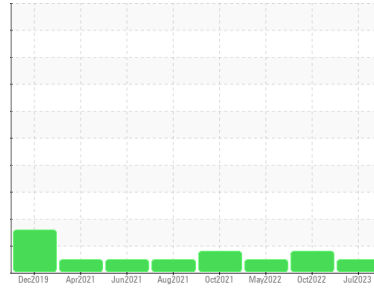




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id

EX-309

Component

Diesel Engine

Fluid

CITGO CITGARD 700 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			WC0705262	WC0705311	WC0588259
Sample Date	Client Info			13 Jul 2023	14 Oct 2022	17 May 2022
Machine Age	hrs	Client Info		3892	3422	2861
Oil Age	hrs	Client Info		500	1000	500
Oil Changed	Client Info			Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>5		<1.0	<1.0	<1.0
Glycol	WC Method			NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	19	35	22
Chromium	ppm	ASTM D5185m	>20	<1	1	1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	5	4
Lead	ppm	ASTM D5185m	>40	1	3	2
Copper	ppm	ASTM D5185m	>330	92	▲ 363	8
Tin	ppm	ASTM D5185m	>15	<1	1	1
Antimony	ppm	ASTM D5185m		---	---	---
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0

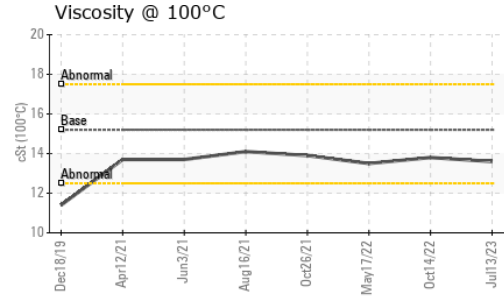
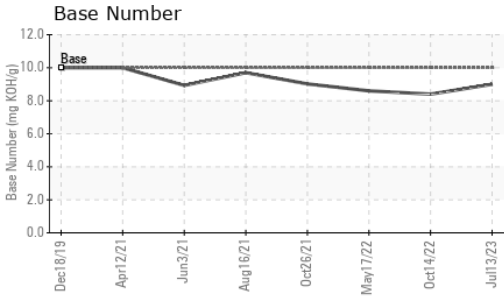
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	20	6	5	10
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	59	63	55	53
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	783	928	796	925
Calcium	ppm	ASTM D5185m	1238	1262	1214	1494
Phosphorus	ppm	ASTM D5185m	949	1025	918	1080
Zinc	ppm	ASTM D5185m	1116	1271	1119	1219
Sulfur	ppm	ASTM D5185m	2909	3635	3056	3417

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	6	5	6
Sodium	ppm	ASTM D5185m		<1	<1	<1
Potassium	ppm	ASTM D5185m	>20	3	6	<1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.8	1.8	1
Nitration	Abs/cm	*ASTM D7624	>20	7.5	9.8	8.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.5	23.5	19.7



OIL ANALYSIS REPORT



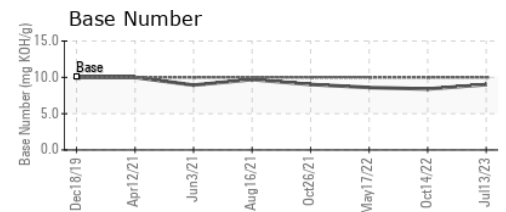
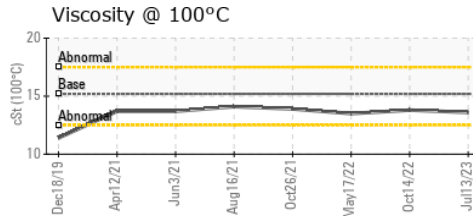
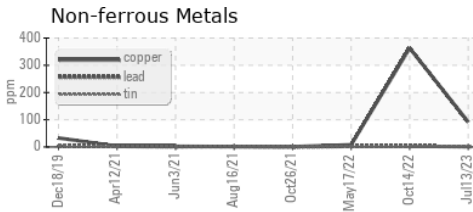
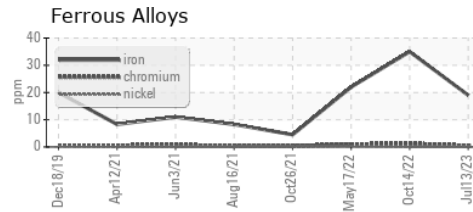
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	---	---	---
Particles >6µm	ASTM D7647	>5000	---	---	---
Particles >14µm	ASTM D7647	>640	---	---	---
Particles >21µm	ASTM D7647	>160	---	---	---
Particles >38µm	ASTM D7647	>40	---	---	---
Particles >71µm	ASTM D7647	>10	---	---	---
Oil Cleanliness	ISO 4406 (c)	>21/19/16	---	---	---

FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.6	17.4	14.7
Base Number (BN)	mg KOH/g	ASTM D2896	10	9.0	8.4	8.6

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	15.2	13.6	13.8	13.5

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0705262 **Received** : 18 Jul 2023
Lab Number : 05900989 **Diagnosed** : 19 Jul 2023
Unique Number : 10562345 **Diagnostician** : Don Baldrige
Test Package : FLEET (Additional Tests: PrtCount)

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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