



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
MELROE BOBCAT 610

Component
Gasoline Engine

Fluid
TRC MOLY XL PRO-SPEC IV 10W30 (4 QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR04825634	TR04374737	TR04139965
Sample Date		Client Info		24 Sep 2019	09 Sep 2017	15 Jun 2016
Machine Age	mths	Client Info		0	0	0
Oil Age	mths	Client Info		2	100	0
Filter Age	mths	Client Info		2	100	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	ATTENTION

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>150	55	39	48
Chromium	ppm	ASTM D5185m	>20	3	3	3
Nickel	ppm	ASTM D5185m	>5	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>40	7	6	9
Lead	ppm	ASTM D5185m	>50	6	7	9
Copper	ppm	ASTM D5185m	>155	21	27	44
Tin	ppm	ASTM D5185m	>10	2	0	7
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

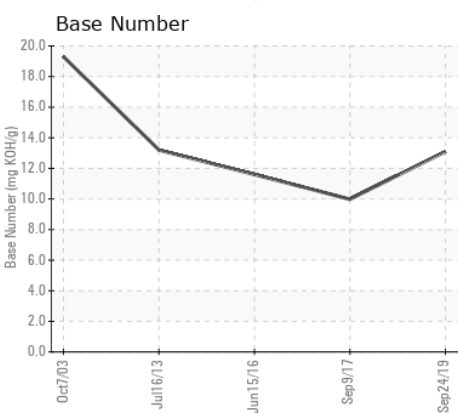
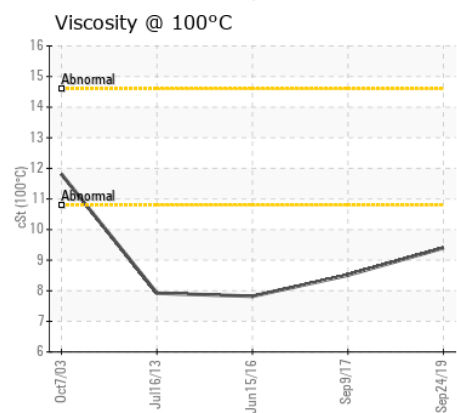
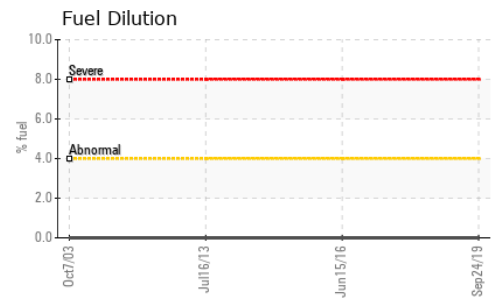
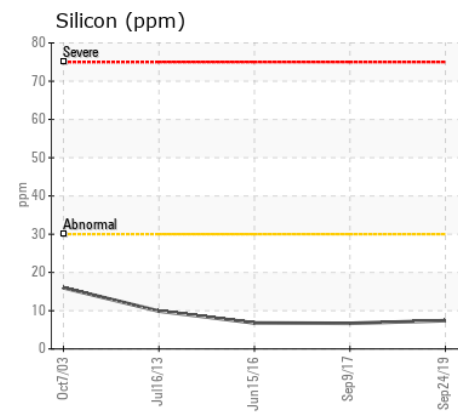
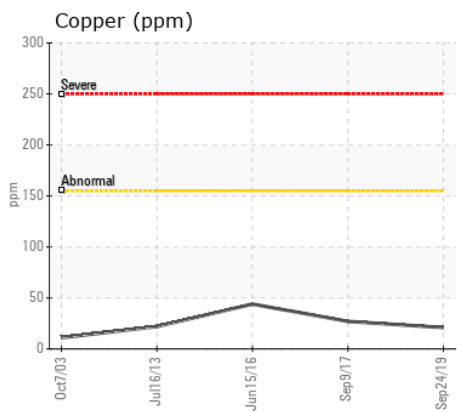
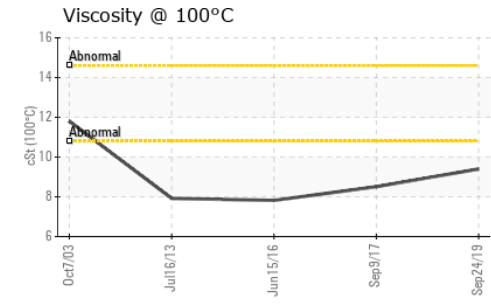
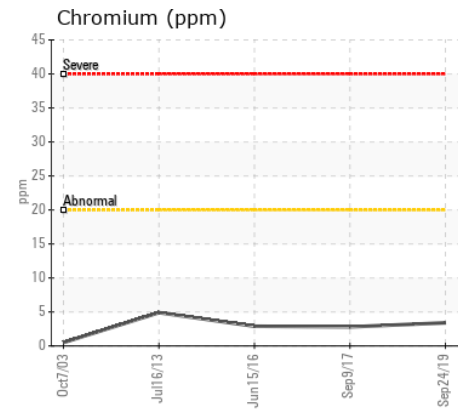
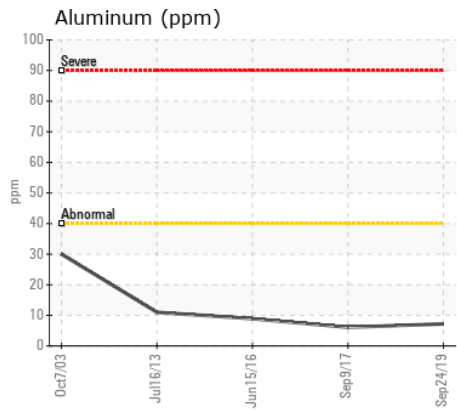
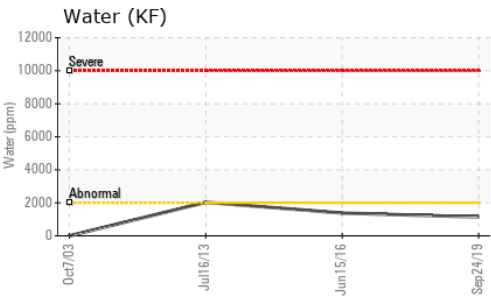
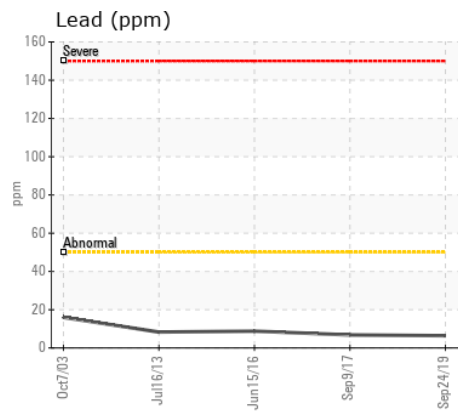
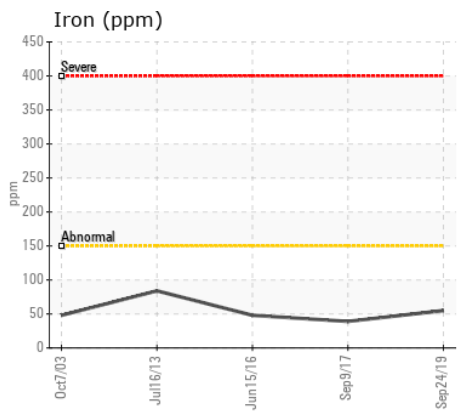
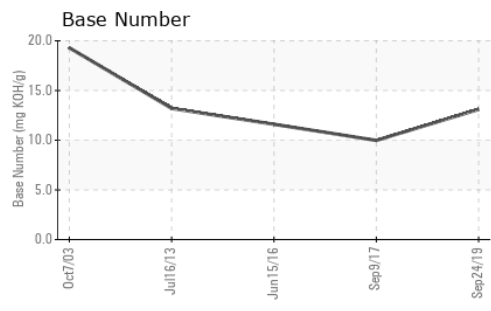
Test for glycol is negative. There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>30	7	7	7
Potassium	ppm	ASTM D5185m	>20	63	▲ 91	▲ 74
Fuel	%	ASTM D3524	>4.0	<1.0	<1.0	<1.0
Water	%	ASTM D6304	>0.2	0.114	---	▲ 0.138
ppm Water	ppm	ASTM D6304	>2000	1140	---	▲ 1380
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0	0
Nitration	Abs/cm	*ASTM D7624	>20	11.2	9.	9.
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.5	20.	21.
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	>400	3	2	4
Boron	ppm	ASTM D5185m		6	2	52
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		174	137	226
Manganese	ppm	ASTM D5185m		2	2	2
Magnesium	ppm	ASTM D5185m		706	562	185
Calcium	ppm	ASTM D5185m		1555	1208	3416
Phosphorus	ppm	ASTM D5185m		995	1039	1265
Zinc	ppm	ASTM D5185m		1138	1176	1318
Sulfur	ppm	ASTM D5185m		1798	3297	4654
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.3	18.	18.
Base Number (BN)	mg KOH/g	ASTM D2896		13.1	9.98	11.6
Visc @ 100°C	cSt	ASTM D445		9.4	8.51	▲ 7.82



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR04825634 **Received** : 17 Oct 2019
Lab Number : 04825634 **Tested** : 21 Oct 2019
Unique Number : 8785532 **Diagnosed** : 21 Oct 2019 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: FuelDilution, KF)

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)

PHIL HARDER
 57803 350TH STREET
 MOUNTAIN LAKE, MN
 US 56159
 Contact: PHILIP HARDER
 philbren@frontiernet.net
 T: 5(07) 227-6074
 F: