



T R A A P
Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	ATTENTION
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
BOBCAT S185 SKID 185

Component
Diesel Engine

Fluid
TRC MOLY XL PRO-SPEC IV XP 15W40 (2 GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06031842	TR05957158	TR05887533
Sample Date		Client Info		04 Dec 2023	13 Sep 2023	23 Jun 2023
Machine Age	hrs	Client Info		10650	10500	10500
Oil Age	hrs	Client Info		400	250	250
Filter Age	hrs	Client Info		400	250	250
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	32	33	26
Chromium	ppm	ASTM D5185m	>20	2	3	3
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	12	9	12
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	1	2	2
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

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

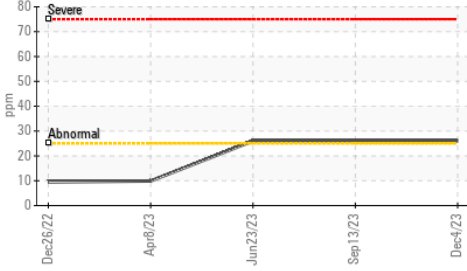
Silicon	ppm	ASTM D5185m	>25	26	26	26
Potassium	ppm	ASTM D5185m	>20	5	7	5
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	2.9	0	0.3
Nitration	Abs/cm	*ASTM D7624	>20	11.2	12.1	10.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.6	26.1	22.0
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

FLUID CONDITION

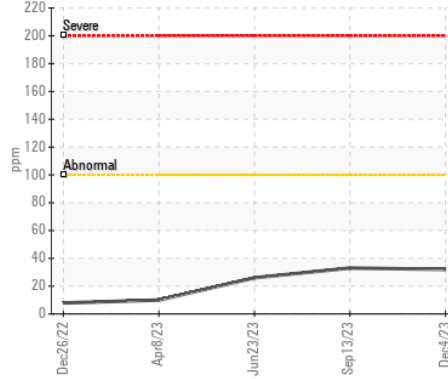
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	4	3
Boron	ppm	ASTM D5185m		35	42	42
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		87	93	89
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		28	29	24
Calcium	ppm	ASTM D5185m		4136	4433	4306
Phosphorus	ppm	ASTM D5185m		973	995	985
Zinc	ppm	ASTM D5185m		1197	1240	1225
Sulfur	ppm	ASTM D5185m		4249	5014	5344
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.8	15.7	14.8
Base Number (BN)	mg KOH/g	ASTM D2896		11.89	12.79	13.67
Visc @ 100°C	cSt	ASTM D445		16.2	15.9	15.8

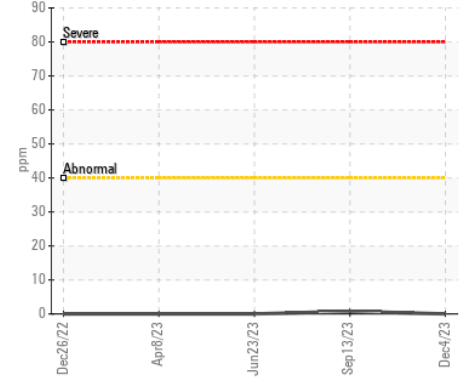
▲ Silicon (ppm)



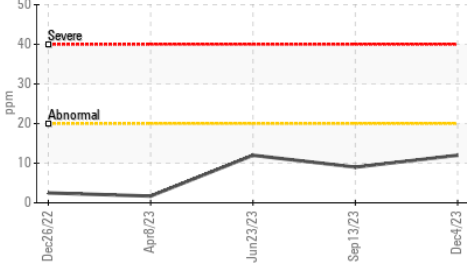
Iron (ppm)



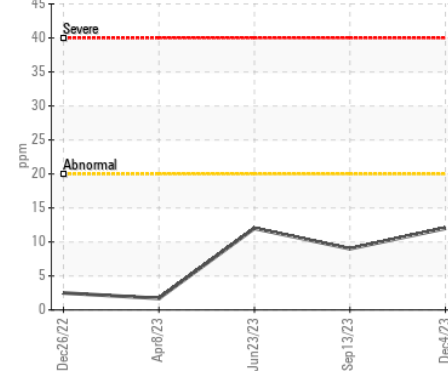
Lead (ppm)



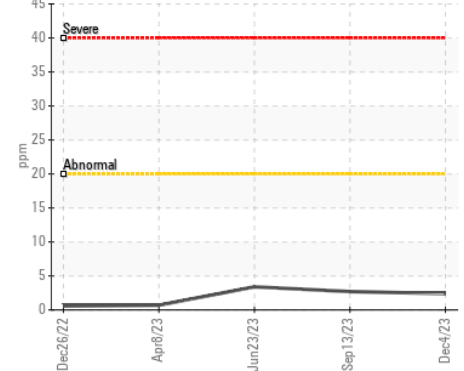
● Aluminum (ppm)



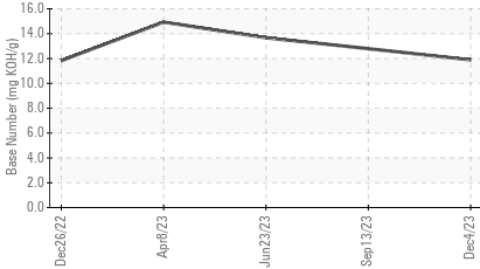
● Aluminum (ppm)



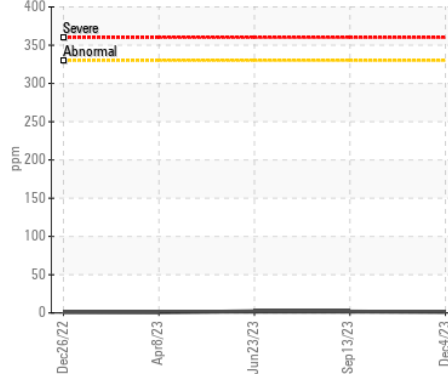
Chromium (ppm)



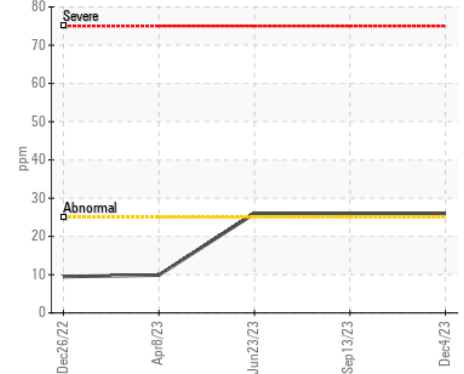
Base Number



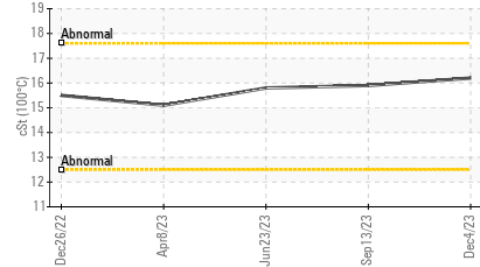
Copper (ppm)



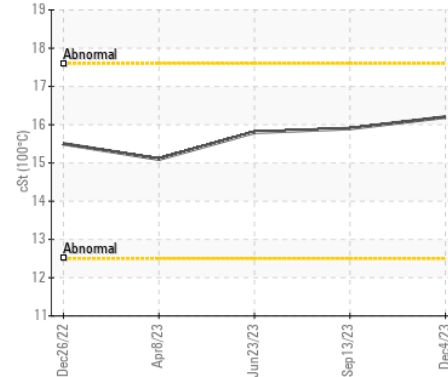
▲ Silicon (ppm)



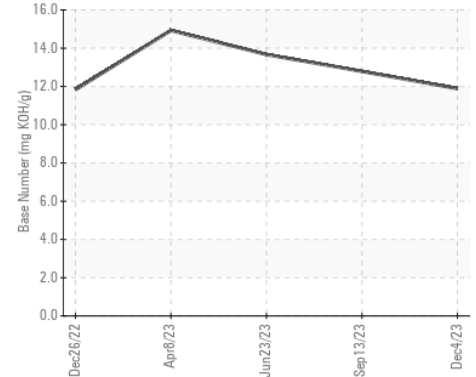
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : TR06031842

Lab Number : 06031842

Unique Number : 10781633

Test Package : MOB 2

Received : 11 Dec 2023

Tested : 15 Dec 2023

Diagnosed : 15 Dec 2023 - Jonathan Hester

SPRAGUE RANCH

6907 ROUTE 14

BROOKFIELD, VT

US 05036

Contact: SCOTT BURRELL

To discuss this sample report, contact Customer Service at 1-800-827-0711.

* - 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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