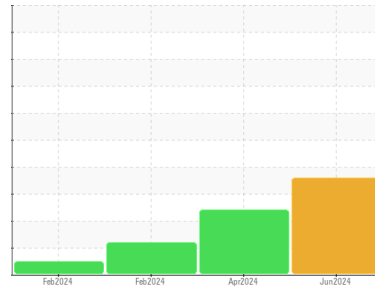




OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Machine Id

6567

Component

Diesel Engine

Fluid

CITGO CITGUARD 600 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. 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

Sodium and/or potassium levels are high.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0891565	WC0891568	WC0891584
Sample Date	Client Info		05 Jun 2024	10 Apr 2024	12 Feb 2024
Machine Age	mls	Client Info	520376	502200	484087
Oil Age	mls	Client Info	18000	17000	15000
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >90	57	59	41
Chromium	ppm	ASTM D5185m >20	1	<1	<1
Nickel	ppm	ASTM D5185m >2	0	0	0
Titanium	ppm	ASTM D5185m >2	0	0	<1
Silver	ppm	ASTM D5185m >2	0	0	0
Aluminum	ppm	ASTM D5185m >20	3	4	3
Lead	ppm	ASTM D5185m >40	24	35	12
Copper	ppm	ASTM D5185m >330	2	1	2
Tin	ppm	ASTM D5185m >15	0	<1	0
Vanadium	ppm	ASTM D5185m	<1	0	<1
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 13	11	11	22
Barium	ppm	ASTM D5185m 0	0	<1	0
Molybdenum	ppm	ASTM D5185m 57	97	99	91
Manganese	ppm	ASTM D5185m	<1	1	0
Magnesium	ppm	ASTM D5185m 825	577	535	404
Calcium	ppm	ASTM D5185m 1100	2417	2292	1882
Phosphorus	ppm	ASTM D5185m 933	1377	1413	1155
Zinc	ppm	ASTM D5185m 1089	1746	1690	1372
Sulfur	ppm	ASTM D5185m 2769	4354	4226	3536

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	11	7	5
Sodium	ppm	ASTM D5185m	▲ 43	▲ 62	35
Potassium	ppm	ASTM D5185m >20	▲ 101	▲ 151	▲ 77
Glycol	%	*ASTM D2982	NEG	0.0	NEG

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >6	0.6	0.7	0.5
Nitration	Abs/cm	*ASTM D7624 >20	13.4	13.5	11.4
Sulfation	Abs/.1mm	*ASTM D7415 >30	29.4	29.6	25.3

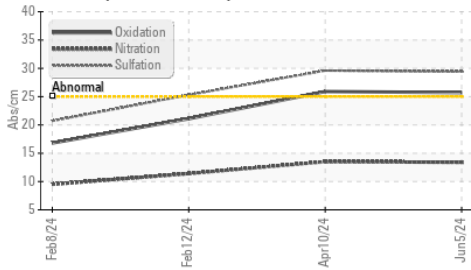
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	▲ 25.7	25.9	21.1
Base Number (BN)	mg KOH/g	ASTM D2896 11.0	6.2	6.2	6.4

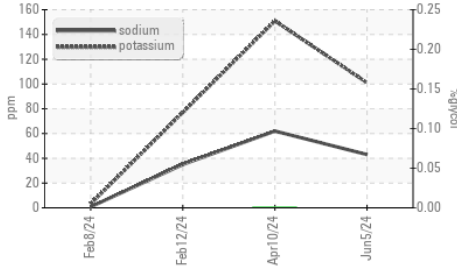


OIL ANALYSIS REPORT

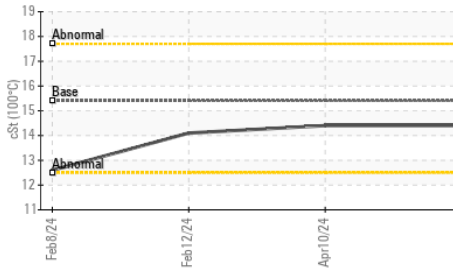
▲ FT-IR (Direct Trend)



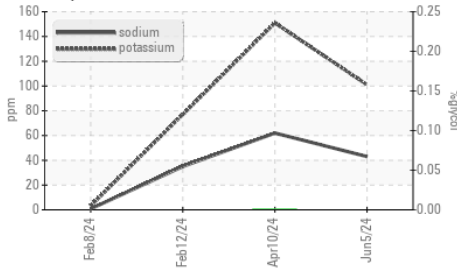
Glycol Contamination



Viscosity @ 100°C



Glycol Contamination

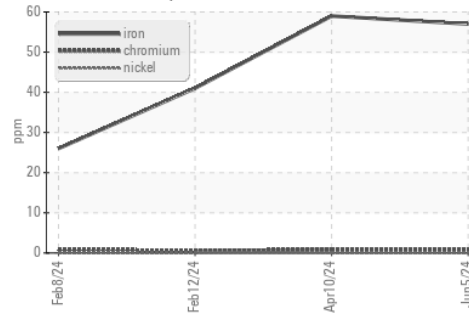


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

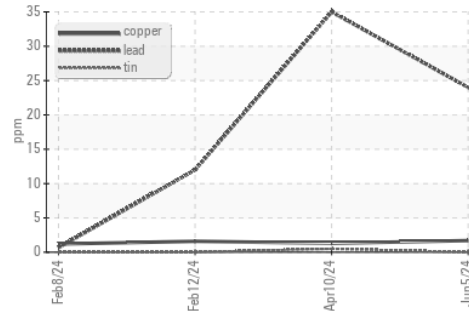
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.1

GRAPHS

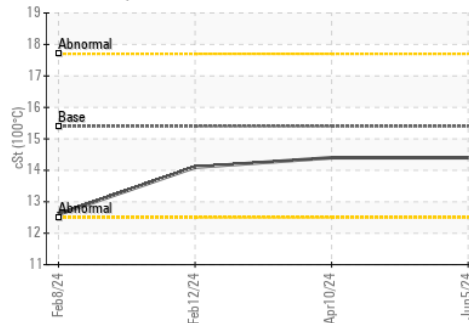
Ferrous Alloys



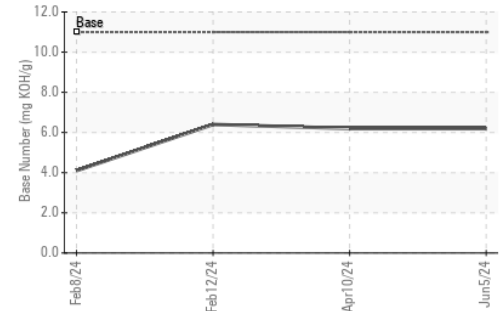
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0891565 **Received** : 10 Jun 2024
Lab Number : 06205932 **Tested** : 13 Jun 2024
Unique Number : 11073393 **Diagnosed** : 13 Jun 2024 - Jonathan Hester
Test Package : FLEET (Additional Tests: Glycol)

OMNISOURCE SE - JOHNSON CITY
 500 RAVINE DR
 JOHNSON CITY, TN
 US 37601
 Contact: BRANDON IRISH
 brandon.irish@omnisource.com
 T: (423)928-1609
 F: (423)979-5922

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)