

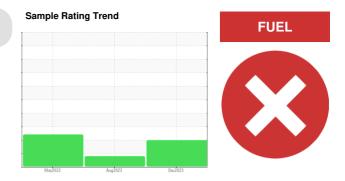
# **PROBLEM SUMMARY**

# ORIN CONTRACTORS 881

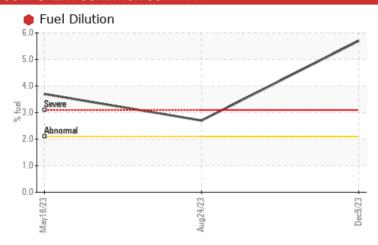
Component

**Diesel Engine** 

JOHN DEERE ENGINE OIL PLUS 50 II 10W30 (--- GAL)



# COMPONENT CONDITION SUMMARY



# **RECOMMENDATION**

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC T	BLEMATIC TEST RESULTS							
Sample Status				SEVERE	ABNORMAL	SEVERE		
Fuel	%	ASTM D7593*	>2.1	<b>5.7</b>	<u>^</u> 2.7	<b>3.7</b>		

Customer Id: RONVAU **Sample No.:** WC0872892 Lab Number: 02603070 Test Package: MOBCE

To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

To change component or sample information: Gloria Gonzalez +1 (289)291-4643 x4643 gloria.gonzalez@wearcheck.com

# 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

#### 24 Aug 2023 Diag: Wes Davis

FUEL



The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. The oil is no longer serviceable due to the presence of contaminants.



# 18 May 2023 Diag: Wes Davis

FUEL



We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.





# **OIL ANALYSIS REPORT**

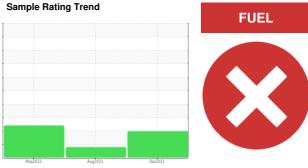
# ORIN CONTRACTORS

881

Component

**Diesel Engine** 

JOHN DEERE ENGINE OIL PLUS 50 II 10W30 (--- GAL)



# DIAGNOSIS

# Recommendation

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. 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. Tests confirm the presence of fuel in the oil.

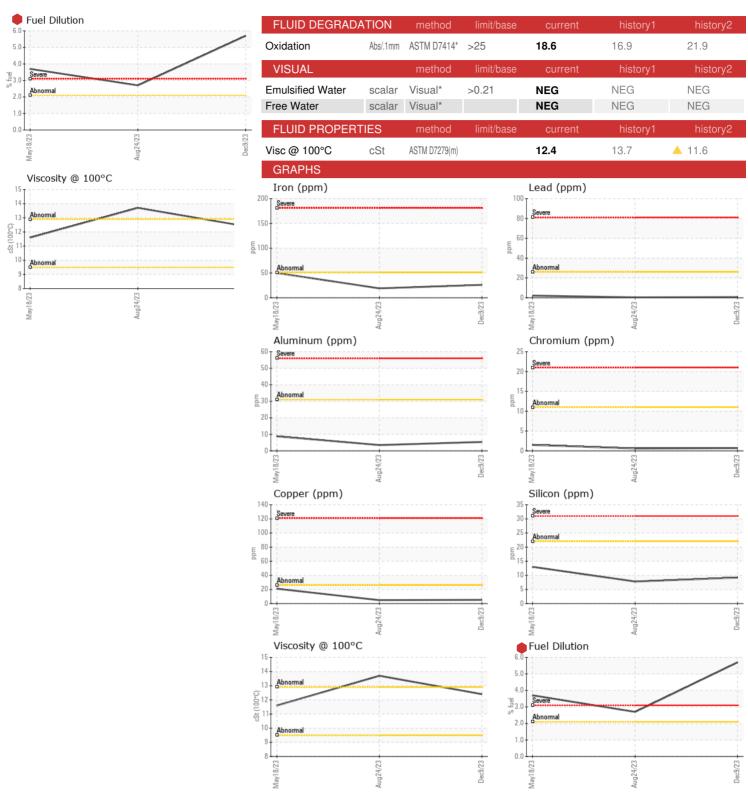
# **Fluid Condition**

The oil is no longer serviceable due to the presence of contaminants.

