



WEAR	NORMAL
CONTAMINATION	MARGINAL
FLUID CONDITION	NORMAL

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

RECOMMENDATION

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0210619	JR0195183	JR0169900
Sample Date		Client Info		14 Mar 2024	08 Dec 2023	29 Aug 2023
Machine Age	mls	Client Info		105255	98448	91852
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				MARGINAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	9	5	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	2	2
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	<1	2
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

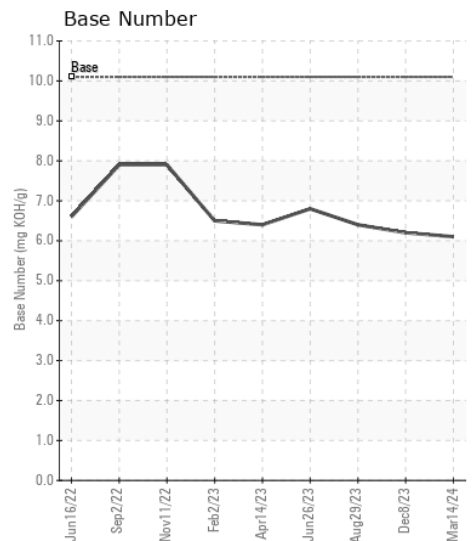
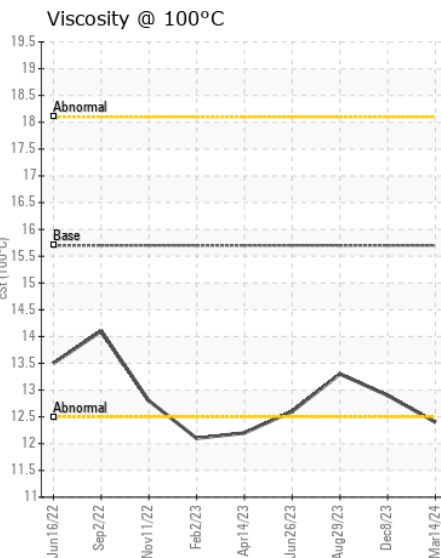
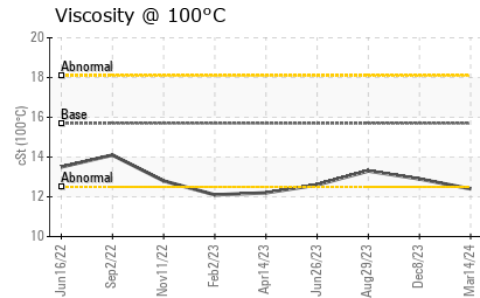
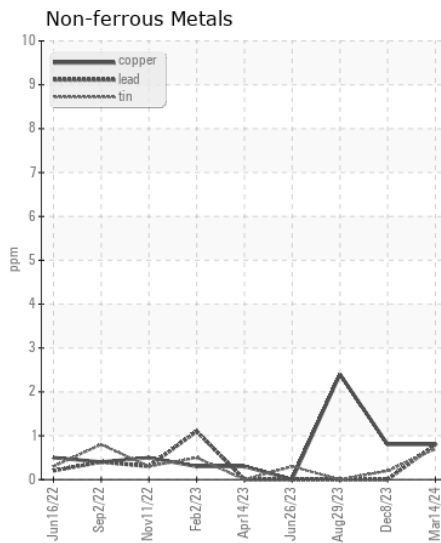
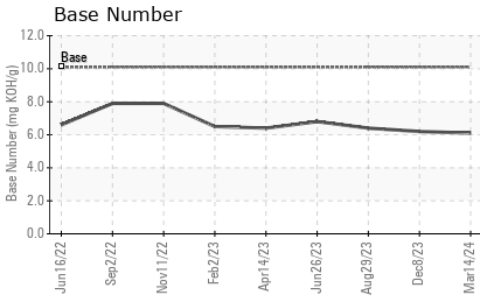
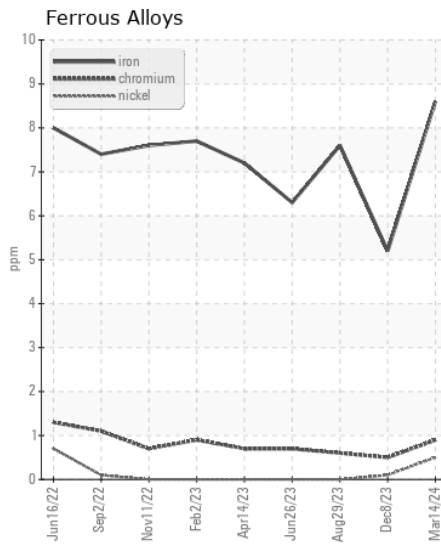
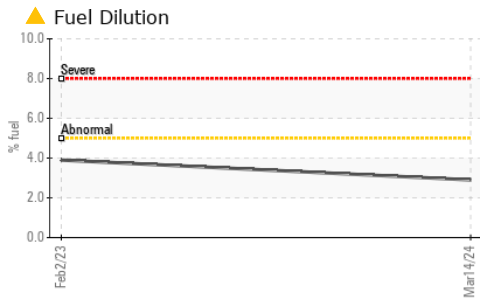
Light fuel dilution occurring. No other contaminants were detected in the oil.

Silicon	ppm	ASTM D5185m	>25	4	5	4
Potassium	ppm	ASTM D5185m	>20	4	5	6
Fuel	%	ASTM D3524	>5	▲ 2.9	<1.0	<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	8.1	7.7	7.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.7	18.0	18.1
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	5	3
Boron	ppm	ASTM D5185m	316	4	3	0
Barium	ppm	ASTM D5185m	0.0	0	0	0
Molybdenum	ppm	ASTM D5185m	1.2	3	<1	3
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	24	42	45	53
Calcium	ppm	ASTM D5185m	2292	2221	2297	2306
Phosphorus	ppm	ASTM D5185m	1064	853	971	873
Zinc	ppm	ASTM D5185m	1160	1026	1098	1092
Sulfur	ppm	ASTM D5185m	4996	3835	3738	4443
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.7	11.0	11.2
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	6.1	6.2	6.4
Visc @ 100°C	cSt	ASTM D445	15.7	12.4	12.9	13.3



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0210619 **Received** : 20 Mar 2024
Lab Number : 06123505 **Tested** : 22 Mar 2024
Unique Number : 10937656 **Diagnosed** : 22 Mar 2024 - Wes Davis
Test Package : CONST (Additional Tests: FuelDilution, PercentFuel, TBN)

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

Certificate L2367
 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)