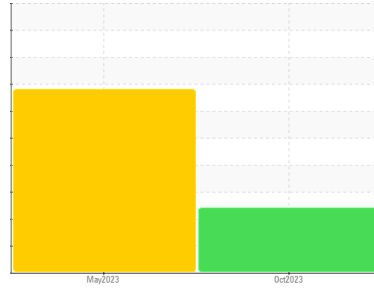




PROBLEM SUMMARY

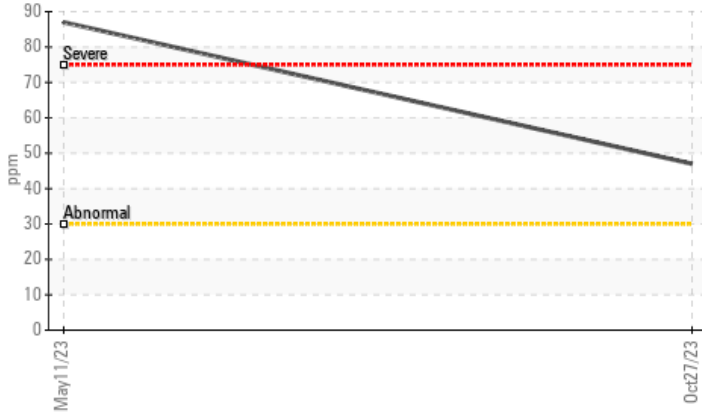
Area
(LZC160) SAPP BROS PETROLEUM - LINCOLN
 Machine Id
98226
 Component
Gasoline Engine
 Fluid
NOT GIVEN (--- GAL)

Sample Rating Trend

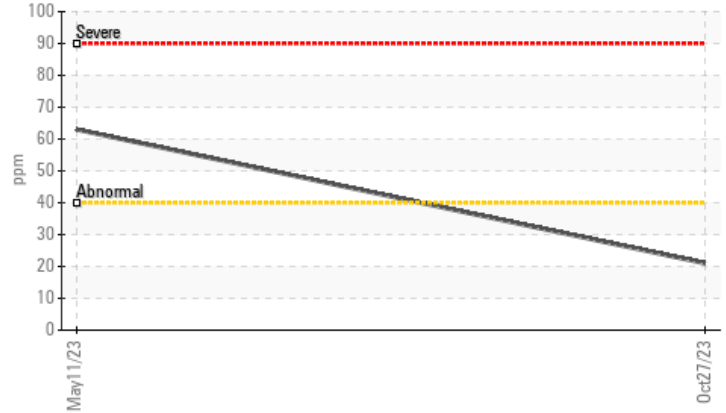


COMPONENT CONDITION SUMMARY

▲ Silicon (ppm)



▲ Aluminum (ppm)



RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	SEVERE	---
Aluminum	ppm	ASTM D5185m	>40	▲ 21	▲ 63	---
Silicon	ppm	ASTM D5185m	>30	▲ 47	● 87	---

Customer Id: SAPPLIN
 Sample No.: SBP0004868
 Lab Number: 05999776
 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

To change component or sample information:
 Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.
Information Required	---	---	?	Please specify the brand, type, and viscosity of the oil on your next sample.
Check Dirt Access	---	---	?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.

HISTORICAL DIAGNOSIS

11 May 2023 Diag: Jonathan Hester

DIRT



We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Cylinder, crank, or cam shaft wear is indicated. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The BN level is low.

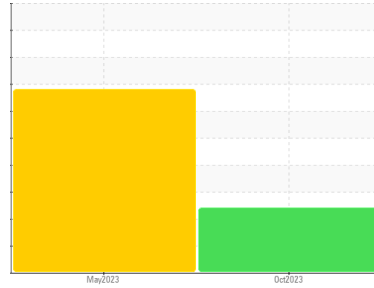
view report





OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Area
(LZC160) SAPP BROS PETROLEUM - LINCOLN
 Machine Id
98226
 Component
Gasoline Engine
 Fluid
NOT GIVEN (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

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 INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	SBP0004868	SBP0003934	---
Sample Date	Client Info	27 Oct 2023	11 May 2023	---
Machine Age	mls Client Info	102069	91238	---
Oil Age	mls Client Info	8847	90994	---
Oil Changed	Client Info	Changed	Changed	---
Sample Status		ABNORMAL	SEVERE	---

CONTAMINATION

method	limit/base	current	history1	history2
Glycol	WC Method	NEG	NEG	---

WEAR METALS

method	limit/base	current	history1	history2
Iron ppm	ASTM D5185m >150	87	▲ 395	---
Chromium ppm	ASTM D5185m >20	4	13	---
Nickel ppm	ASTM D5185m >5	1	3	---
Titanium ppm	ASTM D5185m	<1	1	---
Silver ppm	ASTM D5185m >2	0	0	---
Aluminum ppm	ASTM D5185m >40	▲ 21	▲ 63	---
Lead ppm	ASTM D5185m >50	<1	0	---
Copper ppm	ASTM D5185m >155	7	12	---
Tin ppm	ASTM D5185m >10	0	<1	---
Vanadium ppm	ASTM D5185m	0	<1	---
Cadmium ppm	ASTM D5185m	<1	0	---

ADDITIVES

method	limit/base	current	history1	history2
Boron ppm	ASTM D5185m	17	30	---
Barium ppm	ASTM D5185m	5	0	---
Molybdenum ppm	ASTM D5185m	192	59	---
Manganese ppm	ASTM D5185m	2	5	---
Magnesium ppm	ASTM D5185m	434	485	---
Calcium ppm	ASTM D5185m	1220	945	---
Phosphorus ppm	ASTM D5185m	661	624	---
Zinc ppm	ASTM D5185m	720	725	---
Sulfur ppm	ASTM D5185m	2387	2777	---

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon ppm	ASTM D5185m >30	▲ 47	◆ 87	---
Sodium ppm	ASTM D5185m >400	4	17	---
Potassium ppm	ASTM D5185m >20	7	14	---
Fuel %	ASTM D3524 >4.0	<1.0	<1.0	---

INFRA-RED

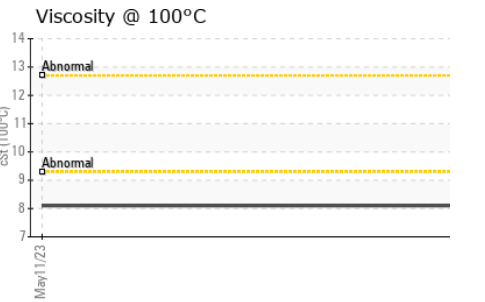
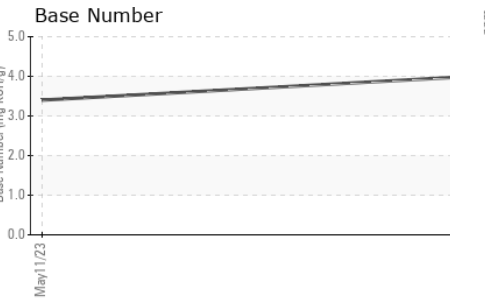
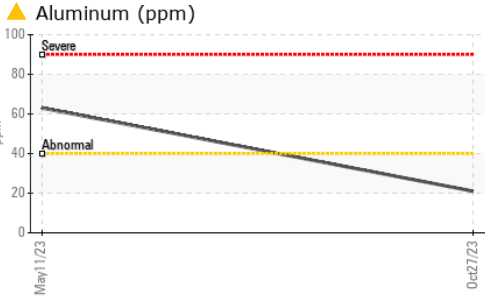
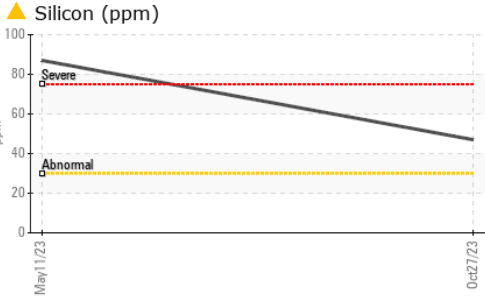
method	limit/base	current	history1	history2
Soot %	*ASTM D7844	0.1	0.1	---
Nitration Abs/cm	*ASTM D7624 >20	14.6	▲ 21.0	---
Sulfation Abs/.1mm	*ASTM D7415 >30	26.5	34.0	---

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation Abs/.1mm	*ASTM D7414 >25	24.3	38.9	---
Base Number (BN) mg KOH/g	ASTM D2896	4.0	3.4	---



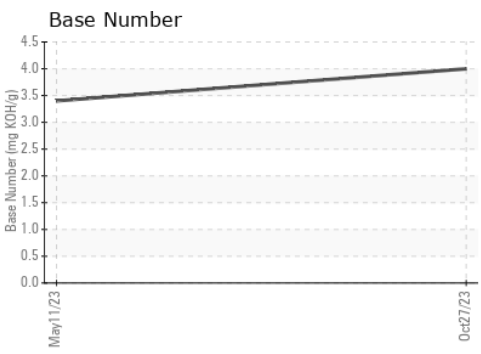
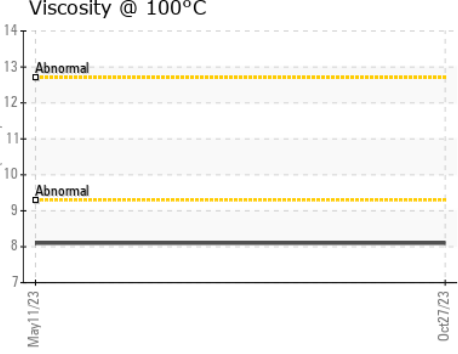
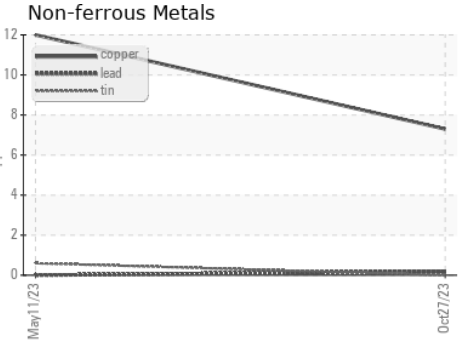
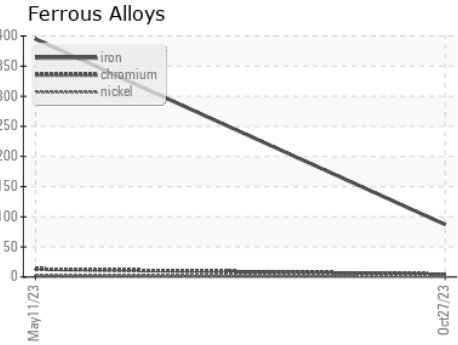
OIL ANALYSIS REPORT



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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	8.1	8.1	---

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : SBP0004868 **Received** : 06 Nov 2023
Lab Number : 05999776 **Diagnosed** : 07 Nov 2023
Unique Number : 10728136 **Diagnostician** : Jonathan Hester
Test Package : FLEET (Additional Tests: FuelDilution)

Sapp Bros. Petroleum - Lincoln - LIN
 9915 South 148th
 OMAHA, NE
 US 68138
 Contact: JEFF PETERSEN
 jpetersen@sappbros.net

Certificate L2367
 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)