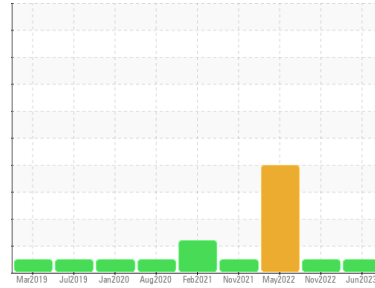




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
SW9139

Component
Diesel Engine

Fluid
SHELL ROTELLA T 15W40 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Information not provided)

Wear

All component wear rates are normal.

Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

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			WC0793355	WC0723257	WC0705469
Sample Date	Client Info			23 Jun 2023	26 Nov 2022	12 May 2022
Machine Age	hrs	Client Info		0	4857	4483
Oil Age	hrs	Client Info		0	1737	1363
Oil Changed	Client Info			N/A	Not Changd	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>3.0		<1.0	<1.0	<1.0
Glycol	WC Method			NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	24	14	118
Chromium	ppm	ASTM D5185m	>5	<1	<1	3
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	1	2	6
Lead	ppm	ASTM D5185m	>150	0	1	<1
Copper	ppm	ASTM D5185m	>90	11	8	75
Tin	ppm	ASTM D5185m	>5	<1	<1	1
Antimony	ppm	ASTM D5185m		---	---	---
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0

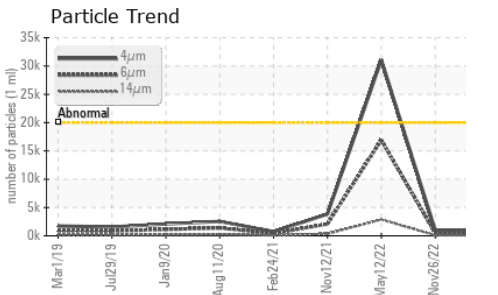
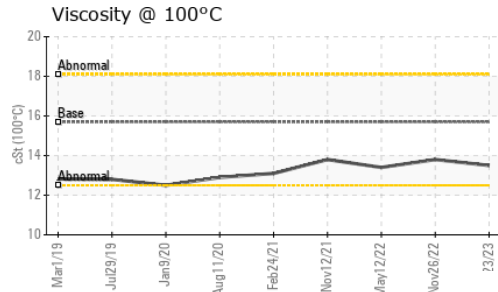
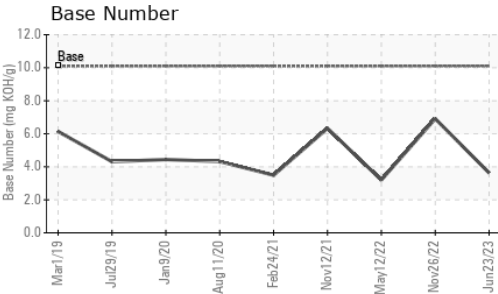
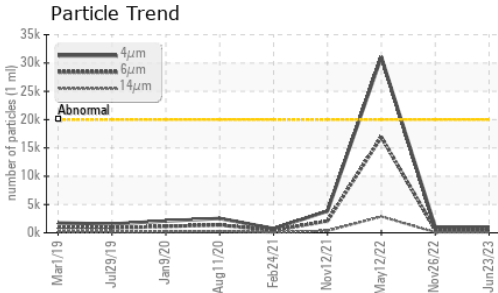
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	316	26	101	23
Barium	ppm	ASTM D5185m	0.0	0	0	0
Molybdenum	ppm	ASTM D5185m	1.2	0	<1	2
Manganese	ppm	ASTM D5185m		<1	<1	2
Magnesium	ppm	ASTM D5185m	24	35	32	241
Calcium	ppm	ASTM D5185m	2292	2132	2181	1918
Phosphorus	ppm	ASTM D5185m	1064	906	930	867
Zinc	ppm	ASTM D5185m	1160	1093	1146	877
Sulfur	ppm	ASTM D5185m	4996	4399	4636	3692

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>35	7	4	21
Sodium	ppm	ASTM D5185m		7	3	16
Potassium	ppm	ASTM D5185m	>20	2	3	5

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>7.5	0.2	0.2	0.5
Nitration	Abs/cm	*ASTM D7624	>20	11.7	10.3	16.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	27.4	23.3	34.6



OIL ANALYSIS REPORT



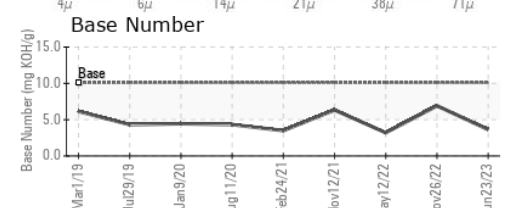
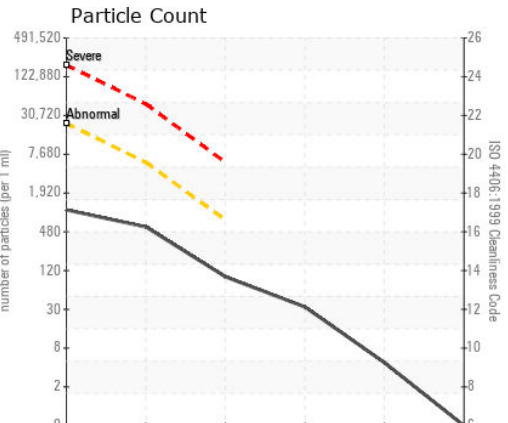
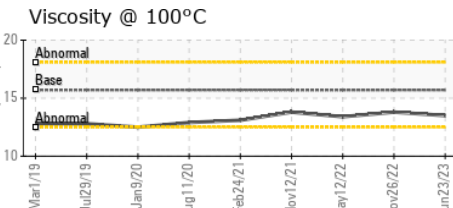
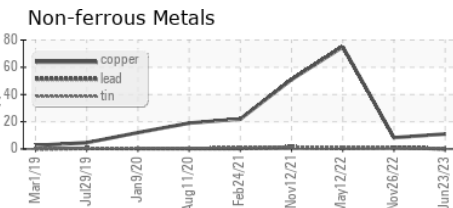
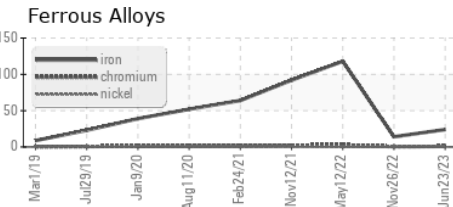
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	922	1031	▲ 31060
Particles >6µm	ASTM D7647	>5000	502	562	▲ 16920
Particles >14µm	ASTM D7647	>640	85	96	▲ 2880
Particles >21µm	ASTM D7647	>160	29	32	▲ 970
Particles >38µm	ASTM D7647	>40	4	5	▲ 150
Particles >71µm	ASTM D7647	>10	0	1	▲ 15
Oil Cleanliness	ISO 4406 (c)	>21/19/16	17/16/14	17/16/14	▲ 22/21/19

FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	*ASTM D7414	>25	23.5	20.3	39.2
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	3.63	6.91	▲ 3.20

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	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.7	13.5	13.8	13.4

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0793355 **Received** : 14 Aug 2023
Lab Number : 05923546 **Diagnosed** : 15 Aug 2023
Unique Number : 10603493 **Diagnostician** : Doug Bogart
Test Package : MOB 2 (Additional Tests: PrtCount)

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 US 77954
 Contact: BILL FOJTIK
 info@mcmahanservices.com
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 F: (361)275-0110

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)