



# ASCENDUM

## OIL ANALYSIS REPORT

WEAR	<b>ABNORMAL</b>
CONTAMINATION	<b>ABNORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Area

### Ascendum Machinery

Machine Id

### SENNEBOGEN 821E RTH5 (S/N 82102699)

Component

### Diesel Engine

Fluid

### VOLVO VDS-4.5 Premium Motor Oil 15W40 (5 GAL)

#### RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>ASC0007115</b>	ASC0005276	VCP0006712
Sample Date		Client Info		<b>10 Apr 2024</b>	20 Oct 2023	09 Aug 2023
Machine Age	hrs	Client Info		<b>5663</b>	5663	5133
Oil Age	hrs	Client Info		<b>5663</b>	530	489
Filter Age	hrs	Client Info		<b>0</b>	0	489
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

#### WEAR

Cylinder, crank, or cam shaft wear is indicated.

Iron	ppm	ASTM D5185m	>100	<b>▲ 106</b>	14	11
Chromium	ppm	ASTM D5185m	>20	<b>3</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>5</b>	1	1
Lead	ppm	ASTM D5185m	>40	<b>&lt;1</b>	0	0
Copper	ppm	ASTM D5185m	>330	<b>8</b>	2	1
Tin	ppm	ASTM D5185m	>15	<b>1</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

#### CONTAMINATION

There is an abnormal amount of solids and carbon present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

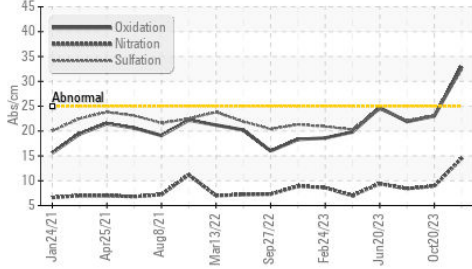
Silicon	ppm	ASTM D5185m	>25	<b>▲ 36</b>	18	14
Potassium	ppm	ASTM D5185m	>20	<b>5</b>	<1	<1
Fuel	%	ASTM D3524	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>▲ 3.4</b>	0.3	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>14.5</b>	8.9	8.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>32.3</b>	23.1	22.1
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

#### FLUID CONDITION

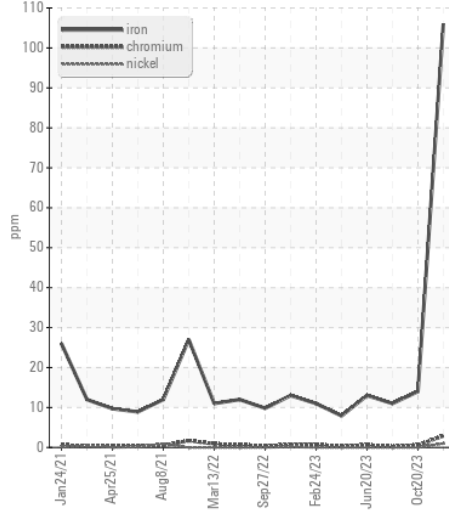
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		<b>2</b>	2	2
Boron	ppm	ASTM D5185m		<b>35</b>	29	27
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>48</b>	44	44
Manganese	ppm	ASTM D5185m		<b>1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>571</b>	542	508
Calcium	ppm	ASTM D5185m		<b>2246</b>	1799	1858
Phosphorus	ppm	ASTM D5185m		<b>1160</b>	950	927
Zinc	ppm	ASTM D5185m		<b>1427</b>	1204	1225
Sulfur	ppm	ASTM D5185m		<b>3361</b>	2817	3420
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>32.9</b>	23.0	21.9
Base Number (BN)	mg KOH/g	ASTM D2896		<b>4.2</b>	8.7	8.5
Visc @ 100°C	cSt	ASTM D445		<b>15.5</b>	13.2	12.7

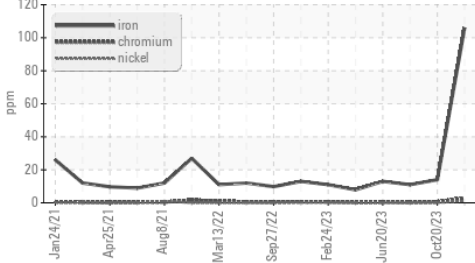
▲ FT-IR (Direct Trend)



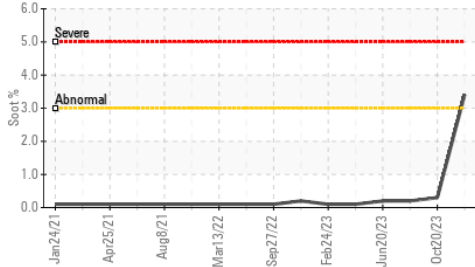
▲ Ferrous Alloys



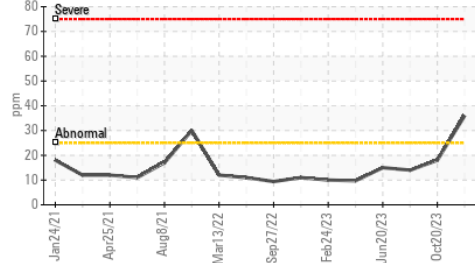
▲ Ferrous Alloys



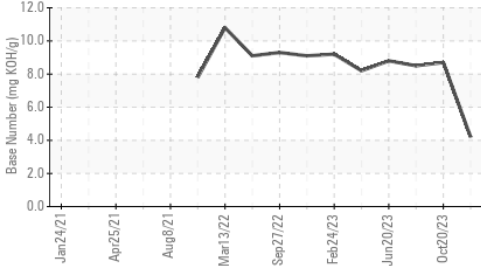
▲ Soot %



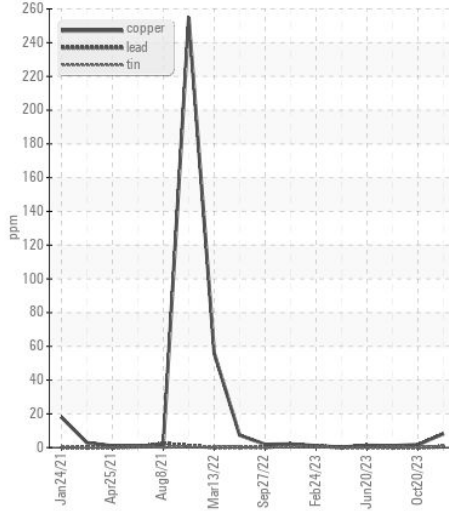
▲ Silicon (ppm)



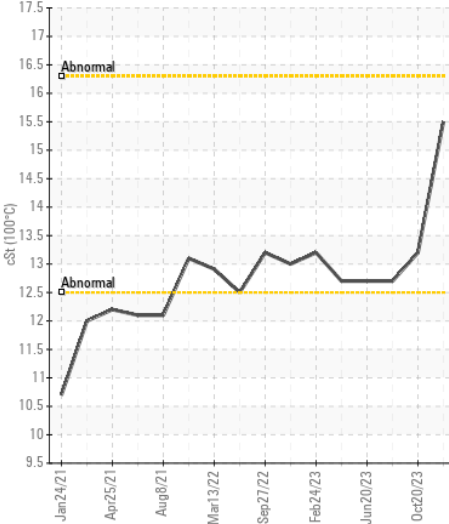
Base Number



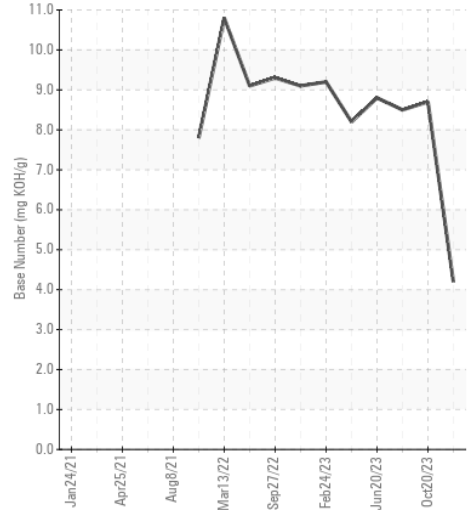
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : ASC0007115 Received : 15 Apr 2024  
 Lab Number : 06148385 Tested : 16 Apr 2024  
 Unique Number : 10978463 Diagnosed : 17 Apr 2024 - Sean Felton  
 Test Package : CONST ( Additional Tests: FuelDilution, TBN )

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)

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