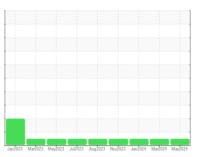


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id 115 (S/N 3HSPAAPR4PN664798)

Diesel Engine

SHELL ROTELLA T4 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

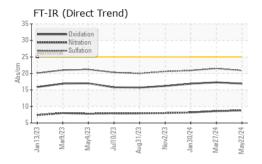
Fluid Condition

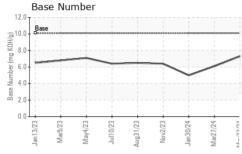
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

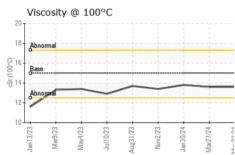
Sample Date Client Info 22 May 2024 27 Mar 2024 30 Jan 2024 Machine Age mls Client Info 176296 157565 136357 Oil Age mls Client Info 18731 21202 19252 Oil Changed Client Info Changed Changed Changed Sample Status NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 12 16 21 Chromium ppm ASTM D5185m >20 <1 2 1 Nickel ppm ASTM D5185m >2 <1			Jan2023 Ma	r2023 May2023 Jul2023	Aug ² 023 Nov ² 023 Jan ² 024 Mar ² 0.	24 May2024	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 176296 157565 136357 Oil Age mis Client Info 18731 21202 19252 Oil Changed Client Info Changed Changed Changed Changed Changed Changed Changed Changed NORMAL 10 41.0 42.0 41.0 42.0 41.0 41.0 41.0 41.0 41.0 41.0 41.0 41.0	Sample Number		Client Info		PCA0119516	PCA0105525	PCA0105532
Oil Age mls Client Info 18731 21202 19252 Oil Changed Change	Sample Date		Client Info		22 May 2024	27 Mar 2024	30 Jan 2024
Client Info Changed Changed Changed NORMAL NORMAL NORMAL NORMAL NORMAL	Machine Age	mls	Client Info		176296	157565	136357
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2 NEG NEG	Oil Age	mls	Client Info		18731	21202	19252
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 12 16 21 Chrominum ppm ASTM D5185m >90 12 16 21 Chrominum ppm ASTM D5185m >20 <1 2 1 Nickel ppm ASTM D5185m >2 <1 1 <1 <1 Silver ppm ASTM D5185m >2 0 0 0 0 Aluminum ppm ASTM D5185m >30 <1 <1 <1 <1 <1 <1 <1 <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>Changed</th> <th>Changed</th> <th>Changed</th>	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 12 16 21 Chromium ppm ASTM D5185m >20 <1 2 1 Nickel ppm ASTM D5185m >2 <1 1 <1 Silver ppm ASTM D5185m >2 <1 <1 <1 Silver ppm ASTM D5185m >2 <1 <1 <1 Silver ppm ASTM D5185m >2 <1 <1 <1 Silver ppm ASTM D5185m >20 <5 6 6 Lead ppm ASTM D5185m >20 5 6 6 Copper ppm ASTM D5185m >15 <1 1 0 Capter ppm ASTM D5185m 0 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0		<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 METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>90	12	16	
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	2	1
Silver	Nickel	ppm	ASTM D5185m	>2	<1	1	<1
Aluminum ppm ASTM D5185m >20 5 6 6 Lead ppm ASTM D5185m >40 <1 2 0 Copper ppm ASTM D5185m >330 <1 <1 <1 Tin ppm ASTM D5185m >15 <1 1 0 Vanadium ppm ASTM D5185m 0 <1 <1 0 Vanadium ppm ASTM D5185m 0 <1 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 55 119 117 Barium ppm ASTM D5185m 26 7 6 Manganesium ppm ASTM D5185m 263 43 30 0 Calcium ppm ASTM D5185m 1913 2295 1981 P	Titanium	ppm	ASTM D5185m	>2	<1		
Lead ppm ASTM D5185m >40 <1							
Copper ppm ASTM D5185m >330 <1	Aluminum	ppm	ASTM D5185m	>20	5		6
Tin ppm ASTM D5185m >15 <1	Lead	ppm				2	0
Vanadium ppm ASTM D5185m 0 <1	Copper	ppm		>330			
Cadmium ppm ASTM D5185m 0 <1				>15			
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 55 119 117 Barium ppm ASTM D5185m <1 0 0 Molybdenum ppm ASTM D5185m 26 7 6 Manganese ppm ASTM D5185m 263 43 30 Calcium ppm ASTM D5185m 1913 2295 1981 Phosphorus ppm ASTM D5185m 1141 940 889 Zinc ppm ASTM D5185m 1272 1198 1071 Sulfur ppm ASTM D5185m 3752 3596 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 2 3 0 Potassium ppm ASTM D5185m 2 3 0 Potassium ppm ASTM D5185m 2 3 <		ppm			-		
Boron	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 26 7 6 Manganese ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m		55	119	117
Manganese ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m			0	0
Magnesium ppm ASTM D5185m 263 43 30 Calcium ppm ASTM D5185m 1913 2295 1981 Phosphorus ppm ASTM D5185m 1141 940 889 Zinc ppm ASTM D5185m 1272 1198 1071 Sulfur ppm ASTM D5185m 3752 3596 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 25 5 5 3 Sodium ppm ASTM D5185m 20 15 24 28 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/:nm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/:nm *ASTM D7415 >30 20.9 21.5 20.9		ppm			-		
Calcium ppm ASTM D5185m 1913 2295 1981 Phosphorus ppm ASTM D5185m 1141 940 889 Zinc ppm ASTM D5185m 1272 1198 1071 Sulfur ppm ASTM D5185m 3752 3596 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 3 Sodium ppm ASTM D5185m 20 15 24 28 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 histo		ppm					
Phosphorus ppm ASTM D5185m 1141 940 889 Zinc ppm ASTM D5185m 1272 1198 1071 Sulfur ppm ASTM D5185m 3752 3596 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 3 Sodium ppm ASTM D5185m 2 3 0 Potassium ppm ASTM D5185m >20 15 24 28 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm "ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm "ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2		ppm					
Zinc ppm ASTM D5185m 1272 1198 1071 Sulfur ppm ASTM D5185m 3752 3596 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 3 Sodium ppm ASTM D5185m 2 3 0 Potassium ppm ASTM D5185m >20 15 24 28 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17		ppm					
Sulfur ppm ASTM D5185m 3752 3596 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 3 Sodium ppm ASTM D5185m 2 3 0 Potassium ppm ASTM D5185m >20 15 24 28 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9							
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 3 Sodium ppm ASTM D5185m 2 3 0 Potassium ppm ASTM D5185m >20 15 24 28 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9	-						
Silicon ppm ASTM D5185m >25 5 5 3 Sodium ppm ASTM D5185m 2 3 0 Potassium ppm ASTM D5185m >20 15 24 28 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9							
Sodium ppm ASTM D5185m 2 3 0 Potassium ppm ASTM D5185m >20 15 24 28 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9						•	•
Potassium ppm ASTM D5185m >20 15 24 28 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9		• • • • • • • • • • • • • • • • • • • •		>25			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9							
Soot % % *ASTM D7844 >6 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9		ppm	ASTM D5185m	>20	15	24	28
Nitration Abs/cm *ASTM D7624 >20 8.8 8.6 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9			method	limit/base			· ·
Sulfation Abs/.1mm *ASTM D7415 >30 20.9 21.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9							
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9				>20			
Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.3 16.9	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.9	21.5	20.9
	FLUID DEGRADATION method limit/base current history1 history2						
Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3 6.1 5.0	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.9	17.3	16.9
	Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.3	6.1	5.0



OIL ANALYSIS REPORT



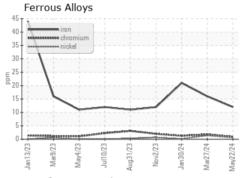




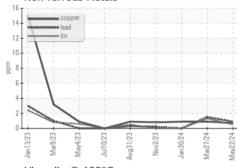
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

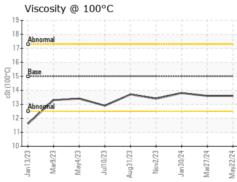
FLUIL	J PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @	100°C	cSt	ASTM D445	15	13.6	13.6	13.8

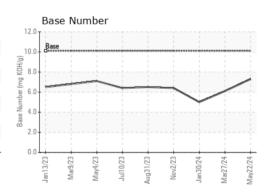
GRAPHS















Certificate 12367

Laboratory Sample No.

Lab Number : 06196304 Unique Number : 11058427

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0119516

Test Package : FLEET

Received : 31 May 2024 **Tested** : 03 Jun 2024

Diagnosed

: 03 Jun 2024 - Wes Davis

1501 W DARLINGTON ST FLORENCE, SC US 29501

Contact: DAVID VOUGHT david.vought@vulcraft-sc.com T: (843)409-3910

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)

VULCRAFT