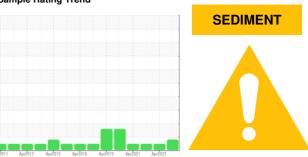


## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

# **CAFE CAR 3317**

Hydraulic System

ESSO UNIVIS N 32 (--- GAL)

## **DIAGNOSIS**

#### Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor. We were unable to perform a particle count due to a high concentration of particles present in this sample.

#### Wear

All component wear rates are normal.

### Contamination

There is a moderate amount of visible silt present in the sample.

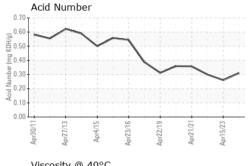
### **Fluid Condition**

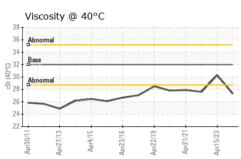
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

April011 April013 April015 April016 April019 April0221 April023								
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2		
Sample Number		Client Info		WC0909830	WC0673313	WC0527677		
Sample Date		Client Info		15 Apr 2024	15 Apr 2023	20 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				ABNORMAL	NORMAL	NORMAL		
CONTAMINATION	V	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	<1	2		
Chromium	ppm	ASTM D5185m	>10	<1	<1	2		
Nickel	ppm	ASTM D5185m	>10	22	22	40		
Titanium	ppm	ASTM D5185m		0	0	0		
Silver	ppm	ASTM D5185m		0	0	0		
Aluminum	ppm	ASTM D5185m	>10	0	0	0		
Lead	ppm	ASTM D5185m	>10	8	5	15		
Copper	ppm	ASTM D5185m	>75	5	2	6		
Tin	ppm	ASTM D5185m	>10	<1	0	<1		
Antimony	ppm	ASTM D5185m						
Vanadium	ppm	ASTM D5185m		0	<1	0		
Cadmium	ppm	ASTM D5185m		0	0	0		
				-				
ADDITIVES		method	limit/base	current	history1	history2		
	ppm	method ASTM D5185m	limit/base	current 0		history2 <1		
Boron	ppm ppm				history1			
Boron Barium	• • • • • • • • • • • • • • • • • • • •	ASTM D5185m		0	history1	<1		
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	.1	0 0	history1 0 0	<1		
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	.1	0 0 0	history1 0 0 0	<1 0 0		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1	0 0 0 <1	history1 0 0 0 0	<1 0 0		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.3	0 0 0 <1 1	history1  0 0 0 0 <1 <1	<1 0 0 0 0 3		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1 .3 .0 74	0 0 0 <1 1 51	history1  0 0 0 0 <1 <1 40	<1 0 0 0 0 3 50		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 1 51 361	history1  0 0 0 <1 <1 40 334	<1 0 0 0 0 3 50 366		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	0 0 0 <1 1 51 361 443	history1  0 0 0	<1 0 0 0 0 3 50 366 484		
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 ASTM D5185m	.1 .3 0 74 266 338	0 0 0 <1 1 51 361 443 2951 current	history1  0 0 0 <1 <1 40 334 428 2342	<1 0 0 0 3 50 366 484 2611 history2		
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 ASTM D5185m	.1 .3 0 74 266 338	0 0 0 <1 1 51 361 443 2951 current	history1  0 0 0 0 <1 <1 <1 40 334 428 2342 history1	<1 0 0 0 3 50 366 484 2611 history2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	.1 .3 .74 266 338 limit/base >20	0 0 0 <1 1 51 361 443 2951 current	history1  0 0 0 <1 <1 <40 334 428 2342 history1 1	<1 0 0 0 3 50 366 484 2611 history2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	.1 .3 .74 266 338 limit/base >20	0 0 0 <1 1 51 361 443 2951 current 1	history1  0 0 0 0 <1 <1 40 334 428 2342 history1 1	<1 0 0 0 3 50 366 484 2611 history2 2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	.1 .3 0 74 266 338 limit/base >20 >20	0 0 0 <1 1 51 361 443 2951 current 1 3	history1  0 0 0 0 <1 <1 <1 40 334 428 2342 history1 1 0	<1 0 0 0 3 50 366 484 2611 history2 2 0 <1		
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	ASTM D5185m	.1 .3 .0 .74 .266 .338	0 0 0 <1 1 51 361 443 2951 current 1 3 1	history1  0  0 0  <1 <1 <40 334 428 2342 history1  1  0 history1	<1 0 0 0 3 50 366 484 2611 history2 2 0 <1		
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	ASTM D5185m	.1 .3 .0 .74 .266 .338	0 0 0 <1 1 51 361 443 2951 current 1 3 1	history1  0  0 0 0 <1 <1 <1 40 334 428 2342 history1  1 0 history1 3096	<1 0 0 0 3 50 366 484 2611 history2 2 0 <1 history2 2983		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647	.1 .3 .0 .74 .266 .338  limit/base >20 >20 limit/base >10000 >1300 >160 >40	0 0 0 <1 1 51 361 443 2951 current 1 3 1	history1  0 0 0 0 <1 <1 <1 40 334 428 2342 history1 1 0 history1 3096 622	<1 0 0 0 3 50 366 484 2611 history2 2 0 <1 history2 2983 513		
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	ASTM D5185m  method ASTM D5185m ASTM D7647 ASTM D7647	.1 .3 .0 .74 .266 .338  limit/base >20 .10000 >1300 >160	0 0 0 <1 1 51 361 443 2951 current 1 3 1	history1  0 0 0 0 <1 <1 <1 40 334 428 2342 history1  1 0 history1 3096 622 32	<1 0 0 0 3 50 366 484 2611 history2 2 0 <1 history2 2983 513 28		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647	.1 .3 .74 .266 .338  limit/base >20 .>20 .>10000 .>1300 .>160 .>40 .>10	0 0 0 <  1 1 51 361 443 2951    current 1 3 1   current	history1  0 0 0 0 <1 <1 <1 40 334 428 2342 history1 1 0 history1 3096 622 32 8	<1 0 0 0 3 50 366 484 2611 history2 2 0 <1 history2 2983 513 28 6		



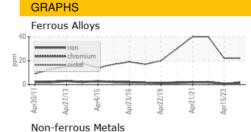
## **OIL ANALYSIS REPORT**

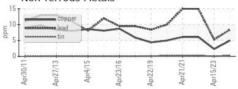


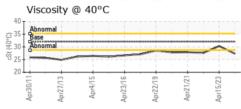


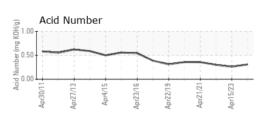
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.31	0.26	0.30
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	▲ MODER	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
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	TIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32	27.3	30.3	27.6
SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						

**Bottom** 













Certificate 12367

Laboratory Sample No.

Lab Number : 06153059

: WC0909830 Unique Number : 10983137 Test Package : MOB 2

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.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received **Tested** Diagnosed : 22 Apr 2024 - Don Baldridge

: 18 Apr 2024 : 22 Apr 2024 1401 W STREET NE, HIGH SPEED RAIL 2ND FLOOR

WASHINGTON, DC US 20018

Contact: MICHAEL PORTER michael.porter@amtrak.com T: (202)870-1399

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: AMTRAK [WUSCAR] 06153059 (Generated: 04/23/2024 15:39:31) Rev: 1

**AMTRAK**