



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Area
TRUCK - URBAN
Machine Id
WESTERN STAR M136
Component
Diesel Engine
Fluid
SHELL Rotella T5 15W-40 (7 GAL)

RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PE0004038	PE0003327	PE0003275
Sample Date		Client Info		26 Jun 2024	17 May 2024	30 Jan 2024
Machine Age	hrs	Client Info		16298	15784	14577
Oil Age	hrs	Client Info		514	674	757
Filter Age	hrs	Client Info		514	674	757
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	17	23	13
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	4	6	5
Lead	ppm	ASTM D5185m	>40	0	1	0
Copper	ppm	ASTM D5185m	>330	<1	<1	0
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

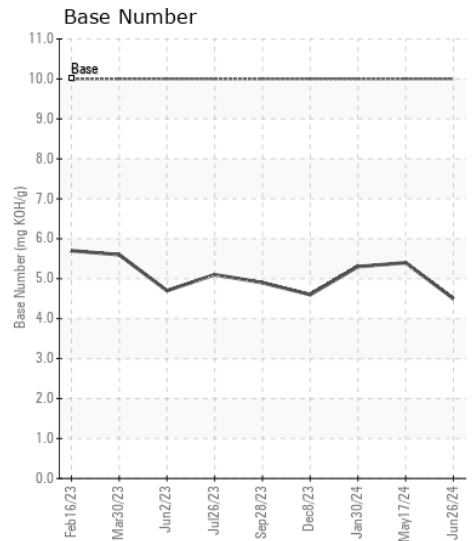
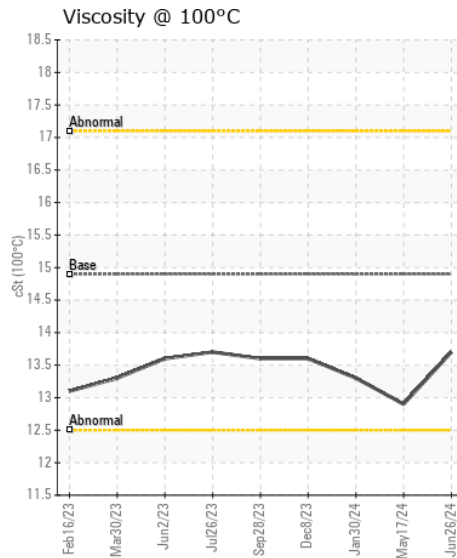
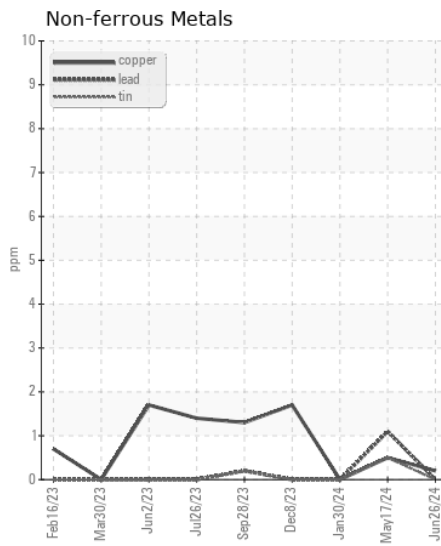
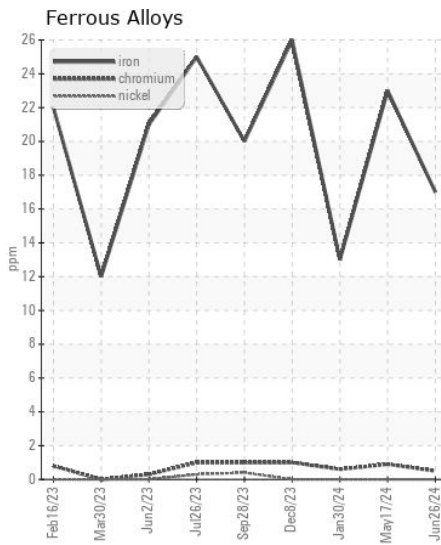
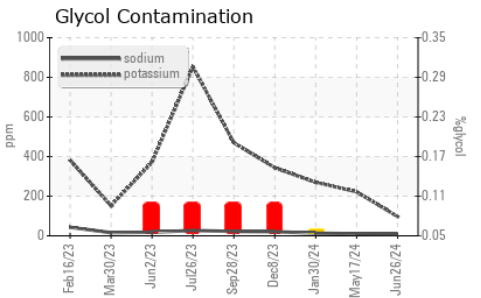
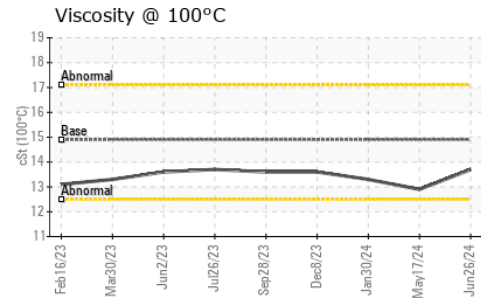
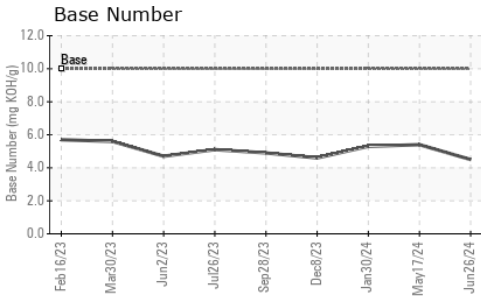
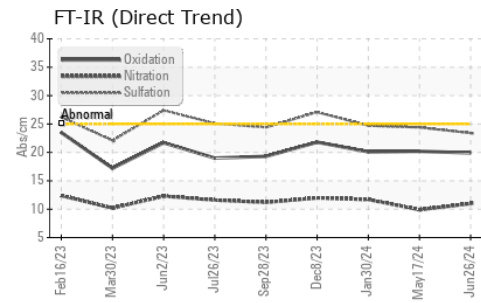
Sodium and/or potassium levels have decreased but are still abnormal.

Silicon	ppm	ASTM D5185m	>25	6	9	4
Potassium	ppm	ASTM D5185m	>20	▲ 97	▲ 222	▲ 270
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	▲ 0.06
Soot %	%	*ASTM D7844	>3	0.7	0.7	0.8
Nitration	Abs/cm	*ASTM D7624	>20	11.0	9.9	11.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.4	24.4	24.7
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.

Sodium	ppm	ASTM D5185m		9	11	13
Boron	ppm	ASTM D5185m		35	168	26
Barium	ppm	ASTM D5185m		0	<1	0
Molybdenum	ppm	ASTM D5185m		85	81	81
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		63	270	27
Calcium	ppm	ASTM D5185m		2346	1591	2011
Phosphorus	ppm	ASTM D5185m		1041	1006	918
Zinc	ppm	ASTM D5185m		1242	1126	1108
Sulfur	ppm	ASTM D5185m		4295	3504	3447
Oxidation	Abs/.1mm	*ASTM D7414	>25	19.9	20.2	20.1
Base Number (BN)	mg KOH/g	ASTM D2896	10	4.5	5.4	5.3
Visc @ 100°C	cSt	ASTM D445	14.9	13.7	12.9	13.3



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PE0004038
Lab Number : 06231137
Unique Number : 11114630
Test Package : CONST (Additional Tests: FT-IR, Glycol, ICP, KV100, SCREEN, TBN)
 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)

PetroCard - Aberdeen
 110 Commerce St
 Aberdeen, WA
 US 98520
 Contact: Sean McNealley
 smcnealley@petrocard.com
 T:
 F: