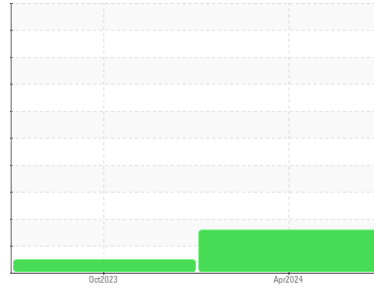




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id

2347

Component

Diesel Engine

Fluid

ROYAL PURPLE MOTOR OIL 15W40 (--- QTS)

DIAGNOSIS

▲ Recommendation

No corrective action is recommended at this time. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

▲ Wear

The copper level is abnormal. Cylinder, crank, or cam shaft wear is indicated. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0720066	WC0720158	---
Sample Date	Client Info		12 Apr 2024	27 Oct 2023	---
Machine Age	mls	Client Info	123502	71324	---
Oil Age	mls	Client Info	100000	50000	---
Oil Changed	Client Info		Changed	Not Changd	---
Sample Status			ABNORMAL	NORMAL	---

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	---
Water	WC Method	>0.2	NEG	NEG	---
Glycol	WC Method		NEG	NEG	---

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>100	▲ 114	32	---
Chromium	ppm	ASTM D5185m	>20	7	3	---
Nickel	ppm	ASTM D5185m	>4	1	<1	---
Titanium	ppm	ASTM D5185m		<1	0	---
Silver	ppm	ASTM D5185m	>3	0	0	---
Aluminum	ppm	ASTM D5185m	>20	51	27	---
Lead	ppm	ASTM D5185m	>40	0	3	---
Copper	ppm	ASTM D5185m	>330	▲ 369	339	---
Tin	ppm	ASTM D5185m	>15	2	<1	---
Vanadium	ppm	ASTM D5185m		<1	<1	---
Cadmium	ppm	ASTM D5185m		0	0	---

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	0	0	2	---
Barium	ppm	ASTM D5185m	0	0	0	---
Molybdenum	ppm	ASTM D5185m	100	7	6	---
Manganese	ppm	ASTM D5185m		3	1	---
Magnesium	ppm	ASTM D5185m	60	90	88	---
Calcium	ppm	ASTM D5185m	3050	2506	2331	---
Phosphorus	ppm	ASTM D5185m	1050	943	853	---
Zinc	ppm	ASTM D5185m	1200	1120	1075	---
Sulfur	ppm	ASTM D5185m	12500	2883	2588	---

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>25	12	6	---
Sodium	ppm	ASTM D5185m		3	3	---
Potassium	ppm	ASTM D5185m	>20	127	66	---

INFRA-RED

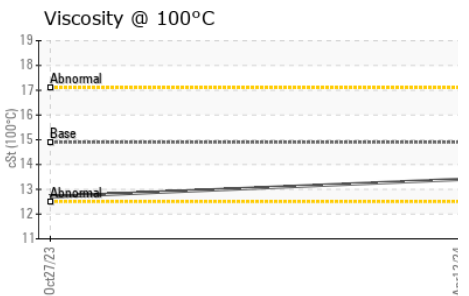
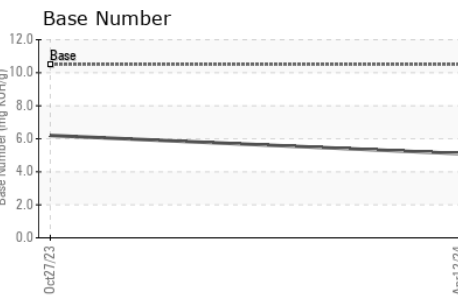
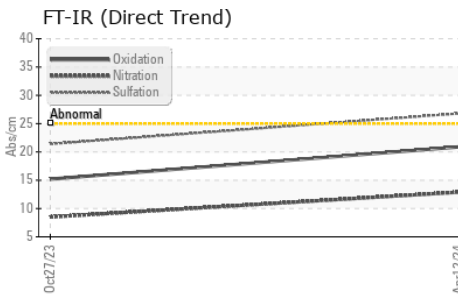
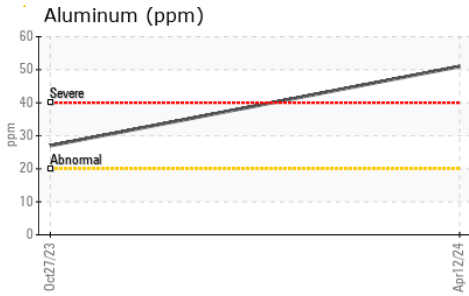
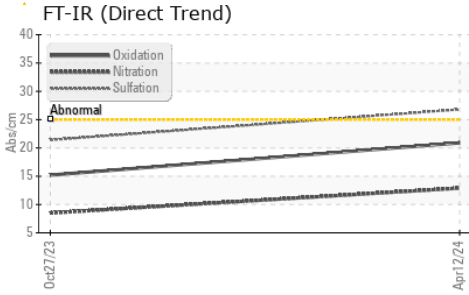
	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	>3	1.8	0.6	---
Nitration	Abs/cm	*ASTM D7624	>20	12.9	8.5	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	26.8	21.4	---

FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	20.9	15.2	---
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	5.1	6.2	---



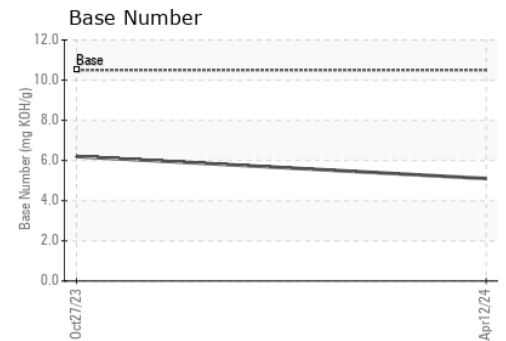
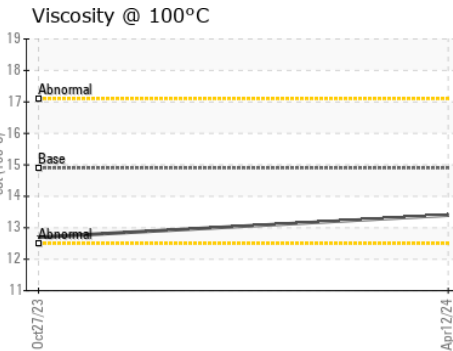
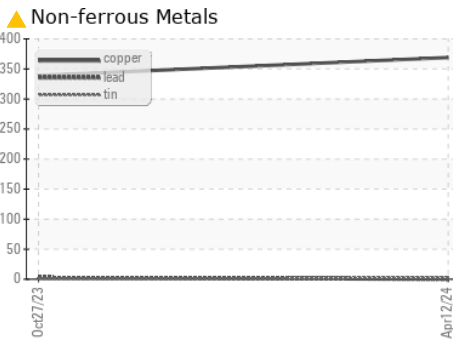
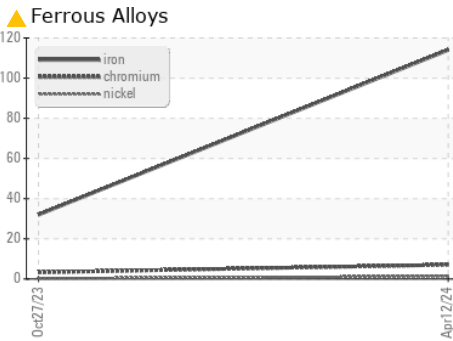
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
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	---
Free Water	scalar	*Visual		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.9	13.4	12.7

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0720066
Lab Number : 06174831
Unique Number : 11020884
Test Package : FLEET

Received : 09 May 2024
Tested : 10 May 2024
Diagnosed : 13 May 2024 - Sean Felton

DILLON TRANSPORTATION
 974 TN WALTZ PARKWAY
 ASHLAND CITY, TN
 US 37015

Contact: MASON NICHOLSON
 M.NICHOLSON@DILLONTRANSPORTATION.COM

T: (615)792-5099
 F: (615)469-4200

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)