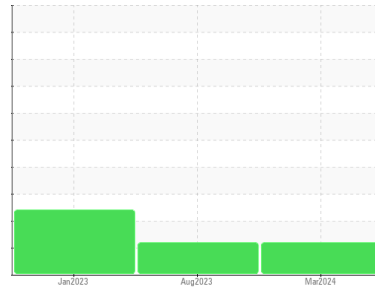




# OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id

**EX-022**

Component

**Diesel Engine**

Fluid

**CITGO CITGUARD 600 15W40 (--- GAL)**

## DIAGNOSIS

### Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample.

### Wear

All component wear rates are normal.

### Contamination

There is a moderate 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			<b>WC0909348</b>	WC0705256	WC0705278
Sample Date	Client Info			<b>25 Mar 2024</b>	30 Aug 2023	11 Jan 2023
Machine Age	hrs	Client Info		<b>0</b>	1087	533
Oil Age	hrs	Client Info		<b>500</b>	500	533
Oil Changed	Client Info			<b>Changed</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<b>38</b>	45	65
Chromium	ppm	ASTM D5185m	>20	<b>0</b>	1	2
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>3</b>	5	3
Lead	ppm	ASTM D5185m	>40	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>330	<b>14</b>	61	44
Tin	ppm	ASTM D5185m	>15	<b>0</b>	<1	1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	13	<b>0</b>	9	81
Barium	ppm	ASTM D5185m	0	<b>0</b>	0	5
Molybdenum	ppm	ASTM D5185m	57	<b>63</b>	62	130
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	3
Magnesium	ppm	ASTM D5185m	825	<b>972</b>	680	15
Calcium	ppm	ASTM D5185m	1100	<b>1268</b>	1277	2866
Phosphorus	ppm	ASTM D5185m	933	<b>1078</b>	770	450
Zinc	ppm	ASTM D5185m	1089	<b>1264</b>	999	553
Sulfur	ppm	ASTM D5185m	2769	<b>3485</b>	2414	3517

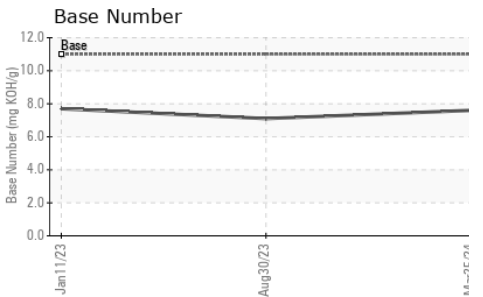
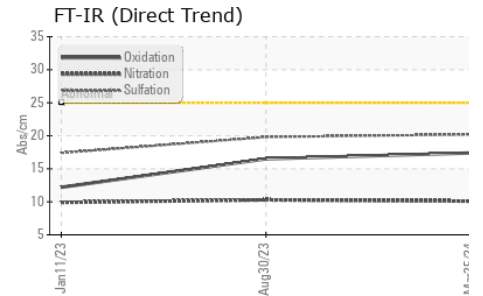
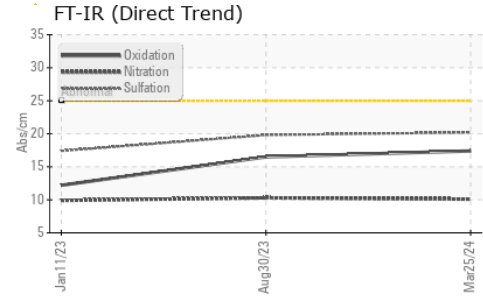
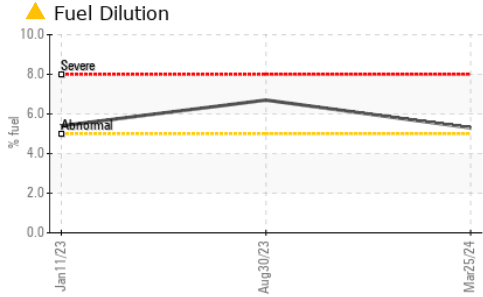
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	<b>8</b>	8	15
Sodium	ppm	ASTM D5185m		<b>3</b>	5	5
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	16	▲ 134
Fuel	%	ASTM D3524	>5	▲ <b>5.3</b>	▲ 6.7	▲ 5.4

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>0.6</b>	0.6	0.5
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.1</b>	10.3	9.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.2</b>	19.8	17.4

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>17.4</b>	16.5	12.2
Base Number (BN)	mg KOH/g	ASTM D2896	11.0	<b>7.6</b>	7.1	7.7



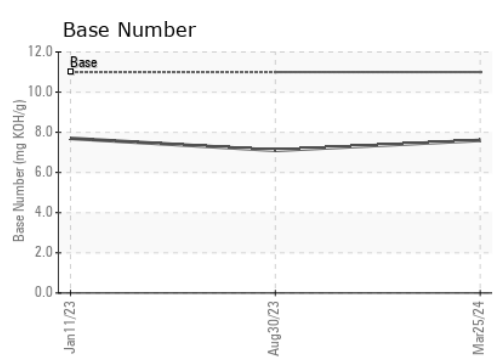
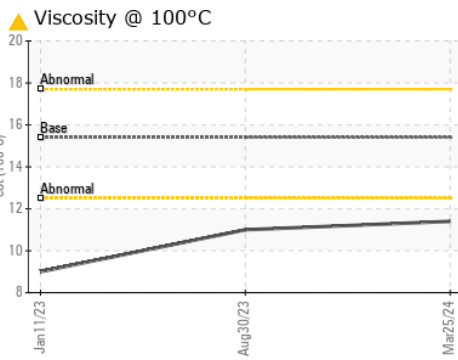
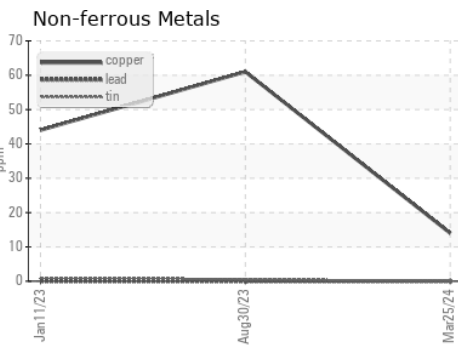
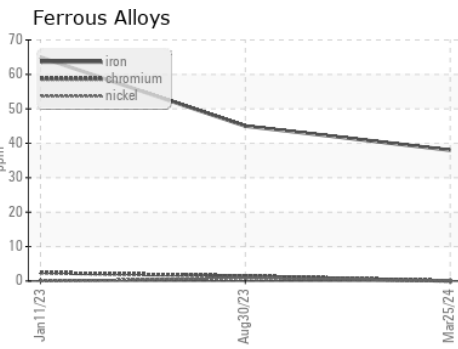
# OIL ANALYSIS REPORT



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	15.4	▲ 11.4	▲ 11.0

### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0909348      **Received** : 12 Apr 2024  
**Lab Number** : 06146966      **Tested** : 17 Apr 2024  
**Unique Number** : 10977044      **Diagnosed** : 17 Apr 2024 - Wes Davis  
**Test Package** : FLEET ( Additional Tests: PercentFuel )

**E.C. PACE CO.**  
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 T: (276)266-5849  
 F: (540)343-6909

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)