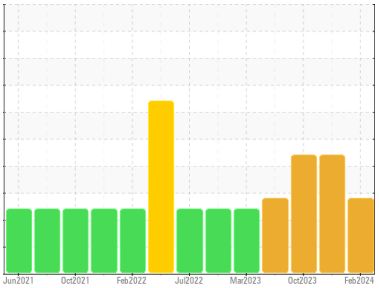
PROBLEM SUMMARY

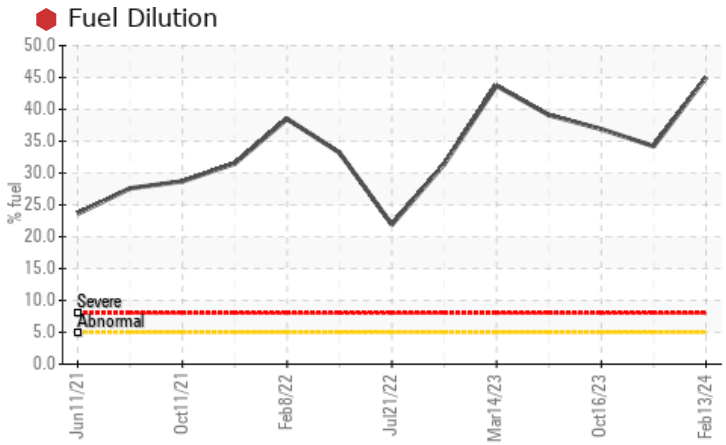
Machine Id
4020
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (--- GAL)

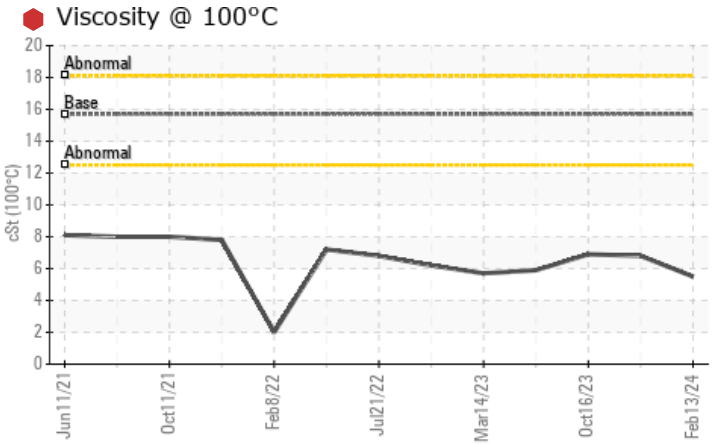
Sample Rating Trend



FUEL

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	SEVERE
Fuel	%	ASTM D3524	>5	**45.0**	34.2	36.9
Visc @ 100°C	cSt	ASTM D445	15.7	**5.5**	6.8	6.9

Customer Id: PATSTE
Sample No.: JR0195528
Lab Number: 06097396
Test Package: CONST

To manage this report scan the QR code

To discuss the diagnosis or test data:
Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Fuel/injector System	---	---	?	We advise that you check the fuel injection system.

HISTORICAL DIAGNOSIS

07 Nov 2023 Diag: Wes Davis

FUEL

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.All component wear rates are normal. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The oil is no longer serviceable due to the presence of contaminants.

view report

16 Oct 2023 Diag: Wes Davis

FUEL

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.All component wear rates are normal. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

view report

24 May 2023 Diag: Wes Davis

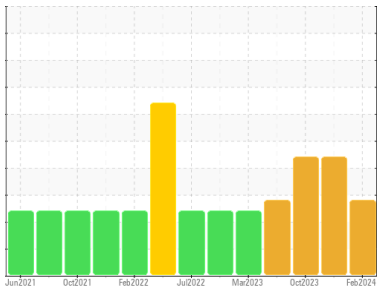
FUEL

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.All component wear rates are normal. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Machine Id
4020
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check the fuel injection system. 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
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**JR0195528**	JR0184580	JR0184252
Sample Date		Client Info		**13 Feb 2024**	07 Nov 2023	16 Oct 2023
Machine Age	hrs	Client Info		**10541**	10203	9527
Oil Age	hrs	Client Info		**1000**	750	500
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**SEVERE**	SEVERE	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**6**	6	17
Chromium	ppm	ASTM D5185m	>20	**<1**	<1	1
Nickel	ppm	ASTM D5185m	>2	**0**	<1	0
Titanium	ppm	ASTM D5185m	>2	**0**	<1	0
Silver	ppm	ASTM D5185m	>2	**0**	<1	0
Aluminum	ppm	ASTM D5185m	>25	**<1**	2	2
Lead	ppm	ASTM D5185m	>40	**<1**	1	4
Copper	ppm	ASTM D5185m	>330	**<1**	1	2
Tin	ppm	ASTM D5185m	>15	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	316	**<1**	▲ <1	▲ 2
Barium	ppm	ASTM D5185m	0.0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	1.2	**1**	2	2
Manganese	ppm	ASTM D5185m		**0**	0	0
Magnesium	ppm	ASTM D5185m	24	**12**	30	26
Calcium	ppm	ASTM D5185m	2292	**1160**	1528	1442
Phosphorus	ppm	ASTM D5185m	1064	**447**	▲ 581	▲ 517
Zinc	ppm	ASTM D5185m	1160	**526**	▲ 696	▲ 675
Sulfur	ppm	ASTM D5185m	4996	**1818**	▲ 2495	▲ 2368

