

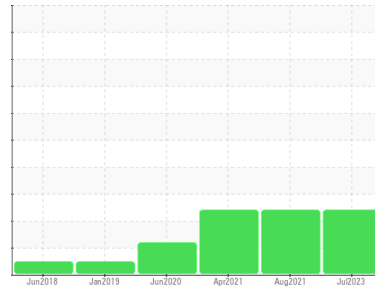
# PROBLEM SUMMARY

Sample Rating Trend

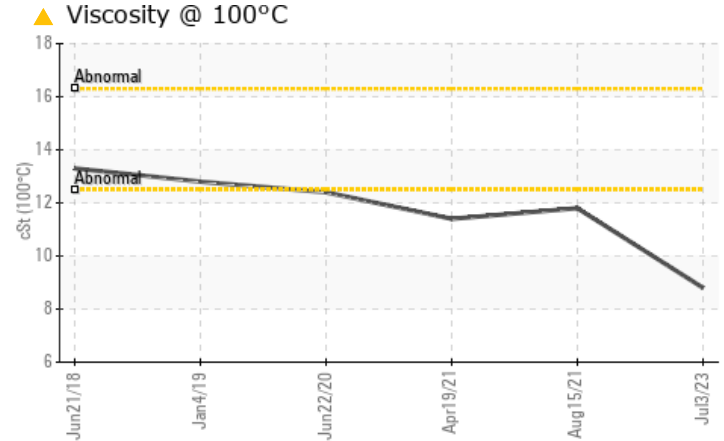
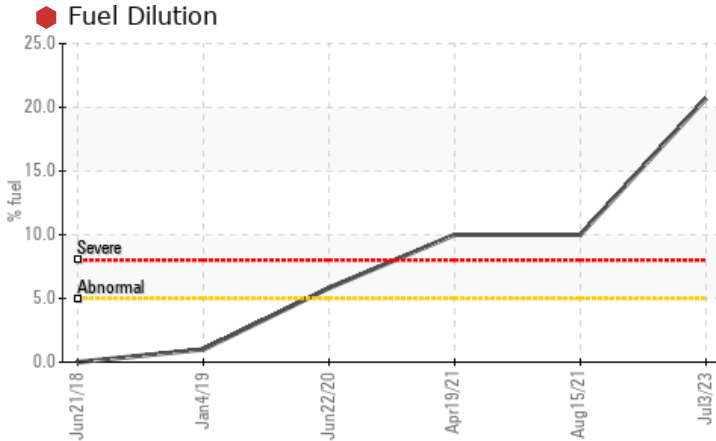
FUEL



Area  
**GM Seattle Off Road Shop**  
 Machine Id  
**[GM Seattle Off Road 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	20.7	>10.0	>10.0
Visc @ 100°C	cSt	ASTM D445	8.8	11.8	11.4

Customer Id: GARSEA  
 Sample No.: PE0002201  
 Lab Number: 05903593  
 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](mailto:dougb@wearcheckusa.com)

To change component or sample information:  
 Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto: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	MISSED	Jul 24 2023	?	We recommend an early resample to monitor this condition.
Check Fuel/injector System	MISSED	Jul 24 2023	?	We advise that you check the fuel injection system.

## HISTORICAL DIAGNOSIS

### 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



### 22 Jun 2020 Diag: Wes Davis

FUEL

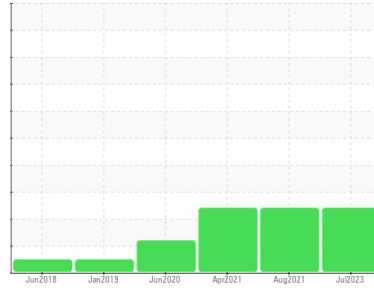


The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. There is a moderate amount of fuel present 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



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			<b>PE0002201</b>	PE12291176	PE12291299
Sample Date	Client Info			<b>03 Jul 2023</b>	15 Aug 2021	19 Apr 2021
Machine Age	hrs Client Info			<b>4833</b>	3893	3534
Oil Age	hrs Client Info			<b>406</b>	352	593
Oil Changed	Client Info			<b>Changed</b>	Not Changd	Changed
Sample Status				<b>SEVERE</b>	SEVERE	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Glycol	WC Method			<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<b>9</b>	11	16
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	<1	<1
Aluminum	ppm	ASTM D5185m	>20	<b>1</b>	1	1
Lead	ppm	ASTM D5185m	>40	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	1	2
Tin	ppm	ASTM D5185m	>15	<b>0</b>	0	0
Antimony	ppm	ASTM D5185m		<b>---</b>	1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	---	---

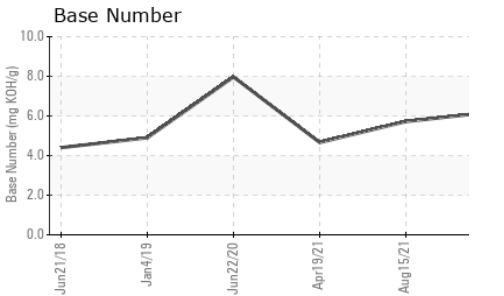
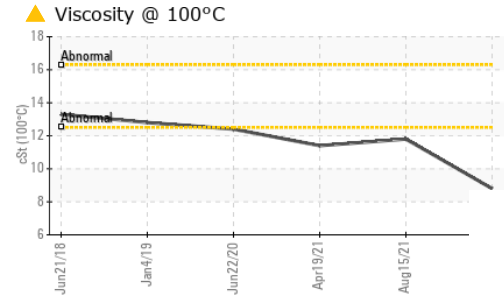
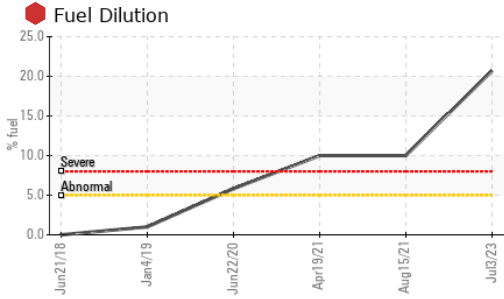
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>59</b>	11	15
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>44</b>	20	17
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	---	---
Magnesium	ppm	ASTM D5185m		<b>173</b>	320	195
Calcium	ppm	ASTM D5185m		<b>1599</b>	1707	1888
Phosphorus	ppm	ASTM D5185m		<b>785</b>	866	838
Zinc	ppm	ASTM D5185m		<b>967</b>	1008	938
Sulfur	ppm	ASTM D5185m		<b>3292</b>	---	---

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

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>0.2</b>	<0.1	0.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.9</b>	11	11
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>18.8</b>	---	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.1</b>	16	18
Base Number (BN)	mg KOH/g	ASTM D2896		<b>6.2</b>	5.72	4.66

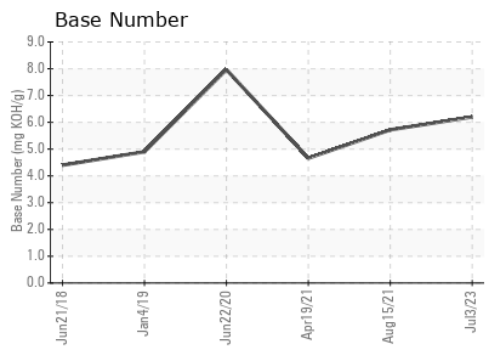
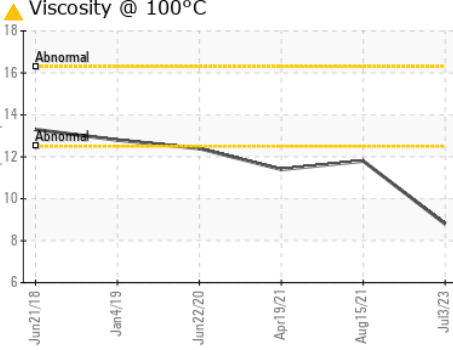
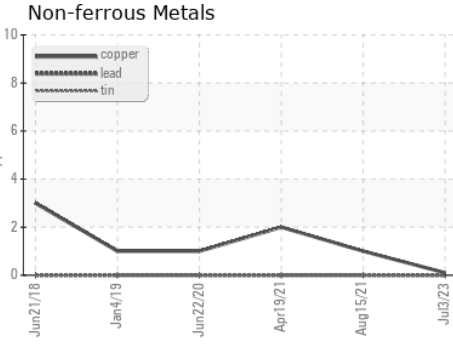
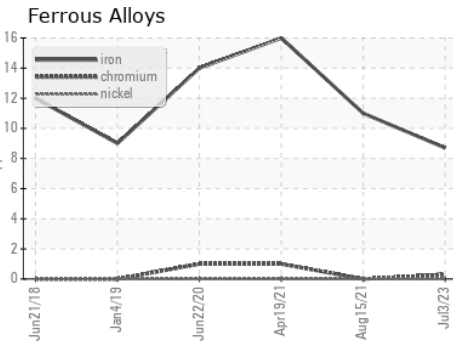
# OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
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	---
Emulsified Water	scalar	*Visual	>0.2	NEG	---
Free Water	scalar	*Visual		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	▲ 8.8	▲ 11.8	▲ 11.4

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PE0002201 **Received** : 20 Jul 2023  
**Lab Number** : 05903593 **Diagnosed** : 24 Jul 2023  
**Unique Number** : 10564949 **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. **Contact:** Jesse Patterson  
 \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. **oilsamples@gmccinc.com**  
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) **T: 1(866)292-1303**  
F: