



# OIL ANALYSIS REPORT

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

Machine Id  
**EMD MARC 18 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>DC0035734</b>	DC0028960	DC0030035
Sample Date		Client Info		<b>14 Apr 2024</b>	05 Feb 2024	11 Dec 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>N/A</b>	Not Changd	N/A
Filter Changed		Client Info		<b>Changed</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>8</b>	20	22
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	1	<1
Nickel	ppm	ASTM D5185m	>4	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>2</b>	2	1
Lead	ppm	ASTM D5185m	>40	<b>3</b>	7	5
Copper	ppm	ASTM D5185m	>330	<b>13</b>	29	30
Tin	ppm	ASTM D5185m	>15	<b>4</b>	10	9
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

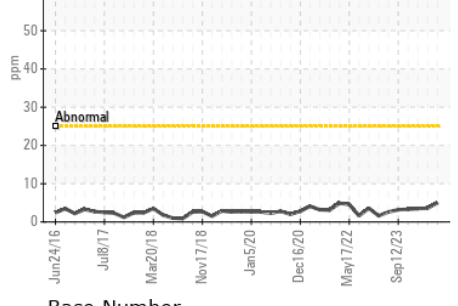
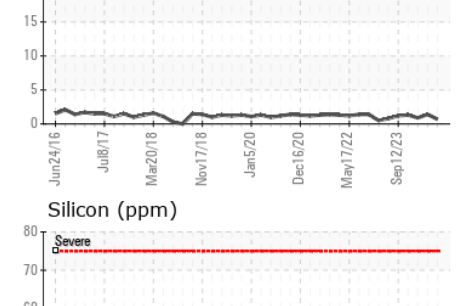
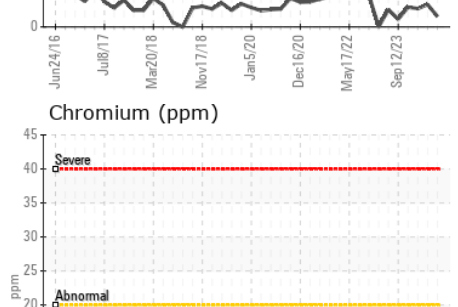
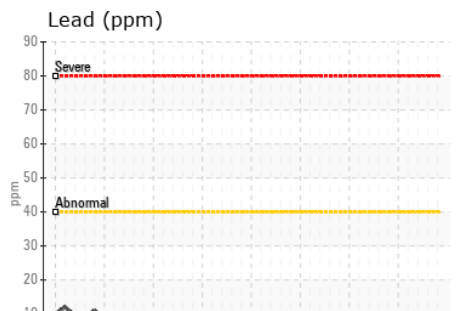
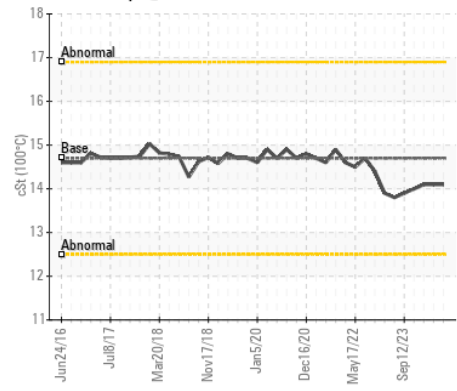
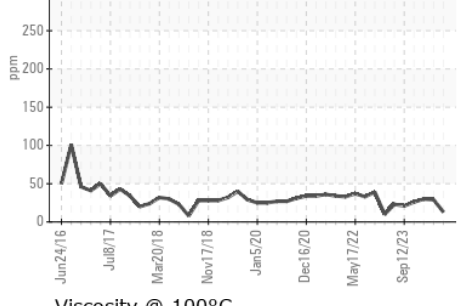
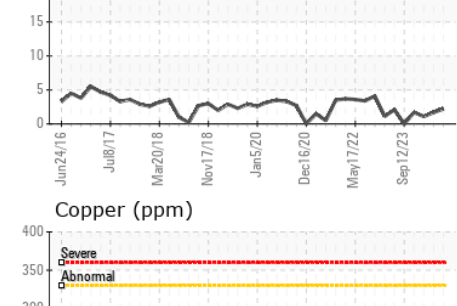
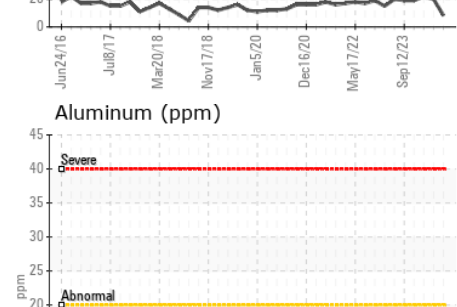
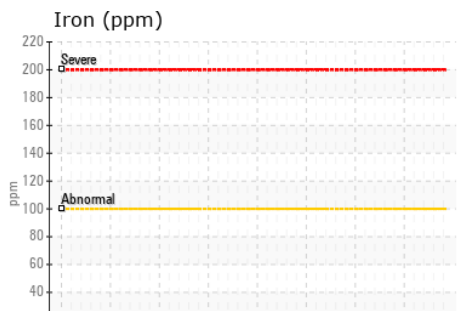
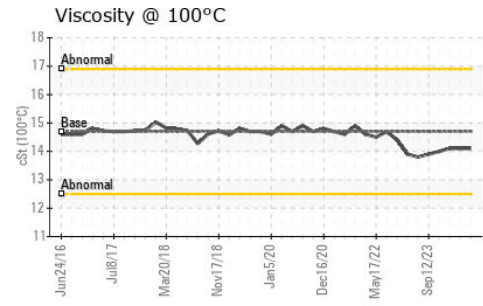
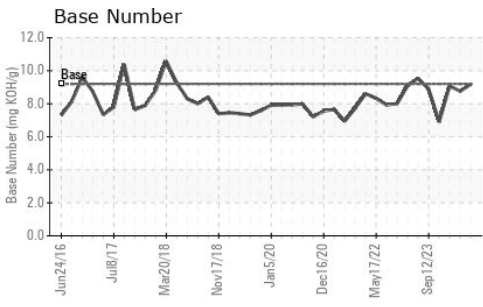
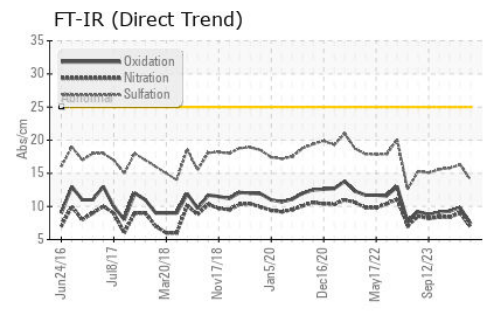
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>5</b>	4	4
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	0	2
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>0.2</b>	0.4	0.4
Nitration	Abs/cm	*ASTM D7624	>20	<b>6.9</b>	9.0	8.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>14.0</b>	16.3	15.8
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>2</b>	<1	0
Boron	ppm	ASTM D5185m		<b>49</b>	35	37
Barium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>49</b>	46	47
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Magnesium	ppm	ASTM D5185m		<b>14</b>	38	18
Calcium	ppm	ASTM D5185m		<b>3575</b>	3262	3476
Phosphorus	ppm	ASTM D5185m		<b>24</b>	42	17
Zinc	ppm	ASTM D5185m	10	<b>17</b>	42	22
Sulfur	ppm	ASTM D5185m		<b>2990</b>	2785	3194
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>7.4</b>	9.8	9.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	<b>9.17</b>	8.76	9.07
Visc @ 100°C	cSt	ASTM D445	14.7	<b>14.1</b>	14.1	14.1



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : DC0035734  
**Lab Number** : 06150611  
**Unique Number** : 10980689  
**Test Package** : MOB 2  
**Received** : 16 Apr 2024  
**Tested** : 17 Apr 2024  
**Diagnosed** : 17 Apr 2024 - Wes Davis

**ALSTOM - BALTIMORE**  
 1600 LUDLOW ST  
 BALTIMORE, MD  
 US 21230  
 Contact: SEAN MCCARTY  
 sean.mccarty@rail.bombardier.com  
 T:  
 F: (443)220-0469

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)