



Area  
**[16W15441]**  
Machine Id  
**CATERPILLAR 289D CAT0289DETAW09838**  
Component  
**Diesel Engine**  
Fluid  
**JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (3 GAL)**

### RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. ( Customer Sample Comment: 16W15441 )

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0196530	JR0185571	JR0042982
Sample Date		Client Info		30 Jan 2024	01 Nov 2023	25 Mar 2020
Machine Age	hrs	Client Info		4763	4669	2323
Oil Age	hrs	Client Info		94	500	500
Filter Age	hrs	Client Info		94	500	500
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	93	51	13
Chromium	ppm	ASTM D5185m	>20	5	2	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	▲ 20	12	6
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	6	6	1
Tin	ppm	ASTM D5185m	>15	<1	<1	2
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

### CONTAMINATION

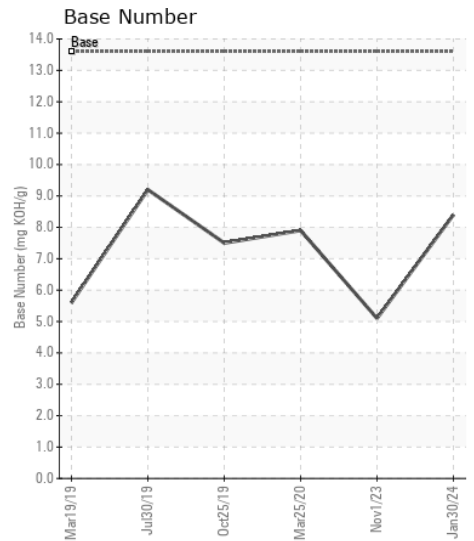
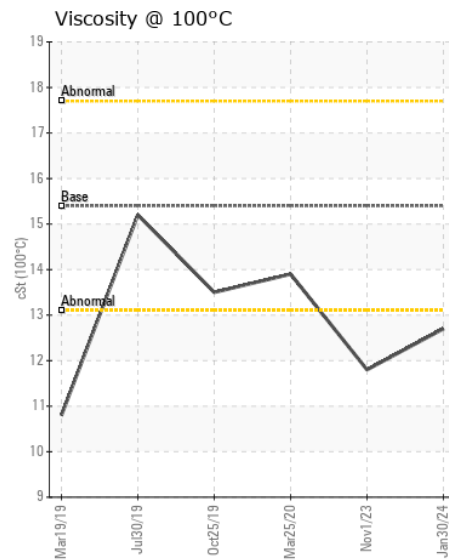
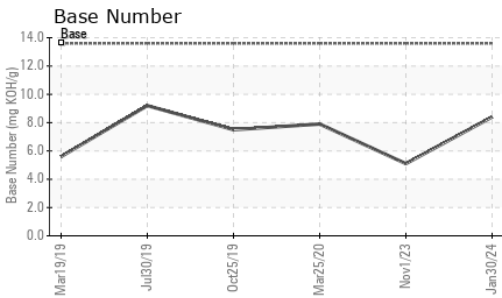
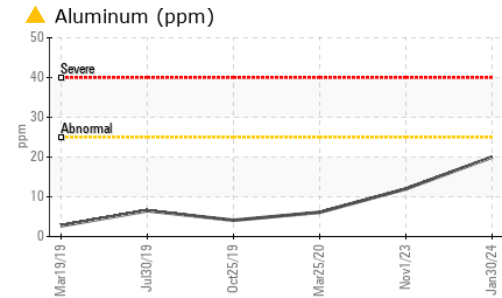
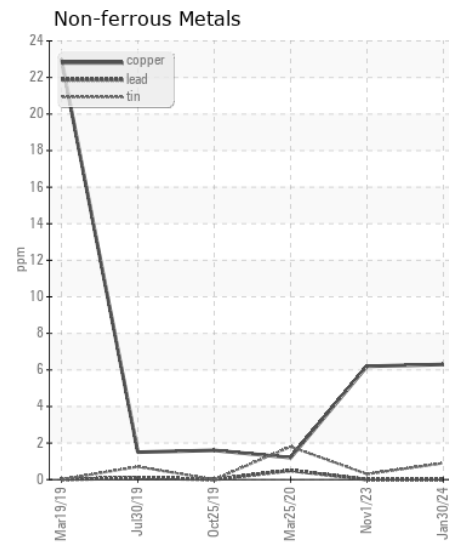
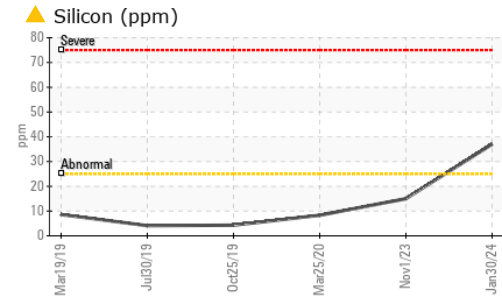
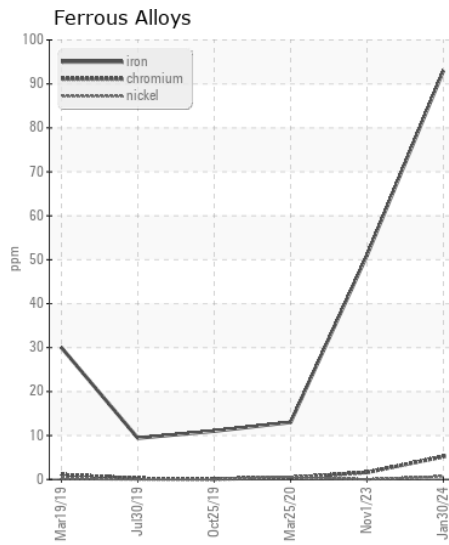
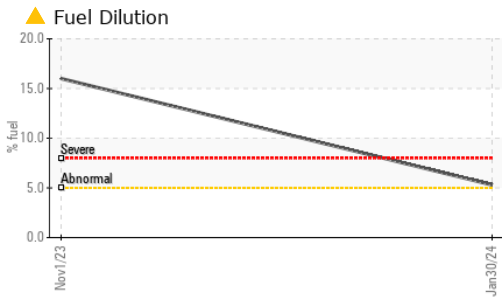
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. There is a moderate amount of fuel present in the oil.

Silicon	ppm	ASTM D5185m	>25	▲ 37	15	8
Potassium	ppm	ASTM D5185m	>20	4	4	5
Fuel	%	ASTM D3524	>5	▲ 5.3	16.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.4	0.3
Nitration	Abs/cm	*ASTM D7624	>20	8.9	12.5	10.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.8	29.2	24
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.

Sodium	ppm	ASTM D5185m		2	3	3
Boron	ppm	ASTM D5185m		222	27	162
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		213	25	235
Manganese	ppm	ASTM D5185m		1	<1	<1
Magnesium	ppm	ASTM D5185m		727	146	873
Calcium	ppm	ASTM D5185m		1335	1674	1595
Phosphorus	ppm	ASTM D5185m		850	818	914
Zinc	ppm	ASTM D5185m		1026	1061	1034
Sulfur	ppm	ASTM D5185m		2676	2579	2497
Oxidation	Abs/.1mm	*ASTM D7414	>25	17.2	29.0	20
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	8.4	5.1	7.9
Visc @ 100°C	cSt	ASTM D445	15.4	12.7	▲ 11.8	13.9



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : JR0196530 **Received** : 01 Feb 2024  
**Lab Number** : 06076613 **Diagnosed** : 05 Feb 2024  
**Unique Number** : 10858704 **Diagnostician** : Jonathan Hester  
**Test Package** : CONST ( Additional Tests: PercentFuel, TBN )

**JRE - GARNER**  
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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)