



PROBLEM SUMMARY

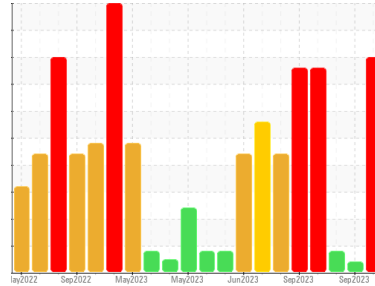
Sample Rating Trend

GLYCOL

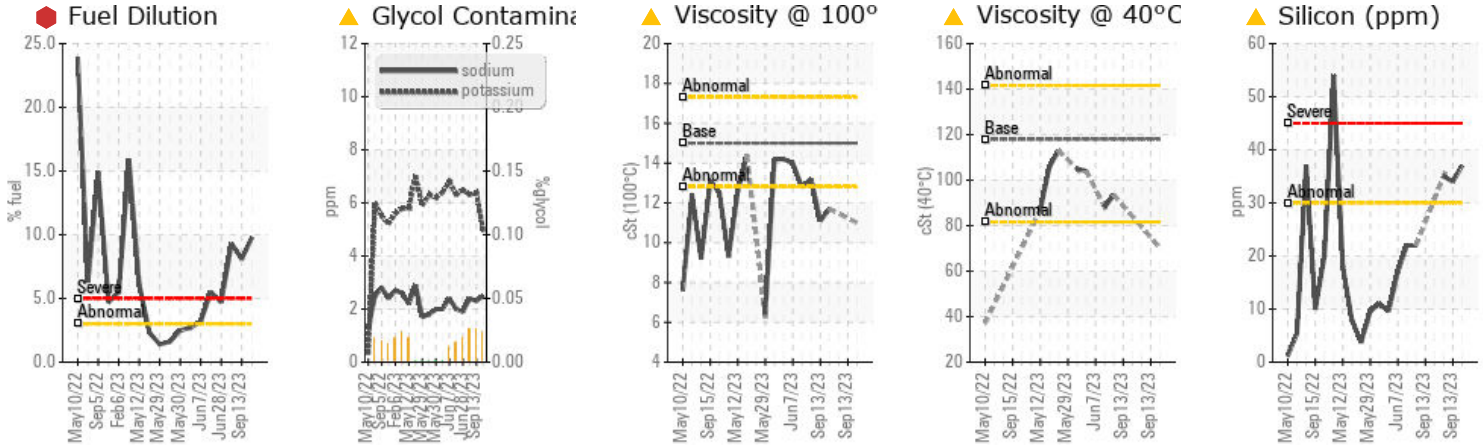


Area
BRUCE B/0B/54300
Machine Id
0B-54300-EPG1-E2

Component
Diesel Engine
Fluid
SHELL ROTELLA T4 15W40 (30 LTR)



COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check the fuel injection system. We advise that you check for the source of the coolant leak. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	ABNORMAL
Silicon	ppm	ASTM D5185(m)	>30	▲ 37	---	---
Potassium	ppm	ASTM D5185(m)	>20	▲ 5	---	---
Fuel	%	ASTM D7593*	>3.0	● 9.8	<1.0	<1.0
Glycol	%	ASTM D7922*		▲ 0.023	NEG	NEG
Visc @ 40°C	cSt	ASTM D7279(m)	118	▲ 70.2	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	15	▲ 11.0	---	---

Customer Id: BRUTIV
Sample No.: WC0642813
Lab Number: 02587111
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	We recommend that you drain the oil from the component if this has not already been done.
Flush System	---	---	?	We advise that you flush the component thoroughly before re-filling with oil.
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Dirt Access	---	---	?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.
Check Fuel/injector System	---	---	?	We advise that you check the fuel injection system.
Check Glycol Access	---	---	?	We advise that you check for the source of the coolant leak.

HISTORICAL DIAGNOSIS

13 Sep 2023 Diag: Bill Quesnel

OFF SPEC



This is a baseline read-out on the submitted sample. Pensky-Martens flash point is low.{not applicable} {not applicable} Pensky-Martens Flash Point is abnormally low.

view report



13 Sep 2023 Diag: Bill Quesnel

OFF SPEC



This is a baseline read-out on the submitted sample. COC Flash Point is low.{not applicable} {not applicable} {not applicable}

view report



13 Sep 2023 Diag: Bill Quesnel

GLYCOL



We advise that you check the fuel injection system. We advise that you check for the source of the coolant leak. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.All component wear rates are normal. Test for glycol is positive. There is a high amount of fuel present in the oil. There is a light concentration of glycol present in the oil. There is a moderate concentration of dirt 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.

