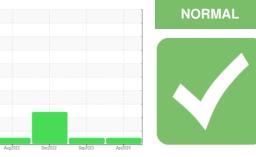


OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend



Machine Id **T2022**

Component Diesel Engine Fluid SHELL ROTELLA T 15W40 (--- 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 Number		Client Info		WC0871358	WC0828987	PCA0076233
Sample Date		Client Info		18 Apr 2024	26 Sep 2023	15 Dec 2022
Machine Age	mls	Client Info		409000	20000	0
Oil Age	mls	Client Info		20000	20000	20000
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>110	19	18	32
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>25	4	6	8
Lead	ppm	ASTM D5185m	>45	4	5	5
Copper	ppm	ASTM D5185m	>85	1	<1	<1
Tin	ppm	ASTM D5185m	>4	1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		ام م والدم مور	limit/booo		In the transmitter	history2
ADDITIVES		methoa	innit/base	current	nistory i	TISLUIYZ
	nnm	method	limit/base	current	history1	
Boron	ppm	ASTM D5185m	316	24	56	60
Boron Barium	ppm	ASTM D5185m ASTM D5185m	316 0.0	24 0	56 0	60 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	316	24 0 60	56 0 123	60 2 129
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2	24 0 60 <1	56 0 123 0	60 2 129 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2 24	24 0 60 <1 484	56 0 123 0 594	60 2 129 <1 599
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292	24 0 60 <1 484 1596	56 0 123 0 594 1534	60 2 129 <1 599 1487
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064	24 0 60 <1 484 1596 1071	56 0 123 0 594 1534 649	60 2 129 <1 599 1487 638
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160	24 0 60 <1 484 1596 1071 1216	56 0 123 0 594 1534 649 839	60 2 129 <1 599 1487 638 820
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	316 0.0 1.2 24 2292 1064 1160 4996	24 0 60 <1 484 1596 1071 1216 3168	56 0 123 0 594 1534 649 839 2349	60 2 129 <1 599 1487 638 820 2247
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	316 0.0 1.2 24 2292 1064 1160 4996	24 0 60 <1 484 1596 1071 1216 3168 current	56 0 123 0 594 1534 649 839 2349 history1	60 2 129 <1 599 1487 638 820 2247 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996	24 0 60 <1 484 1596 1071 1216 3168 <i>current</i> 8	56 0 123 0 594 1534 649 839 2349 history1 9	60 2 129 <1 599 1487 638 820 2247 history2 ▲ 31
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >30	24 0 60 <1 484 1596 1071 1216 3168 current 8 2	56 0 123 0 594 1534 649 839 2349 2349 history1 9 1	60 2 129 <1 599 1487 638 820 2247 history2 ▲ 31 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996	24 0 60 <1 484 1596 1071 1216 3168 <i>current</i> 8	56 0 123 0 594 1534 649 839 2349 history1 9	60 2 129 <1 599 1487 638 820 2247 history2 ▲ 31
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >30	24 0 60 <1 484 1596 1071 1216 3168 current 8 2	56 0 123 0 594 1534 649 839 2349 2349 history1 9 1	60 2 129 <1 599 1487 638 820 2247 history2 ▲ 31 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >30	24 0 60 <1 484 1596 1071 1216 3168 current 8 2 5	56 0 123 0 594 1534 649 839 2349 history1 9 1 6	60 2 129 <1 599 1487 638 820 2247 history2 ▲ 31 <1 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >30 >20 limit/base >3	24 0 60 <1 484 1596 1071 1216 3168 current 8 2 5 5	56 0 123 0 594 1534 649 839 2349 2349 history1 9 1 6 Kistory1	60 2 129 <1 599 1487 638 820 2247 history2 ▲ 31 <1 8 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >30 >20 limit/base >3	24 0 60 <1 484 1596 1071 1216 3168 current 8 2 5 current 0.7	56 0 123 0 594 1534 649 839 2349 history1 9 1 6 <i>history1</i> 0.5	60 2 129 <1 599 1487 638 820 2247 history2 ▲ 31 <1 8 history2 0.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >30 limit/base >20	24 0 60 <1 484 1596 1071 1216 3168 current 8 2 5 current 0.7 11.8	56 0 123 0 594 1534 649 839 2349 history1 9 1 6 history1 0.5 11.0	 60 2 129 <1 599 1487 638 820 2247 history2 ▲ 31 <1 8 history2 0.7 12.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 imit/base >30 >20 imit/base >3 >20 >3	24 0 60 <1 484 1596 1071 1216 3168 <u>current</u> 8 2 5 <u>current</u> 0.7 11.8 24.9	56 0 123 0 594 1534 649 839 2349 history1 9 1 6 history1 0.5 11.0 25.0	 60 2 129 <1 599 1487 638 820 2247 bistory2 31 <1 8 history2 0.7 12.3 28.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >30 20 limit/base >3 >20 >30	24 0 60 <1 484 1596 1071 1216 3168 <i>current</i> 8 2 5 <i>current</i> 0.7 11.8 24.9 <i>current</i>	56 0 123 0 594 1534 649 839 2349 history1 9 1 6 history1 0.5 11.0 25.0 history1	 60 2 129 <1 599 1487 638 820 2247 history2 ▲ 31 <1 8 history2 0.7 12.3 28.1 history2

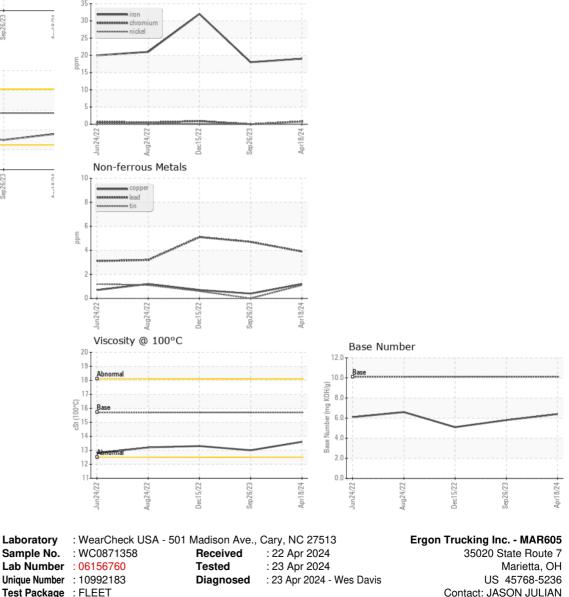
Contact/Location: WEBCHECK IN ERGMAG601 - JASON JULIAN - ERGMAR605



OIL ANALYSIS REPORT

¹			V10	UAL
Oxidatio	1		White	Metal
) - Sulfation	1			w Metal
Abnomial			Preci	pitate
)-			Silt	
			Debri	-
		The Discount of the Discount o	Sand	
Jun24/22 Aug24/22	Dec15/22	Sep 26/23	T	arance
Aus	De	Sei	Cuor	
Base Numbe	er		-	sified Water
Base			Free	Water
) - Dase			FLU	JID PROPE
)•				@ 100°C
- B ase 				
)-				APHS
)-			35 - Feri	ous Alloys
	22	23		iron
Jun24/22 Aug24/22	Dec15/22	Sep 26/23	25 -	nickel
A		0	23	
Viscosity @	100°C		20 -	
Abnormal			15	
j D UUUUUUUU	1 1 1	8 48 48 48 48 48 48 48 49 49 49 49 49 49 49 49 49 49 49 49 49	10-	
- Base			5	
				52
Abnormal			Jun24/22	4ug24/22
				≂ errous Me
22 22	22	/23		Fierrous Me
Jun 24/22 Aug 24/22	Dec15/22	Sep 26/23		copper
, A		~r	8 -	assass tin

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 PROPERT	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.7	13.6	13.0	13.3
GRAPHS						





Certificate 12367 **Test Package** : FLEET 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: ERGMAR605 [WUSCAR] 06156760 (Generated: 04/25/2024 09:25:20) Rev: 1

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