



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Machine Id  
**EMD MARC 23 MAIN**  
 Component  
**Diesel Engine**  
 Fluid  
**BRAD PENN DDS PLUS SAE 40 (--- QTS)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>DC0029980</b>	DC0029012	DC0025763
Sample Date		Client Info		<b>26 Feb 2024</b>	01 Feb 2024	12 May 2023
Machine Age	mls	Client Info		<b>0</b>	0	0
Oil Age	mls	Client Info		<b>0</b>	0	0
Filter Age	mls	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Not Changd</b>	Not Changd	Not Changd
Filter Changed		Client Info		<b>Changed</b>	Not Changd	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>17</b>	15	17
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	1	2
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>2</b>	2	3
Lead	ppm	ASTM D5185m	>40	<b>6</b>	7	8
Copper	ppm	ASTM D5185m	>330	<b>34</b>	29	33
Tin	ppm	ASTM D5185m	>15	<b>6</b>	6	8
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

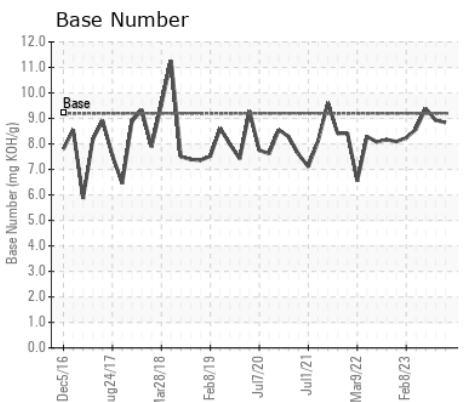
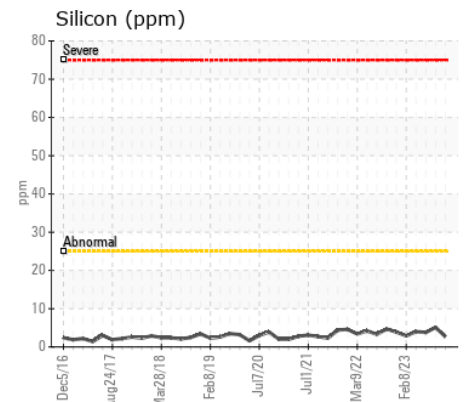
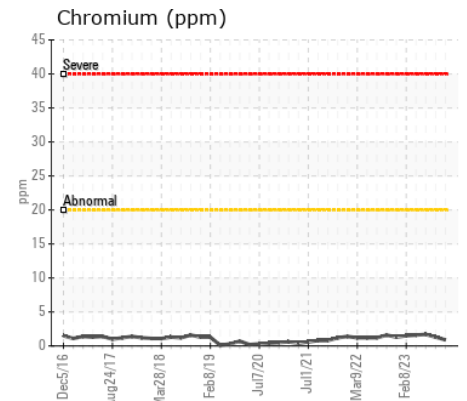
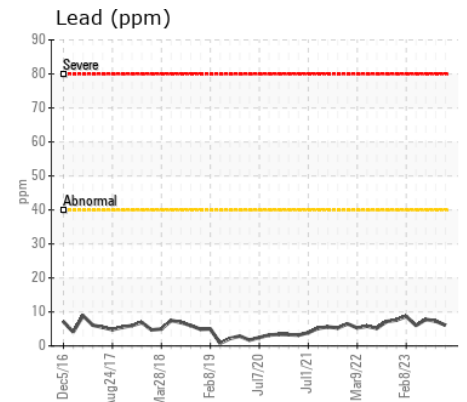
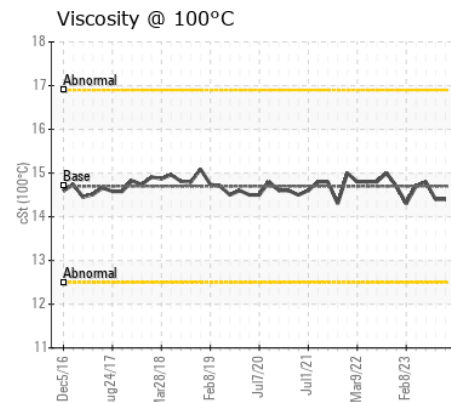
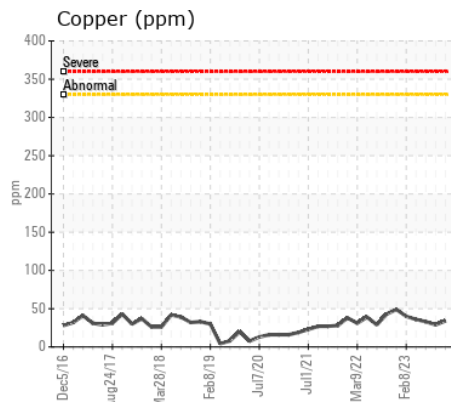
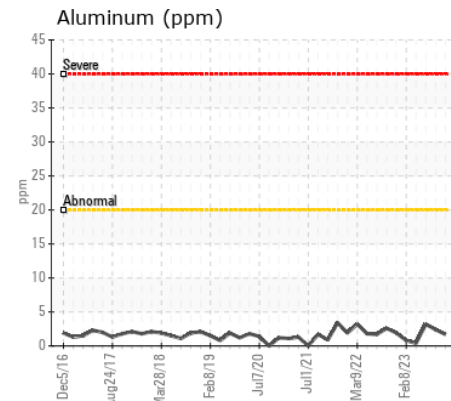
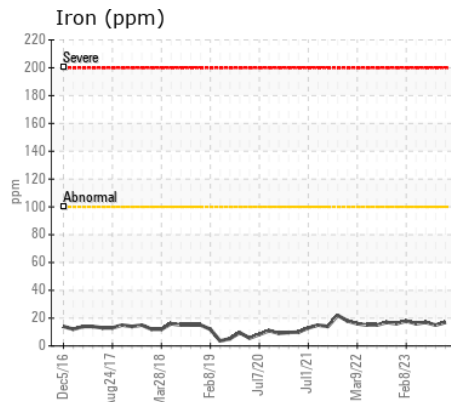
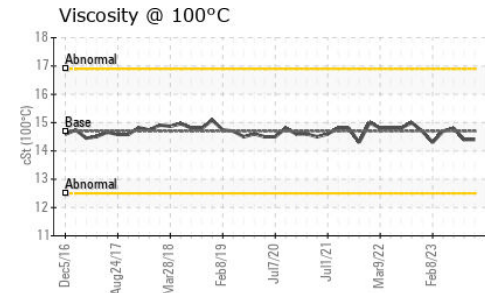
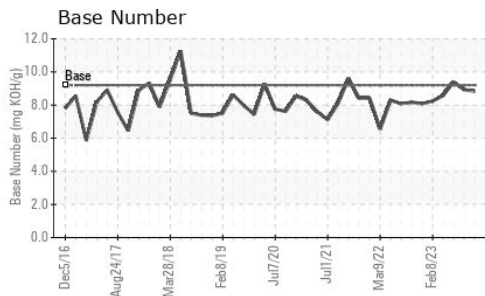
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>3</b>	5	4
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	2	1
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.5</b>	0.5	0.6
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.8</b>	9.4	10.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>17.1</b>	16.7	17.9
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

## 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.

Sodium	ppm	ASTM D5185m		<b>4</b>	2	5
Boron	ppm	ASTM D5185m		<b>40</b>	45	30
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>50</b>	50	53
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>13</b>	34	18
Calcium	ppm	ASTM D5185m		<b>3665</b>	3196	3644
Phosphorus	ppm	ASTM D5185m		<b>29</b>	32	42
Zinc	ppm	ASTM D5185m	10	<b>23</b>	31	12
Sulfur	ppm	ASTM D5185m		<b>3230</b>	2798	3967
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>10.7</b>	10.1	11.1
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	<b>8.84</b>	8.93	9.39
Visc @ 100°C	cSt	ASTM D445	14.7	<b>14.4</b>	14.4	14.8



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : DC0029980  
**Lab Number** : 06101900  
**Unique Number** : 10900130  
**Test Package** : MOB 2

**Received** : 27 Feb 2024  
**Tested** : 04 Mar 2024  
**Diagnosed** : 04 Mar 2024 - Wes Davis

**ALSTOM - BALTIMORE**  
 1600 LUDLOW ST  
 BALTIMORE, MD  
 US 21230

Contact: SEAN MCCARTY  
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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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