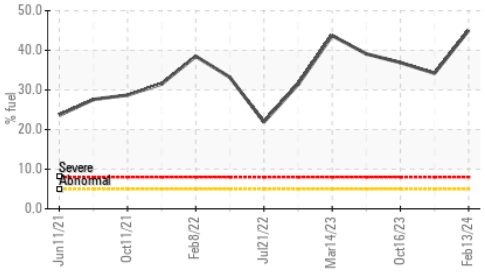
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**3**	4	4
Sodium	ppm	ASTM D5185m		**<1**	0	1
Potassium	ppm	ASTM D5185m	>20	**0**	2	2
Fuel	%	ASTM D3524	>5	**45.0**	34.2	36.9

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.3**	0.4	0.8
Nitration	Abs/cm	*ASTM D7624	>20	**7.8**	7.4	9.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	**16.6**	16.5	19.8

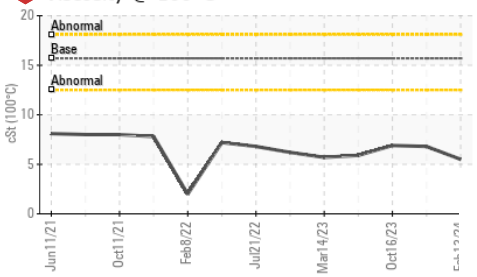
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**10.0**	9.7	13.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	**4.4**	5.0	3.4

OIL ANALYSIS REPORT

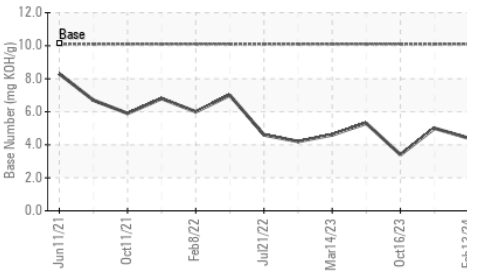
Fuel Dilution



Viscosity @ 100°C



Base Number

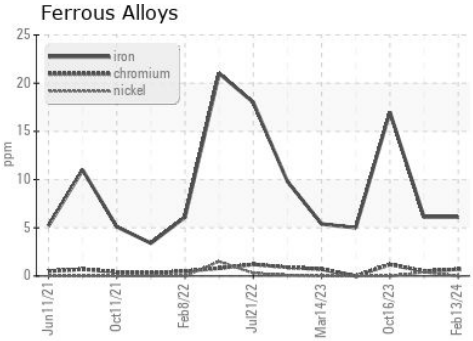


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

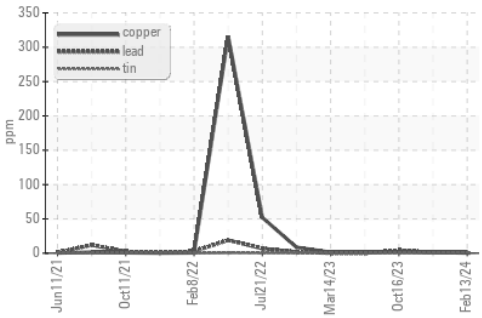
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.7	**5.5**	6.8	6.9

GRAPHS

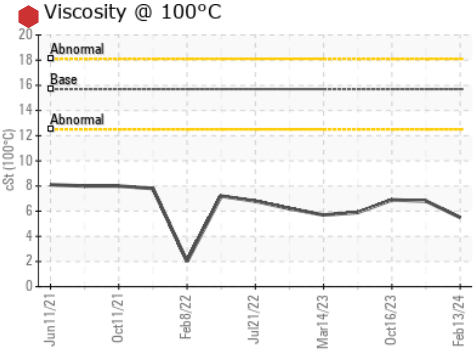
Ferrous Alloys



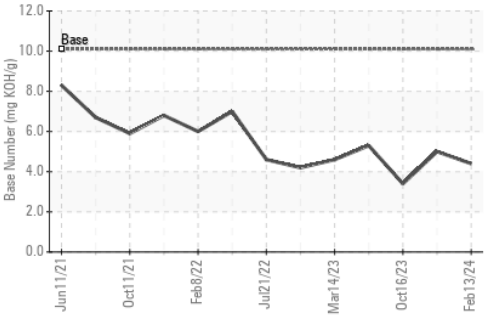
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0195528
Lab Number : 06097396
Unique Number : 10890249
Test Package : CONST (Additional Tests: PercentFuel, TBN)

Received : 22 Feb 2024
Tested : 25 Feb 2024
Diagnosed : 25 Feb 2024 - Wes Davis

Certificate L2367

To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

PATRIOT DEVELOPMENT CORP
22721 LADBROOK DRIVE STE 120
STERLING, VA
US 20166
Contact: ROBERT MOSS
robert.moss@patriotdev.net
T:
F: