



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
INTERNATIONAL RS-013 (S/N 1HTMMML8HH651779)

Component
Diesel Engine

Fluid
TRC MOLY XL PRO-SPEC IV HD SYN 5W40 (21 QTS)

RECOMMENDATION

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR05937458	TR05837947	TR05641148
Sample Date		Client Info		26 Jul 2023	01 Apr 2023	25 Aug 2022
Machine Age	mls	Client Info		0	108873	100778
Oil Age	mls	Client Info		32000	16000	8000
Filter Age	mls	Client Info		32000	16000	8000
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Filter Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

Piston, ring and cylinder wear is indicated.

Iron	ppm	ASTM D5185m	>100	▲ 207	▲ 155	93
Chromium	ppm	ASTM D5185m	>20	7	6	3
Nickel	ppm	ASTM D5185m	>4	2	2	2
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	▲ 53	▲ 43	▲ 26
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	5	4	3
Tin	ppm	ASTM D5185m	>15	<1	<1	2
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

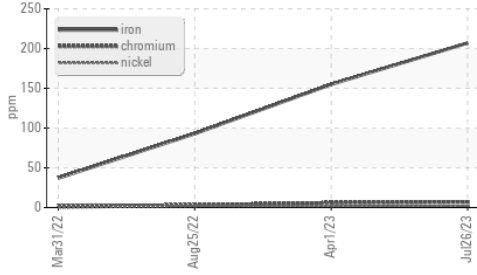
Silicon	ppm	ASTM D5185m	>25	20	17	11
Potassium	ppm	ASTM D5185m	>20	49	37	17
Fuel		WC Method	>2.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		0.0	NEG	NEG
Soot %	%	*ASTM D7844	>3	2.3	2.1	1.6
Nitration	Abs/cm	*ASTM D7624	>20	18.0	17.7	15.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	33.9	32.5	30.9
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

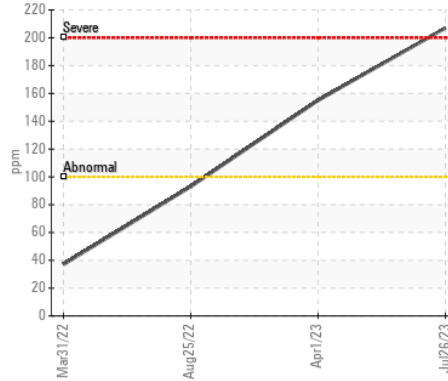
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		2	5	2
Boron	ppm	ASTM D5185m		2	6	5
Barium	ppm	ASTM D5185m		3	0	<1
Molybdenum	ppm	ASTM D5185m		146	130	125
Manganese	ppm	ASTM D5185m		2	2	1
Magnesium	ppm	ASTM D5185m		20	26	22
Calcium	ppm	ASTM D5185m	4500	4556	4445	4147
Phosphorus	ppm	ASTM D5185m		978	1009	905
Zinc	ppm	ASTM D5185m	1200	1173	1249	1110
Sulfur	ppm	ASTM D5185m		4479	5457	3884
Oxidation	Abs/.1mm	*ASTM D7414	>25	22.9	22.0	19.1
Base Number (BN)	mg KOH/g	ASTM D2896	15	10.79	8.97	9.38
Visc @ 100°C	cSt	ASTM D445	15	16.3	15.9	15.7

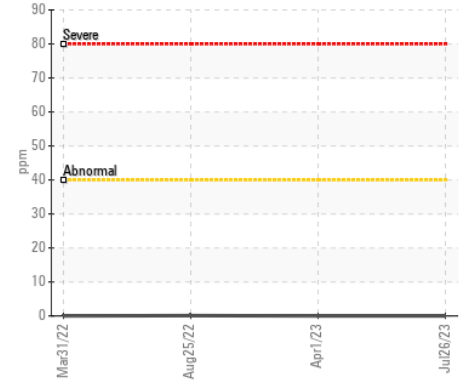
▲ Ferrous Alloys



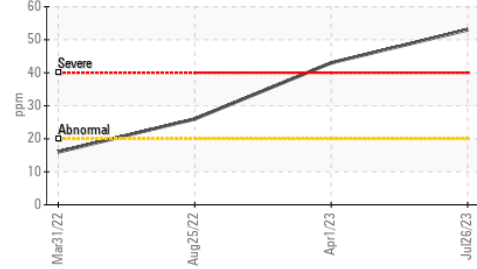
▲ Iron (ppm)



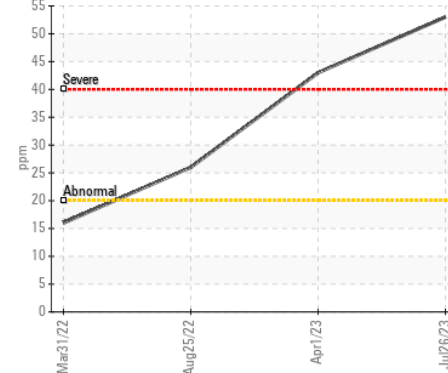
▲ Lead (ppm)



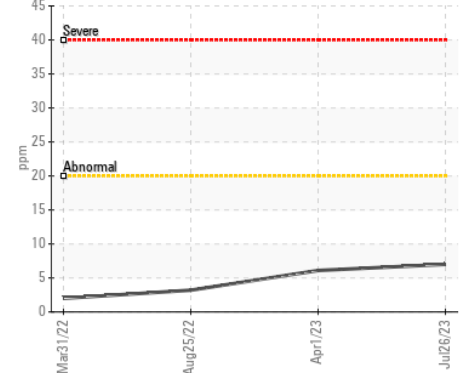
▲ Aluminum (ppm)



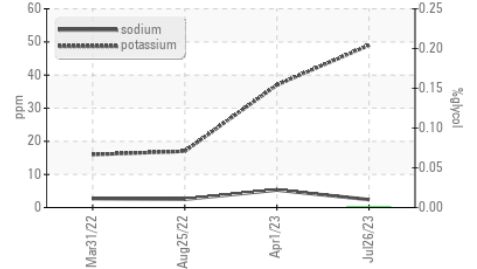
▲ Aluminum (ppm)



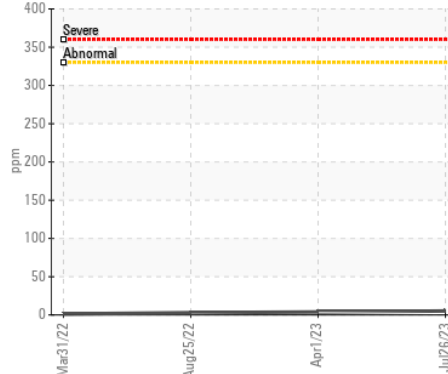
▲ Chromium (ppm)



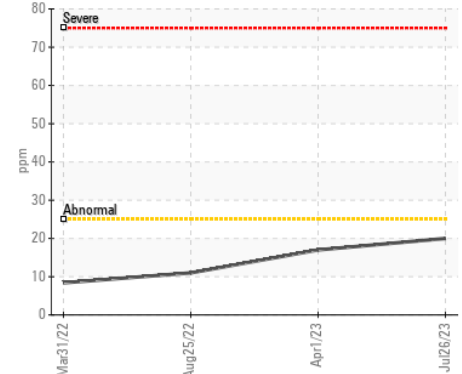
▲ Glycol Contamination



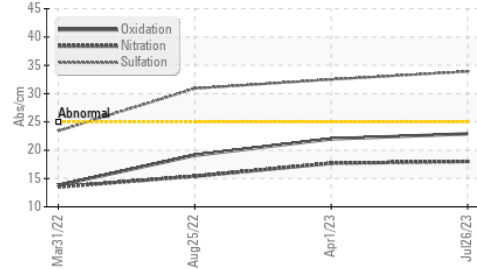
▲ Copper (ppm)



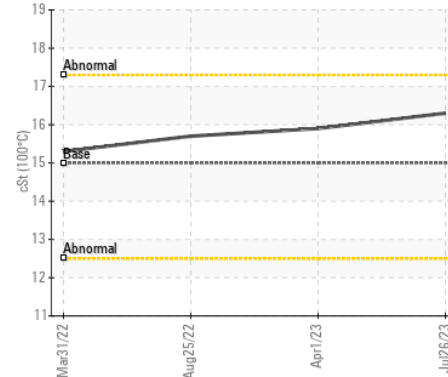
▲ Silicon (ppm)



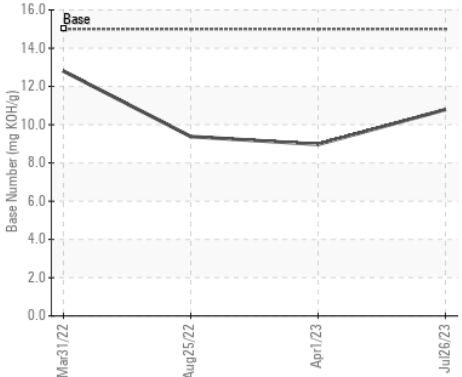
▲ FT-IR (Direct Trend)



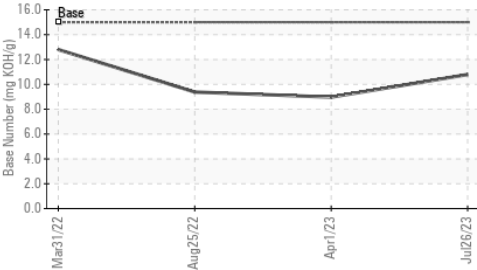
▲ Viscosity @ 100°C



▲ Base Number



▲ Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR05937458 **Received** : 29 Aug 2023
Lab Number : 05937458 **Tested** : 01 Sep 2023
Unique Number : 10622729 **Diagnosed** : 04 Sep 2023 - Doug Bogart
Test Package : MOB 2 (Additional Tests: Glycol)

ROWELL'S SERVICES
 359 TILTON RD
 NORTH FIELD, NH
 US 03276
 Contact: DON PERCY

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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