



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
SUBARU SUBARU LEGACY

Component
Gasoline Engine

Fluid
TRC PRO-SPEC MULTI VISC 5W30 (5 QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR03465079	TR03380861	---
Sample Date		Client Info		07 Mar 2014	13 Oct 2013	---
Machine Age	mls	Client Info		4500	0	---
Oil Age	mls	Client Info		9000	4400	---
Filter Age	mls	Client Info		4500	4400	---
Oil Changed		Client Info		Not Changd	Not Changd	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				NORMAL	NORMAL	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>150	46	7	---
Chromium	ppm	ASTM D5185m	>20	2	<1	---
Nickel	ppm	ASTM D5185m	>5	1	<1	---
Titanium	ppm	ASTM D5185m		<1	<1	---
Silver	ppm	ASTM D5185m	>2	0	0	---
Aluminum	ppm	ASTM D5185m	>40	8	3	---
Lead	ppm	ASTM D5185m	>50	19	5	---
Copper	ppm	ASTM D5185m	>155	3	1	---
Tin	ppm	ASTM D5185m	>10	0	0	---
Vanadium	ppm	ASTM D5185m		0	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

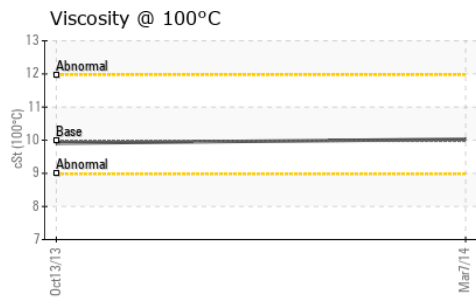
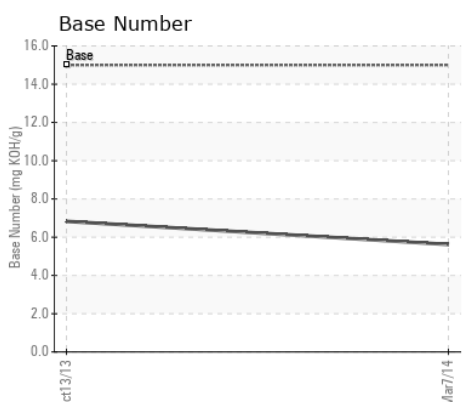
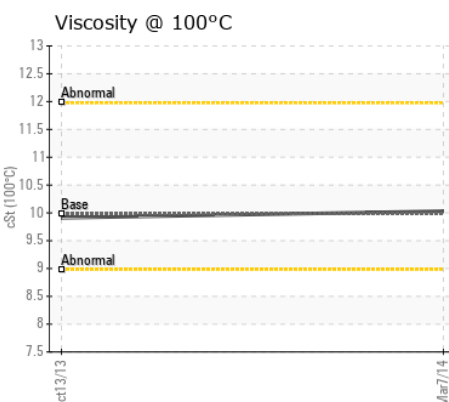
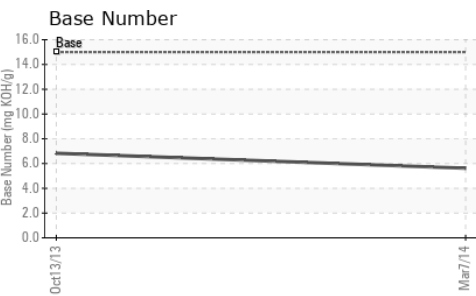
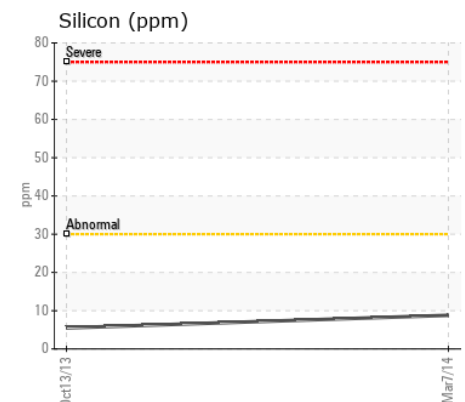
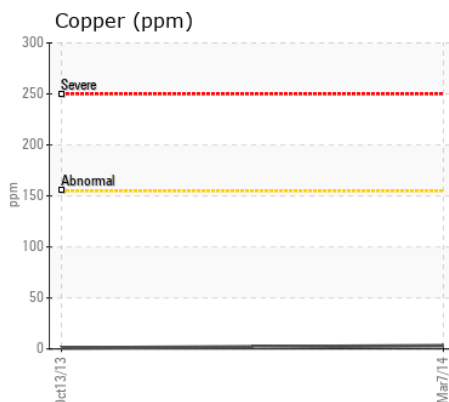
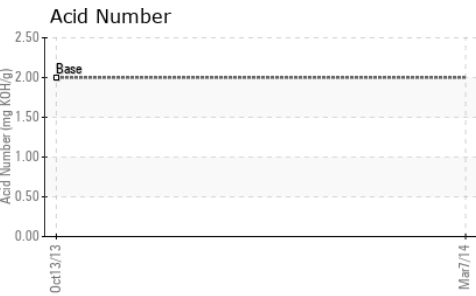
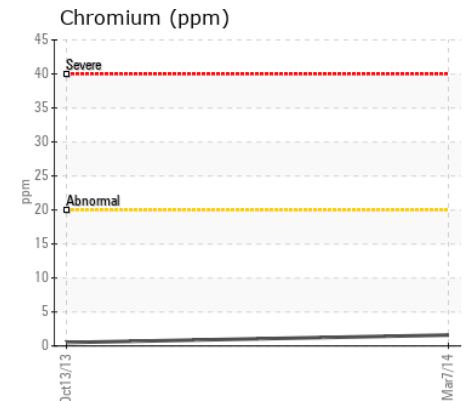
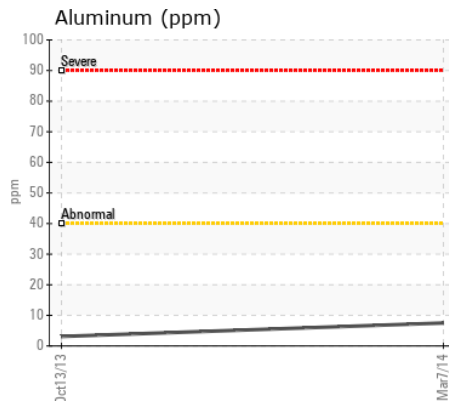
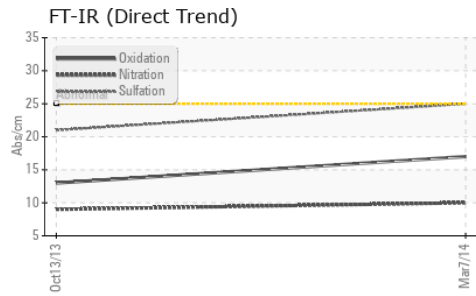
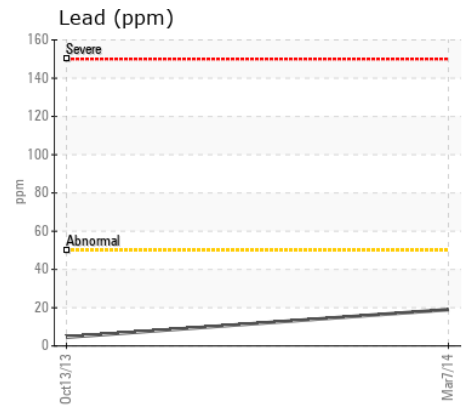
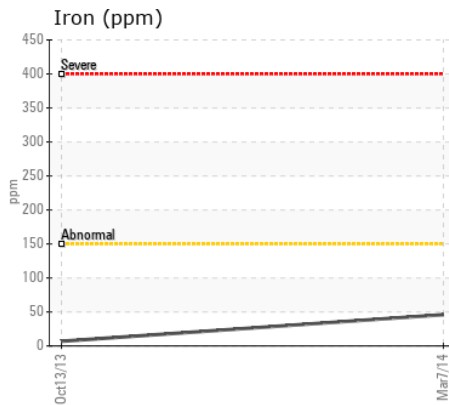
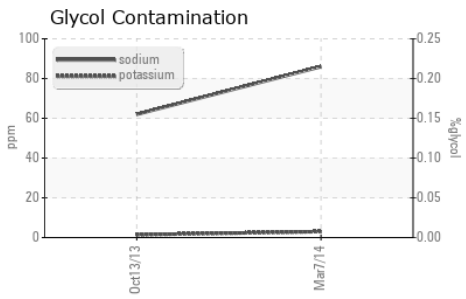
There is no indication of any contamination in the component.

Silicon	ppm	ASTM D5185m	>30	9	6	---
Potassium	ppm	ASTM D5185m	>20	3	1	---
Fuel		WC Method	>4.0	<1.0	<1.0	---
Water		WC Method	>0.1	NEG	NEG	---
Glycol	%	*ASTM D2982		NEG	NEG	---
Soot %	%	*ASTM D7844		0	0	---
Nitration	Abs/cm	*ASTM D7624		10.	9.	---
Sulfation	Abs/.1mm	*ASTM D7415		25.	21.	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.1	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	86	62	---
Boron	ppm	ASTM D5185m		19	36	---
Barium	ppm	ASTM D5185m		0	0	---
Molybdenum	ppm	ASTM D5185m		131	107	---
Manganese	ppm	ASTM D5185m		<1	<1	---
Magnesium	ppm	ASTM D5185m		12	6	---
Calcium	ppm	ASTM D5185m	4200	2546	2089	---
Phosphorus	ppm	ASTM D5185m	800	756	640	---
Zinc	ppm	ASTM D5185m	800	879	780	---
Sulfur	ppm	ASTM D5185m		2320	2086	---
Oxidation	Abs/.1mm	*ASTM D7414		17.	13.	---
Base Number (BN)	mg KOH/g	ASTM D2896	15	5.62	6.83	---
Visc @ 100°C	cSt	ASTM D445	9.98	10.03	9.91	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR03465079 **Received** : 13 Mar 2014
Lab Number : 03465079 **Tested** : 16 Mar 2014
Unique Number : 6552904 **Diagnosed** : 16 Mar 2014 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: Glycol, TAN Man)

BEN KOEHN
 41385 CANAL RD
 RONAN, MT
 US 59864
 Contact: DAN NIGHTENGALE

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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F: