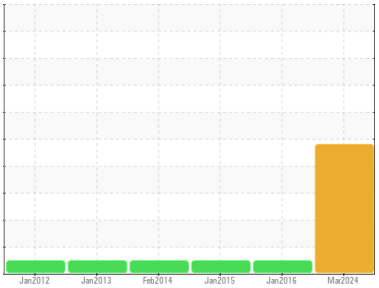
OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL

Machine Id
SPARTAN 25041 (P331)
Component
Right Diesel Engine
Fluid
CASTROL HYPURON 15W40 (28 LTR)

DIAGNOSIS

Recommendation
We advise that you check for the source of the coolant leak. 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
Test for glycol is positive. There is a light concentration of glycol 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		**PC0088420**	AP100894	AP96425
Sample Date		Client Info		**21 Mar 2024**	22 Jan 2016	15 Jan 2015
Machine Age	mths	Client Info		**0**	82043	4551
Oil Age	mths	Client Info		**6**	0	0
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	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
Iron	ppm	ASTM D5185(m)	>75	**29**	16	17
Chromium	ppm	ASTM D5185(m)	>5	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>4	**0**	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	**0**	<1	<1
Silver	ppm	ASTM D5185(m)	>2	**0**	0	<1
Aluminum	ppm	ASTM D5185(m)	>15	**2**	4	4
Lead	ppm	ASTM D5185(m)	>25	**0**	2	2
Copper	ppm	ASTM D5185(m)	>100	**4**	3	9
Tin	ppm	ASTM D5185(m)	>4	**0**	<1	<1
Antimony	ppm	ASTM D5185(m)		**0**	2	2
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	<1

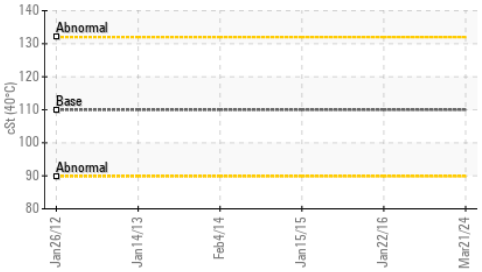
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**5**	30	29
Barium	ppm	ASTM D5185(m)		**0**	<1	<1
Molybdenum	ppm	ASTM D5185(m)		**63**	<1	<1
Manganese	ppm	ASTM D5185(m)		**0**	<1	<1
Magnesium	ppm	ASTM D5185(m)		**878**	11	18
Calcium	ppm	ASTM D5185(m)		**1073**	2504	2420
Phosphorus	ppm	ASTM D5185(m)		**882**	1015	1009
Zinc	ppm	ASTM D5185(m)		**1117**	1231	1237
Sulfur	ppm	ASTM D5185(m)		**2423**	3386	3548
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**10**	5	6
Sodium	ppm	ASTM D5185(m)		**65**	3	2
Potassium	ppm	ASTM D5185(m)	>20	**22**	7	6
Glycol	%	ASTM D7922*		**0.032**	0.0	0.0

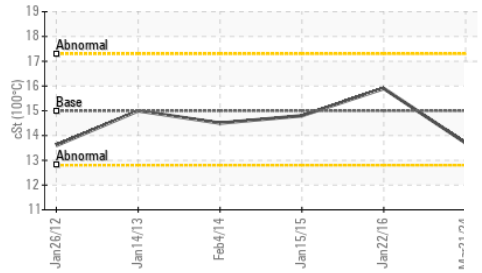
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>6	**0.7**	0.5	0.5
Nitration	Abs/cm	ASTM D7624*	>20	**11.5**	10.9	10.3
Sulfation	Abs/.1mm	ASTM D7415*	>30	**25.5**	26.6	25.3

OIL ANALYSIS REPORT

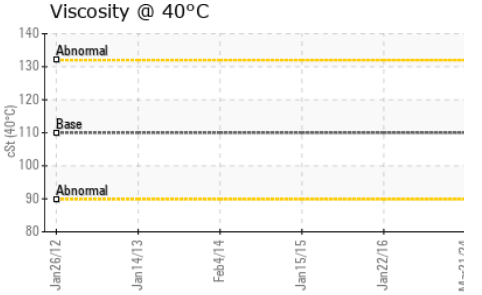
Viscosity @ 40°C



Viscosity @ 100°C



Viscosity @ 40°C



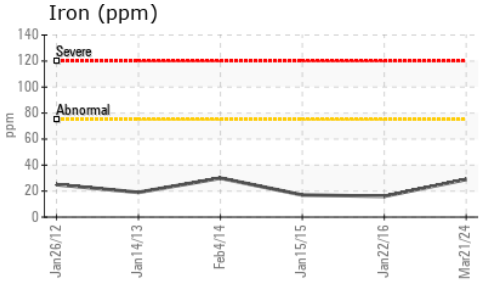
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**23.9**	22.7	22.8

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

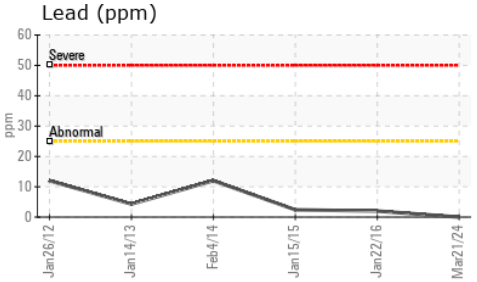
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	110	**100**	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	15.0	**13.7**	15.9	14.8
Viscosity Index (VI)	Scale	ASTM D2270*	140	**137**	---	---

GRAPHS

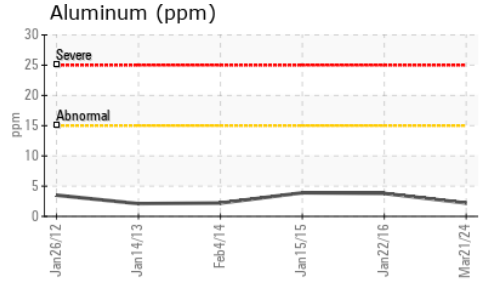
Iron (ppm)



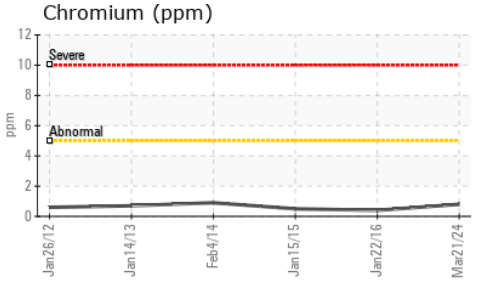
Lead (ppm)



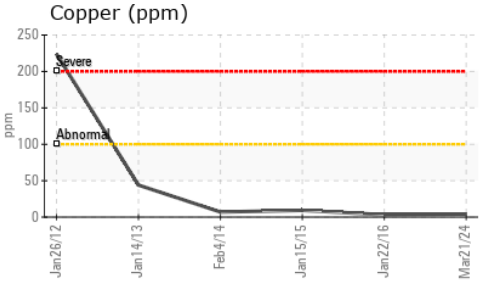
Aluminum (ppm)



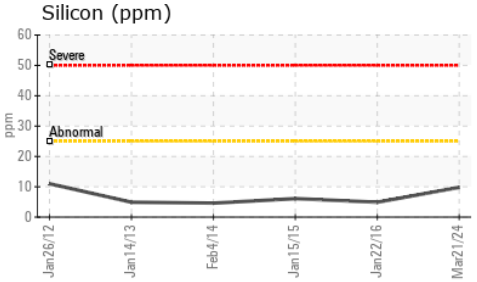
Chromium (ppm)



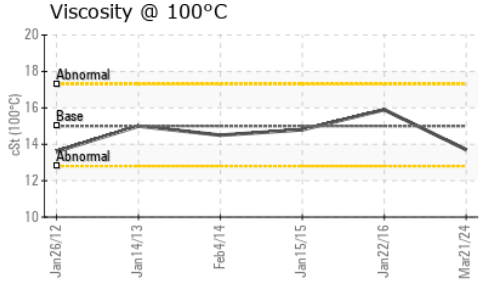
Copper (ppm)



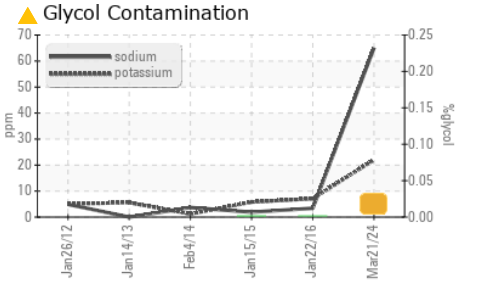
Silicon (ppm)



Viscosity @ 100°C



Glycol Contamination



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0088420 **Received** : 26 Mar 2024
Lab Number : 02624574 **Tested** : 26 Mar 2024
Unique Number : 5749693 **Diagnosed** : 26 Mar 2024 - Wes Davis
Test Package : MOB 1 (Additional Tests: Glycol, KV40, 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.

TORONTO FIRE SERVICES
40 TORYORK DRIVE
TORONTO, ON
CA M9L 1X6
Contact: Antonio Rodrigues
antonio.rodrigues@toronto.ca
T:
F: (416)338-9207