Sample Number   Client Info   WC0872892	oo ( GAL)		Ma	y2023	Aug 2023 Dec 20	023	
Client Info	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info Dil Age hrs Client Info Dil Changed hrs Client Info Dil Changed Changed Sample Status    SEVERE   ABNORMAL SEVERE   CONTAMINATION   method   Imit/base   current   history1   history2	Sample Number		Client Info		WC0872892	LH0275301	LH0256631
Dil Age	Sample Date		Client Info		09 Dec 2023	24 Aug 2023	18 May 2023
Client Info	Machine Age	hrs	Client Info		0	1382	1195
Sewer   Abnormal   Sever   Abnormal   Sever   Sever   Abnormal   Sever   Sever   Sever   Abnormal   Sever	Oil Age	hrs	Client Info		0	0	0
Water	Oil Changed		Client Info		Changed	Changed	Changed
Water         WC Method         >0.21         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         >51         26         19         50           Chromium         ppm         ASTM D5185(m)         >51         26         19         50           Chromium         ppm         ASTM D5185(m)         >5         -1         <1	Sample Status				SEVERE	ABNORMAL	SEVERE
WEAR METALS	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS	Water		WC Method	>0.21	NEG	NEG	NEG
Concording   Chromium   Chromi	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185(m)         >11         <1         <1         2           Nickel         ppm         ASTM D5185(m)         >5         <1         <1         <1           Titanium         ppm         ASTM D5185(m)         >3         <1         0         0           Siliver         ppm         ASTM D5185(m)         >3         <1         0         0           Aluminum         ppm         ASTM D5185(m)         >3         <1         5         4         9           Lead         ppm         ASTM D5185(m)         >26         <1         <1         2           Copper         ppm         ASTM D5185(m)         >26         <5         5         21           Tin         ppm         ASTM D5185(m)         >4         <1         <1         <1           Copper         ppm         ASTM D5185(m)         0         0         0         0           Vanadium         ppm         ASTM D5185(m)         0         0         0         0           Servillum         ppm         ASTM D5185(m)         0         0         0         0           Cadmium         ppm         ASTM D5185(m)         4	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)	>51	26	19	50
Description	Chromium	ppm	ASTM D5185(m)	>11	<1	<1	2
Silver	Nickel	ppm	ASTM D5185(m)	>5	<1	<1	<1
Aluminum   ppm   ASTM D5185(m)   >31   5   4   9    Lead   ppm   ASTM D5185(m)   >26   <1   <1   2    Copper   ppm   ASTM D5185(m)   >26   5   5    Tin   ppm   ASTM D5185(m)   >4   <1   <1   <1    Antimony   ppm   ASTM D5185(m)   0   0   0    Vanadium   ppm   ASTM D5185(m)   0   0   0    Beryllium   ppm   ASTM D5185(m)   0   0   0    Cadmium   ppm   ASTM D5185(m)   0   0   0    ADDITIVES   method   limit/base   current   history1   history2    Boron   ppm   ASTM D5185(m)   5   6   31    Barium   ppm   ASTM D5185(m)   66   64   89    Manganese   ppm   ASTM D5185(m)   0   <1   <1    Malybdenum   ppm   ASTM D5185(m)   0   <1   <1    Manganese   ppm   ASTM D5185(m)   1092   1113   1626    Zalcium   ppm   ASTM D5185(m)   951   1034   1035    Zinc   ppm   ASTM D5185(m)   951   1034   1035    Zinc   ppm   ASTM D5185(m)   2441   2541   2543    Lithium   ppm   ASTM D5185(m)   >21   <1   <1    CONTAMINANTS   method   limit/base   current   history1   history2    Sodium   ppm   ASTM D5185(m)   >20   0   <1   <1    CONTAMINANTS   method   limit/base   current   history1   history2    Sodium   ppm   ASTM D5185(m)   >20   0   <1   <1    NFRA-RED   method   limit/base   current   history1   history2    NFRA-RED   method   limit/base   current   history1   history2    Nitration   Abs/cm   ASTM D7624*   >20   10.3   8.2   11.6	Titanium	ppm	ASTM D5185(m)		0	0	<1
