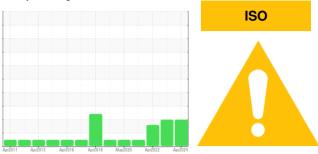


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

ALSTOM 3517

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

DIAGNOSIS

A Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates present in the oil.

Fluid Condition

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

SAMPLE INFORMA	TION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0909832	WC0667672	WC0592241
Sample Date		Client Info		07 Apr 2024	07 Apr 2023	13 Apr 2022
Machine Age h	nrs	Client Info		0	0	0
Oil Age h	nrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
lron p	pm	ASTM D5185m	>20	<1	0	<1
Chromium p	pm	ASTM D5185m	>10	2	<1	<1
Nickel p	pm	ASTM D5185m	>10	13	7	5
Titanium p	pm	ASTM D5185m		0	0	0
Silver p	pm	ASTM D5185m		0	0	0
Aluminum p	pm	ASTM D5185m	>10	0	<1	0
Lead p	pm	ASTM D5185m	>10	14	6	5
Copper p	pm	ASTM D5185m	>75	5	1	1
Tin p	pm	ASTM D5185m	>10	<1	0	0
Antimony p	pm	ASTM D5185m				
Vanadium p	pm	ASTM D5185m		0	0	0
Cadmium p	pm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron p	pm	ASTM D5185m	.1	0	0	0
Barium p	pm	ASTM D5185m		0	0	0
Molybdenum p	pm	ASTM D5185m	.3	0	0	0
Manganese p	pm	ASTM D5185m		<1	<1	0
-		ASTM D5185m ASTM D5185m	0	<1 2	<1 0	0
Magnesium p	pm					
Magnesium p Calcium p	opm opm	ASTM D5185m		2	0	0
Magnesium p Calcium p Phosphorus p	opm opm opm	ASTM D5185m ASTM D5185m	74 266	2 53	0 50	0 52
Magnesium p Calcium p Phosphorus p Zinc p	opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m	74 266	2 53 347	0 50 356	0 52 372
Magnesium p Calcium p Phosphorus p Zinc p	opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	74 266	2 53 347 431	0 50 356 435	0 52 372 432
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS	opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	74 266 338 limit/base	2 53 347 431 3157	0 50 356 435 2374	0 52 372 432 2108
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p	opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	74 266 338 limit/base	2 53 347 431 3157 current	0 50 356 435 2374 history1	0 52 372 432 2108 history2
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p	opm opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	74 266 338 limit/base >20	2 53 347 431 3157 current 2	0 50 356 435 2374 history1 1	0 52 372 432 2108 history2 2
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p	opm opm opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	74 266 338 limit/base >20	2 53 347 431 3157 current 2 4	0 50 356 435 2374 history1 1 0	0 52 372 432 2108 history2 2 0
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p	opm opm opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	74 266 338 limit/base >20 >20	2 53 347 431 3157 current 2 4 3	0 50 356 435 2374 history1 1 0 0	0 52 372 432 2108 history2 2 0 0
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p FLUID CLEANLINES Particles >4µm	opm opm opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	74 266 338 limit/base >20 >20 limit/base	2 53 347 431 3157 current 2 4 3 3 current	0 50 356 435 2374 history1 1 0 0 0	0 52 372 432 2108 history2 2 0 0 0 history2
Magnesium μ Calcium μ Calcium μ Phosphorus μ Zinc μ Sulfur μ CONTAMINANTS μ Silicon μ Sodium μ Potassium μ FLUID CLEANLINES Particles >4μm Particles >6μm	opm opm opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	74 266 338 limit/base >20 >20 limit/base >10000	2 53 347 431 3157 <u>current</u> 2 4 3 <u>current</u> 19825	0 50 356 435 2374 history1 1 0 0 0 history1 19089	0 52 372 432 2108 history2 2 0 0 0 0 history2 8593
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p FLUID CLEANLINES Particles >4µm Particles >6µm Particles >14µm	opm opm opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7647	74 266 338 limit/base >20 20 limit/base >10000 >1300	2 53 347 431 3157 <u>current</u> 2 4 3 <u>current</u> 19825 ▲ 19825	0 50 356 435 2374 history1 1 0 0 0 history1 19089 ▲ 4490	0 52 372 432 2108 history2 2 0 0 0 history2 8593 ▲ 2531
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p FLUID CLEANLINE Particles >4µm Particles >6µm Particles >14µm Particles >21µm	opm opm opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647	74 266 338 limit/base >20 limit/base >10000 >1300 >160	2 53 347 431 3157 <u>current</u> 2 4 3 <u>current</u> 19825 ▲ 19825 ▲ 3668 ▲ 245	0 50 356 435 2374 history1 1 0 0 0 history1 19089 ▲ 1400 297	0 52 372 432 2108 history2 2 0 0 0 history2 8593 ▲ 2531 ▲ 303
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p	opm opm opm opm opm opm opm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647	74 266 338 limit/base >20 limit/base >20 limit/base >10000 >1300 >160 >40	2 53 347 431 3157 2 4 3 2 4 3 3 <i>current</i> 19825 ▲ 19825 ▲ 3668 245 ▲ 73	0 50 356 435 2374 1 0 0 0 history1 0 19089 ▲ 4490 297 ▲ 85	0 52 372 432 2108 history2 2 0 0 0 history2 8593 ▲ 2531 ▲ 2531 ▲ 303 ▲ 91

ISO 4406 (c) >20/17/14 **21/19/15**

Oil Cleanliness

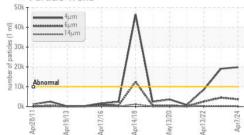
🔺 21/19/15

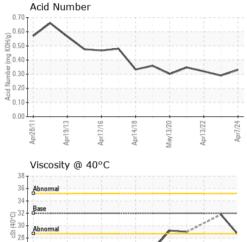
▲ 20/19/15



OIL ANALYSIS REPORT

	4μm	1	A			
= 40k - ****	6μm 14μm					
80 30k -			11			
10 40k			11			
JDEL AL	normal		1.1		1	
2 10k - 60	ioimai		$1 \wedge 1$		1	
0k		-	<u></u>	5	-	
Apr28/11	Apr19/13	Apr17/16	Apr1 4/18	May13/20	Apr13/22	An7704
	5	5	5	2	'Ld	-





Apr17/16

Apr14/18

26

24

22

Apr28/1

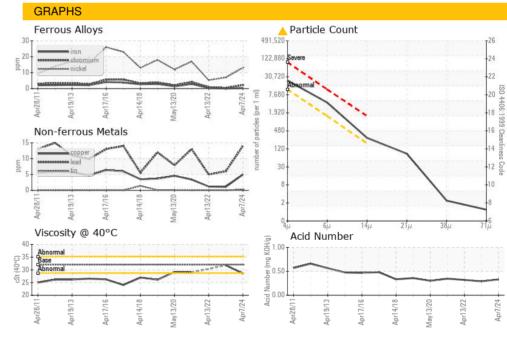
Apr19/13

FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.33	0.29	0.32
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	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
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	28.6	31.8	
SAMPLE IMAGES	6	method	limit/base	current	history1	history2

Color



Bottom



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 AMTRAK Sample No. : WC0909832 1401 W STREET NE, HIGH SPEED RAIL 2ND FLOOR Received : 18 Apr 2024 Lab Number : 06153058 Tested : 19 Apr 2024 WASHINGTON, DC Unique Number : 10983136 Diagnosed : 22 Apr 2024 - Don Baldridge 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] 06153058 (Generated: 04/22/2024 18:22:57) Rev: 1

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Apr13/22

Contact/Location: MICHAEL PORTER - AMTRAK