



# OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id  
**CAT MARC 16**  
 Component  
**Diesel Engine**  
 Fluid  
**BRAD PENN 15W40 (--- QTS)**

## RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>DC0036707</b>	DC0034580	DC0034578
Sample Date		Client Info		<b>12 Jun 2024</b>	07 Mar 2024	07 Mar 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>N/A</b>	Not Changed	Changed
Filter Changed		Client Info		<b>N/A</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>9</b>	15	6
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	1	0
Nickel	ppm	ASTM D5185m	>4	<b>1</b>	<1	<1
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>1</b>	5	<1
Copper	ppm	ASTM D5185m	>330	<b>41</b>	27	<1
Tin	ppm	ASTM D5185m	>15	<b>2</b>	5	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

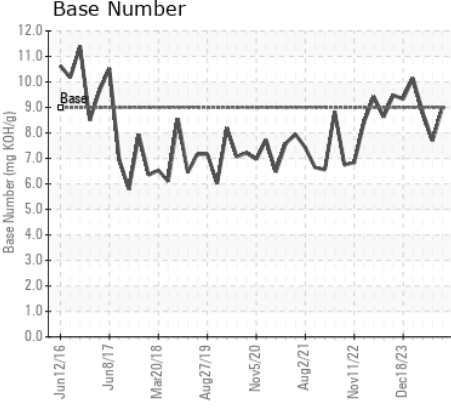
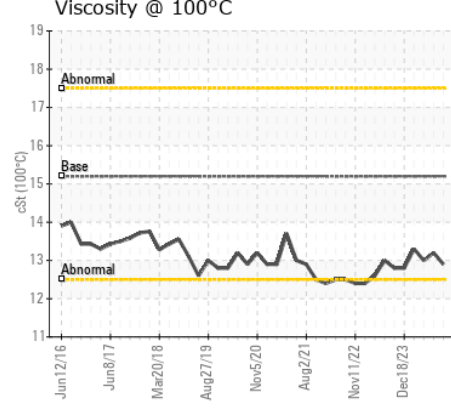
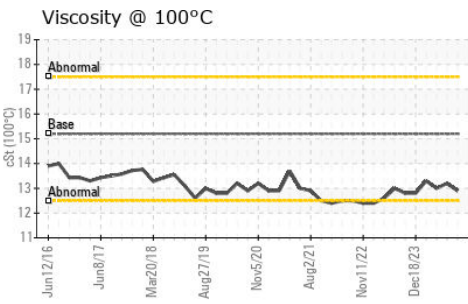
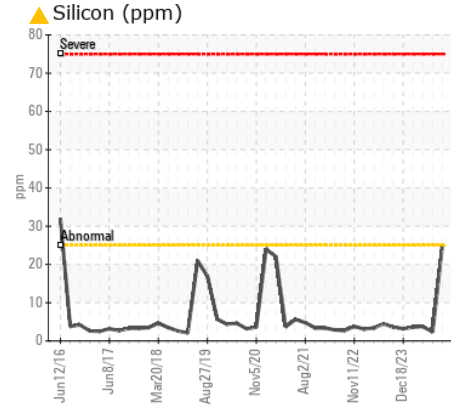
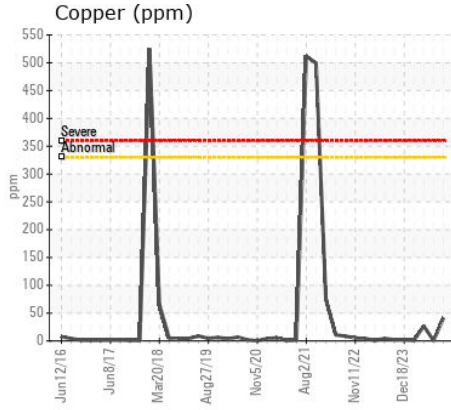
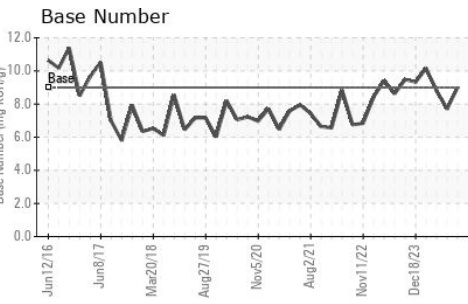
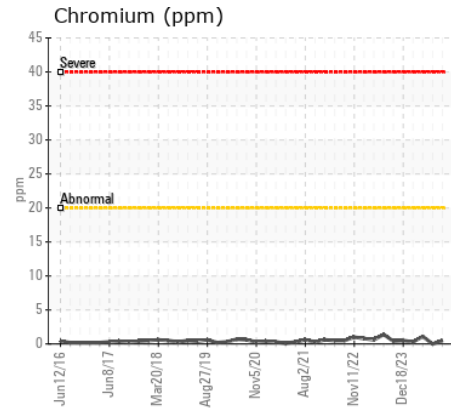
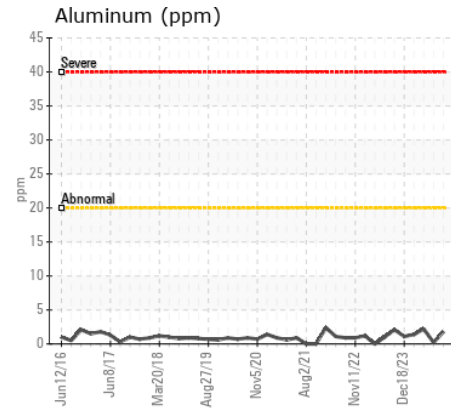
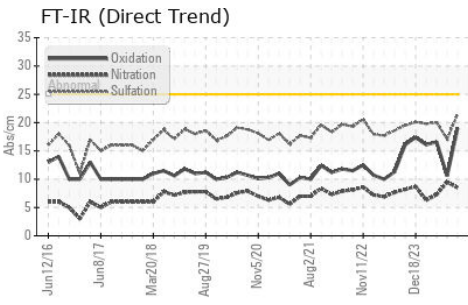
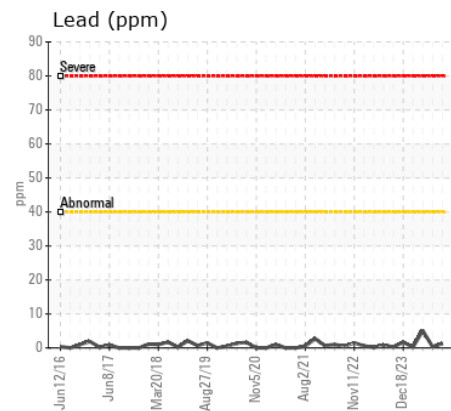
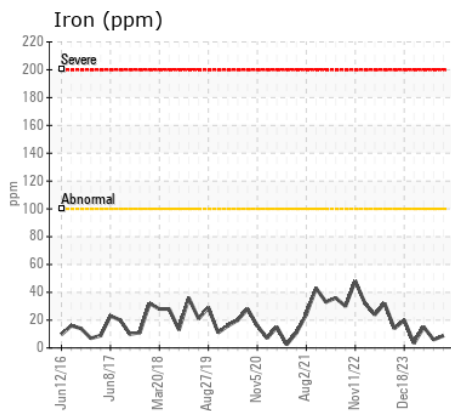
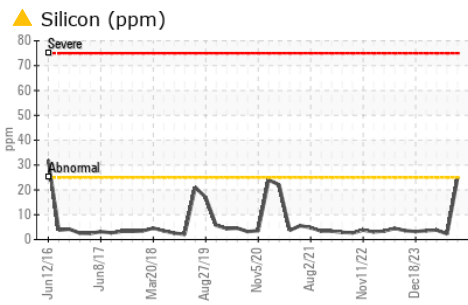
Elemental level of silicon (Si) above normal.

Silicon	ppm	ASTM D5185m	>25	<b>▲ 25</b>	4	2
Potassium	ppm	ASTM D5185m	>20	<b>2</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>0.1</b>	0.4	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.5</b>	9.5	7.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.5</b>	17.1	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 acceptable for the time in service.

Sodium	ppm	ASTM D5185m		<b>4</b>	<1	2
Boron	ppm	ASTM D5185m		<b>35</b>	37	35
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>45</b>	50	41
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Magnesium	ppm	ASTM D5185m		<b>714</b>	32	741
Calcium	ppm	ASTM D5185m		<b>1239</b>	3259	1280
Phosphorus	ppm	ASTM D5185m		<b>660</b>	47	746
Zinc	ppm	ASTM D5185m		<b>884</b>	44	900
Sulfur	ppm	ASTM D5185m		<b>2474</b>	2947	2886
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>19.0</b>	10.6	16.6
Base Number (BN)	mg KOH/g	ASTM D2896	9.0	<b>9.0</b>	7.7	8.8
Visc @ 100°C	cSt	ASTM D445	15.2	<b>12.9</b>	13.2	13.0



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : DC0036707 **Received** : 14 Jun 2024  
**Lab Number** : 06209862 **Tested** : 15 Jun 2024  
**Unique Number** : 11082726 **Diagnosed** : 17 Jun 2024 - Don Baldrige  
**Test Package** : MOB 1 ( Additional Tests: TBN )

**ALSTOM - BALTIMORE**  
 1600 LUDLOW ST  
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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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