



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		DC0035717	DC0028963	DC0025675
Sample Date		Client Info		19 Apr 2024	09 Jan 2024	28 Dec 2023
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 Chngd	N/A	Not Chngd
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	9	6	5
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	4	3	4
Copper	ppm	ASTM D5185m	>330	16	10	11
Tin	ppm	ASTM D5185m	>15	4	1	2
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

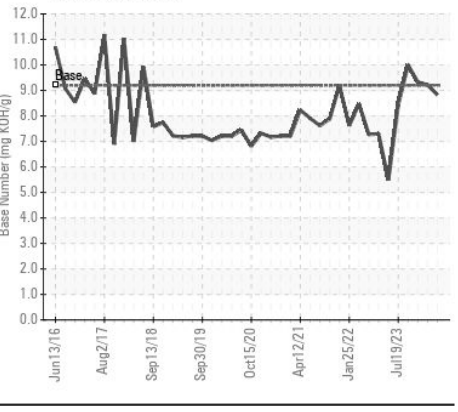
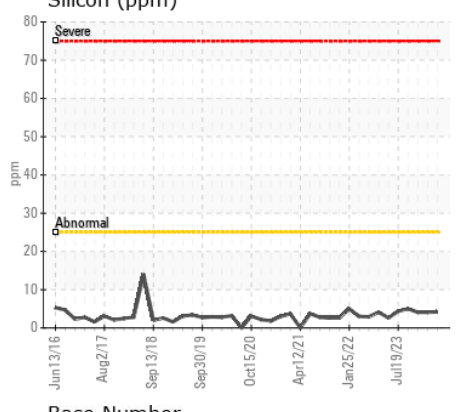
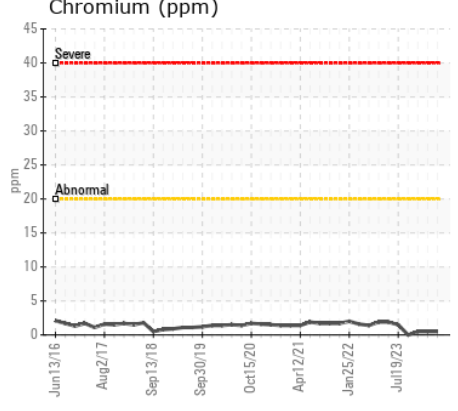
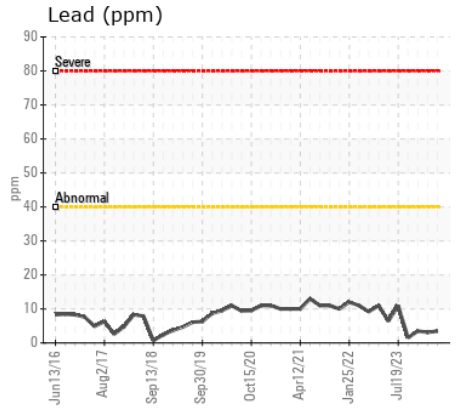
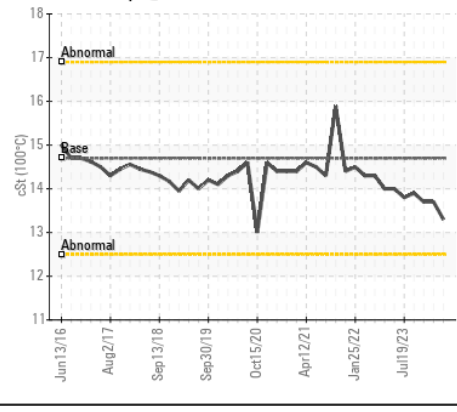
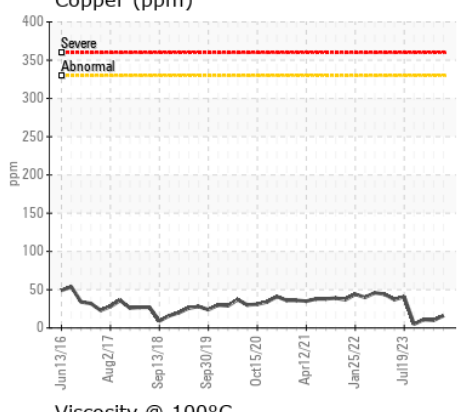
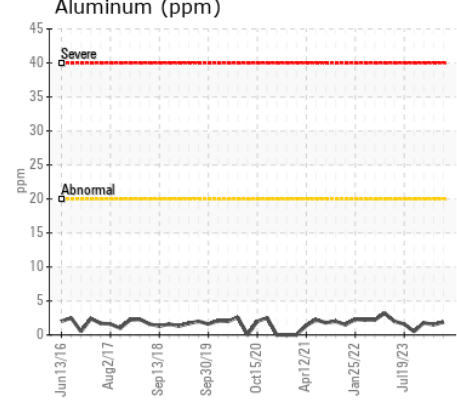
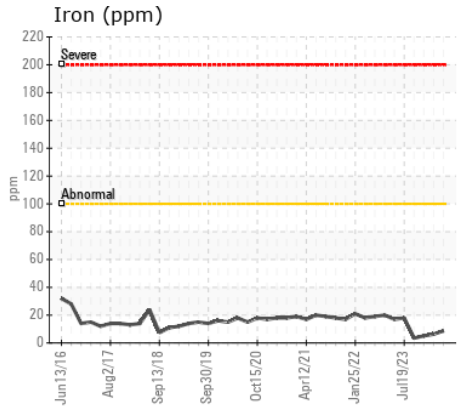
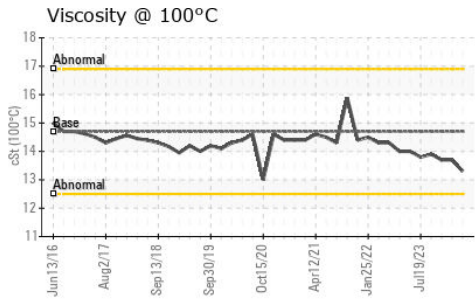
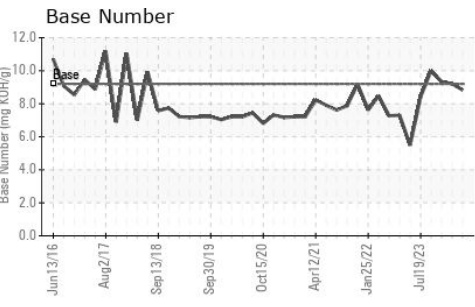
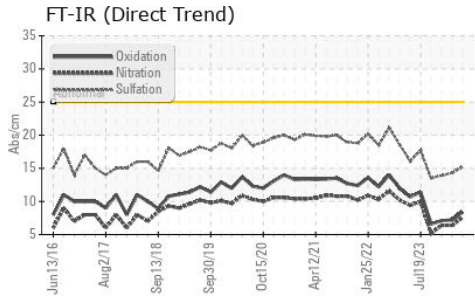
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	4	4	4
Potassium	ppm	ASTM D5185m	>20	<1	1	0
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	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	7.6	6.4	6.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	15.2	14.3	13.9
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		2	2	2
Boron	ppm	ASTM D5185m		38	35	38
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		54	40	40
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m		46	44	28
Calcium	ppm	ASTM D5185m		3157	3166	3118
Phosphorus	ppm	ASTM D5185m		62	61	54
Zinc	ppm	ASTM D5185m	10	66	64	50
Sulfur	ppm	ASTM D5185m		2782	2608	2408
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.4	7.2	7.1
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	8.83	9.21	9.33
Visc @ 100°C	cSt	ASTM D445	14.7	13.3	13.7	13.7



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : DC0035717
Lab Number : 06157854
Unique Number : 10993277
Test Package : MOB 2
Received : 23 Apr 2024
Tested : 24 Apr 2024
Diagnosed : 24 Apr 2024 - Wes Davis

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) F: (443)220-0469