



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
EMD MARC 21 MAIN
 Component
Diesel Engine
 Fluid
BRAD PENN DDS PLUS SAE 40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		DC0036779	DC0035717	DC0028963
Sample Date		Client Info		21 Jun 2024	19 Apr 2024	09 Jan 2024
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Filter Changed		Client Info		N/A	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	8	9	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	2
Lead	ppm	ASTM D5185m	>40	3	4	3
Copper	ppm	ASTM D5185m	>330	19	16	10
Tin	ppm	ASTM D5185m	>15	3	4	1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

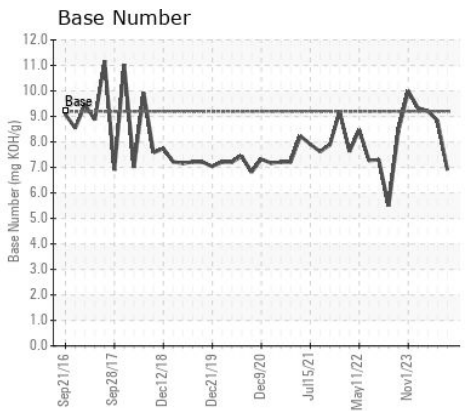
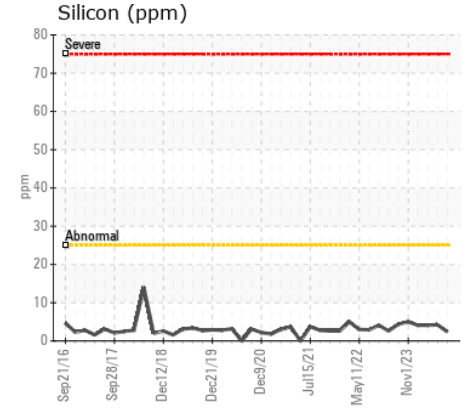
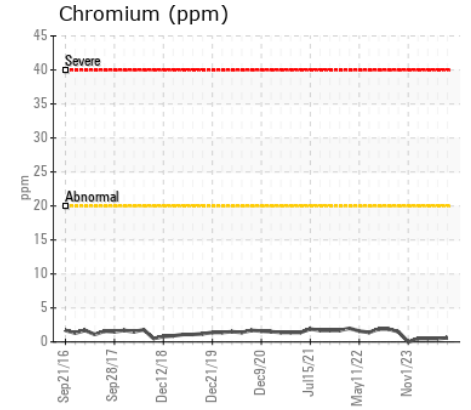
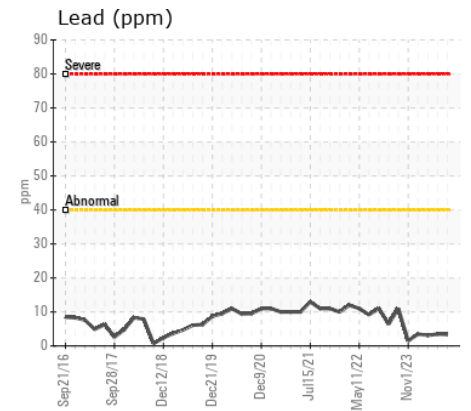
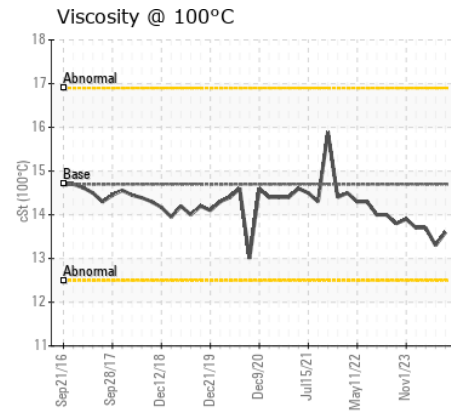
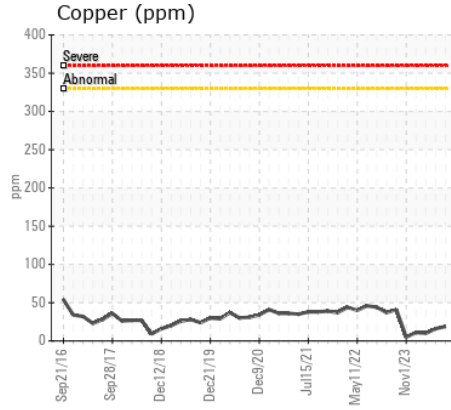
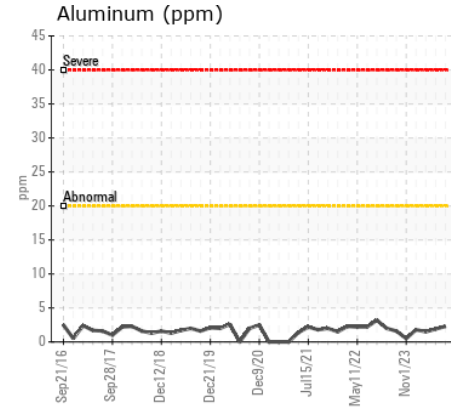
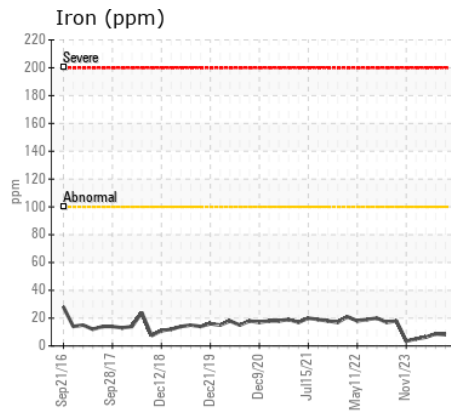
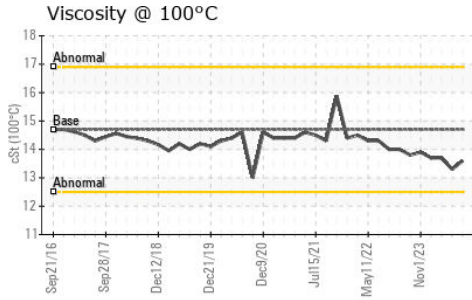
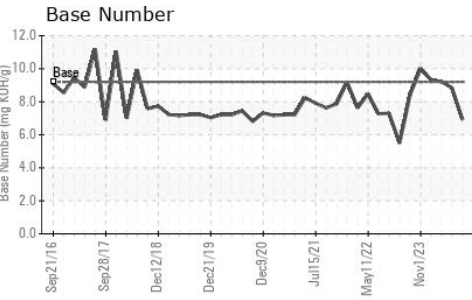
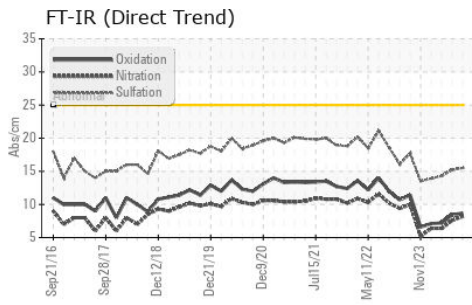
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	2	4	4
Potassium	ppm	ASTM D5185m	>20	2	<1	1
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.3	0.3	0.2
Nitration	Abs/cm	*ASTM D7624	>20	8.2	7.6	6.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	15.5	15.2	14.3
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

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		0	2	2
Boron	ppm	ASTM D5185m		36	38	35
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		42	54	40
Manganese	ppm	ASTM D5185m		0	<1	0
Magnesium	ppm	ASTM D5185m		17	46	44
Calcium	ppm	ASTM D5185m		3134	3157	3166
Phosphorus	ppm	ASTM D5185m		36	62	61
Zinc	ppm	ASTM D5185m	10	38	66	64
Sulfur	ppm	ASTM D5185m		2335	2782	2608
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.7	8.4	7.2
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	6.9	8.83	9.21
Visc @ 100°C	cSt	ASTM D445	14.7	13.6	13.3	13.7



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : DC0036779
Lab Number : 06221008
Unique Number : 11099205
Test Package : MOB 1 (Additional Tests: TBN)

Received : 26 Jun 2024
Tested : 27 Jun 2024
Diagnosed : 27 Jun 2024 - Don Baldrige

ALSTOM - BALTIMORE
 1600 LUDLOW ST
 BALTIMORE, MD
 US 21230

Contact: SEAN MCCARTY
 sean.mccarty@rail.bombardier.com

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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