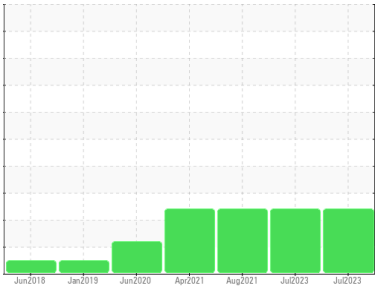
PROBLEM SUMMARY

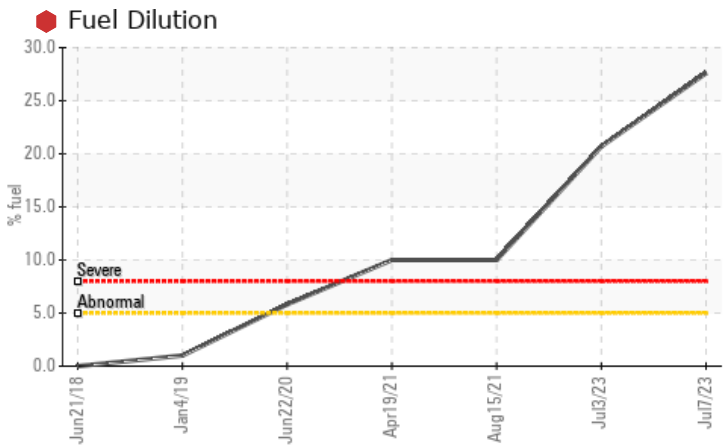
Sample Rating Trend

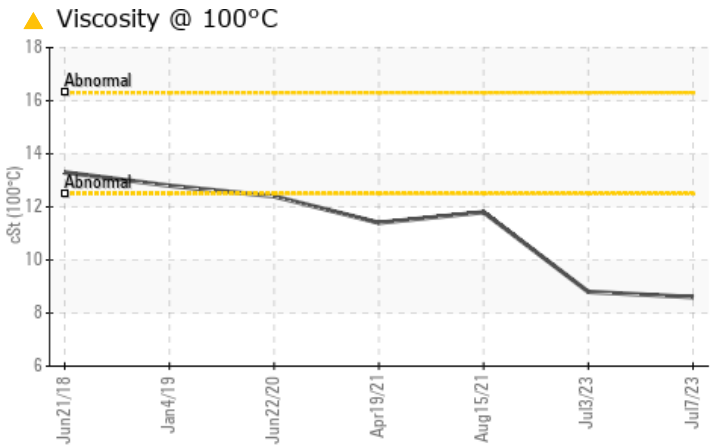


FUEL

Area
GM Seattle Off Raod Shop
Machine Id
[GM Seattle Off Raod Shop] 24-843
Component
Diesel Engine
Fluid
SHELL 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check the fuel injection system. Oil and filter 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	**27.6**	20.7	>10.0
Visc @ 100°C	cSt	ASTM D445		**8.6**	8.8	11.8

Customer Id: GARSEA
Sample No.: PE0002181
Lab Number: 05903596
Test Package: CONST

To manage this report scan the QR code

To discuss the diagnosis or test data:
Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.
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

03 Jul 2023 Diag: Doug Bogart

FUEL

We advise that you check the fuel injection system. Oil and filter 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. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

view report

15 Aug 2021 Diag: Wes Davis

FUEL

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.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. Viscosity of sample indicates oil is within SAE 30 range, advise investigate. The oil is no longer serviceable due to the presence of contaminants.

view report

19 Apr 2021 Diag: Wes Davis

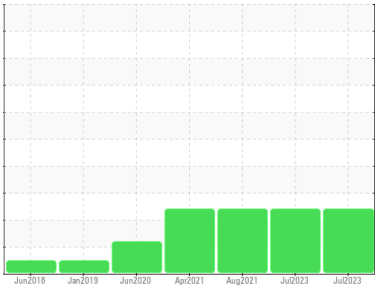
FUEL

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. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.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. Viscosity of sample indicates oil is within SAE 30 range, advise investigate. The oil is no longer serviceable due to the presence of contaminants.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Area
GM Seattle Off Raod Shop
Machine Id
[GM Seattle Off Raod Shop] 24-843
Component
Diesel Engine
Fluid
SHELL 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check the fuel injection system. Oil and filter 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.

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PE0002181**	PE0002201	PE12291176
Sample Date		Client Info		**07 Jul 2023**	03 Jul 2023	15 Aug 2021
Machine Age	hrs	Client Info		**4884**	4833	3893
Oil Age	hrs	Client Info		**457**	406	352
Oil Changed		Client Info		**Changed**	Changed	Not Changd
Sample Status				**SEVERE**	SEVERE	SEVERE

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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**10**	9	11
Chromium	ppm	ASTM D5185m	>20	**<1**	<1	0
Nickel	ppm	ASTM D5185m	>4	**0**	0	0
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m	>3	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>20	**1**	1	1
Lead	ppm	ASTM D5185m	>40	**0**	0	0
Copper	ppm	ASTM D5185m	>330	**0**	<1	1
Tin	ppm	ASTM D5185m	>15	**<1**	0	0
Antimony	ppm	ASTM D5185m		**---**	---	1
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**51**	59	11
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**42**	44	20
Manganese	ppm	ASTM D5185m		**<1**	<1	---
Magnesium	ppm	ASTM D5185m		**176**	173	320
Calcium	ppm	ASTM D5185m		**1544**	1599	1707
Phosphorus	ppm	ASTM D5185m		**766**	785	866
Zinc	ppm	ASTM D5185m		**936**	967	1008
Sulfur	ppm	ASTM D5185m		**3179**	3292	---

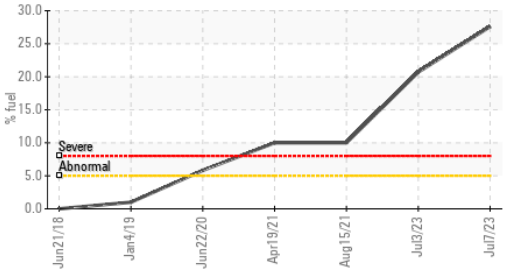
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**2**	2	2
Sodium	ppm	ASTM D5185m	>150	**<1**	<1	2
Potassium	ppm	ASTM D5185m	>20	**0**	3	1
Fuel	%	ASTM D3524	>5	**27.6**	20.7	>10.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.2**	0.2	<0.1
Nitration	Abs/cm	*ASTM D7624	>20	**9.8**	9.9	11
Sulfation	Abs/.1mm	*ASTM D7415	>30	**19.4**	18.8	---

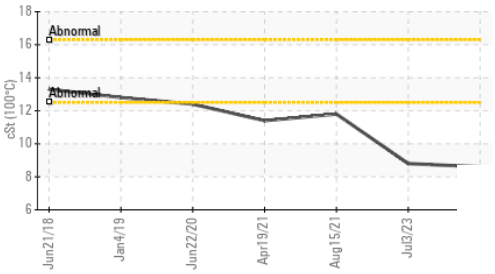
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**17.2**	16.1	16
Base Number (BN)	mg KOH/g	ASTM D2896		**5.6**	6.2	5.72

OIL ANALYSIS REPORT

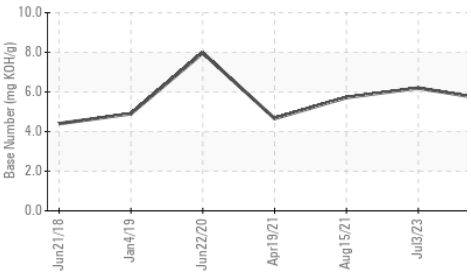
Fuel Dilution



Viscosity @ 100°C



Base Number

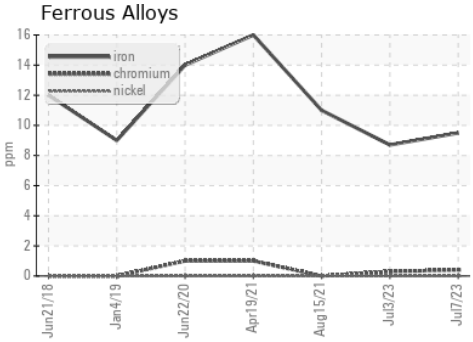


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	---
Silt	scalar	*Visual	NONE	**NONE**	NONE	---
Debris	scalar	*Visual	NONE	**NONE**	NONE	---
Sand/Dirt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

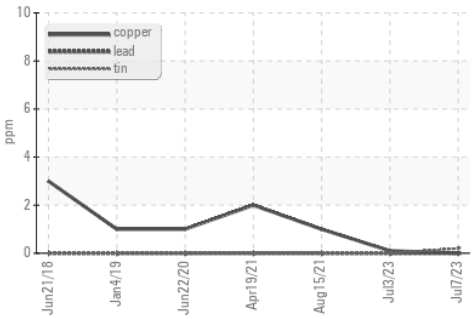
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		▲ **8.6**	▲ 8.8	▲ 11.8

GRAPHS

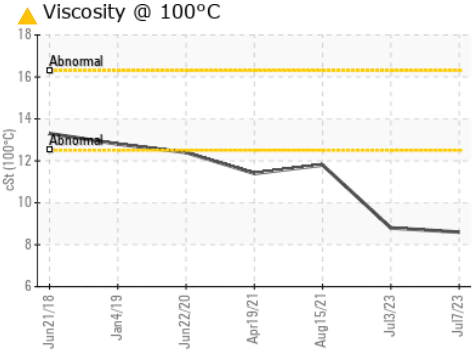
Ferrous Alloys



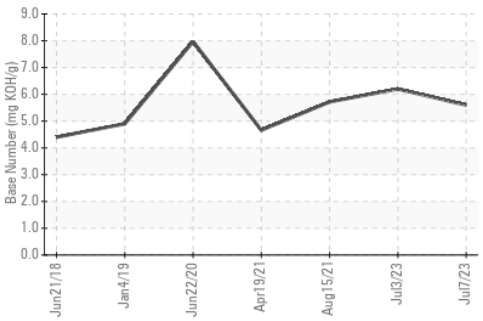
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PE0002181 **Received** : 20 Jul 2023
Lab Number : 05903596 **Diagnosed** : 24 Jul 2023
Unique Number : 10564952 **Diagnostician** : Doug Bogart
Test Package : CONST (Additional Tests: FT-IR, ICP, KV100, PercentFuel, SCREEN, TBN)

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)

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SEATTLE, WA
US 98108
Contact: Jesse Patterson
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Report Id: GARSEA [WUSCAR] 05903596 (Generated: 07/24/2023 21:38:22) Rev: 1

Submitted By: Stoneway Concrete - Seattle - Jesse Patterson