Lead         ppm         ASTM D5185(m)         >26         <1         <1         2           Copper         ppm         ASTM D5185(m)         >26         5         5         21           Tin         ppm         ASTM D5185(m)         >4         <1         <1         <1           Antimony         ppm         ASTM D5185(m)         0         0         0         0           Vanadium         ppm         ASTM D5185(m)         0         0         0         0           Beryllium         ppm         ASTM D5185(m)         0         0         0         0           Cadmium         ppm         ASTM D5185(m)         5         6         31         31           Barium         ppm         ASTM D5185(m)         <1         0         <1         <1           Barium         ppm         ASTM D5185(m)         66         64         89           Manganese         ppm         ASTM D5185(m)         0         <1         <1         <1           Magnesium         ppm         ASTM D5185(m)         878         900         647           Calcium         ppm         ASTM D5185(m)         951         1034         1035	Silver	ppm	ASTM D5185(m)	>3	<1	0	0
Lead         ppm         ASTM D5185(m)         >26         <1         <1         2           Copper         ppm         ASTM D5185(m)         >26         5         5         21           Tin         ppm         ASTM D5185(m)         >4         <1         <1         <1           Antimony         ppm         ASTM D5185(m)         0         0         0         0           Vanadium         ppm         ASTM D5185(m)         0         0         0         0           Beryllium         ppm         ASTM D5185(m)         0         0         0         0           Cadmium         ppm         ASTM D5185(m)         5         6         31         31           Barium         ppm         ASTM D5185(m)         5         6         31         4         4         1         0         <1         1         0         <1         0         <1         0         <1         0         <1         4         1         0         <1         4         1         0         <1         4         1         0         <1         4         1         0         <1         4         1         0         <1         4	Aluminum	ppm	ASTM D5185(m)	>31	5	4	9
Copper         ppm         ASTM D5185(m)         >26         5         5         21           Tin         ppm         ASTM D5185(m)         >4         <1	Lead			>26	<1	<1	2
Trin	Copper		ASTM D5185(m)	>26	5		21
Antimony   ppm   ASTM D5185(m)   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	• •		, ,	>4	<1		<1
Vanadium         ppm         ASTM D5185(m)         0         0         0           Beryllium         ppm         ASTM D5185(m)         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         6         31           Barium         ppm         ASTM D5185(m)         <1         0         <1           Molybdenum         ppm         ASTM D5185(m)         66         64         89           Manganese         ppm         ASTM D5185(m)         0         <1         <1           Magnesium         ppm         ASTM D5185(m)         878         900         647           Calcium         ppm         ASTM D5185(m)         1092         1113         1626           Phosphorus         ppm         ASTM D5185(m)         951         1034         1035           Zinc         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         22         9         8					0		
Beryllium         ppm         ASTM D5185(m)         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         6         31           Barium         ppm         ASTM D5185(m)         41         0         <1           Molybdenum         ppm         ASTM D5185(m)         66         64         89           Manganese         ppm         ASTM D5185(m)         0         <1         <1           Magnesium         ppm         ASTM D5185(m)         878         900         647           Calcium         ppm         ASTM D5185(m)         951         1034         1035           Phosphorus         ppm         ASTM D5185(m)         951         1034         1035           Zinc         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         >22         9	Vanadium		, ,				0
Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         6         31           Barium         ppm         ASTM D5185(m)         <1	Bervllium		. ,		0		
Boron   ppm   ASTM D5185(m)   5   6   31	Cadmium		, ,				0
