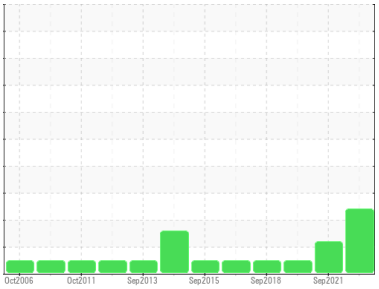
PROBLEM SUMMARY

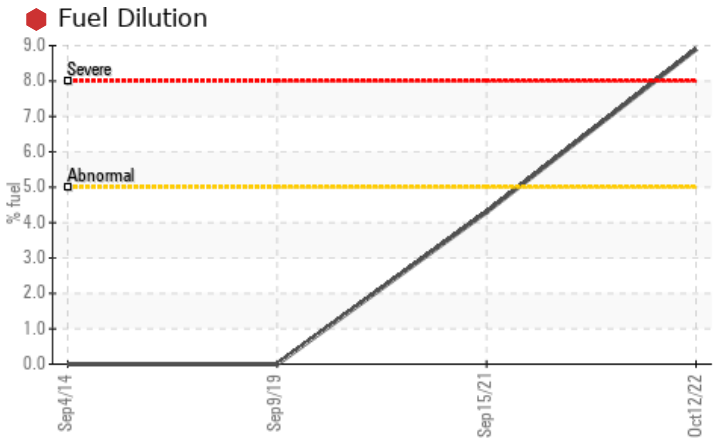
Sample Rating Trend

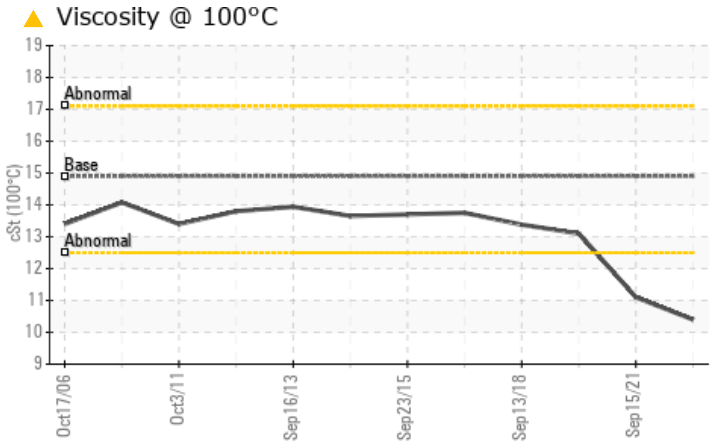


FUEL

Machine Id
CATERPILLAR 81Z12792
Component
Diesel Engine
Fluid
ROYAL PURPLE MOTOR OIL 15W40 (19 GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check the fuel injection system. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	NORMAL
Fuel	%	ASTM D3524	>5	**8.9**	4.3	<1.0
Visc @ 100°C	cSt	ASTM D445	14.9	**10.4**	11.1	13.1

Customer Id: GRAGRARP
Sample No.: RP0022986
Lab Number: 05671115
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Don Baldridge +1
don.b505@comcast.net

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Fuel/injector System	---	---	?	We advise that you check the fuel injection system.

HISTORICAL DIAGNOSIS

15 Sep 2021 Diag: Jonathan Hester

FUEL

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

view report

09 Sep 2019 Diag: Don Baldridge

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

13 Sep 2018 Diag: Jonathan Hester

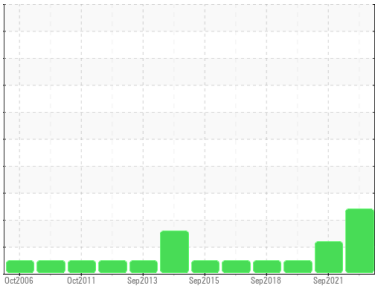
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Machine Id
CATERPILLAR 81Z12792
Component
Diesel Engine
Fluid
ROYAL PURPLE MOTOR OIL 15W40 (19 GAL)

DIAGNOSIS

Recommendation
We advise that you check the fuel injection system. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

Contamination
There is a high amount of fuel present in the oil.

Fluid Condition
Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**RP0022986**	RP181808	RP181795
Sample Date		Client Info		**12 Oct 2022**	15 Sep 2021	09 Sep 2019
Machine Age	hrs	Client Info		**989**	827	768
Oil Age	hrs	Client Info		**389**	550	323
Oil Changed		Client Info		**Not Changd**	Changed	Not Changd
Sample Status				**SEVERE**	ABNORMAL	NORMAL

CONTAMINATION	method	limit/base	current	history1	history2
Glycol	WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**18**	13	34
Chromium	ppm	ASTM D5185m	>20	**<1**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**0**	0	<1
Titanium	ppm	ASTM D5185m	>2	**<1**	<1	0
Silver	ppm	ASTM D5185m	>2	**0**	2	0
Aluminum	ppm	ASTM D5185m	>25	**2**	1	3
Lead	ppm	ASTM D5185m	>40	**2**	1	4
Copper	ppm	ASTM D5185m	>330	**162**	68	258
Tin	ppm	ASTM D5185m	>15	**1**	<1	3
Antimony	ppm	ASTM D5185m		**---**	<1	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	<1	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**36**	63	24
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	100	**46**	46	84
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	60	**349**	343	130
Calcium	ppm	ASTM D5185m	3050	**1821**	1717	2933
Phosphorus	ppm	ASTM D5185m	1050	**782**	746	971
Zinc	ppm	ASTM D5185m	1200	**961**	895	1154

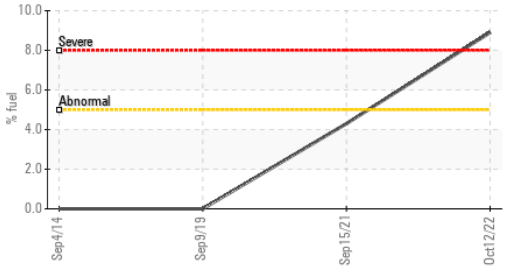
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**5**	5	6
Sodium	ppm	ASTM D5185m		**1**	3	6
Potassium	ppm	ASTM D5185m	>20	**2**	0	2
Fuel	%	ASTM D3524	>5	**8.9**	4.3	<1.0
Water	%	ASTM D6304	>0.2	**---**	---	0.102
ppm Water	ppm	ASTM D6304	>2000	**---**	---	1020

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.2**	0.1	0.2
Nitration	Abs/cm	*ASTM D7624	>20	**10.6**	7.3	12.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	**26.8**	24.5	31.8

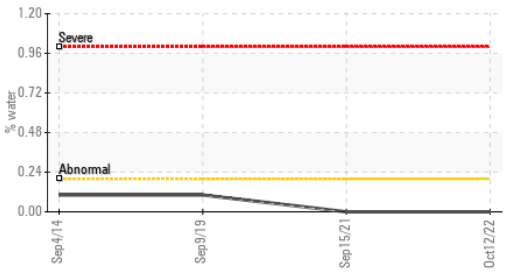
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**24.1**	20.5	23.2
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	**6.84**	8.31	7.26

OIL ANALYSIS REPORT

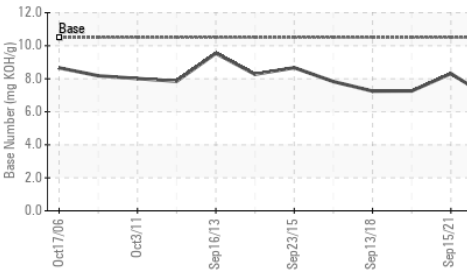
Fuel Dilution



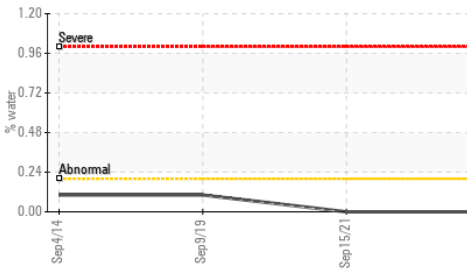
Water



Base Number



Water

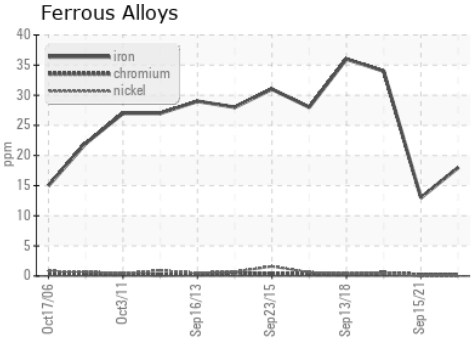


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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
Free Water	scalar	*Visual		**NEG**	NEG	NEG

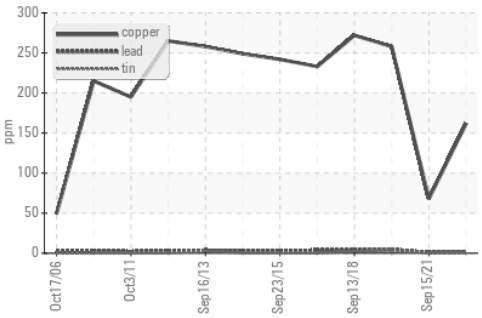
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.9	▲ **10.4**	▲ 11.1	13.1

GRAPHS

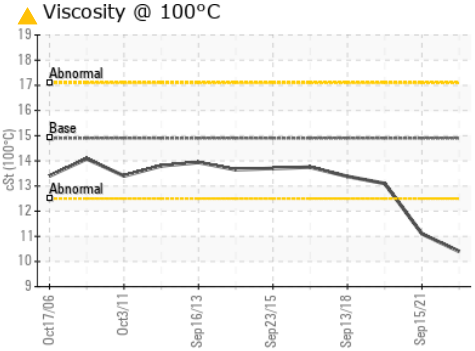
Ferrous Alloys



Non-ferrous Metals



▲ Viscosity @ 100°C



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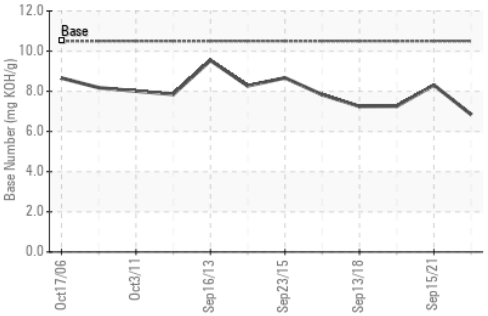

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RP0022986 **Received** : 19 Oct 2022
Lab Number : 05671115 **Diagnosed** : 21 Oct 2022
Unique Number : 10180685 **Diagnostician** : Don Baldridge
Test Package : IND 2 (Additional Tests: FT-IR, KV100, PercentFuel, 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)

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