



WEAR	ATTENTION
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Area
[16W16595]

Machine Id
HITACHI FF00ASP920190

Component
Diesel Engine

Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (40 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. (Customer Sample Comment: 16W16595)

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0217326	WC0846708	WC0671887
Sample Date		Client Info		08 Jul 2024	11 Sep 2023	05 Apr 2022
Machine Age	hrs	Client Info		13107	12837	12436
Oil Age	hrs	Client Info		269	402	191
Filter Age	hrs	Client Info		269	402	191
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	SEVERE	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	18	25	18
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	10	7	3
Lead	ppm	ASTM D5185m	>40	2	0	<1
Copper	ppm	ASTM D5185m	>330	19	0	<1
Tin	ppm	ASTM D5185m	>15	4	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	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.

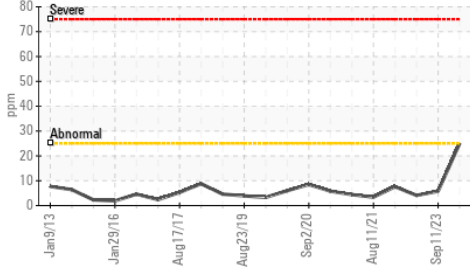
Silicon	ppm	ASTM D5185m	>25	25	6	4
Potassium	ppm	ASTM D5185m	>20	2	6	0
Fuel		WC Method	>5	<1.0	33.9	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	6.8	5.6	5.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.0	16.9	19.8
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

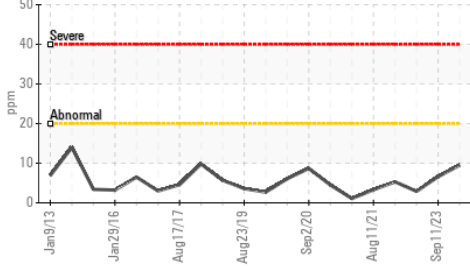
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		2	4	2
Boron	ppm	ASTM D5185m		304	98	396
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		242	40	96
Manganese	ppm	ASTM D5185m		4	<1	<1
Magnesium	ppm	ASTM D5185m		763	266	500
Calcium	ppm	ASTM D5185m		1338	1196	1545
Phosphorus	ppm	ASTM D5185m		888	723	1035
Zinc	ppm	ASTM D5185m		1033	878	1083
Sulfur	ppm	ASTM D5185m		3016	2762	2961
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.4	12.1	13.3
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	9.4	6.7	7.5
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	7	13.5

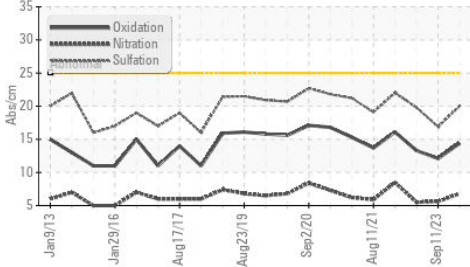
▲ Silicon (ppm)



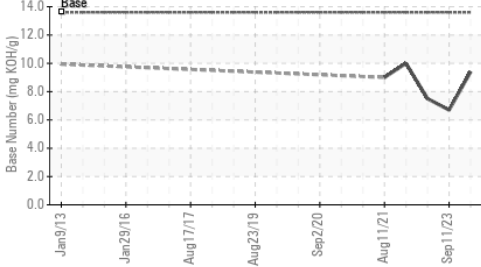
● Aluminum (ppm)



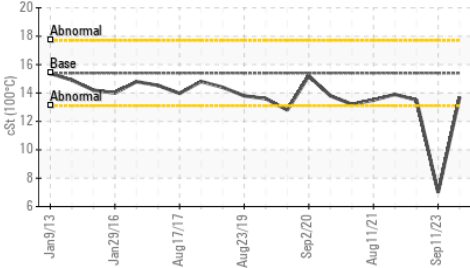
FT-IR (Direct Trend)



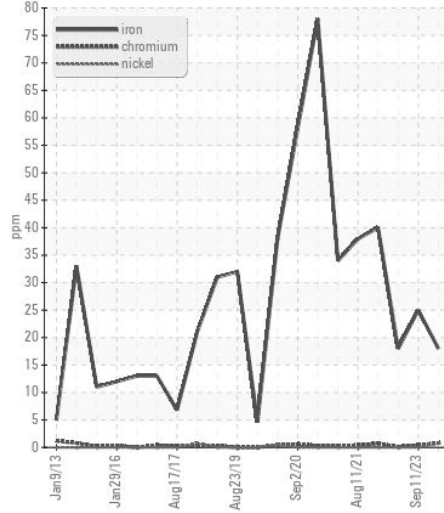
Base Number



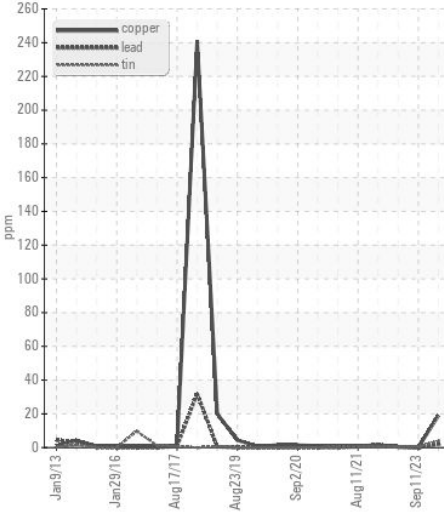
Viscosity @ 100°C



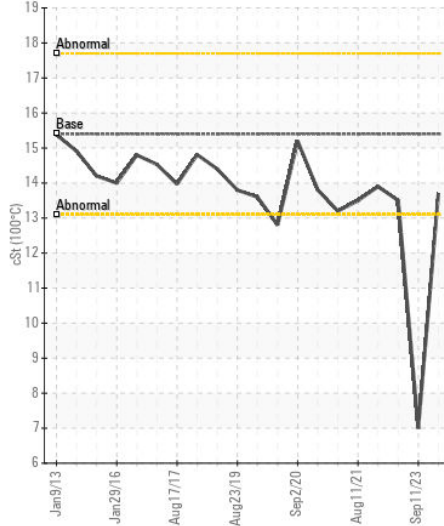
Ferrous Alloys



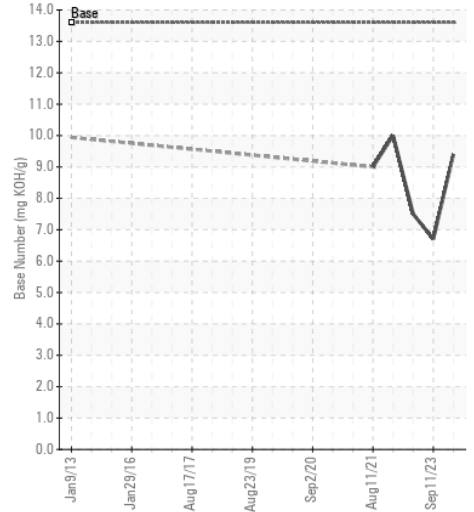
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : JR0217326 Received : 10 Jul 2024
 Lab Number : 06232039 Tested : 11 Jul 2024
 Unique Number : 11115532 Diagnosed : 11 Jul 2024 - Don Baldrige
 Test Package : CONST (Additional Tests: 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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