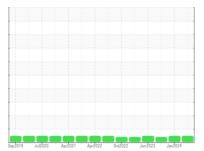


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



CR3316

Diesel Engine

DIESEL ENGINE OIL SAE 5W40 (--- 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.

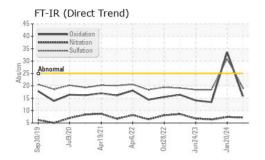
Fluid Condition

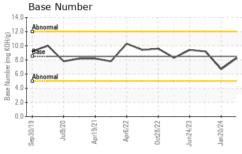
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

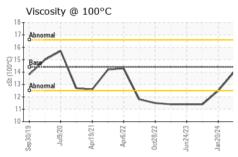
SAMPLE INFORMATION method limit/base current history1 history2			Sep2019 J	JIZUZU APIZUZI AP	r2022 Oct2022 Jun2023	Jan2024	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 09 Apr 2024 20 Jan 2024 09 Oct 2023 Machine Age hrs Client Info 10716 10428 10177 Oil Age hrs Client Info 288 251 480 Oil Changed Client Info Changed Ch	Sample Number		Client Info		WC0922127	WC0873386	WC0784828
Machine Age hrs Client Info 10716 10428 10177 Oil Age hrs Client Info 288 251 480 Oil Changed Client Info Changed C	•		Client Info		09 Apr 2024	20 Jan 2024	09 Oct 2023
Oil Age hrs Client Info 288 251 480 Oil Changed Sample Status Client Info Changed C		hrs	Client Info		10716	10428	10177
Client Info NORMAL NORMAL ATTENTION NORMAL NORMAL	<u> </u>	hrs	Client Info		288	251	480
NORMAL NORMAL ATTENTION CONTAMINATION method limit/base current nistory1 nistory2			Client Info		Changed	Changed	Changed
Fuel	-				NORMAL	NORMAL	ATTENTION
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 2 3 1 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >4 <1 0 0 Silver ppm ASTM D5185m >4 <1 0 0 Silver ppm ASTM D5185m >20 3 2 1 Lead ppm ASTM D5185m >40 <1 <1 0 Copper ppm ASTM D5185m >15 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1	WEAR METALS		method	limit/base	current	history1	history2
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >4 <1	Iron	ppm	ASTM D5185m	>100	2	3	1
Nickel	Chromium		ASTM D5185m	>20	<1	<1	<1
Silver	Nickel		ASTM D5185m	>4	<1	0	0
Aluminum ppm ASTM D5185m >20 3 2 1 Lead ppm ASTM D5185m >40 <1 <1 0 Copper ppm ASTM D5185m >330 <1 <1 <1 Tin ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m >1 0 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 205 102 10 Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 35 41 59 Manganese ppm ASTM D5185m 450 1208 670 930 Calcium ppm ASTM D5185m 450 1590	Titanium		ASTM D5185m		80	<1	0
Aluminum	Silver		ASTM D5185m	>3	0	0	0
Lead	Aluminum		ASTM D5185m	>20	3	2	1
Copper ppm ASTM D5185m >330 <1	Lead		ASTM D5185m	>40	<1	<1	0
Tin	Copper		ASTM D5185m	>330	<1	<1	<1
Vanadium ppm ASTM D5185m 1 0 0 Cadmium ppm ASTM D5185m <1			ASTM D5185m	>15	<1	<1	<1
ADDITIVES	Vanadium		ASTM D5185m		1	0	0
Boron	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 35 41 59 Manganese ppm ASTM D5185m 100 <1 0 <1 Magnesium ppm ASTM D5185m 450 1208 670 930 Calcium ppm ASTM D5185m 3000 2079 1237 1163 Phosphorus ppm ASTM D5185m 1150 1590 906 1087 Zinc ppm ASTM D5185m 1350 1823 1165 1364 Sulfur ppm ASTM D5185m 4250 5746 3108 3524 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 5 6 Sodium ppm ASTM D5185m >20 4 4 2 INFRA-RED method limit/b	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 100 35 41 59 Manganese ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m	250	205	102	10
Manganese ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m	10	0	0	0
Magnesium ppm ASTM D5185m 450 1208 670 930 Calcium ppm ASTM D5185m 3000 2079 1237 1163 Phosphorus ppm ASTM D5185m 1150 1590 906 1087 Zinc ppm ASTM D5185m 1350 1823 1165 1364 Sulfur ppm ASTM D5185m 4250 5746 3108 3524 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 5 6 Sodium ppm ASTM D5185m >20 4 7 0 <1 Potassium ppm ASTM D5185m >20 4 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0.1 0.1 Nitration Abs/cm *A	Molybdenum	ppm	ASTM D5185m	100	35	41	59
Calcium ppm ASTM D5185m 3000 2079 1237 1163 Phosphorus ppm ASTM D5185m 1150 1590 906 1087 Zinc ppm ASTM D5185m 1350 1823 1165 1364 Sulfur ppm ASTM D5185m 4250 5746 3108 3524 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 5 6 Sodium ppm ASTM D5185m >44 7 0 <1 Potassium ppm ASTM D5185m >20 4 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0.1 0.1 Nitration Abs/.1mm *ASTM D7415 >30 19.2 30.9 18.4 FLUID DEGRADATION method limit/	Manganese	ppm	ASTM D5185m		<1	0	<1
Phosphorus ppm ASTM D5185m 1150 1590 906 1087 Zinc ppm ASTM D5185m 1350 1823 1165 1364 Sulfur ppm ASTM D5185m 4250 5746 3108 3524 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 5 6 Sodium ppm ASTM D5185m >44 7 0 <1 Potassium ppm ASTM D5185m >20 4 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.2 7.4 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 30.9 18.4 FLUID DEGRADATION method	Magnesium	ppm	ASTM D5185m	450	1208	670	930
Zinc ppm ASTM D5185m 1350 1823 1165 1364 Sulfur ppm ASTM D5185m 4250 5746 3108 3524 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 5 6 Sodium ppm ASTM D5185m >44 7 0 <1 Potassium ppm ASTM D5185m >20 4 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.2 7.4 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 30.9 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Calcium	ppm	ASTM D5185m	3000	2079	1237	1163
Sulfur ppm ASTM D5185m 4250 5746 3108 3524 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 5 6 Sodium ppm ASTM D5185m >44 7 0 <1 Potassium ppm ASTM D5185m >20 4 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.2 7.4 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 30.9 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 33.6 13.4	Phosphorus	ppm	ASTM D5185m	1150	1590	906	1087
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 5 6 Sodium ppm ASTM D5185m >44 7 0 <1 Potassium ppm ASTM D5185m >20 4 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.2 7.4 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 30.9 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 33.6 13.4	Zinc	ppm	ASTM D5185m	1350	1823	1165	1364
Silicon ppm ASTM D5185m >25 10 5 6 Sodium ppm ASTM D5185m >44 7 0 <1	Sulfur	ppm	ASTM D5185m	4250	5746	3108	3524
Sodium ppm ASTM D5185m >44 7 0 <1	CONTAMINANTS	3	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.2 7.4 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 30.9 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 33.6 13.4	Silicon	ppm	ASTM D5185m	>25	10	5	6
INFRA-RED	Sodium	ppm	ASTM D5185m	>44	7	0	<1
Soot % % *ASTM D7844 >3 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.2 7.4 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 30.9 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 33.6 13.4	Potassium	ppm	ASTM D5185m	>20	4	4	2
Nitration Abs/cm *ASTM D7624 >20 7.2 7.4 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 30.9 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 33.6 13.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.2 30.9 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 33.6 13.4	Soot %	%	*ASTM D7844	>3	0	0.1	0.1
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 33.6 13.4	Nitration	Abs/cm	*ASTM D7624	>20	7.2	7.4	6.4
Oxidation Abs/.1mm *ASTM D7414 >25 15.8 33.6 13.4	Sulfation	Abs/.1mm	*ASTM D7415	>30			
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.8	33.6	13.4
	Base Number (BN)	mg KOH/g	ASTM D2896	8.5	8.3	6.7	

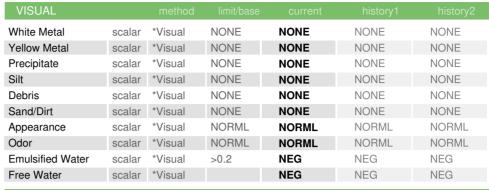


OIL ANALYSIS REPORT

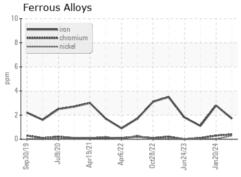




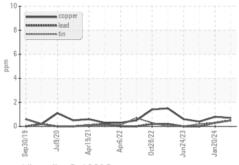


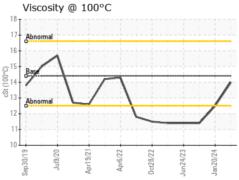


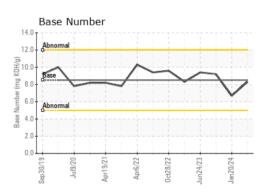
FLUID PROPERTIES		metnoa	ilmit/base	current	nistory i	nistory2	
Visc @ 100°C	cSt	ASTM D445	14.4	14.0	12.5	11.4	



Non-ferrous Metals











Laboratory Sample No.

Lab Number : 06148337

: WC0922127

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received **Tested** Unique Number : 10978415

: 15 Apr 2024 Diagnosed

: 15 Apr 2024 : 17 Apr 2024 - Sean Felton 18123 HWY 75 NORTH

WILLIS, TX US 77378 Contact: JOHN HAWKINS johnh@bucknercompanies.com

BUCKNER - WILLIS

Test Package : CONST (Additional Tests: TBN) Certificate 12367 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: BUCWILTX [WUSCAR] 06148337 (Generated: 04/17/2024 14:25:58) Rev: 1

Contact/Location: JOHN HAWKINS - BUCWILTX

T:

F: