



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL

Machine Id
573 GLENRIDGE AVE ST.CATHARINES, OUTSIDE BROCK UNIVERSITY 06UK5689B

Component
Rear Natural Gas Engine

Fluid
ESSO XD-3 EXTRA SAE 30 (10 LTR)

RECOMMENDATION

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. The fluid was specified as ESSO XD-3 EXTRA SAE 30, however, a fluid match indicates that this fluid is SAE 40 Diesel Engine Oil. Please confirm the oil type and grade on your next sample.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PN0006256	PN0004815	PN0003455
Sample Date		Client Info		07 Jun 2024	05 Jun 2023	01 Jun 2022
Machine Age	hrs	Client Info		449	433	415
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

Metal levels are typical for a new component breaking in.

Iron	ppm	ASTM D5185(m)	>50	5	5	4
Chromium	ppm	ASTM D5185(m)	>4	0	0	0
Nickel	ppm	ASTM D5185(m)	>2	0	0	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)	>3	0	0	0
Aluminum	ppm	ASTM D5185(m)	>9	<1	2	3
Lead	ppm	ASTM D5185(m)	>30	0	<1	0
Copper	ppm	ASTM D5185(m)	>35	1	1	2
Tin	ppm	ASTM D5185(m)	>4	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	---	---
Yellow Metal	scalar	Visual*	NONE	NONE	---	---

CONTAMINATION

There is no indication of any contamination in the oil.

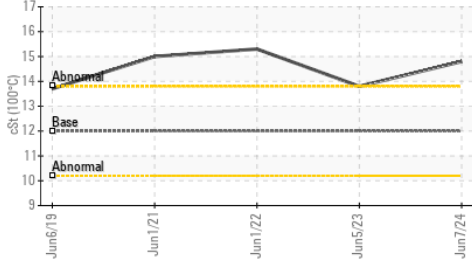
Silicon	ppm	ASTM D5185(m)	>+100	4	7	15
Potassium	ppm	ASTM D5185(m)	>20	0	0	1
Water		WC Method	>0.1	NEG	NEG	NEG
Soot %	%	ASTM D7844*		0	0	0
Nitration	Abs/cm	ASTM D7624*	>20	5.0	5.6	8.1
Sulfation	Abs/.1mm	ASTM D7415*	>30	17.7	18.2	19.7
Silt	scalar	Visual*	NONE	NONE	---	---
Debris	scalar	Visual*	NONE	NONE	---	---
Sand/Dirt	scalar	Visual*	NONE	NONE	---	---
Appearance	scalar	Visual*	NORML	NORML	---	---
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG

FLUID CONDITION

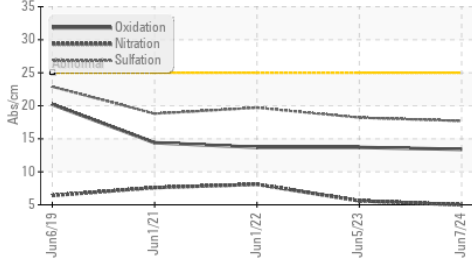
Viscosity of sample indicates oil is within SAE 40 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185(m)	>16	2	2	3
Boron	ppm	ASTM D5185(m)		10	33	61
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		58	61	85
Manganese	ppm	ASTM D5185(m)		<1	<1	<1
Magnesium	ppm	ASTM D5185(m)		861	559	31
Calcium	ppm	ASTM D5185(m)	2550	1153	1499	2094
Phosphorus	ppm	ASTM D5185(m)	1000	931	983	1000
Zinc	ppm	ASTM D5185(m)	1120	1093	1035	1122
Sulfur	ppm	ASTM D5185(m)		2421	2589	3052
Oxidation	Abs/.1mm	ASTM D7414*	>25	13.4	13.7	13.7
Visc @ 100°C	cSt	ASTM D7279(m)	12.0	▲ 14.8	13.8	15.3

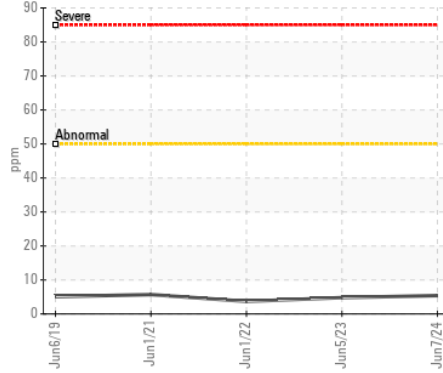
▲ Viscosity @ 100°C



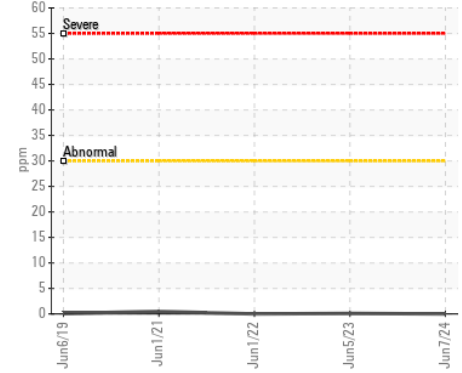
FT-IR (Direct Trend)



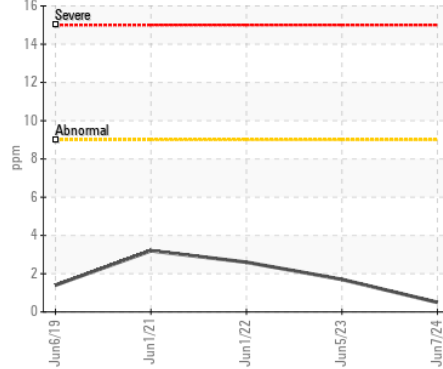
Iron (ppm)



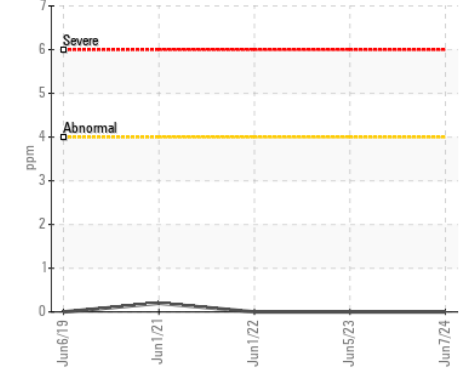
Lead (ppm)



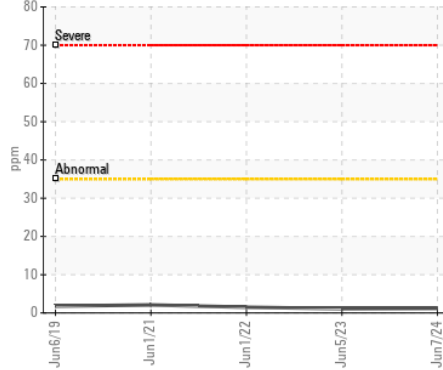
Aluminum (ppm)



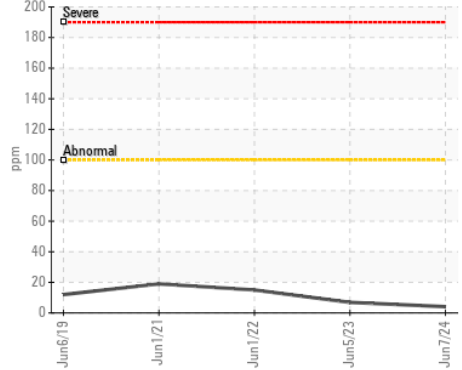
Chromium (ppm)



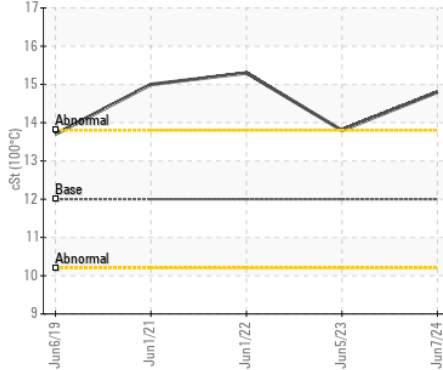
Copper (ppm)



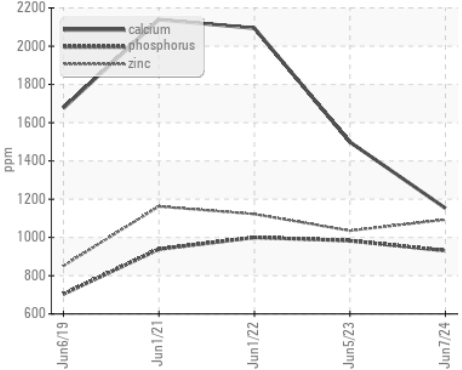
Silicon (ppm)



▲ Viscosity @ 100°C



Additives



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PN0006256 **Received** : 14 Jun 2024
Lab Number : 02641954 **Tested** : 14 Jun 2024
Unique Number : 5799493 **Diagnosed** : 17 Jun 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: Visual)

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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.