<1
Magnesium	ppm	ASTM D5185(m) 1010	929	1023	981
Calcium	ppm	ASTM D5185(m) 1070	1091	1181	1185
Phosphorus	ppm	ASTM D5185(m) 1150	1009	1119	1089
Zinc	ppm	ASTM D5185(m) 1270	1184	1253	1265
Sulfur	ppm	ASTM D5185(m) 2060	2473	2589	2423
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >25	7	5	7
Sodium	ppm	ASTM D5185(m)	5	2	3
Potassium	ppm	ASTM D5185(m) >20	21	1	1
Glycol	%	ASTM D7922*	0.0	NEG	NEG

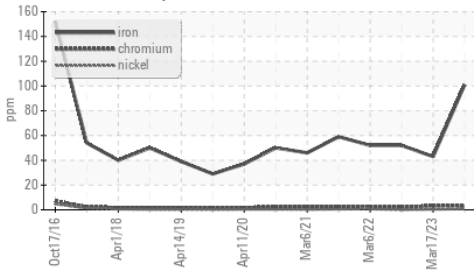
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844* >6	1.4	1	1.3
Nitration	Abs/cm	ASTM D7624* >20	13.2	11.3	14.2
Sulfation	Abs./1mm	ASTM D7415* >30	26.3	26.2	28.8

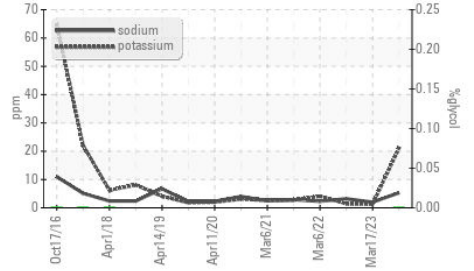


OIL ANALYSIS REPORT

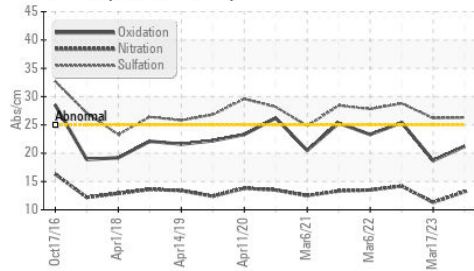
▲ Ferrous Alloys



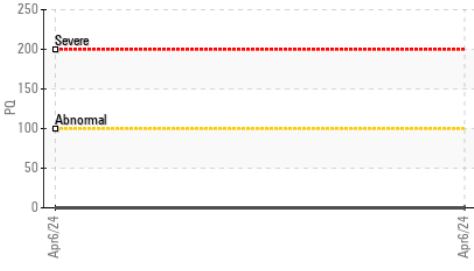
▲ Glycol Contamination



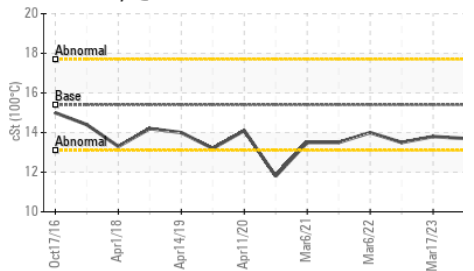
FT-IR (Direct Trend)



PQ



Viscosity @ 100°C



FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs./1mm ASTM D7414*	>25	21.2	18.7	25.4

VISUAL

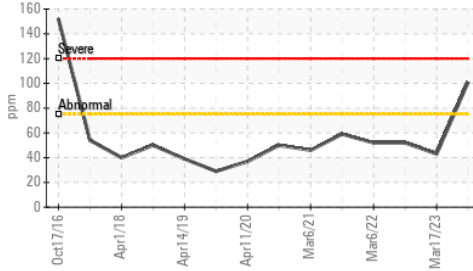
method	limit/base	current	history1	history2	
Emulsified Water	scalar Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar Visual*		NEG	NEG	NEG

FLUID PROPERTIES

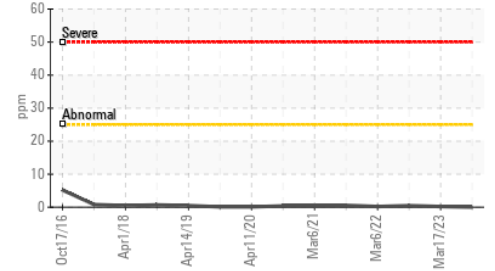
method	limit/base	current	history1	history2	
Visc @ 100°C	cSt ASTM D7279(m)	15.4	13.7	13.8	13.5

GRAPHS

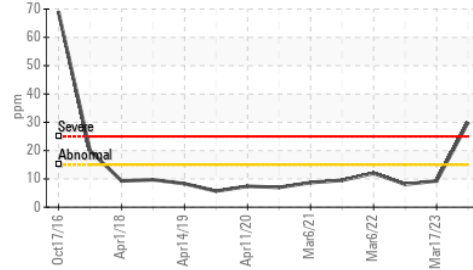
▲ Iron (ppm)



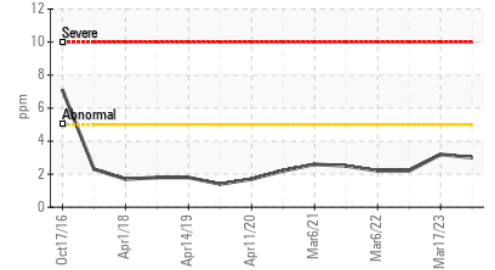
Lead (ppm)



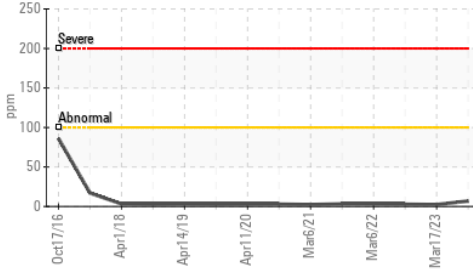
▲ Aluminum (ppm)



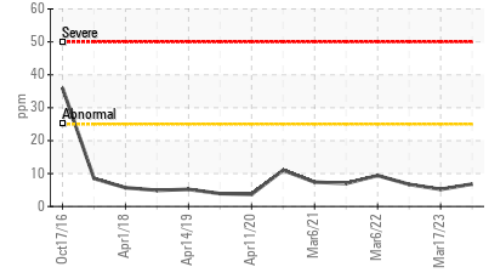
Chromium (ppm)



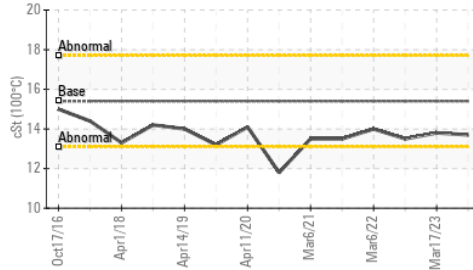
Copper (ppm)



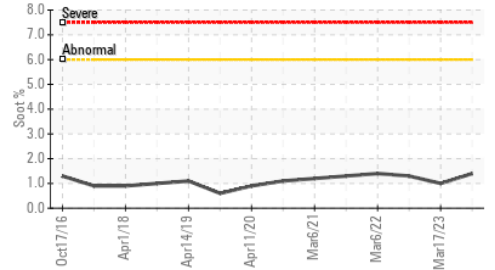
Silicon (ppm)



Viscosity @ 100°C



Soot %



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0915064
Lab Number : 02629544
Unique Number : 5762676
Test Package : MOB 1 (Additional Tests: Glycol, PQ)

MANITOU LIN TRANSPORT (GARAGE)
 1335 SHAWSON DRIVE
 MISSISSAUGA, ON
 CA L4W 1C4
 Contact: Travis Spence
 tspence@manitoulintransport.com

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.

T: (905)564-6361