Barium         ppm         ASTM D5185(m)         <1         0         <1           Molybdenum         ppm         ASTM D5185(m)         66         64         89           Manganese         ppm         ASTM D5185(m)         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185(m)         66         64         89           Manganese         ppm         ASTM D5185(m)         0         <1         <1           Magnesium         ppm         ASTM D5185(m)         878         900         647           Calcium         ppm         ASTM D5185(m)         1092         1113         1626           Phosphorus         ppm         ASTM D5185(m)         951         1034         1035           Zinc         ppm         ASTM D5185(m)         1168         1166         1171           Sulfur         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >22         9         8         13           Sodium         ppm         ASTM D5185(m)         >20         0         <1         <1           Fuel         %         ASTM D7593*         >2.1         5.7         2.7         3.7           INFRA-RED         method	Boron	ppm	ASTM D5185(m)		5	6	31
Molybdenum         ppm         ASTM D5185(m)         66         64         89           Manganese         ppm         ASTM D5185(m)         0         <1         <1           Magnesium         ppm         ASTM D5185(m)         878         900         647           Calcium         ppm         ASTM D5185(m)         1092         1113         1626           Phosphorus         ppm         ASTM D5185(m)         951         1034         1035           Zinc         ppm         ASTM D5185(m)         1168         1166         1171           Sulfur         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >22         9         8         13           Sodium         ppm         ASTM D5185(m)         >20         0         <1         <1           Fuel         %         ASTM D7593*         >2.1         5.7         2.7         3.7           INFRA-RED         method	Barium		ASTM D5185(m)		<1	0	<1
Manganese         ppm         ASTM D5185(m)         0         <1         <1           Magnesium         ppm         ASTM D5185(m)         878         900         647           Calcium         ppm         ASTM D5185(m)         1092         1113         1626           Phosphorus         ppm         ASTM D5185(m)         951         1034         1035           Zinc         ppm         ASTM D5185(m)         1168         1166         1171           Sulfur         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         <1	Molybdenum		. ,		66	64	89
Magnesium         ppm         ASTM D5185(m)         878         900         647           Calcium         ppm         ASTM D5185(m)         1092         1113         1626           Phosphorus         ppm         ASTM D5185(m)         951         1034         1035           Zinc         ppm         ASTM D5185(m)         1168         1166         1171           Sulfur         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         <1	•		. ,		0	<1	<1
Calcium         ppm         ASTM D5185(m)         1092         1113         1626           Phosphorus         ppm         ASTM D5185(m)         951         1034         1035           Zinc         ppm         ASTM D5185(m)         1168         1166         1171           Sulfur         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         <1	•		, ,				
Phosphorus         ppm         ASTM D5185(m)         951         1034         1035           Zinc         ppm         ASTM D5185(m)         1168         1166         1171           Sulfur         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >22         9         8         13           Sodium         ppm         ASTM D5185(m)         >31         2         2         3           Potassium         ppm         ASTM D5185(m)         >20         0         <1         <1           Fuel         %         ASTM D7593*         >2.1         5.7         2.7         3.7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7624*         >20         10.3         8.2         11.6			. ,				
Zinc         ppm         ASTM D5185(m)         1168         1166         1171           Sulfur         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >22         9         8         13           Sodium         ppm         ASTM D5185(m)         >31         2         2         3           Potassium         ppm         ASTM D5185(m)         >20         0         <1         <1           Fuel         %         ASTM D7593*         >2.1         5.7         2.7         3.7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7624*         >3         0.6         0.4         1.2           Nitration         Abs/cm         ASTM D7624*         >20         10.3         8.2         11.6							
Sulfur         ppm         ASTM D5185(m)         2441         2541         2543           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >22         9         8         13           Sodium         ppm         ASTM D5185(m)         >31         2         2         3           Potassium         ppm         ASTM D5185(m)         >20         0         <1         <1           Fuel         %         ASTM D7593*         >2.1         5.7         △         2.7         ④         3.7           INFRA-RED         method         limit/base         current         history1         history2         4           Soot %         %         ASTM D7644*         >3         0.6         0.4         1.2           Nitration         Abs/cm         ASTM D7624*         >20         10.3         8.2         11.6							
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >22         9         8         13           Sodium         ppm         ASTM D5185(m)         >31         2         2         3           Potassium         ppm         ASTM D5185(m)         >20         0         <1			. ,				
Silicon       ppm       ASTM D5185(m)       >22       9       8       13         Sodium       ppm       ASTM D5185(m)       >31       2       2       3         Potassium       ppm       ASTM D5185(m)       >20       0       <1       <1         Fuel       %       ASTM D7593*       >2.1       5.7       ▲ 2.7       ▲ 3.7         INFRA-RED       method       limit/base       current       history1       history2         Soot %       %       ASTM D7844*       >3       0.6       0.4       1.2         Nitration       Abs/cm       ASTM D7624*       >20       10.3       8.2       11.6	Lithium		. ,				
Sodium         ppm         ASTM D5185(m)         >31         2         2         3           Potassium         ppm         ASTM D5185(m)         >20         0         <1         <1           Fuel         %         ASTM D7593*         >2.1         5.7         ▲ 2.7         ▲ 3.7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.6         0.4         1.2           Nitration         Abs/cm         ASTM D7624*         >20         10.3         8.2         11.6	CONTAMINANTS	3	method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185(m)         >31         2         2         3           Potassium         ppm         ASTM D5185(m)         >20         0         <1         <1           Fuel         %         ASTM D7593*         >2.1         5.7         ▲ 2.7         ♠ 3.7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.6         0.4         1.2           Nitration         Abs/cm         ASTM D7624*         >20         10.3         8.2         11.6	Silicon	ppm	ASTM D5185(m)	>22	9	8	13
Potassium         ppm         ASTM D5185(m)         >20         0         <1         <1           Fuel         %         ASTM D7593*         >2.1         5.7         ▲ 2.7         ▲ 3.7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.6         0.4         1.2           Nitration         Abs/cm         ASTM D7624*         >20         10.3         8.2         11.6	Sodium	ppm	ASTM D5185(m)	>31	2	2	3
Fuel       %       ASTM D7593*       >2.1       ▶ 5.7       ▲ 2.7       ♠ 3.7         INFRA-RED       method       limit/base       current       history1       history2         Soot %       %       ASTM D7844*       >3       0.6       0.4       1.2         Nitration       Abs/cm       ASTM D7624*       >20       10.3       8.2       11.6	Potassium		, ,	>20	0	<1	<1
Soot %         %         ASTM D7844*         >3         0.6         0.4         1.2           Nitration         Abs/cm         ASTM D7624*         >20         10.3         8.2         11.6	Fuel						
Nitration         Abs/cm         ASTM D7624*         >20         10.3         8.2         11.6	INFRA-RED		method	limit/base	current	history1	history2
	Soot %	%	ASTM D7844*	>3	0.6	0.4	1.2
	Nitration	Abs/cm		>20	10.3		
	Sulfation				20.8		



# **OIL ANALYSIS REPORT**





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number

: WC0872892

: 02603070

: 5696155

Recieved : 14 Dec 2023 Diagnosed : 15 Dec 2023

Diagnostician : Wes Davis

Test Package : MOBCE ( Additional Tests: PercentFuel )

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 RONI/IRON SHORE EXCAVATING LTD. 100 MACINTOSH BLVD VAUGHAN, ON CA L4K 4P3

> Contact: Service Team service.team@roni.ca

T:

F: Contact/Location: Service Team - RONVAU