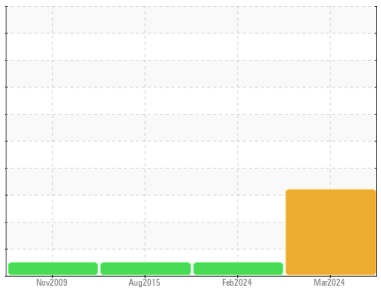
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
WHITE 80
Component
Diesel Engine
Fluid
CENPECO 15W40 (12 QTS)

DIAGNOSIS

Recommendation
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear
The iron level is abnormal. All other component wear rates are normal.

Contamination
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0617372**	WC0617369	WCM2179352
Sample Date		Client Info		**21 Mar 2024**	03 Feb 2024	13 Aug 2015
Machine Age	hrs	Client Info		**1305**	1848	0
Oil Age	hrs	Client Info		**879**	543	426
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	NORMAL	NORMAL

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
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	▲ **93**	34	36
Chromium	ppm	ASTM D5185m	>20	**6**	3	3
Nickel	ppm	ASTM D5185m	>2	**1**	<1	<1
Titanium	ppm	ASTM D5185m	>2	**<1**	<1	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	● **11**	5	3
Lead	ppm	ASTM D5185m	>40	**22**	9	5
Copper	ppm	ASTM D5185m	>330	**59**	34	14
Tin	ppm	ASTM D5185m	>15	**2**	<1	9
Antimony	ppm	ASTM D5185m		**---**	---	0
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**1**	<1	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**3**	<1	<1
Barium	ppm	ASTM D5185m		**182**	122	115
Molybdenum	ppm	ASTM D5185m		**1**	<1	<1
Manganese	ppm	ASTM D5185m		**1**	<1	<1
Magnesium	ppm	ASTM D5185m		**634**	432	458
Calcium	ppm	ASTM D5185m		**5710**	4303	3925
Phosphorus	ppm	ASTM D5185m		**2001**	1495	1320
Zinc	ppm	ASTM D5185m		**2302**	1664	1410
Sulfur	ppm	ASTM D5185m		**9480**	6626	5753

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	▲ **25**	9	8
Sodium	ppm	ASTM D5185m		**6**	4	5
Potassium	ppm	ASTM D5185m	>20	**4**	2	11

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>6	**1.4**	1.1	0.5
Nitration	Abs/cm	*ASTM D7624	>20	**15.0**	12.8	11.
Sulfation	Abs/.1mm	*ASTM D7415	>30	**26.3**	25.1	21.

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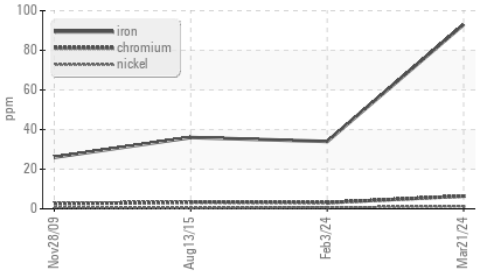
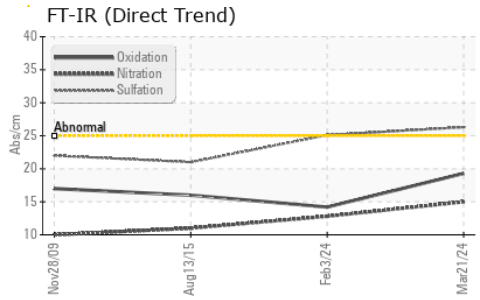
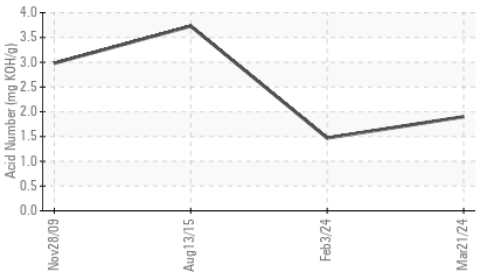
Ferrous Alloys



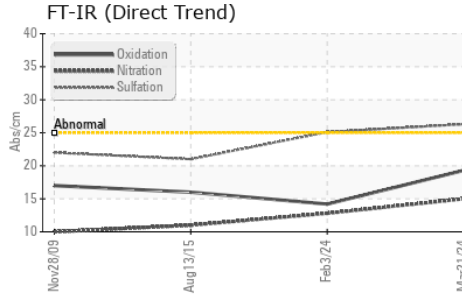
FT-IR (Direct Trend)



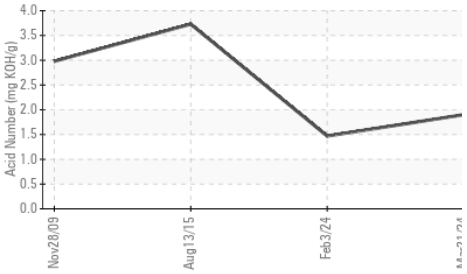
Acid Number



FT-IR (Direct Trend)



Acid Number



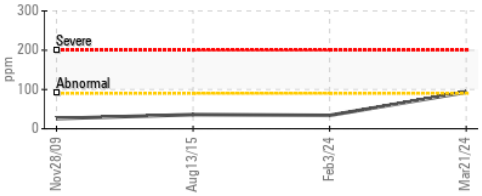
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**19.3**	14.2	16.
Acid Number (AN)	mg KOH/g	ASTM D8045		**1.90**	1.47	3.73
Base Number (BN)	mg KOH/g	ASTM D2896		**13.54**	14.76	13.1

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

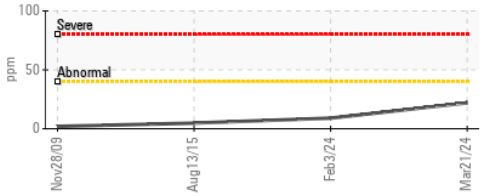
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		**13.2**	13.2	13.31

GRAPHS

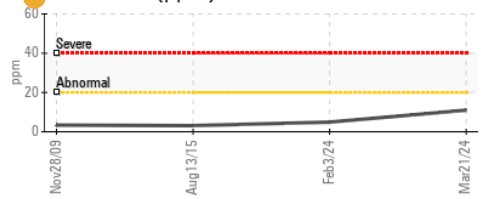
Iron (ppm)



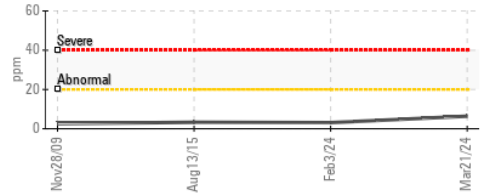
Lead (ppm)



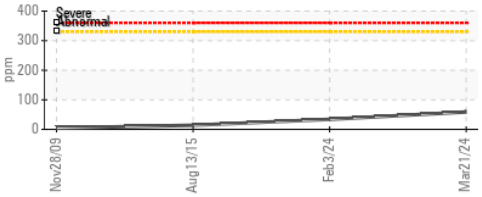
Aluminum (ppm)



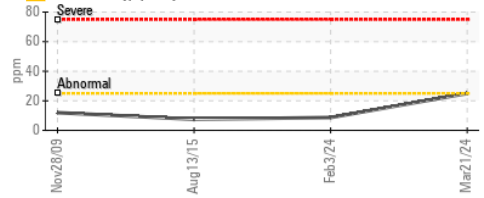
Chromium (ppm)



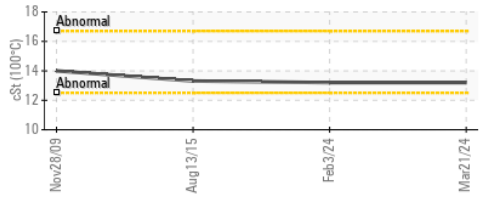
Copper (ppm)



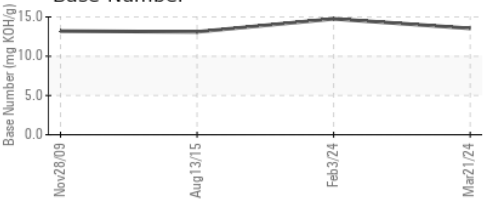
Silicon (ppm)



Viscosity @ 100°C



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0617372
Lab Number : 06159306
Unique Number : 10994729
Test Package : MOB 2

Received : 24 Apr 2024
Tested : 25 Apr 2024
Diagnosed : 26 Apr 2024 - Jonathan Hester

Certificate L2367

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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