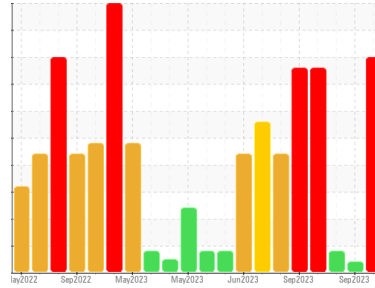
view report





OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Area
BRUCE B/0B/54300
 Machine Id
0B-54300-EPG1-E2
 Component
Diesel Engine
 Fluid
SHELL ROTELLA T4 15W40 (30 LTR)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We advise that you check for the source of the coolant leak. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. We recommend you service the filters on this component. 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 high amount of fuel present in the oil. There is a light concentration of glycol present in the oil. There is a moderate concentration of dirt present in the oil. The water content is negligible. Tests confirm the presence of fuel in the oil.

Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The AN level is acceptable for this fluid. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0642813	WC04642810	WC0642809
Sample Date	Client Info		04 Oct 2023	13 Sep 2023	13 Sep 2023
Machine Age	hrs	Client Info	0	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			SEVERE	ABNORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>200	5	---
Chromium	ppm	ASTM D5185(m)	>20	0	---
Nickel	ppm	ASTM D5185(m)	>2	0	---
Titanium	ppm	ASTM D5185(m)	>2	0	---
Silver	ppm	ASTM D5185(m)	>2	1	---
Aluminum	ppm	ASTM D5185(m)	>30	<1	---
Lead	ppm	ASTM D5185(m)	>30	<1	---
Copper	ppm	ASTM D5185(m)	>30	2	---
Tin	ppm	ASTM D5185(m)	>15	<1	---
Antimony	ppm	ASTM D5185(m)		0	---
Vanadium	ppm	ASTM D5185(m)		0	---
Beryllium	ppm	ASTM D5185(m)		0	---
Cadmium	ppm	ASTM D5185(m)		0	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		168	---
Barium	ppm	ASTM D5185(m)		<1	---
Molybdenum	ppm	ASTM D5185(m)		0	---
Manganese	ppm	ASTM D5185(m)		0	---
Magnesium	ppm	ASTM D5185(m)		13	---
Calcium	ppm	ASTM D5185(m)		2009	---
Phosphorus	ppm	ASTM D5185(m)		899	---
Zinc	ppm	ASTM D5185(m)		1027	---
Sulfur	ppm	ASTM D5185(m)		2745	---
Lithium	ppm	ASTM D5185(m)		<1	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>30	▲ 37	---
Sodium	ppm	ASTM D5185(m)		2	---
Potassium	ppm	ASTM D5185(m)	>20	▲ 5	---
Fuel	%	ASTM D7593*	>3.0	◆ 9.8	<1.0
Water	%	ASTM D6304*	>0.2	0.042	---
ppm Water	ppm	ASTM D6304*	>2000	420.9	---
Glycol	%	ASTM D7922*		▲ 0.023	NEG

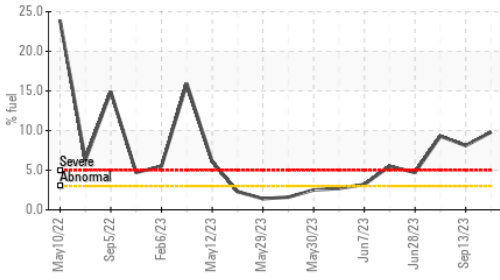
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	0	---
Nitration	Abs/cm	ASTM D7624*	>20	5.1	---
Sulfation	Abs/1mm	ASTM D7415*	>30	19.9	---

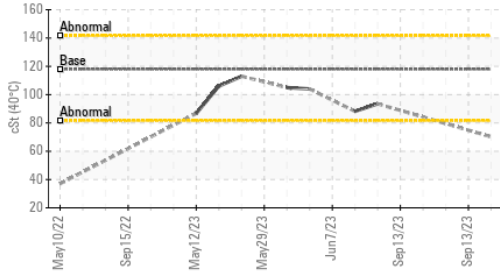


OIL ANALYSIS REPORT

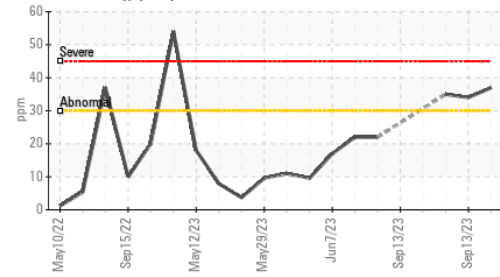
Fuel Dilution



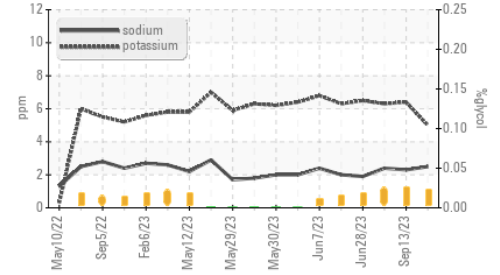
Viscosity @ 40°C



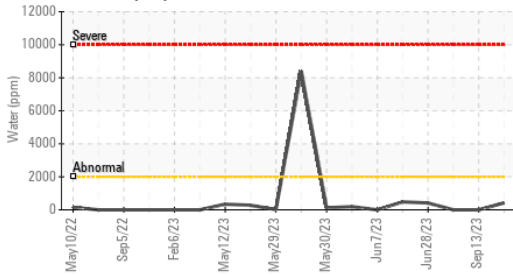
Silicon (ppm)



Glycol Contamination



Water (KF)



FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	ASTM D7414*	>25	15.5	---
Acid Number (AN)	mg KOH/g	ASTM D974*		2.58	---

VISUAL

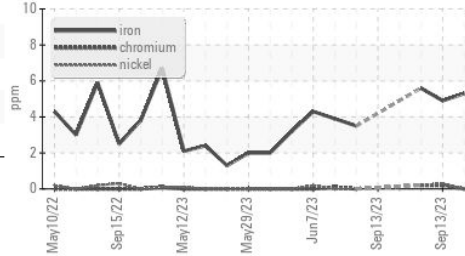
	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	scalar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

FLUID PROPERTIES

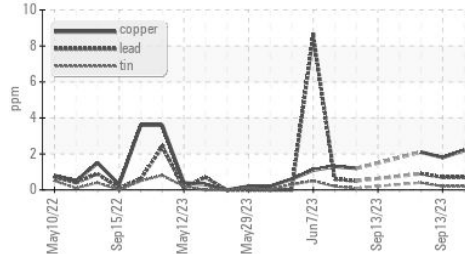
	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	118	70.2	---
Visc @ 100°C	cSt	ASTM D7279(m)	15	11.0	---
Viscosity Index (VI)	Scale	ASTM D2270*	133	147	---

GRAPHS

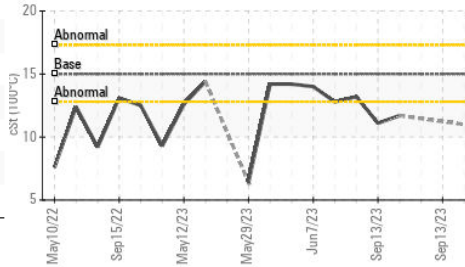
Ferrous Alloys



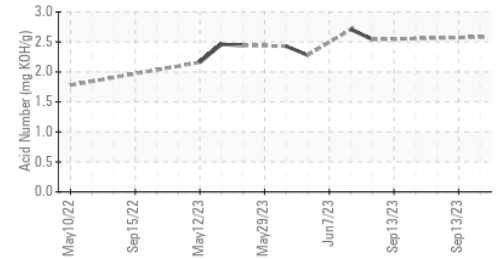
Non-ferrous Metals



Viscosity @ 100°C



Acid Number



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0642813
Lab Number : 02587111
Unique Number : 5656177
Test Package : IND 2 (Additional Tests: FT-IR, FuelDilution, Glycol, KV100, PercentFuel, TAN Man, VIContact)

Received : 05 Oct 2023
Diagnosed : 06 Oct 2023
Diagnostician : Kevin Marson

Bruce Power - Bruce A PdM
 P.O.Box 1540, 177 Tie Road., RM-222 U2 Column 2N11 615
 Tiverton, ON
 CA N0G 2T0
 Contact: Bradley Mangotich
 bradley.mangotich@brucepower.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: (519)361-2673
 F: