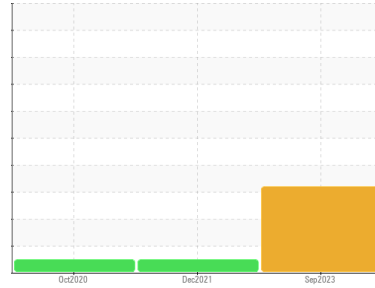


Machine Id
WESTERN STAR 66

Component
Diesel Engine

Fluid
PETRO CANADA DURON UHP 10W40 (--- Oz)



DIAGNOSIS

Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

Cylinder, crank, or cam shaft wear is indicated.

Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			PCA0028065	PCA0028044	PCA0006190
Sample Date	Client Info			28 Sep 2023	22 Dec 2021	01 Oct 2020
Machine Age	mls Client Info			765696	11560	10024
Oil Age	mls Client Info			765696	11560	10024
Oil Changed	Client Info			Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m	>100		▲ 138	98	45
Chromium	ppm ASTM D5185m	>20		12	8	2
Nickel	ppm ASTM D5185m	>4		<1	0	0
Titanium	ppm ASTM D5185m			<1	<1	<1
Silver	ppm ASTM D5185m	>3		0	0	0
Aluminum	ppm ASTM D5185m	>20		▲ 12	8	6
Lead	ppm ASTM D5185m	>40		3	6	3
Copper	ppm ASTM D5185m	>330		10	12	26
Tin	ppm ASTM D5185m	>15		3	3	0
Antimony	ppm ASTM D5185m			---	0	0
Vanadium	ppm ASTM D5185m			<1	0	0
Cadmium	ppm ASTM D5185m			0	0	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m	2		4	6	41
Barium	ppm ASTM D5185m	0		0	0	0
Molybdenum	ppm ASTM D5185m	60		59	52	21
Manganese	ppm ASTM D5185m	0		2	2	1
Magnesium	ppm ASTM D5185m	1010		950	857	864
Calcium	ppm ASTM D5185m	1070		1090	987	1417
Phosphorus	ppm ASTM D5185m	1150		980	864	874
Zinc	ppm ASTM D5185m	1270		1195	1112	956
Sulfur	ppm ASTM D5185m	2060		2913	2656	2585

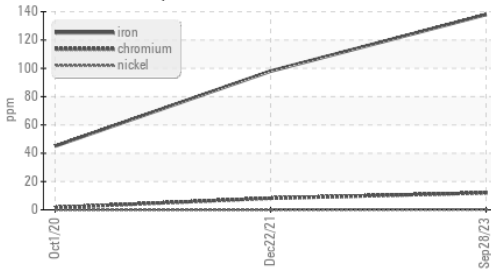
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m	>25		▲ 53	39	11
Sodium	ppm ASTM D5185m			5	5	15
Potassium	ppm ASTM D5185m	>20		6	<1	4

INFRA-RED		method	limit/base	current	history1	history2
Soot %	% *ASTM D7844	>3		0.5	0.6	0.3
Nitration	Abs/cm *ASTM D7624	>20		7.0	9.2	9.6
Sulfation	Abs/.1mm *ASTM D7415	>30		19.8	22.9	20.9

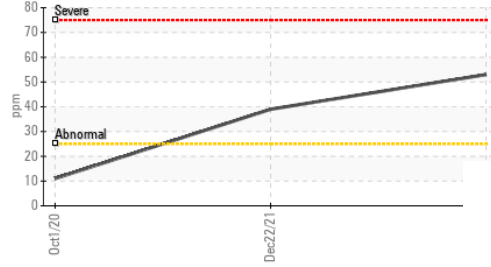
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414	>25		15.5	19.7	16.8
Base Number (BN)	mg KOH/g ASTM D2896	9.8		8.5	8.5	---

OIL ANALYSIS REPORT

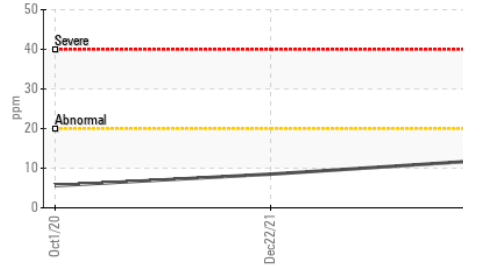
▲ Ferrous Alloys



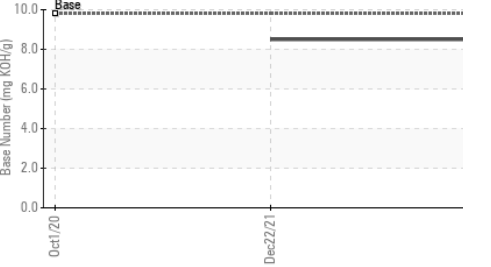
▲ Silicon (ppm)



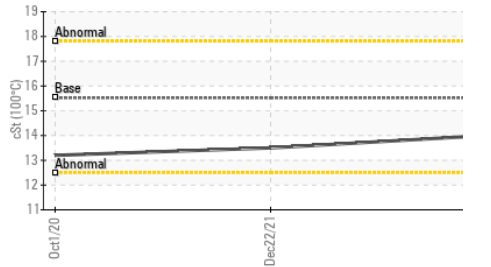
▲ Aluminum (ppm)



Base Number



Viscosity @ 100°C

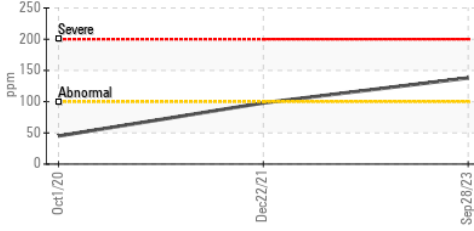


PARAMETER	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

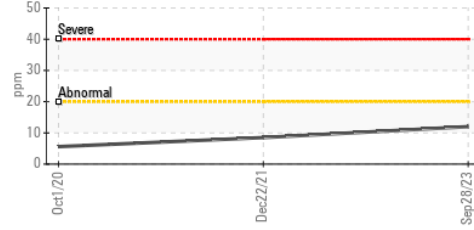
PARAMETER	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.52	14.0	13.5

GRAPHS

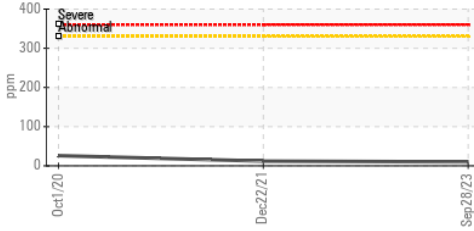
▲ Iron (ppm)



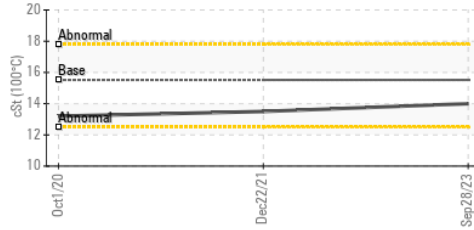
▲ Aluminum (ppm)



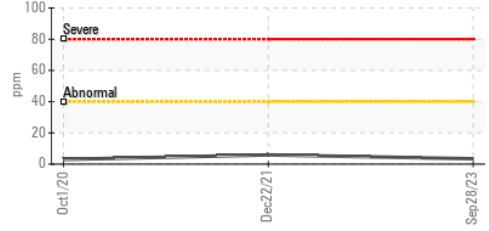
▲ Copper (ppm)



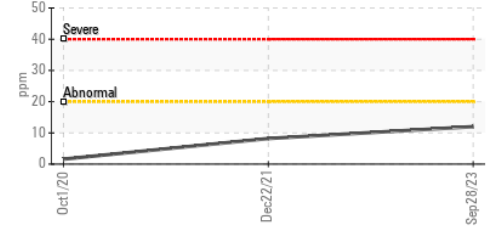
Viscosity @ 100°C



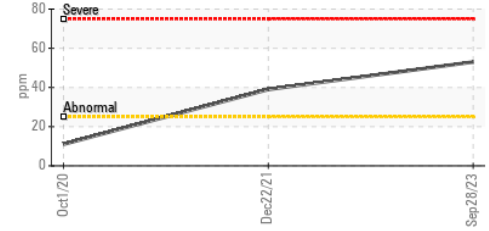
Lead (ppm)



Chromium (ppm)



▲ Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0028065 **Received** : 04 Oct 2023
Lab Number : 05969612 **Diagnosed** : 09 Oct 2023
Unique Number : 10676163 **Diagnostician** : Sean Felton
Test Package : MOB 1 (Additional Tests: TBN)

ALBERT HOGOBOOM OILFIELD TRUCKING INC
 767 OIL HILL ROAD
 EL DORADO, KS
 US 67042
 Contact: LOREN JACK
 loren@hogoboom.net
 T:
 F: (316)321-1396

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)