



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
MELROE BOBCAT 610

Component
Gasoline Engine

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

RECOMMENDATION

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		TR04374737	TR04139965	TR03334628
Sample Date		Client Info		09 Sep 2017	15 Jun 2016	16 Jul 2013
Machine Age	mths	Client Info		0	0	0
Oil Age	mths	Client Info		100	0	0
Filter Age	mths	Client Info		100	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ATTENTION	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>150	39	48	84
Chromium	ppm	ASTM D5185m	>20	3	3	5
Nickel	ppm	ASTM D5185m	>5	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>40	6	9	11
Lead	ppm	ASTM D5185m	>50	7	9	8
Copper	ppm	ASTM D5185m	>155	27	44	22
Tin	ppm	ASTM D5185m	>10	0	7	1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

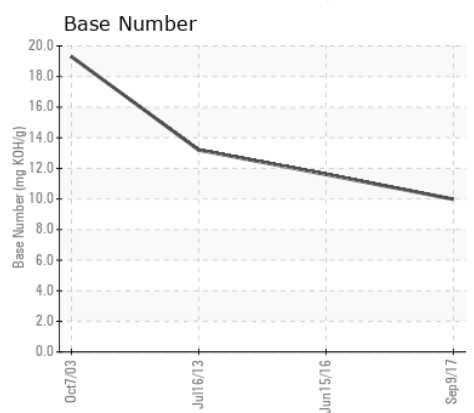
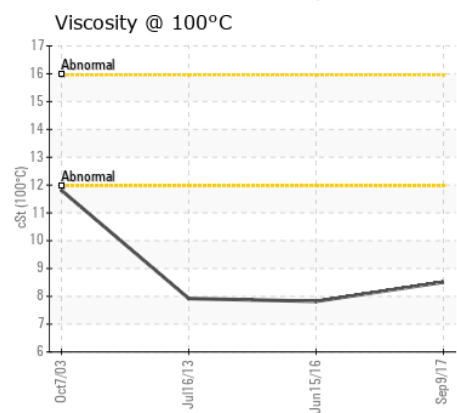
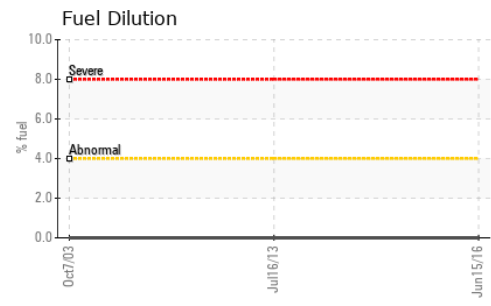
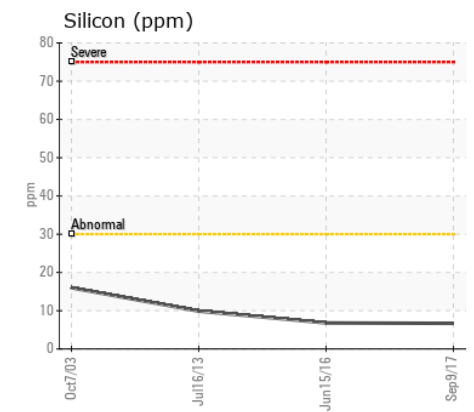
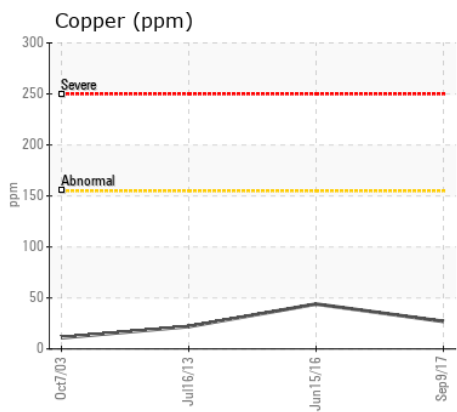
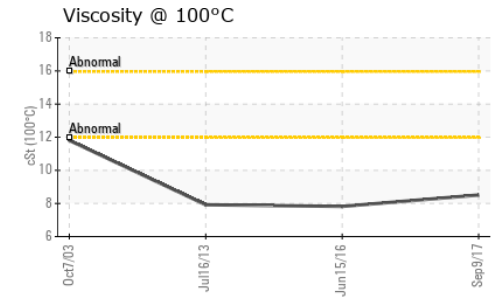
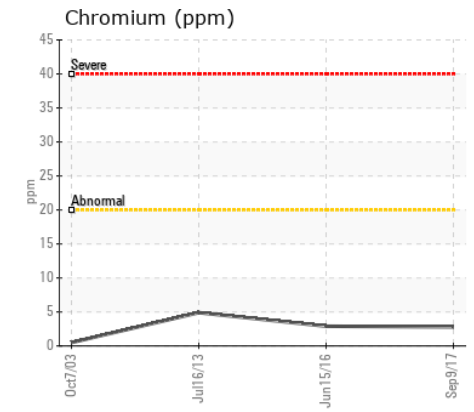
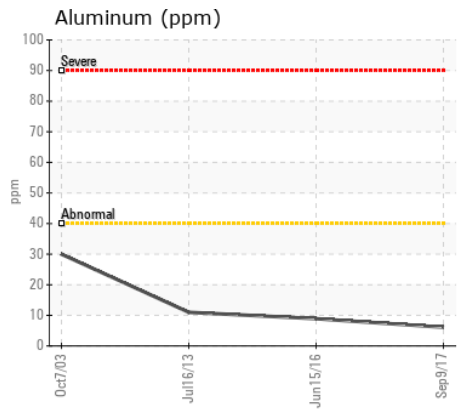
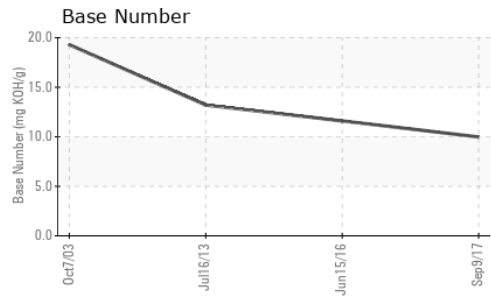
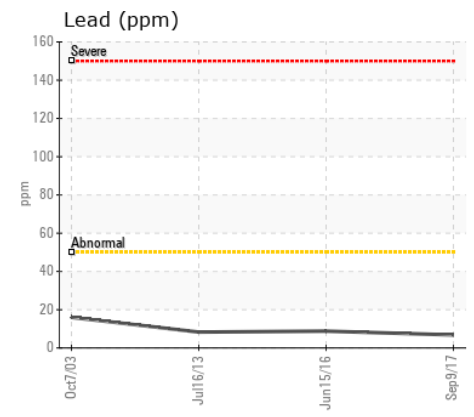
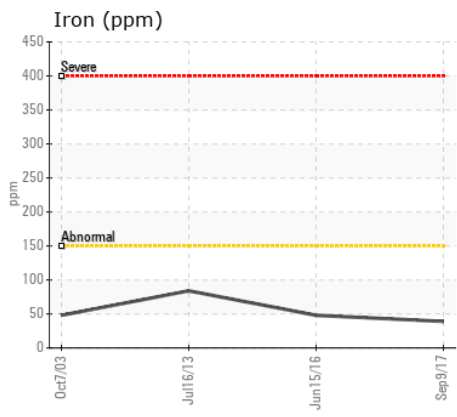
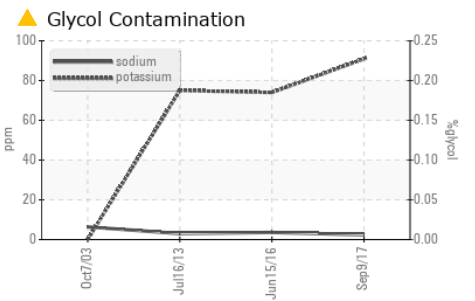
Sodium and/or potassium levels remain elevated. Test for glycol is negative.

Silicon	ppm	ASTM D5185m	>30	7	7	10
Potassium	ppm	ASTM D5185m	>20	▲ 91	▲ 74	▲ 75
Fuel	%	ASTM D3524	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0	0	0.1
Nitration	Abs/cm	*ASTM D7624	>25	9.	9.	7.
Sulfation	Abs/.1mm	*ASTM D7415	>35	20.	21.	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 acceptable for the time in service.

Sodium	ppm	ASTM D5185m	>400	2	4	3
Boron	ppm	ASTM D5185m		2	52	73
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		137	226	247
Manganese	ppm	ASTM D5185m		2	2	2
Magnesium	ppm	ASTM D5185m		562	185	46
Calcium	ppm	ASTM D5185m		1208	3416	4209
Phosphorus	ppm	ASTM D5185m		1039	1265	1060
Zinc	ppm	ASTM D5185m		1176	1318	1180
Sulfur	ppm	ASTM D5185m		3297	4654	3573
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.	18.	13.
Base Number (BN)	mg KOH/g	ASTM D2896		9.98	11.6	13.2
Visc @ 100°C	cSt	ASTM D445		8.51	▲ 7.82	▲ 7.92



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR04374737 **Received** : 26 Dec 2017
Lab Number : **04374737** **Tested** : 28 Dec 2017
Unique Number : 8043376 **Diagnosed** : 28 Dec 2017 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: FuelDilution)

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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