



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
TORO GROUNDMASTER 4110-D T9 (S/N 30447-312000109)

Component
Diesel Engine

Fluid
NAPA PREM PERF UFMO 15W40 (10 QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR05976611	---	---
Sample Date		Client Info		18 Jul 2023	---	---
Machine Age	hrs	Client Info		1964	---	---
Oil Age	hrs	Client Info		189	---	---
Filter Age	hrs	Client Info		189	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				NORMAL	---	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	7	---	---
Chromium	ppm	ASTM D5185m	>20	<1	---	---
Nickel	ppm	ASTM D5185m	>4	0	---	---
Titanium	ppm	ASTM D5185m		0	---	---
Silver	ppm	ASTM D5185m	>3	0	---	---
Aluminum	ppm	ASTM D5185m	>20	2	---	---
Lead	ppm	ASTM D5185m	>40	0	---	---
Copper	ppm	ASTM D5185m	>330	<1	---	---
Tin	ppm	ASTM D5185m	>15	0	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

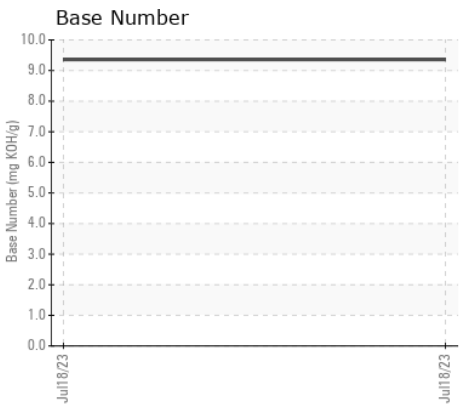
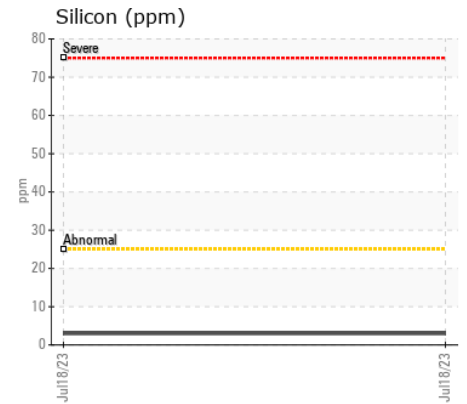
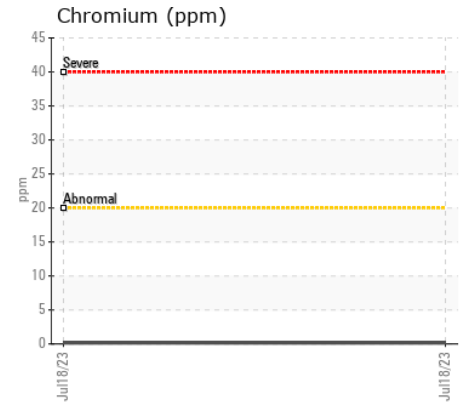
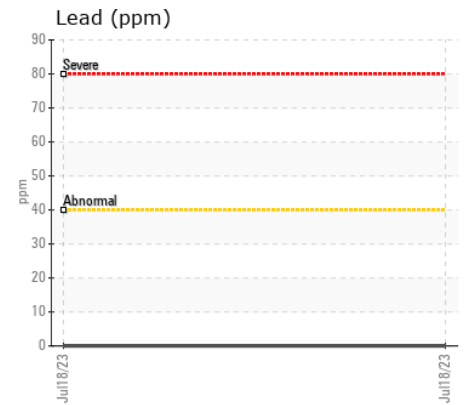
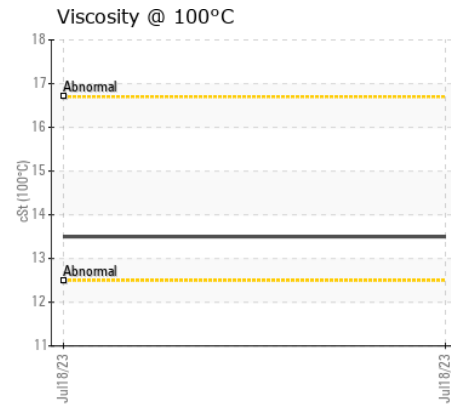
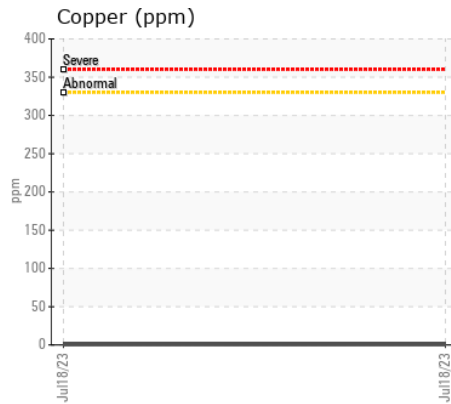
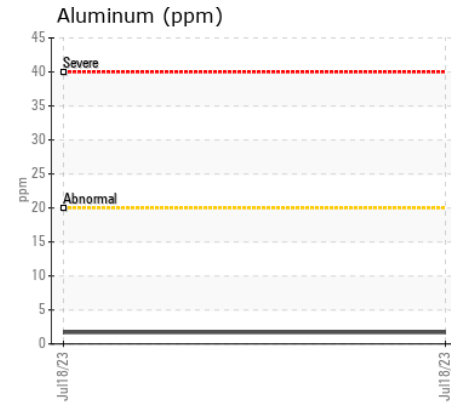
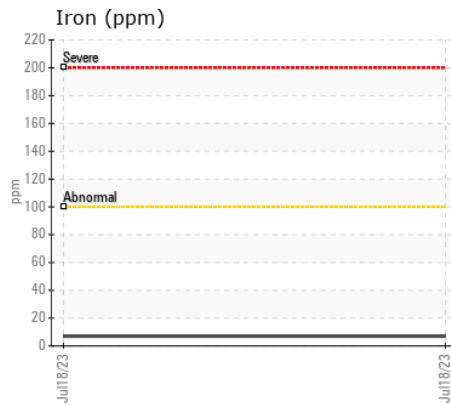
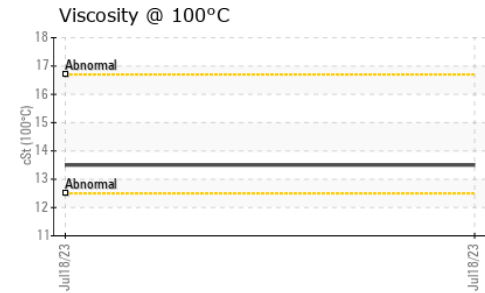
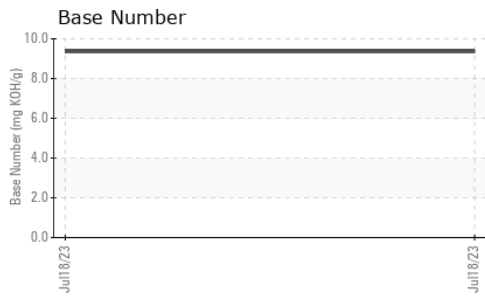
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	3	---	---
Potassium	ppm	ASTM D5185m	>20	<1	---	---
Fuel		WC Method	>5	<1.0	---	---
Water		WC Method	>0.2	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844	>3	0.2	---	---
Nitration	Abs/cm	*ASTM D7624	>20	7.3	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.0	---	---
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	---	---

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	---	---
Boron	ppm	ASTM D5185m		5	---	---
Barium	ppm	ASTM D5185m		0	---	---
Molybdenum	ppm	ASTM D5185m		6	---	---
Manganese	ppm	ASTM D5185m		<1	---	---
Magnesium	ppm	ASTM D5185m		42	---	---
Calcium	ppm	ASTM D5185m		2234	---	---
Phosphorus	ppm	ASTM D5185m		907	---	---
Zinc	ppm	ASTM D5185m		1046	---	---
Sulfur	ppm	ASTM D5185m		3455	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.2	---	---
Base Number (BN)	mg KOH/g	ASTM D2896		9.36	---	---
Visc @ 100°C	cSt	ASTM D445		13.5	---	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : TR05976611
 Lab Number : 05976611
 Unique Number : 10688561
 Test Package : MOB 2

Received : 11 Oct 2023
 Tested : 12 Oct 2023
 Diagnosed : 12 Oct 2023 - Wes Davis

LEBANON MUNICIPAL AIRPORT
 5 AIRPARK RD, SUITE 1
 WEST LEBANON, NH
 US 03784
 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)

T:
F: