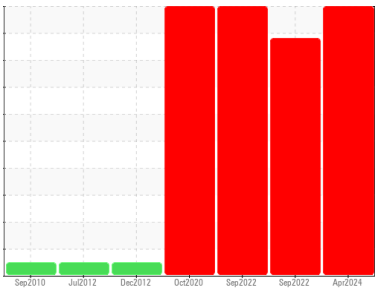
PROBLEM SUMMARY

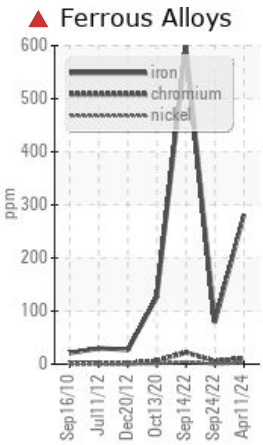
Area
Mobile Fleet
Machine Id
542 542
Component
Diesel Engine
Fluid
MOBIL DELVAC 1300 SUPER15W40 (8 GAL)

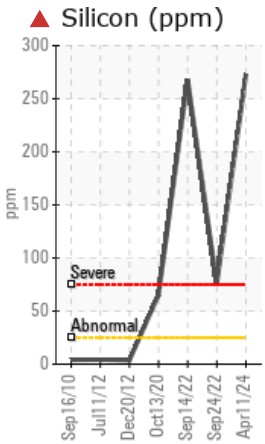
Sample Rating Trend

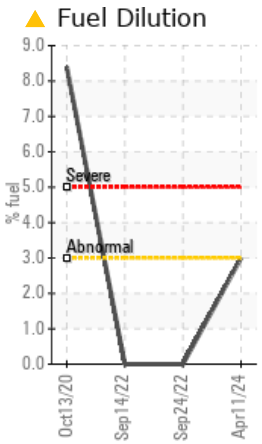


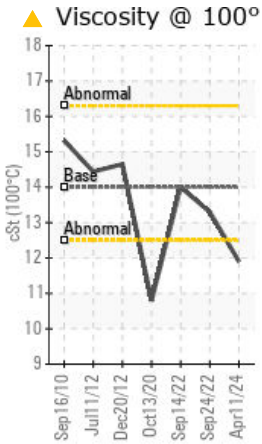
WEAR

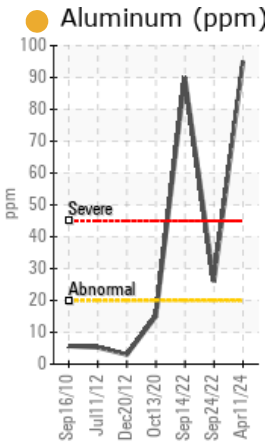
COMPONENT CONDITION SUMMARY











RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	SEVERE
Iron	ppm	ASTM D5185m	>120	▲ **282**	79	▲ 599
Silicon	ppm	ASTM D5185m	>25	▲ **273**	▲ 76	▲ 268
Fuel	%	ASTM D3524	>3.0	▲ **3.0**	<1.0	<1.0
Visc @ 100°C	cSt	ASTM D445	14	▲ **11.9**	13.3	14.0

Customer Id: CARBUTNC
Sample No.: WC0919122
Lab Number: 06148537
Test Package: CONST

To manage this report scan the QR code

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Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Inspect Wear Source	---	---	?	We advise that you inspect for the source(s) of wear.
Change Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Dirt Access	---	---	?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.
Check Fuel/injector System	---	---	?	We advise that you check the fuel injection system.

HISTORICAL DIAGNOSIS

ISO

24 Sep 2022 Diag: Aaron Black

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. The oil change at the time of sampling has been noted. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.Aluminum ppm levels are noted. All other component wear rates are normal. There is a high amount of particulates present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Test for glycol is negative. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

view report

GLYCOL

14 Sep 2022 Diag: Don Baldridge

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We advise that you check for the source of the coolant leak. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.Cylinder, crank, or cam shaft wear is indicated. Bearing wear is indicated. There is a high amount of particulates present in the oil. Sodium and/or potassium levels are high. Test for glycol is positive. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The oil is no longer serviceable due to the presence of contaminants.

view report

GLYCOL

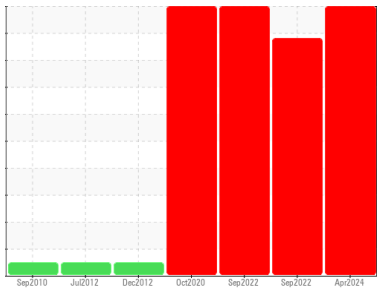
13 Oct 2020 Diag: Jonathan Hester

We advise that you check for the source of the coolant leak. We advise that you check the fuel injection system. 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. We recommend an early resample to monitor this condition.Cylinder, crank, or cam shaft wear is indicated. Bearing and/or bushing wear is indicated. Sodium and/or potassium levels are high. Test for glycol is positive. There is a high amount of fuel present in the oil. There is a light concentration of water present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The amount and size of particulates present in the system are acceptable. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
Mobile Fleet
Machine Id
542 542
Component
Diesel Engine
Fluid
MOBIL DELVAC 1300 SUPER15W40 (8 GAL)

DIAGNOSIS

▲ Recommendation
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

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

▲ Contamination
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Light fuel dilution occurring. The amount and size of particulates present in the system are acceptable.

▲ Fluid Condition
Fuel is present in the oil and is lowering the viscosity. 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		**WC0919122**	WCMCF58998	WC0740845
Sample Date		Client Info		**11 Apr 2024**	24 Sep 2022	14 Sep 2022
Machine Age	hrs	Client Info		**29017**	29017	29407
Oil Age	hrs	Client Info		**343**	0	440
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**SEVERE**	SEVERE	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	▲ **282**	79	▲ 599
Chromium	ppm	ASTM D5185m	>20	**11**	6	▲ 22
Nickel	ppm	ASTM D5185m	>5	**2**	0	4
Titanium	ppm	ASTM D5185m	>2	**9**	2	7
Silver	ppm	ASTM D5185m	>2	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>20	● **95**	● 26	● 90
Lead	ppm	ASTM D5185m	>40	**4**	19	▲ 74
Copper	ppm	ASTM D5185m	>330	**7**	44	203
Tin	ppm	ASTM D5185m	>15	**<1**	2	6
Antimony	ppm	ASTM D5185m		**---**	---	---
Vanadium	ppm	ASTM D5185m		**<1**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	<1	<1

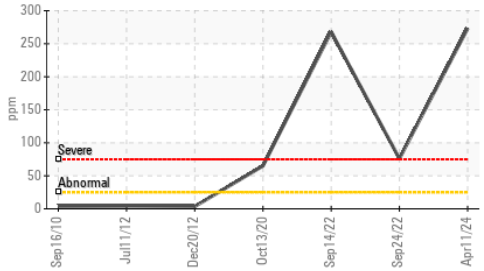
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**65**	46	27
Barium	ppm	ASTM D5185m	0	**<1**	0	2
Molybdenum	ppm	ASTM D5185m	0	**49**	54	95
Manganese	ppm	ASTM D5185m		**5**	1	6
Magnesium	ppm	ASTM D5185m	0	**536**	567	746
Calcium	ppm	ASTM D5185m		**1701**	1810	1942
Phosphorus	ppm	ASTM D5185m		**800**	835	1030
Zinc	ppm	ASTM D5185m		**890**	997	1206
Sulfur	ppm	ASTM D5185m		**2600**	3104	2906

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	▲ **273**	▲ 76	▲ 268
Sodium	ppm	ASTM D5185m		**19**	77	▲ 635
Potassium	ppm	ASTM D5185m	>20	**51**	26	▲ 204
Fuel	%	ASTM D3524	>3.0	▲ **3.0**	<1.0	<1.0
Glycol	%	*ASTM D2982		**0.0**	0.0	▲ 0.10

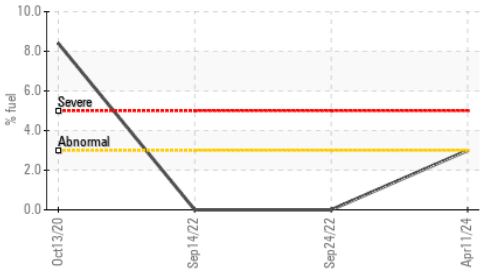
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>4	**0.1**	0.2	1.1
Nitration	Abs/cm	*ASTM D7624	>20	**7.1**	8.1	12.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	**21.9**	25.8	30.2

OIL ANALYSIS REPORT

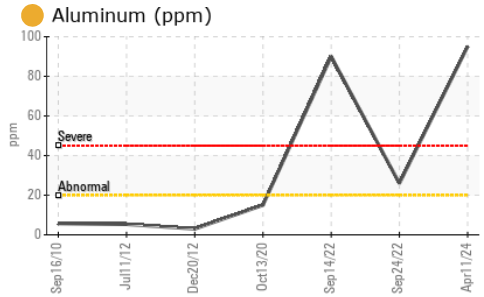
Silicon (ppm)



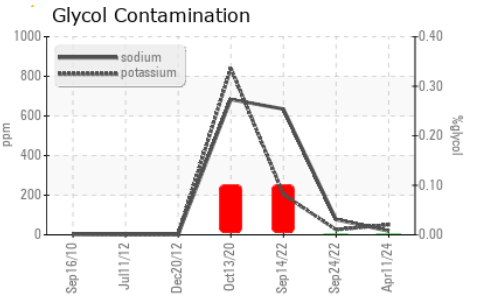
Fuel Dilution



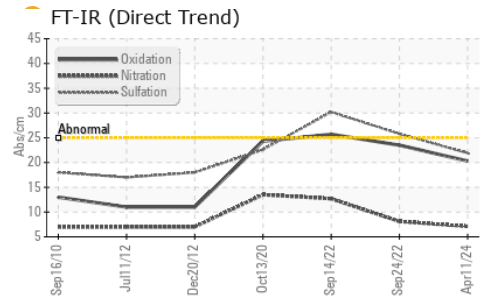
Aluminum (ppm)



Glycol Contamination



FT-IR (Direct Trend)



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	**6525**	▲ 65856	▲ 35590
Particles >6µm		ASTM D7647	>5000	**3554**	▲ 35876	▲ 19388
Particles >14µm		ASTM D7647	>640	**605**	▲ 6106	▲ 3300
Particles >21µm		ASTM D7647	>160	**204**	▲ 2057	▲ 1111
Particles >38µm		ASTM D7647	>40	**31**	▲ 318	▲ 172
Particles >71µm		ASTM D7647	>10	**3**	▲ 32	▲ 18
Oil Cleanliness		ISO 4406 (c)	>21/19/16	**20/19/16**	▲ 23/22/20	▲ 22/21/19

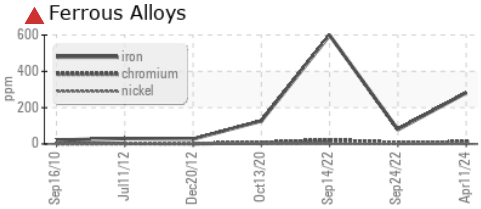
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.3**	23.5	25.7
Base Number (BN)	mg KOH/g	ASTM D2896	9.4	**10.0**	11.3	12.6

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

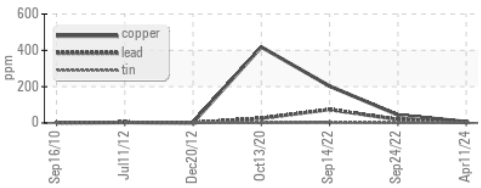
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14	▲ **11.9**	13.3	14.0

GRAPHS

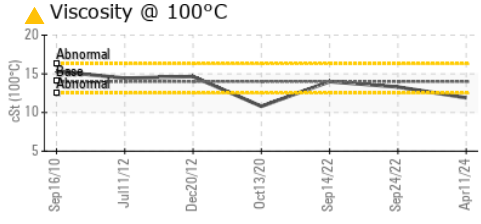
Ferrous Alloys



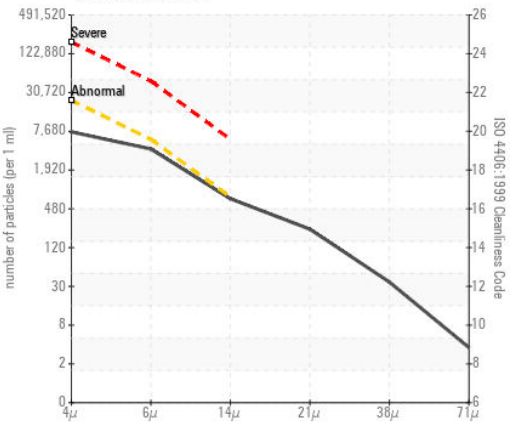
Non-ferrous Metals



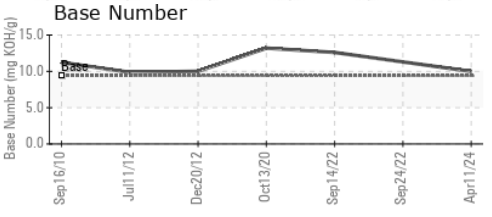
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0919122 **Received** : 15 Apr 2024
Lab Number : 06148537 **Tested** : 19 Apr 2024
Unique Number : 10978615 **Diagnosed** : 19 Apr 2024 - Jonathan Hester
Test Package : CONST (Additional Tests: FuelDilution, Glycol, PercentFuel, PrtCount, TBN)

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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