



WEAR	ATTENTION
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Area
[W046075]
 Machine Id
EPIROC D65-10F TMG20SED0067 (S/N TM620SED0067)
 Component
Diesel Engine
 Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- GAL)

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.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0197394	JR0181207	JR0181542
Sample Date		Client Info		22 Dec 2023	18 Oct 2023	17 Aug 2023
Machine Age	hrs	Client Info		4587	4415	4126
Oil Age	hrs	Client Info		0	500	4126
Filter Age	hrs	Client Info		0	500	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	21	26	3
Chromium	ppm	ASTM D5185m	>20	1	1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	▲ 6	▲ 8	2
Lead	ppm	ASTM D5185m	>40	2	4	0
Copper	ppm	ASTM D5185m	>330	7	10	<1
Tin	ppm	ASTM D5185m	>15	<1	1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

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

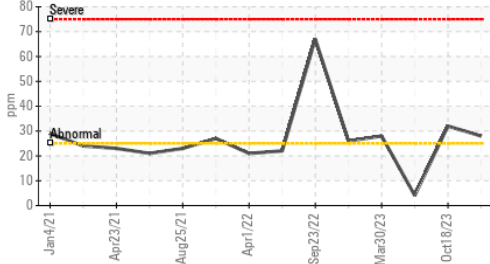
Silicon	ppm	ASTM D5185m	>25	▲ 28	▲ 32	4
Potassium	ppm	ASTM D5185m	>20	4	2	2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.3	0.1
Nitration	Abs/cm	*ASTM D7624	>20	8.7	9.6	5.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.9	23.4	19.1
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

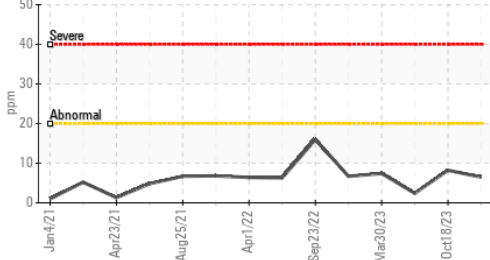
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		0	<1	0
Boron	ppm	ASTM D5185m		252	142	287
Barium	ppm	ASTM D5185m		3	0	0
Molybdenum	ppm	ASTM D5185m		271	248	252
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		831	861	769
Calcium	ppm	ASTM D5185m		1490	1549	1336
Phosphorus	ppm	ASTM D5185m		913	907	863
Zinc	ppm	ASTM D5185m		1105	1157	1037
Sulfur	ppm	ASTM D5185m		3282	2974	3242
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.5	18.3	13.6
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	8.6	7.9	9.6
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.8	14.3

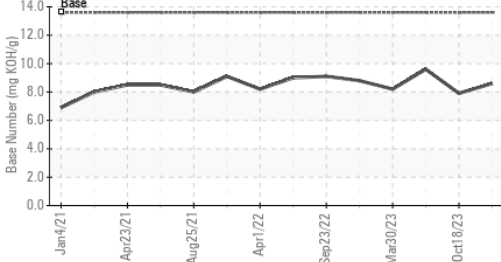
▲ Silicon (ppm)



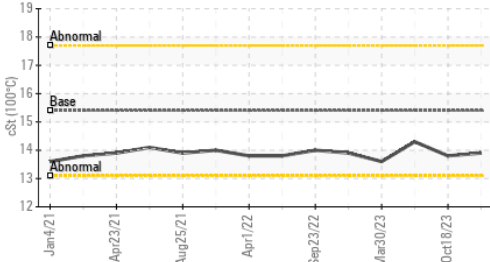
▲ Aluminum (ppm)



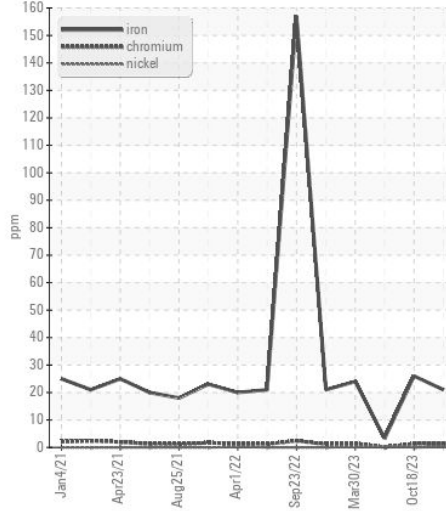
Base Number



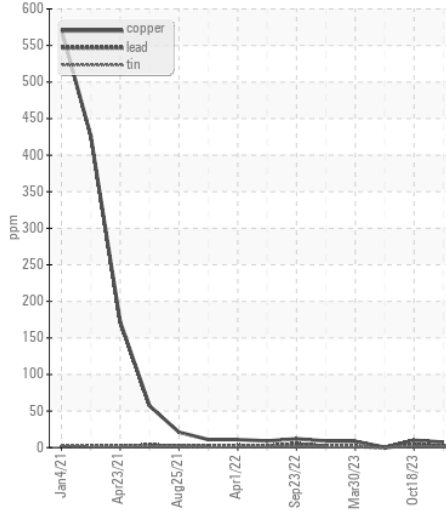
Viscosity @ 100°C



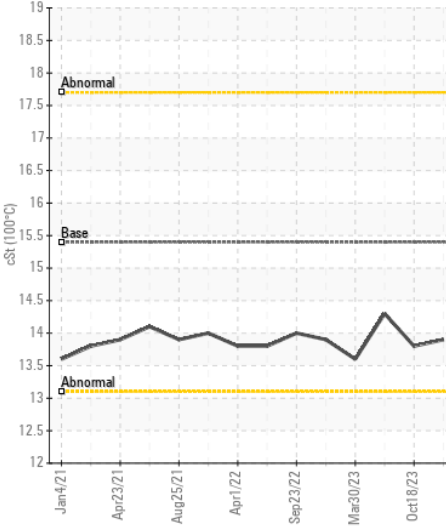
Ferrous Alloys



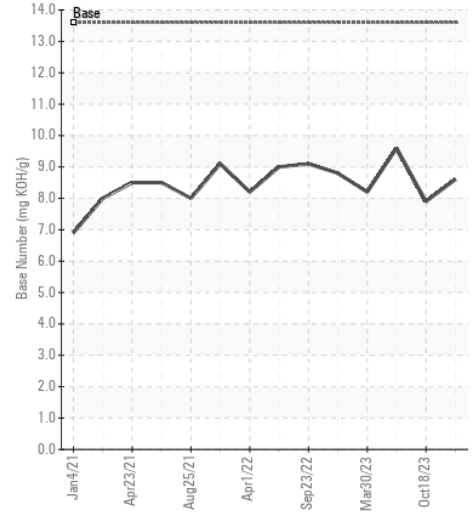
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0197394 **Received** : 12 Jan 2024
Lab Number : 06059170 **Diagnosed** : 15 Jan 2024
Unique Number : 10830552 **Diagnostician** : Don Baldridge
Test Package : CONST (Additional Tests: TBN)

WAKE STONE CORP
 6811 HWY 64 EAST
 KNIGHTDALE, NC
 US 27545

Contact: PAUL SPRUILL
 paulspruill@wakestonecorp.com

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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F: