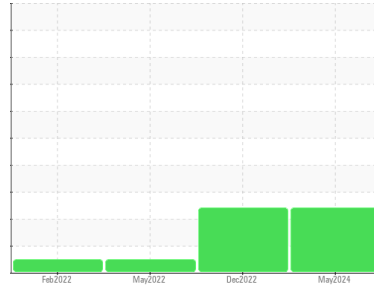




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
TICO 827-8963

Component
Diesel Engine

Fluid
 DIESEL ENGINE OIL SAE 15W40 (--- GAL)

DIAGNOSIS

Recommendation

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

Wear

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

Contamination

Light concentration of carbon/soot present in the oil.

Fluid Condition

Viscosity of sample indicates oil is within SAE 20W50 range, advise investigate. 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		WC0683833	WC0687810	WC0687797
Sample Date	Client Info		21 May 2024	07 Dec 2022	10 May 2022
Machine Age	hrs	Client Info	0	3733	1895
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		Changed	Changed	N/A
Sample Status			ABNORMAL	ABNORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		0	0	---
Iron	ppm	ASTM D5185(m) >100	▲ 110	▲ 128	48
Chromium	ppm	ASTM D5185(m) >20	4	4	1
Nickel	ppm	ASTM D5185(m) >4	<1	1	<1
Titanium	ppm	ASTM D5185(m)	0	<1	0
Silver	ppm	ASTM D5185(m) >3	0	0	0
Aluminum	ppm	ASTM D5185(m) >20	5	4	6
Lead	ppm	ASTM D5185(m) >40	<1	<1	1
Copper	ppm	ASTM D5185(m) >330	4	5	32
Tin	ppm	ASTM D5185(m) >15	<1	<1	<1
Antimony	ppm	ASTM D5185(m)	0	<1	<1
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) 250	79	2	5
Barium	ppm	ASTM D5185(m) 10	0	0	<1
Molybdenum	ppm	ASTM D5185(m) 100	102	2	5
Manganese	ppm	ASTM D5185(m)	1	2	1
Magnesium	ppm	ASTM D5185(m) 450	482	14	38
Calcium	ppm	ASTM D5185(m) 3000	1811	2228	2203
Phosphorus	ppm	ASTM D5185(m) 1150	741	841	875
Zinc	ppm	ASTM D5185(m) 1350	949	965	1023
Sulfur	ppm	ASTM D5185(m) 4250	2143	2737	2658
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >25	9	10	19
Sodium	ppm	ASTM D5185(m) >158	4	3	6
Potassium	ppm	ASTM D5185(m) >20	4	<1	3

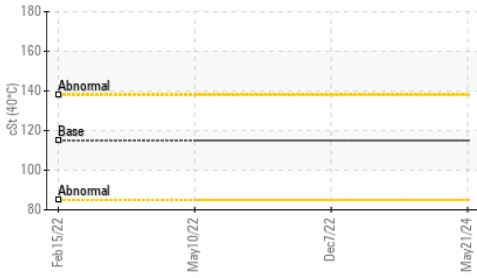
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844* >3	▲ 2.7	2.9	0.2
Nitration	Abs/cm	ASTM D7624* >20	22.9	18.3	13.3
Sulfation	Abs./1mm	ASTM D7415* >30	41.0	▲ 41.9	30.2

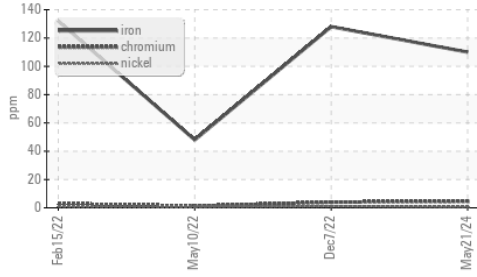


OIL ANALYSIS REPORT

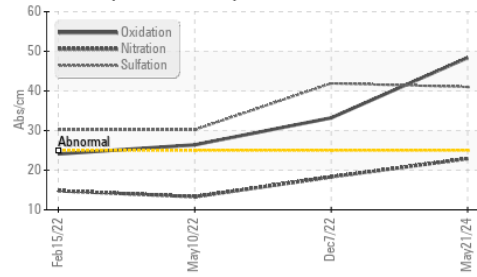
▲ Viscosity @ 40°C



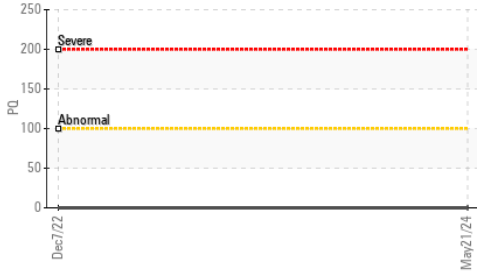
▲ Ferrous Alloys



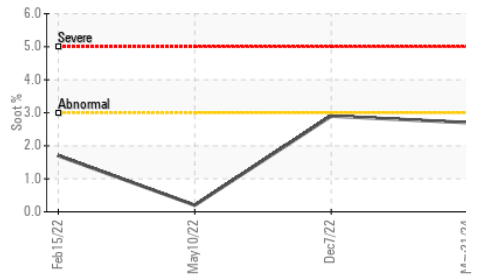
▲ FT-IR (Direct Trend)



▲ PQ



▲ Soot %



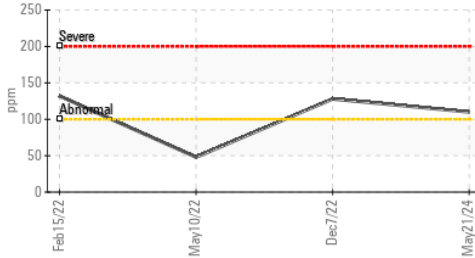
FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	ASTM D7414*	>25	48.4	▲ 33.2	26.4

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

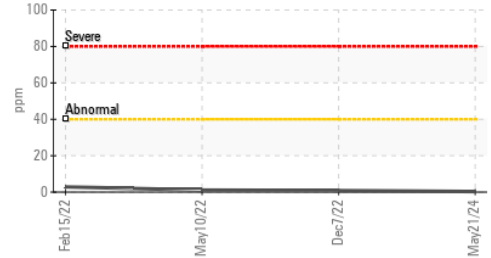
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 40°C	cSt	ASTM D7279(m)	115	▲ 179	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	14.4	▲ 19.4	15.8	14.3
Viscosity Index (VI)	Scale	ASTM D2270*	126	123	---	---

GRAPHS

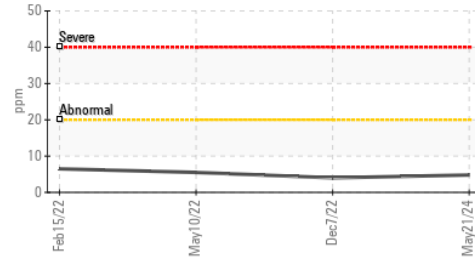
▲ Iron (ppm)



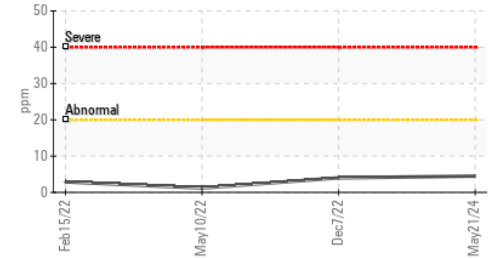
▲ Lead (ppm)



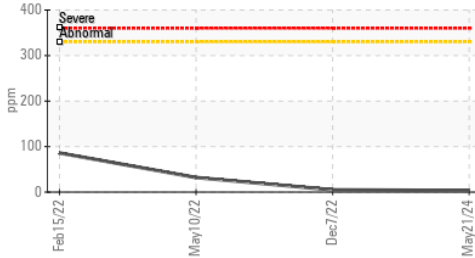
▲ Aluminum (ppm)



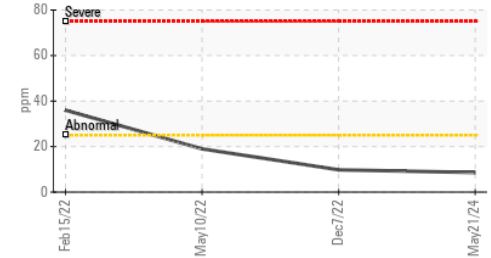
▲ Chromium (ppm)



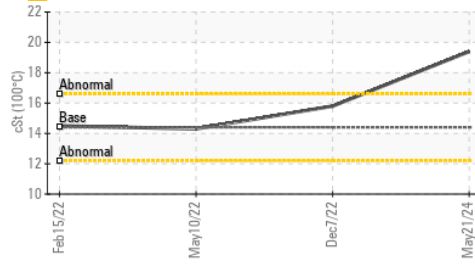
▲ Copper (ppm)



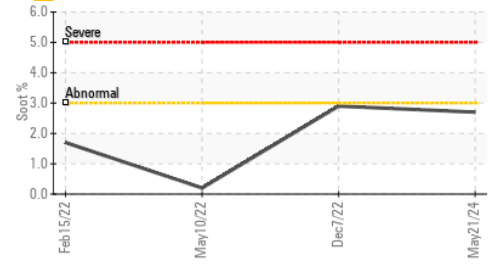
▲ Silicon (ppm)



▲ Viscosity @ 100°C



▲ Soot %



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0683833 **Received** : 20 Jun 2024
Lab Number : **02643107** **Tested** : 20 Jun 2024
Unique Number : 5800646 **Diagnosed** : 20 Jun 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: KV40, PQ, VI)

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.

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