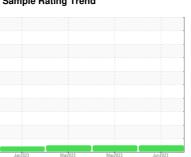


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



112 (S/N 3HSPAAPR3PN664808)

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

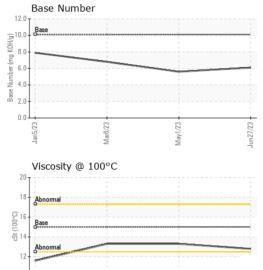
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0097118	PCA0089614	PCA0089610
Sample Date		Client Info		27 Jun 2023	01 May 2023	08 Mar 2023
Machine Age	mls	Client Info		80741	60847	41346
Oil Age	mls	Client Info		19894	20451	19311
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method	7 0.0	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	9	11	19
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	8	8	17
Lead	ppm	ASTM D5185m	>40	0	<1	1
Copper	ppm	ASTM D5185m	>330	<1	1	5
Tin	ppm	ASTM D5185m	>15	0	1	1
Vanadium	ppm	ASTM D5185m	710	0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method			history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 68	history1 85	history2 104
	ppm		limit/base			
Boron Barium	ppm	ASTM D5185m	limit/base	68	85	104
Boron Barium Molybdenum		ASTM D5185m ASTM D5185m	limit/base	68 0	85 0	104
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 12	85 0 16	104 0 14
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 12 <1	85 0 16 <1	104 0 14
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 12 <1 78	85 0 16 <1 123	104 0 14 1 102
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 12 <1 78 2199	85 0 16 <1 123 1975	104 0 14 1 102 2171
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 12 <1 78 2199 906	85 0 16 <1 123 1975 918	104 0 14 1 102 2171 966
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 ASTM D5185m	limit/base	68 0 12 <1 78 2199 906 1200	85 0 16 <1 123 1975 918 1138	104 0 14 1 102 2171 966 1206
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm 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 ASTM D5185m	limit/base	68 0 12 <1 78 2199 906 1200 3880	85 0 16 <1 123 1975 918 1138 3583	104 0 14 1 102 2171 966 1206 3338
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	68 0 12 <1 78 2199 906 1200 3880 current	85 0 16 <1 123 1975 918 1138 3583 history1	104 0 14 1 102 2171 966 1206 3338 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	68 0 12 <1 78 2199 906 1200 3880 current	85 0 16 <1 123 1975 918 1138 3583 history1	104 0 14 1 102 2171 966 1206 3338 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	limit/base	68 0 12 <1 78 2199 906 1200 3880 current 5 <1	85 0 16 <1 123 1975 918 1138 3583 history1 5 <1	104 0 14 1 102 2171 966 1206 3338 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	limit/base >25 >20 limit/base	68 0 12 <1 78 2199 906 1200 3880 current 5 <1	85 0 16 <1 123 1975 918 1138 3583 history1 5 <1 24	104 0 14 1 102 2171 966 1206 3338 history2 11 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >20 limit/base >6	68 0 12 <1 78 2199 906 1200 3880 current 5 <1 20	85 0 16 <1 123 1975 918 1138 3583 history1 5 <1 24	104 0 14 1 102 2171 966 1206 3338 history2 11 1 50
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m	limit/base >25 >20 limit/base >6 >20	68 0 12 <1 78 2199 906 1200 3880 current 5 <1 20 current 0.3	85 0 16 <1 123 1975 918 1138 3583 history1 5 <1 24 history1 0.3	104 0 14 1 102 2171 966 1206 3338 history2 11 1 50 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145	limit/base >25 >20 limit/base >6 >20	68 0 12 <1 78 2199 906 1200 3880 current 5 <1 20 current 0.3 8.3	85 0 16 <1 123 1975 918 1138 3583 history1 5 <1 24 history1 0.3 7.5	104 0 14 1 102 2171 966 1206 3338 history2 11 1 50 history2 0.3 8.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145	limit/base >25 >20 limit/base >6 >20 >30	68 0 12 <1 78 2199 906 1200 3880 current 5 <1 20 current 0.3 8.3 20.9	85 0 16 <1 123 1975 918 1138 3583 history1 5 <1 24 history1 0.3 7.5 19.4	104 0 14 1 102 2171 966 1206 3338 history2 11 1 50 history2 0.3 8.3 21.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	limit/base >25 >20 limit/base >6 >20 >30 limit/base >25	68 0 12 <1 78 2199 906 1200 3880 current 5 <1 20 current 0.3 8.3 20.9 current	85 0 16 <1 123 1975 918 1138 3583 history1 5 <1 24 history1 0.3 7.5 19.4 history1	104 0 14 1 102 2171 966 1206 3338 history2 11 1 50 history2 0.3 8.3 21.3



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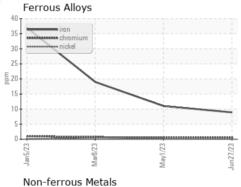
OIL ANALYSIS REPORT

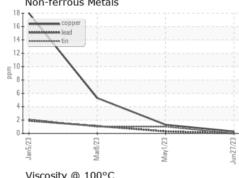


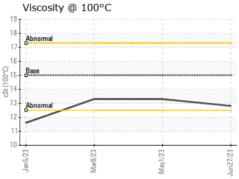
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

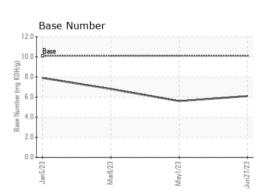
FLUID PROPE	EKIIES	method	ilmit/base		nistory i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15	12.8	13.3	13.3

GRAPHS













Certificate L2367

Test Package : FLEET

Laboratory Sample No. Lab Number Unique Number : 10564430

: PCA0097118 : 05903074

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 20 Jul 2023 Diagnosed : 20 Jul 2023 Diagnostician : Wes Davis

VULCRAFT 1501 W DARLINGTON ST FLORENCE, SC US 29501

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

* - 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)

Contact/Location: DAVID VOUGHT - VULFLO