

OIL ANALYSIS REPORT

Sample Rating Trend



ALSTOM CC 3208 Component Hydraulic System Fluid ESSO UNIVIS N 32 (55 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Area

All component wear rates are normal.

Contamination

There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable.

Fluid Condition

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

SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0798944	WC0560246	WC0643785
Sample Date		Client Info		26 Mar 2024	17 Apr 2022	03 Apr 2022
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINATION	I	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	2	6	5
Chromium	ppm	ASTM D5185m	>10	<1	5	2
Nickel	ppm	ASTM D5185m	>10	13	48	36
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	2	<1	<1
Lead	ppm	ASTM D5185m	>10	6	15	13
Copper	ppm	ASTM D5185m	>75	2	10	7
Tin	ppm	ASTM D5185m	>10	0	<1	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 0	history2 0
	ppm ppm					
Boron		ASTM D5185m		0	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	.1	0 0	0	0 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	.1	0 0 0	0 0 0	0 0 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1 .3	0 0 0 0	0 0 0 0	0 0 0 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1 .3 0	0 0 0 <1	0 0 0 0 2	0 0 0 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1 .3 0 74	0 0 0 <1 57	0 0 0 2 59	0 0 0 <1 61
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1 .3 0 74 266	0 0 0 <1 57 362	0 0 0 2 59 363	0 0 0 <1 61 404
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1 .3 0 74 266	0 0 0 <1 57 362 460	0 0 0 2 59 363 486	0 0 0 <1 61 404 455
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1 .3 0 74 266 338	0 0 0 <1 57 362 460 2222	0 0 0 2 59 363 486 3089	0 0 0 <1 61 404 455 2909
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1 .3 0 74 266 338	0 0 0 <1 57 362 460 2222 current	0 0 0 2 59 363 486 3089 history1	0 0 0 <1 61 404 455 2909 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	.1 .3 0 74 266 338 imit/base >20	0 0 0 <1 57 362 460 2222 current <1	0 0 0 2 59 363 486 3089 history1 2	0 0 0 <1 61 404 455 2909 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	.1 .3 0 74 266 338 imit/base >20	0 0 0 <1 57 362 460 2222 current <1 0	0 0 0 2 59 363 486 3089 history1 2 <1	0 0 0 <1 61 404 455 2909 history2 2 2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	.1 .3 0 74 266 338 limit/base >20	0 0 0 <1 57 362 460 2222 current <1 0 <1	0 0 0 2 59 363 486 3089 history1 2 <1 1	0 0 0 <1 61 404 455 2909 history2 2 2 2 2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	.1 .3 0 74 266 338 338 limit/base >20 20 limit/base	0 0 0 <1 57 362 460 2222 current <1 0 <1	0 0 0 2 59 363 486 3089 history1 2 <1 1 1 history1	0 0 0 (0 <1 61 404 455 2909 history2 2 2 2 2 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	.1 .3 .74 266 338 266 338 20 20 >20 20 20 20 20 20 20 20 20	0 0 0 4 1 57 362 460 2222 <u>current</u> 4 6 2222 <u>current</u> 919	0 0 0 2 59 363 486 3089 history1 2 <1 1 1 1 1 1 1 1 147521	0 0 0 (0 <1 61 404 455 2909 history2 2 2 2 2 <1 history2 4457
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	.1 .3 .74 266 338 limit/base >20 20 limit/base >20 limit/base >10000 >1300 >160	0 0 0 4 57 362 460 2222 current <1 0 <1 0 <1 919 258	0 0 0 2 59 363 486 3089 history1 2 <1 1 2 <1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 1 6 1 404 455 2909 history2 2 2 2 2 2 3 1 history2 4457 720
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	.1 .3 .74 266 338 limit/base >20 20 limit/base >20 limit/base >10000 >1300 >160	0 0 0 10 <1 57 362 460 2222 current <1 0 <1 0 <1 0 <1 919 258 26	0 0 0 2 59 363 486 3089 history1 2 <1 1 2 <1 1 1 history1 1 4 147521 ▲ 147521 ▲ 147521	0 0 0 10 404 455 2909 history2 2 2 2 2 2 2 3 4457 720 42
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647	.1 .3 .3 74 266 338 338 imit/base >20 20 20 imit/base >10000 >1300 >160 >40 >40	0 0 0 2 1 57 362 460 2222 current <1 0 <1 0 <1 0 <1 0 258 26 8	0 0 0 2 59 363 486 3089 history1 2 <1 1 2 <1 1 1 history1 1 4 147521 ▲ 147521 ▲ 147521 ▲ 14928 ▲ 2311 ▲ 639	0 0 0 (0 <1 61 404 455 2909 history2 2 2 2 2 2 <1 history2 4457 720 42 8

ISO 4406 (c) >20/17/14

Oil Cleanliness

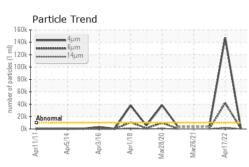
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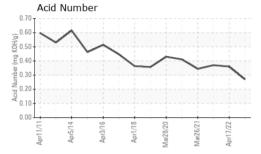
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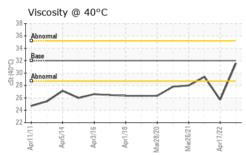
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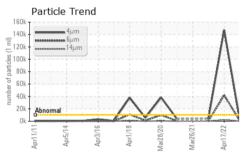


OIL ANALYSIS REPORT





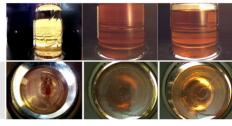




FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.27	0.36	0.37
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	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	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32	31.6	25.7	29.4
SAMPLE IMAGES	S	method	limit/base	current	history1	history2

Color

Bottom



Ferrous Alloys Particle Count 491,520 40 122,88 20 30,72 0 ISO 4406:1999 Clea -20 pr17/22 Apr11/1 lar28/71 lar26/7 per 1,920 18 articles 480 16 Non-ferrous Metals 20 120 14 E 10 30 12 8 8 Apr11/11. Apr17/22 Mar28/20 Mar26/21 Anr1/18 2 Viscosity @ 40°C KOH/g) Acid Number 40i nr (j) 35 (j) 30 bu . 중 25 20 Acid N 0.00 Apr17/22 -Apr3/16 Apr11/11 Mar28/20 Mar26/21 Apr17/22 Apr3/16 pr1/18 Apr1/18 Apr11/11 .nr5/14 Mar28/20 /lar26/21 Apr5/14

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 AMTRAK 1401 W STREET NE, HIGH SPEED RAIL 2ND FLOOR : WC0798944 Sample No. Received : 03 Apr 2024 E Lab Number : 06137351 Tested : 04 Apr 2024 WASHINGTON, DC Unique Number : 10956816 Diagnosed : 05 Apr 2024 - Jonathan Hester US 20018 Test Package : MOB 2 Contact: MICHAEL PORTER Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. michael.porter@amtrak.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (202)870-1399 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: AMTRAK [WUSCAR] 06137351 (Generated: 04/05/2024 13:04:10) Rev: 1

Contact/Location: MICHAEL PORTER - AMTRAK

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