



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
3059
 Component
Diesel Engine
 Fluid
SHELL ROTELLA T 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0210613	JR0210619	JR0195183
Sample Date		Client Info		17 Jun 2024	14 Mar 2024	08 Dec 2023
Machine Age	mls	Client Info		112559	105255	98448
Oil Age	mls	Client Info		5000	5000	5000
Filter Age	mls	Client Info		5000	5000	5000
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	MARGINAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	10	9	5
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	4	3	2
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<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.

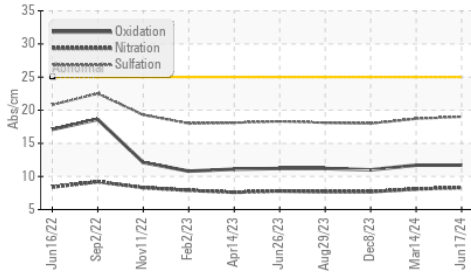
Silicon	ppm	ASTM D5185m	>25	5	4	5
Potassium	ppm	ASTM D5185m	>20	6	4	5
Fuel		WC Method	>5	<1.0	▲ 2.9	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	8.3	8.1	7.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.0	18.7	18.0
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

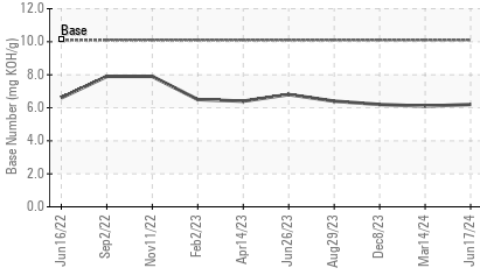
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		3	3	5
Boron	ppm	ASTM D5185m	316	12	4	3
Barium	ppm	ASTM D5185m	0.0	<1	0	0
Molybdenum	ppm	ASTM D5185m	1.2	13	3	<1
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	24	84	42	45
Calcium	ppm	ASTM D5185m	2292	2236	2221	2297
Phosphorus	ppm	ASTM D5185m	1064	907	853	971
Zinc	ppm	ASTM D5185m	1160	1059	1026	1098
Sulfur	ppm	ASTM D5185m	4996	3455	3835	3738
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.7	11.7	11.0
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	6.2	6.1	6.2
Visc @ 100°C	cSt	ASTM D445	15.7	12.8	12.4	12.9

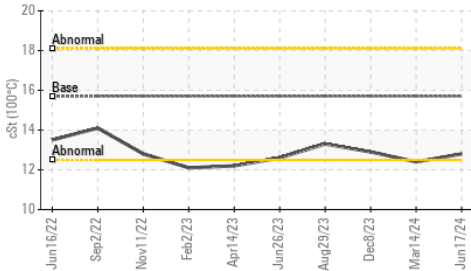
FT-IR (Direct Trend)



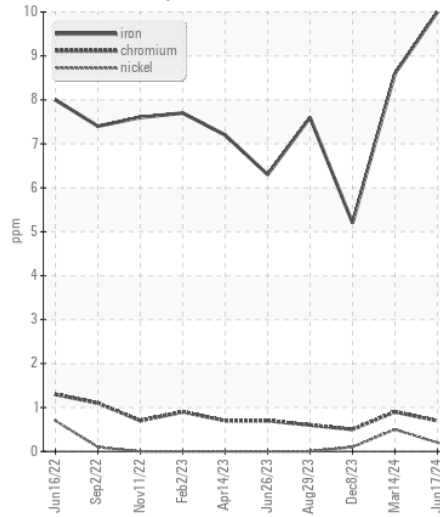
Base Number



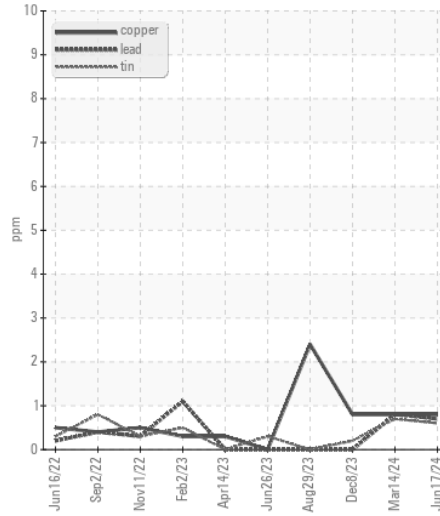
Viscosity @ 100°C



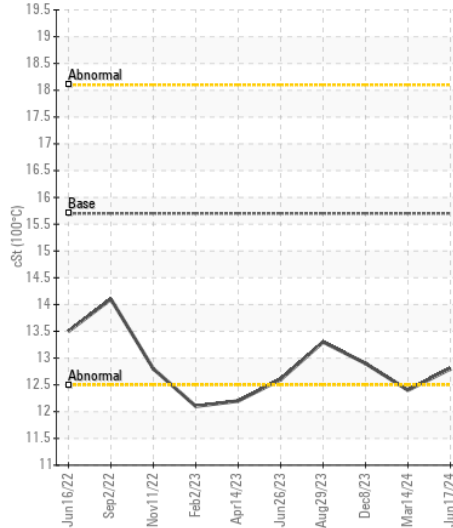
Ferrous Alloys



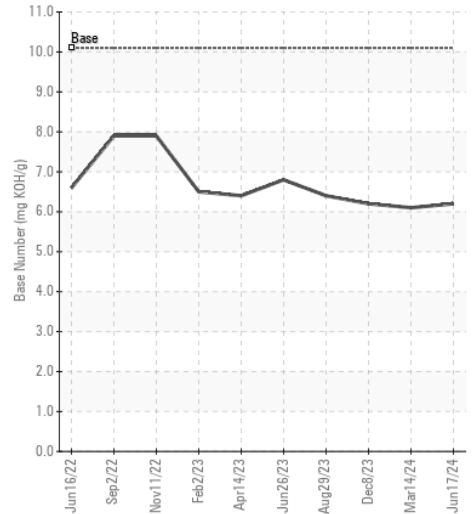
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0210613 **Received** : 02 Jul 2024
Lab Number : 06225946 **Tested** : 03 Jul 2024
Unique Number : 11109439 **Diagnosed** : 03 Jul 2024 - Angela Borella
Test Package : CONST (Additional Tests: TBN)

PATRIOT DEVELOPMENT CORP
 22721 LADBROOK DRIVE STE 120
 STERLING, VA
 US 20166
 Contact: ROBERT MOSS
 robert.moss@patriotdev.net

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - 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: