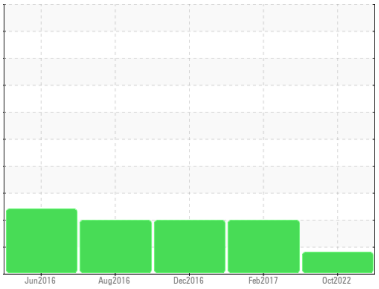
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
Maine
Machine Id
Western Star 433
Component
Diesel Engine
Fluid
CITGO CITGARD 700 10W30 (--- GAL)

DIAGNOSIS

▲ Recommendation
Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

▲ Wear
Cylinder, crank, or cam shaft wear is indicated.

Contamination
Test for glycol is negative. 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 acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PCA0066622**	PCA60648650	PCA60648651
Sample Date		Client Info		**19 Oct 2022**	08 Feb 2017	01 Dec 2016
Machine Age	mls	Client Info		**286073**	50823	39652
Oil Age	mls	Client Info		**50823**	11171	15200
Oil Changed		Client Info		**Changed**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	▲ **109**	24	30
Chromium	ppm	ASTM D5185m	>20	**2**	2	3
Nickel	ppm	ASTM D5185m	>4	**0**	0	0
Titanium	ppm	ASTM D5185m		**<1**	---	---
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**16**	▲ 22	▲ 33
Lead	ppm	ASTM D5185m	>40	**5**	0	0
Copper	ppm	ASTM D5185m	>330	**10**	49	102
Tin	ppm	ASTM D5185m	>15	**<1**	1	2
Antimony	ppm	ASTM D5185m		**---**	0	0
Vanadium	ppm	ASTM D5185m		**0**	---	---
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	6	**32**	1	4
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	50	**53**	59	47
Manganese	ppm	ASTM D5185m		**2**	---	---
Magnesium	ppm	ASTM D5185m	798	**785**	895	760
Calcium	ppm	ASTM D5185m	1222	**903**	982	1143
Phosphorus	ppm	ASTM D5185m	984	**894**	926	943
Zinc	ppm	ASTM D5185m	1196	**960**	1090	1177
Sulfur	ppm	ASTM D5185m	2783	**3757**	2452	2502

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**9**	0	0
Sodium	ppm	ASTM D5185m		**42**	2	4
Potassium	ppm	ASTM D5185m	>20	**45**	▲ 41	▲ 70
Glycol	%	*ASTM D2982		**0.0**	NEG	NEG

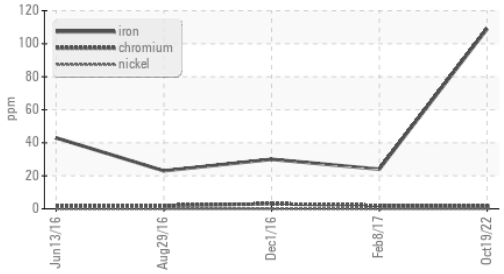
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.7**	0.4	0.5
Nitration	Abs/cm	*ASTM D7624	>20	**9.0**	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	**30.3**	---	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**29.5**	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	10	**9.59**	---	---

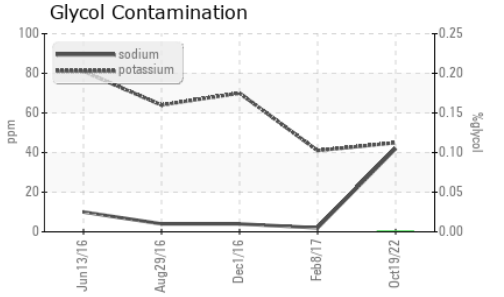
OIL ANALYSIS REPORT

OIL DIAGNOSTICS

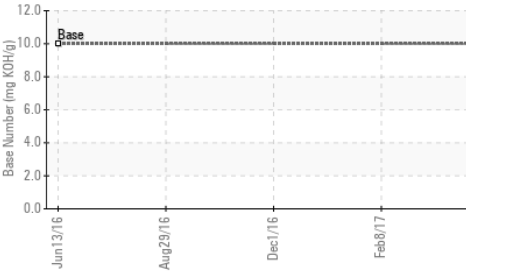
Ferrous Alloys



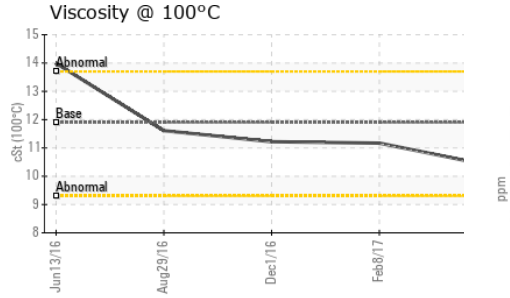
Glycol Contamination



Base Number



Viscosity @ 100°C

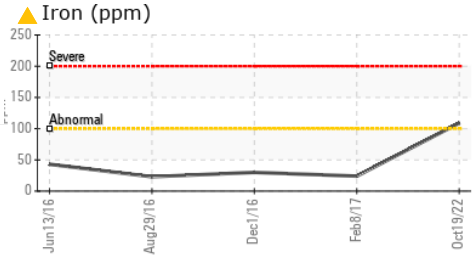


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	---	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	---	---
Precipitate	scalar	*Visual	NONE	**NONE**	---	---
Silt	scalar	*Visual	NONE	**NONE**	---	---
Debris	scalar	*Visual	NONE	**NONE**	---	---
Sand/Dirt	scalar	*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**	---	---

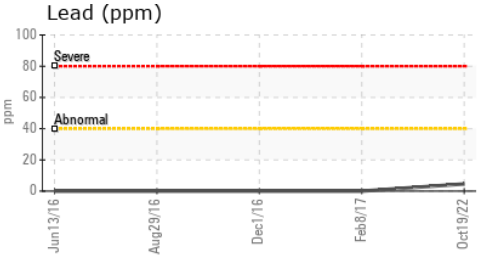
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	11.9	**10.4**	11.17	11.22

GRAPHS

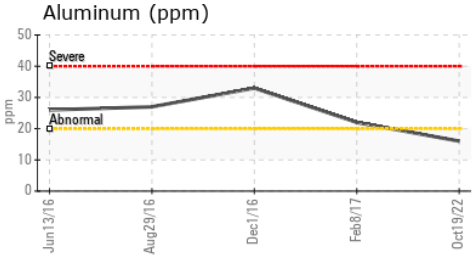
Iron (ppm)



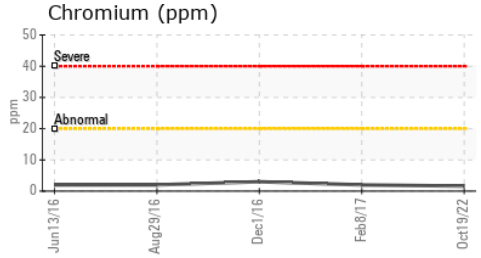
Lead (ppm)



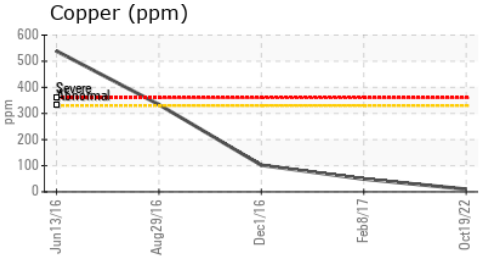
Aluminum (ppm)



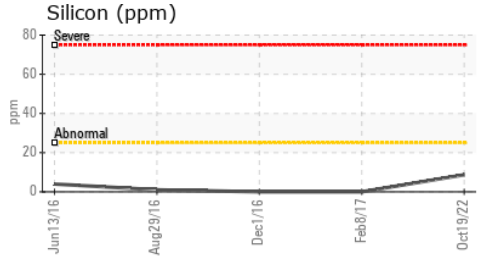
Chromium (ppm)



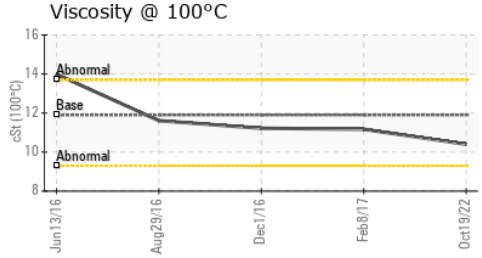
Copper (ppm)



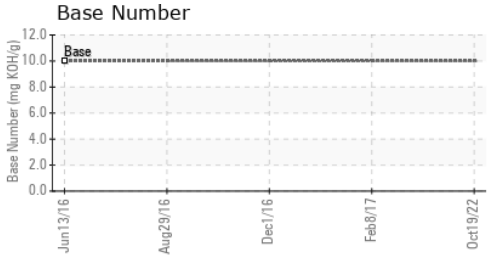
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0066622 **Received** : 06 Dec 2022
Lab Number : 05709928 **Diagnosed** : 12 Dec 2022
Unique Number : 10244503 **Diagnostician** : Doug Bogart
Test Package : MOB 2 (Additional Tests: Glycol)

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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