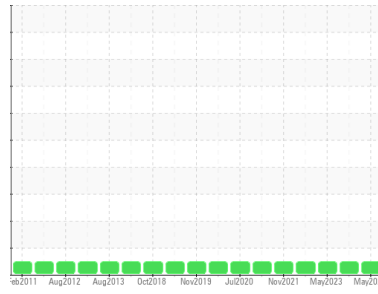




# OIL ANALYSIS REPORT

## Sample Rating Trend



**NORMAL**



Machine Id  
**ALSTOM R049**  
 Component  
**Gearbox**  
 Fluid  
**TOTAL CARTER SH 220 (3 GAL)**

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

### SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>WC0798740</b>	WC0781724	WC0781647
Sample Date	Client Info		<b>11 May 2024</b>	16 Nov 2023	14 May 2023
Machine Age	hrs	Client Info	<b>0</b>	0	0
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

### CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.2	<b>NEG</b>	NEG	NEG

### WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >200	<b>170</b>	144	122
Chromium	ppm	ASTM D5185m >10	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m >10	<b>1</b>	0	<1
Titanium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >25	<b>7</b>	2	3
Lead	ppm	ASTM D5185m >50	<b>2</b>	4	2
Copper	ppm	ASTM D5185m >200	<b>55</b>	53	46
Tin	ppm	ASTM D5185m >10	<b>&lt;1</b>	2	<1
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	<1
Cadmium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1

### ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>&lt;1</b>	0	<1
Barium	ppm	ASTM D5185m	<b>2</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Manganese	ppm	ASTM D5185m	<b>2</b>	2	2
Magnesium	ppm	ASTM D5185m	<b>6</b>	0	5
Calcium	ppm	ASTM D5185m	<b>13</b>	66	12
Phosphorus	ppm	ASTM D5185m	<b>338</b>	335	374
Zinc	ppm	ASTM D5185m	<b>98</b>	114	99
Sulfur	ppm	ASTM D5185m	<b>4004</b>	3412	5020

### CONTAMINANTS

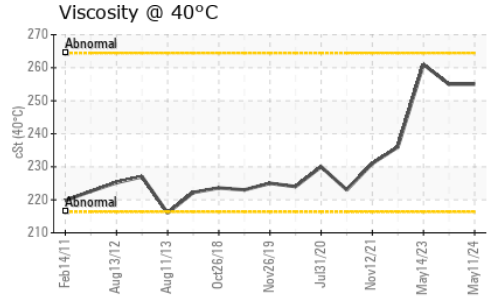
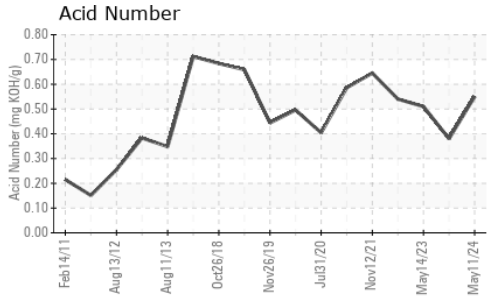
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	<b>31</b>	14	16
Sodium	ppm	ASTM D5185m	<b>13</b>	20	15
Potassium	ppm	ASTM D5185m >20	<b>4</b>	0	2

### FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>0.55</b>	0.38	0.51



# OIL ANALYSIS REPORT



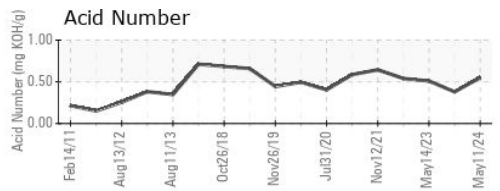
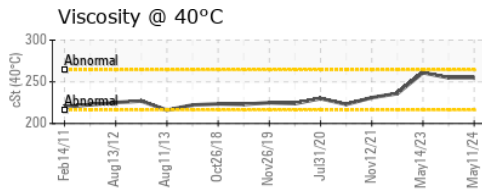
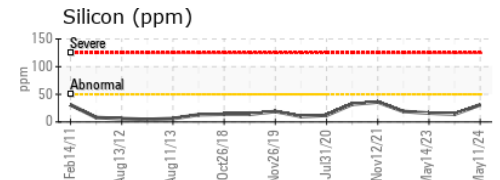
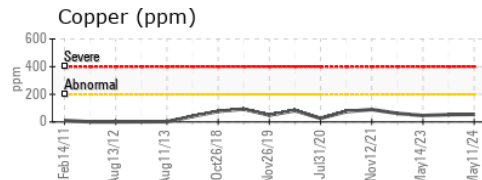
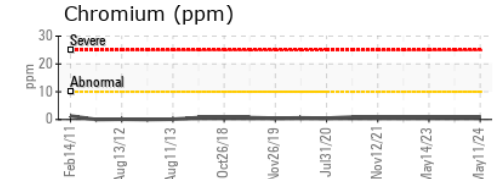
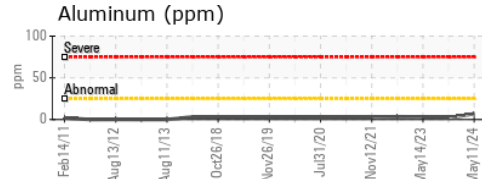
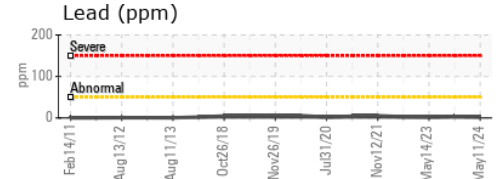
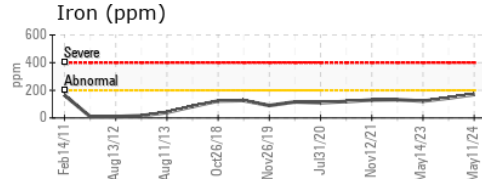
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	255	255	261

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color	no image	no image	no image
Bottom	no image	no image	no image

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0798740  
**Lab Number** : 06179483  
**Unique Number** : 11030809  
**Test Package** : MOB 2  
**Received** : 14 May 2024  
**Tested** : 15 May 2024  
**Diagnosed** : 15 May 2024 - Wes Davis

**AMTRAK**  
 1401 W STREET NE, HIGH SPEED RAIL 2ND FLOOR  
 WASHINGTON, DC  
 US 20018  
 Contact: MICHAEL PORTER  
 michael.porter@amtrak.com  
 T: (202)870-1399  
 F:

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)