

## **OIL ANALYSIS REPORT**

Sample Rating Trend

### NORMAL

# ALSTOM R166

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

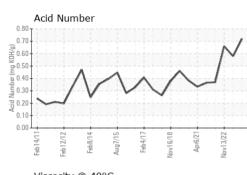
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

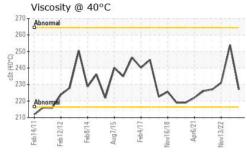
1000			
sb2011	Feb2012 Feb2014	Aug2015 Feb2017 Nov2018 Apr2021 Nov2022	

SAMPLE INFORM	<b>MATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0798764	WC0781692	WC0667746
Sample Date		Client Info		12 May 2024	13 May 2023	13 Nov 2022
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	99	107	117
Chromium	ppm	ASTM D5185m	>10	<1	<1	<1
Nickel	ppm	ASTM D5185m	>10	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m		0	0	2
Aluminum	ppm	ASTM D5185m	>25	3	2	3
Lead	ppm	ASTM D5185m	>50	<1	2	2
Copper	ppm	ASTM D5185m	>200	32	45	57
Tin	ppm	ASTM D5185m	>10	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	<1	<1
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		7	1	6
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		1	<1	<1
Manganese	ppm	ASTM D5185m		2	2	1
Magnesium	ppm	ASTM D5185m		3	1	1
Calcium	ppm	ASTM D5185m		9	8	9
Phosphorus	ppm	ASTM D5185m		382	381	384
Zinc	ppm	ASTM D5185m		43	103	82
Sulfur	ppm	ASTM D5185m		5189	4597	4833
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	22	22	23
Sodium	ppm	ASTM D5185m		18	22	24
Potassium	ppm	ASTM D5185m	>20	2	<1	2
FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.72	0.58	0.66



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	VISUAL		method	limit/base	current	history1	history2
1	White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
3/22	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Nov13/22	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPERT	IES	method	limit/base	current	history1	history2
Λ	Visc @ 40°C	cSt	ASTM D445		227	254	231
$\mathcal{A}$	SAMPLE IMAGES	5	method	limit/base	current	history1	history2
Nav13/22	Color				no image	no image	no image
	Bottom				no image	no image	no image
	GRAPHS						
	Iron (ppm)				Lead (ppm)		
	600 Severe	111111		200	Severe		
	Abnormal			틆 100			
	200	-	$\sim$	· · ·	Abnormal		
	Feb 14/11 Feb 14/11 Feb 12/12 Feb 8/14 Feb 8/14 Feb 8/14 Feb 8/15 Feb 8/115 Feb 8/15	Feb4/17	ov16/18 +	3/22+	eb 14/11 eb 12/12 Feb 8/14	Aug7/15 - Feb4/17 -	Apr6/21 -
	Feb14/11 Feb12/12 Feb8/14	Feb	Nov16/18 - Apr6/21 -	Nov13/22	Feb14/11 Feb12/12 Feb8/14	Aug7/15 Feb4/17 Nov16/18	Apr6/21 Nov13/22
	Aluminum (ppm)				Chromium (p	pm)	
	100 Severe			30	0		
	Ero			<sup>20</sup> 10	Abnormal		
	Abnormal			10	-		
	4/11 /12	117-	6/21-	122	4/11 1/12	/15- 1/17-	6/21- 1/22 -
	Feb14/11 Feb12/12 Feb8/14	Feb4/17	Nov16/18 Apr6/21	Nov13/22	Feb14/11 Feb12/12 Feb8/14	Aug7/15 Feb4/17 Nov16/18	Apr6/21 Nov13/22
	Copper (ppm)		-	-	Silicon (ppm)	-	-
	600 T 3 - T - F - F - F - 3 - T - F - F						
	400 - Severe Abnormal			E 100			
	200-0			- 50	Abnormal		
		117	/18	122	111 12 14	/15 /17	3/21
	Feb 14/11 Feb 12/12 Feb 8/14	Feb4/17	Nov16/18 Apr6/21	Nov13/22	Feb14/11 Feb12/12 Feb8/14	Aug7/15 Feb4/17 Nov16/18	Apr6/21 Nov13/22
	Viscosity @ 40°C		-		Acid Number	·	-
	300 T			물 1.00			
	유bnormal 영 250 - Abnormal Abnormal			ل له 0.50			$\sim$
		~			$\sim$	$\sim$	$\sim$
	200	+21	21+	Acid Number (mg KOH/g) 000 050	11+	15 - 17 -	21-
	Feb14/11 Feb12/12 - Feb8/14 Aug7/15	Feb4/17	Nov16/18 Apr6/21	Nov13/22 Acid	Feb14/11 Feb12/12 Feb8/14	Aug7/15 Feb4/17 Nov16/18	Apr6/21 Nov13/22
oratory nple No. Number	: WearCheck USA - 50 : WC0798764 : 06179485		on Ave., Cary ived : 14			TREET NE, HIGH SPEI	AMTRAK
ue Number t Package	: 11030811	Diagr	nosed : 18	5 May 2024 - W	es Davis		US 20018 AEL PORTER

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)

Report Id: AMTRAK [WUSCAR] 06179485 (Generated: 05/15/2024 17:31:04) Rev: 1

Certificate L2367

Contact/Location: MICHAEL PORTER - AMTRAK

F:

T: (202)870-1399