

OIL ANALYSIS REPORT

Sample Rating Trend

<u>.</u>



INTERNATIONAL 104501

Diesel Engine Fluid SHELL ROTELLA T 10W30 (--- QTS)

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.

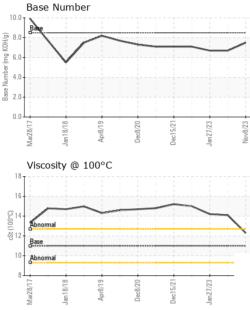
Fluid Condition

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

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		IL0032776	IL0027525	IL0027403
Sample Date		Client Info		08 Nov 2023	23 May 2023	27 Jan 2023
Machine Age	mls	Client Info		257539	243679	232395
Oil Age	mls	Client Info		13860	11284	13882
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>2.0	<1.0	<1.0	<1.0
Glycol		WC Method	- 10	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	27	22	29
Chromium	ppm	ASTM D5185m	>20	1	<1	2
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m	- T	0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	10	13	18
Lead	ppm	ASTM D5185m	>40	0	0	1
Copper	ppm	ASTM D5185m		0	<1	2
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m	210	0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
	ppm			-	-	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base 269	56	37	37
Boron Barium	ppm	ASTM D5185m ASTM D5185m	269	56 0	37 0	37 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		56 0 42	37 0 86	37 0 87
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	269 0	56 0 42 <1	37 0 86 0	37 0 87 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	269 0 20	56 0 42 <1 236	37 0 86 0 37	37 0 87 <1 58
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	269 0 20 1521	56 0 42 <1 236 2010	37 0 86 0 37 2222	37 0 87 <1 58 2205
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 ASTM D5185m	269 0 20 1521 948	56 0 42 <1 236 2010 1029	37 0 86 0 37 2222 994	37 0 87 <1 58 2205 1015
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	269 0 20 1521 948	56 0 42 <1 236 2010 1029 1298	37 0 86 0 37 2222 994 1222	37 0 87 <1 58 2205 1015 1247
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	269 0 20 1521 948	56 0 42 <1 236 2010 1029	37 0 86 0 37 2222 994	37 0 87 <1 58 2205 1015
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	269 0 20 1521 948 893	56 0 42 <1 236 2010 1029 1298 3361 current	37 0 86 0 37 2222 994 1222	37 0 87 <1 58 2205 1015 1247 4007 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 method ASTM D5185m	269 0 20 1521 948 893	56 0 42 <1 236 2010 1029 1298 3361	37 0 86 0 37 2222 994 1222 4306	37 0 87 <1 58 2205 1015 1247 4007
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	269 0 20 1521 948 893 limit/base >25	56 0 42 <1 236 2010 1029 1298 3361 current	37 0 86 0 37 2222 994 1222 4306 history1 4 3	37 0 87 <1 58 2205 1015 1247 4007 history2 7 3
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	269 0 20 1521 948 893 limit/base >25	56 0 42 <1 236 2010 1029 1298 3361 <i>current</i> 5	37 0 86 0 37 2222 994 1222 4306 history1 4	37 0 87 <1 58 2205 1015 1247 4007 history2 7
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	269 0 20 1521 948 893 limit/base >25	56 0 42 <1 236 2010 1029 1298 3361 <u>current</u> 5 <	37 0 86 0 37 2222 994 1222 4306 history1 4 3	37 0 87 <1 58 2205 1015 1247 4007 history2 7 3
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	269 0 20 1521 948 893 893 limit/base >25 >20	56 0 42 <1 236 2010 1029 1298 3361 current 5 <1 6	37 0 86 0 37 2222 994 1222 4306 history1 4 3 2	37 0 87 <1 58 2205 1015 1247 4007 history2 7 3 3 3
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	269 0 20 1521 948 893 893 imit/base >25 >20 imit/base >3	56 0 42 <1 236 2010 1029 1298 3361 current 5 <1 6	37 0 86 0 37 2222 994 1222 4306 history1 4 3 2 2 history1	37 0 87 <1 58 2205 1015 1247 4007 history2 7 3 3 3
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	269 0 20 1521 948 893 893 imit/base >25 >20 imit/base >3	56 0 42 <1 236 2010 1029 1298 3361 <i>current</i> 5 <1 6 <i>current</i>	37 0 86 0 37 2222 994 1222 4306 history1 4 3 2 history1 1	37 0 87 <1 58 2205 1015 1247 4007 history2 7 3 3 3 history2 1.1
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	269 0 20 1521 948 893 893 imit/base >25 >20 imit/base >3 >20	56 0 42 <1 236 2010 1029 1298 3361 <i>current</i> 5 <1 6 <i>current</i> 1.1 9.8	37 0 86 0 37 2222 994 1222 4306 history1 4 3 2 history1 1 1 1 10.6	37 0 87 <1 58 2205 1015 1247 4007 history2 7 3 3 3 history2 1.1 1.3
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	269 0 10 1521 948 893 893 893 893 893 893 893 893 893 89	56 0 42 <1 236 2010 1029 1298 3361 <i>current</i> 5 <1 6 <i>current</i> 1.1 9.8 22.3	37 0 86 0 37 2222 994 1222 4306 history1 4 3 2 2 history1 1 1 10.6 20.5	37 0 87 <1 58 2205 1015 1247 4007 history2 7 3 3 3 history2 1.1 1.1 11.3 21.0
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	269 0 1521 948 893 25 >25 >20 imit/base >3 >20 >30 imit/base >25	56 0 42 <1 236 2010 1029 1298 3361 <i>current</i> 5 <1 6 <i>current</i> 1.1 9.8 22.3 <i>current</i>	37 0 86 0 37 2222 994 1222 4306 history1 4 3 2 history1 1 10.6 20.5 history1	37 0 87 <1 58 2205 1015 1247 4007 history2 7 3 3 3 history2 1.1 11.3 21.0 history2



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 PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	11.0	12.3	14.1	14.2
GRAPHS						

Ferrous Alloys 140 120 icke 100 80 ppm 60 40 20 Π. Dec15/21 Nov8/23 an 18/18 Apr8/19 Jec8/20 50/10ue Aar28/1 Non-ferrous Metals 350 300 lead 250 200 립 150 100 50-0 Vov8/23 nr8/19 lec8/20 Dec15/21 an27/23 Mar28 Viscosity @ 100°C Base Number 10.0 16 15 8 (mg KOH/g) 14 cSt (100°C) 6 | umber 4 (Base 10 0.0 8 Dec15/21-Nov8/23 -Dec15/21-Mar28/17 Dec8/20 Jan 27/23 Dec8/20 Jan 18/18 Apr8/19 Mar28/17 Jan 18/18 an27/23 Anr8/19 **IDEALEASE OF NORTHWEST WI** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

: 14 Nov 2023

: 15 Nov 2023

Received

Diagnosed

Diagnostician : Wes Davis



611 HANSEN ROAD GREEN BAY, WI US 54304 Contact: GARY KOLTZ gkoltz@pcitrucks.com T: (920)499-6200 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (920)499-5332

Certificate L2367

Laboratory

Sample No.

Lab Number

Unique Number : 10740539

Test Package : FLEET

: IL0032776

: 06006777

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.

Contact/Location: GARY KOLTZ - IDEGREWI

Vov8/23