



# OIL ANALYSIS REPORT

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

Machine Id  
**CAT MARC 12**  
 Component  
**Diesel Engine**  
 Fluid  
**DURALENE Dura-Max 15W40 (--- QTS)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>DC0035738</b>	DC0035715	DC0034593
Sample Date		Client Info		<b>17 May 2024</b>	16 Apr 2024	29 Feb 2024
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 Chngd</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Not Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>25</b>	6	11
Chromium	ppm	ASTM D5185m	>20	<b>2</b>	<1	0
Nickel	ppm	ASTM D5185m	>2	<b>1</b>	1	<1
Titanium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	0
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>25	<b>4</b>	2	0
Lead	ppm	ASTM D5185m	>40	<b>7</b>	<1	0
Copper	ppm	ASTM D5185m	>330	<b>41</b>	2	0
Tin	ppm	ASTM D5185m	>15	<b>9</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

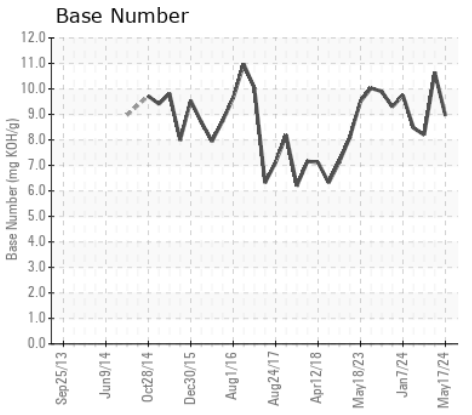
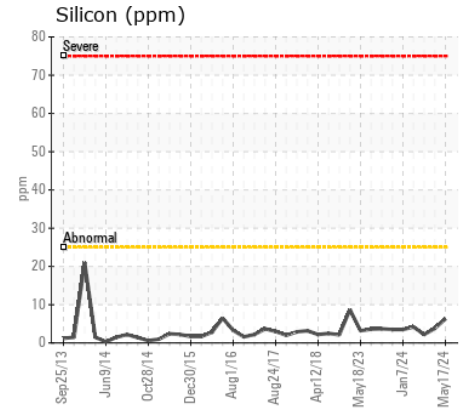
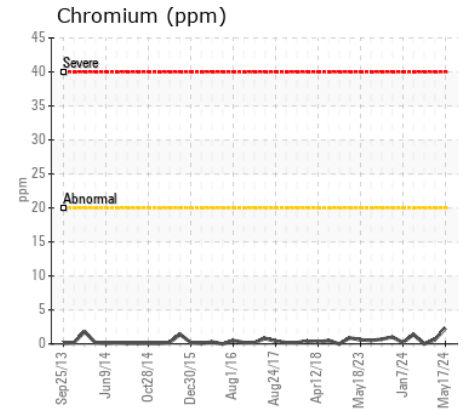
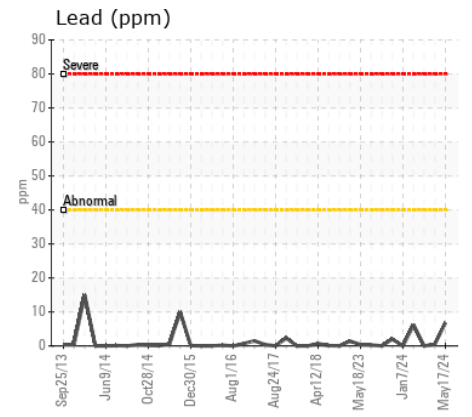
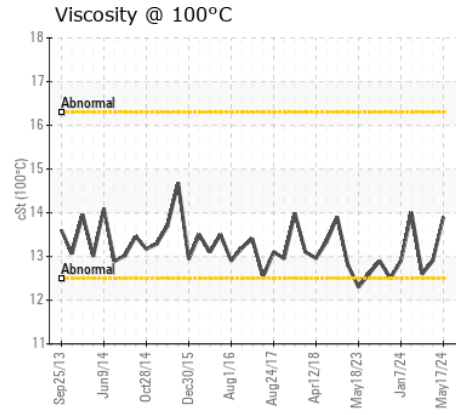
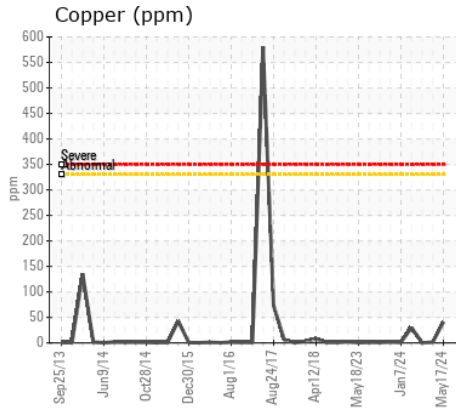
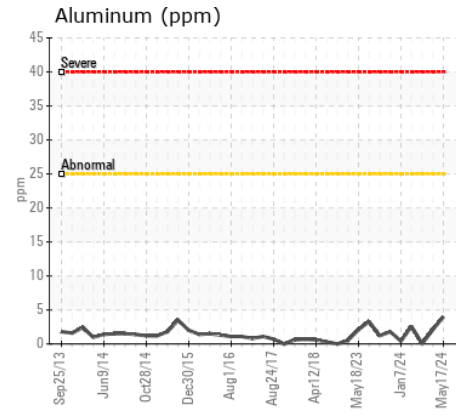
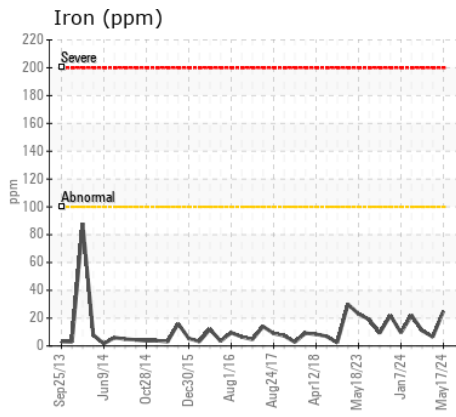
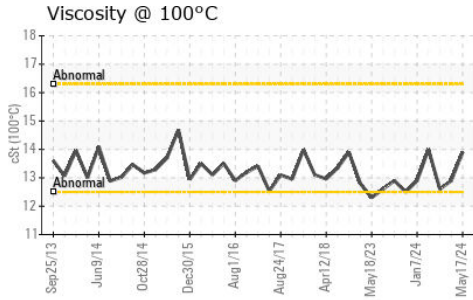
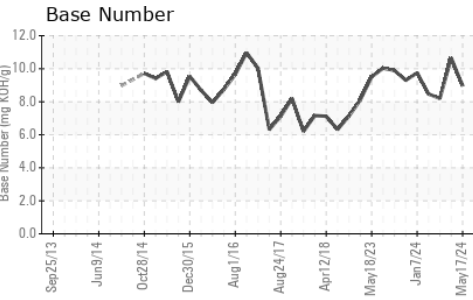
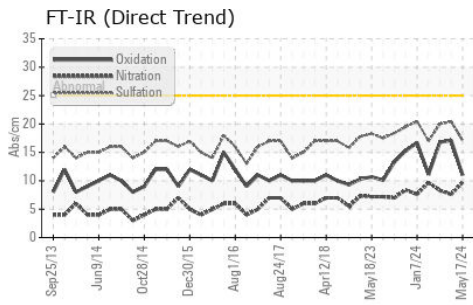
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>6</b>	4	2
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	1	0
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>	0.2	0.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.7</b>	7.6	8.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>17.1</b>	20.4	20.0
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>20</b>	3	<1
Boron	ppm	ASTM D5185m		<b>45</b>	40	37
Barium	ppm	ASTM D5185m		<b>0</b>	0	1
Molybdenum	ppm	ASTM D5185m		<b>49</b>	47	43
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Magnesium	ppm	ASTM D5185m		<b>40</b>	724	776
Calcium	ppm	ASTM D5185m		<b>3493</b>	1226	1453
Phosphorus	ppm	ASTM D5185m		<b>60</b>	773	833
Zinc	ppm	ASTM D5185m		<b>49</b>	871	982
Sulfur	ppm	ASTM D5185m		<b>3412</b>	2545	2470
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>11.0</b>	17.1	16.8
Base Number (BN)	mg KOH/g	ASTM D2896		<b>8.96</b>	10.65	8.2
Visc @ 100°C	cSt	ASTM D445		<b>13.9</b>	12.9	12.6



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : DC0035738  
**Lab Number** : 06186887  
**Unique Number** : 11043639  
**Test Package** : MOB 2  
**Received** : 21 May 2024  
**Tested** : 23 May 2024  
**Diagnosed** : 23 May 2024 - Don Baldrige

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

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)