

# **OIL ANALYSIS REPORT**

### Sample

# Sample Rating Trend



# NEW HOLLAND T81275 ZDRC06410

Component

**Diesel Engine** 

**SAE 10W40 (20 LTR)** 

### DIAGNOSIS

### Recommendation

We advise that you check for the source of the coolant leak. 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

Test for glycol is positive. There is a high concentration of glycol present in the oil.

### Fluid Condition

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

Sample Number   Client Info   WC801389   WC801390   WC801390   Sample Date   Client Info   01 Dec 2023   10 Nov 2023   27 Mar 201   Machine Age   hrs   Client Info   3811   3725   1600   Oil Age   hrs   Client Info   386   250   400   Oil Changed   Client Info   Changed   N/A   Changed   Sample Status   SEVERE   SE							
Sample Number         Client Info         WC801389         WC801390         WC801390         WC801393         Sample Sample Date         Client Info         01 Dec 2023         10 Nov 2023         27 Mar 201           Machine Age         hrs         Client Info         3811         3725         1600           Oil Age         hrs         Client Info         86         250         400           Oil Changed         Client Info         Changed         NA         Changed           Sample Status         SEVERE         SEVERE         SEVERE           CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         >5         <1.0         <1.0         <1.0           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185(m)         >100         10         34         26           Chromium         ppm         ASTM D5185(m)         >20         <1         2         <1           Iron         ppm         ASTM D5185(m)         >3         <1         <1         <1         <1         <1         <1         <1         <1<							
Sample Date   Client Info   01 Dec 2023   10 Nov 2023   27 Mar 201	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         3811         3725         1600           Oil Age         hrs         Client Info         86         250         400           Oil Changed         Client Info         Changed         N/A         Changed           Sample Status         Client Info         Changed         N/A         Changed           SEVERE         SEVERE         SEVERE         SEVERE           CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         >5         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0<	Sample Number		Client Info		WC801389	WC801390	WC801392
Oil Age         hrs         Client Info         86         250         400           Oil Changed         Client Info         Changed         N/A         Changed           Sample Status         SEVERE         SEVERE         SEVERE         SEVERE         SEVERE           CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         >5         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185(m)         >100         10         34         26           Chromium         ppm         ASTM D5185(m)         >10         10         34         26           Chromium         ppm         ASTM D5185(m)         >20         <1         2         1           Iron         ppm         ASTM D5185(m)         >3         <1         <1         0           All minium         ppm         ASTM D5185(m)         >33         <1         <1         0           Copp	Sample Date		Client Info		01 Dec 2023	10 Nov 2023	27 Mar 2019
Coll Changed Sample Status         Client Info         Changed SEVERE         N/A         Changed SEVERE           CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         >5         <1.0	•	hrs	Client Info		3811	3725	1600
SEVERE   SEVERE   SEVERE   SEVERE   SEVERE   SEVERE   SEVERE   CONTAMINATION   method   limit/base   current   history1   history   h	Oil Age	hrs	Client Info		86	250	400
Fuel	Oil Changed		Client Info				Ü
Fuel	Sample Status				SEVERE	SEVERE	SEVERE
Water         WC Method         >0.2         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185(m)         >100         10         34         26           Chromium         ppm         ASTM D5185(m)         >20         <1	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Iron	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium         ppm         ASTM D5185(m)         ≥20         <1         2         <1           Nickel         ppm         ASTM D5185(m)         >4         1         2         1           Titanium         ppm         ASTM D5185(m)         >3         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185(m) >4 1 2 1  Titanium ppm ASTM D5185(m) >3 <1 2 <1  Silver ppm ASTM D5185(m) >3 <1 <1 0  Aluminum ppm ASTM D5185(m) >20 2 5 3  Lead ppm ASTM D5185(m) >40 10 17 8  Copper ppm ASTM D5185(m) >330 319 522 120  Tin ppm ASTM D5185(m) >15 0 <1 <1 <1  Antimony ppm ASTM D5185(m) 0 0 3 14  Vanadium ppm ASTM D5185(m) 0 0 0 1  Beryllium ppm ASTM D5185(m) 0 0 0 1  Beryllium ppm ASTM D5185(m) 0 0 0 0  Cadmium ppm ASTM D5185(m) 0 0 0 <1  ADDITIVES method limit/base current history1 history1  Molybdenum ppm ASTM D5185(m) 54 95 195  Barium ppm ASTM D5185(m) 54 95 195  Calcium ppm ASTM D5185(m) 54 11 1 1  Calcium ppm ASTM D5185(m) 54 196 878  Sulfur ppm ASTM D5185(m) 54 1068 916 878  Sulfur ppm ASTM D5185(m) 2695 2470 2870  CONTAMINANTS method limit/base current history1 history1  ASTM D5185(m) >20 401 4155 708 408	Iron	ppm	ASTM D5185(m)	>100	10	34	26
Titanium         ppm         ASTM D5185(m)         <1         2         <1           Silver         ppm         ASTM D5185(m)         >3         <1	Chromium	ppm	ASTM D5185(m)	>20	<1	2	<1
Silver         ppm         ASTM D5185(m)         >3         <1         <1         0           Aluminum         ppm         ASTM D5185(m)         >20         2         5         3           Lead         ppm         ASTM D5185(m)         >40         10         17         8           Copper         ppm         ASTM D5185(m)         >40         10         17         8           Copper         ppm         ASTM D5185(m)         >40         10         17         8           Copper         ppm         ASTM D5185(m)         >330         319         522         120           Tin         ppm         ASTM D5185(m)         0         <1         <1         <1           Antimony         ppm         ASTM D5185(m)         0         0         <1         <1           Vanadium         ppm         ASTM D5185(m)         0         0         0         0           Beryllium         ppm         ASTM D5185(m)         0         0         0         0           Cadmium         ppm         ASTM D5185(m)         54         95         195           Barium         ppm         ASTM D5185(m)         <1         <1         <1 </td <td>Nickel</td> <td>ppm</td> <td>ASTM D5185(m)</td> <td>&gt;4</td> <td>1</td> <td>2</td> <td>1</td>	Nickel	ppm	ASTM D5185(m)	>4	1	2	1
Aluminum         ppm         ASTM D5185(m)         >20         2         5         3           Lead         ppm         ASTM D5185(m)         >40         10         17         8           Copper         ppm         ASTM D5185(m)         >330         319         522         120           Tin         ppm         ASTM D5185(m)         >15         0         <1	Titanium	ppm	ASTM D5185(m)		<1	2	<1
Lead         ppm         ASTM D5185(m)         >40         10         17         8           Copper         ppm         ASTM D5185(m)         >330         319         522         120           Tin         ppm         ASTM D5185(m)         >15         0         <1         <1           Antimony         ppm         ASTM D5185(m)         0         3         14           Vanadium         ppm         ASTM D5185(m)         0         0         0         1           Beryllium         ppm         ASTM D5185(m)         0         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185(m)         54         95         195           Barium         ppm         ASTM D5185(m)         60         61         68           Manganese         ppm         ASTM D5185(m)         41         1         1           Magnesium         ppm         ASTM D5185(m)         337         429         464           Calcium	Silver	ppm	ASTM D5185(m)	>3	<1	<1	0
Copper         ppm         ASTM D5185(m)         >330         319         522         120           Tin         ppm         ASTM D5185(m)         >15         0         <1	Aluminum	ppm	ASTM D5185(m)	>20	2	5	3
Tin         ppm         ASTM D5185(m)         >15         0         <1         <1           Antimony         ppm         ASTM D5185(m)         0         3         14           Vanadium         ppm         ASTM D5185(m)         0         0         1           Beryllium         ppm         ASTM D5185(m)         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185(m)         54         95         195           Barium         ppm         ASTM D5185(m)         60         61         68           Manganese         ppm         ASTM D5185(m)         41         1         1           Magnesium         ppm         ASTM D5185(m)         337         429         464           Calcium         ppm         ASTM D5185(m)         1419         1249         1137           Phosphorus         ppm         ASTM D5185(m)         989         1064         1038           Zinc         ppm         ASTM D5185(m)         2695         2470	Lead	ppm	ASTM D5185(m)	>40	10	17	8
Antimony         ppm         ASTM D5185(m)         0         3         14           Vanadium         ppm         ASTM D5185(m)         0         0         1           Beryllium         ppm         ASTM D5185(m)         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         <1	Copper	ppm	ASTM D5185(m)	>330	319	<b>522</b>	120
Vanadium         ppm         ASTM D5185(m)         0         0         1           Beryllium         ppm         ASTM D5185(m)         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185(m)         54         95         195           Barium         ppm         ASTM D5185(m)         <1         <1         <1         <1           Molybdenum         ppm         ASTM D5185(m)         60         61         68           Manganese         ppm         ASTM D5185(m)         337         429         464           Calcium         ppm         ASTM D5185(m)         1419         1249         1137           Phosphorus         ppm         ASTM D5185(m)         989         1064         1038           Zinc         ppm         ASTM D5185(m)         2695         2470         2870           Sulfur         ppm         ASTM D5185(m)         <1         <1         <1            CONTAMINANTS         method         limit/base	Tin	ppm	ASTM D5185(m)	>15	0	<1	<1
Beryllium         ppm         ASTM D5185(m)         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         54         95         195           Barium         ppm         ASTM D5185(m)         <1         <1         <1         <1           Molybdenum         ppm         ASTM D5185(m)         60         61         68           Manganese         ppm         ASTM D5185(m)         337         429         464           Calcium         ppm         ASTM D5185(m)         1419         1249         1137           Phosphorus         ppm         ASTM D5185(m)         989         1064         1038           Zinc         ppm         ASTM D5185(m)         2695         2470         2870           Sulfur         ppm         ASTM D5185(m)         <1         <1         <1         0           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM	Antimony	ppm	ASTM D5185(m)		0	3	14
Cadmium         ppm         ASTM D5185(m)         0         0         <1           ADDITIVES         method         limit/base         current         history1         history           Boron         ppm         ASTM D5185(m)         54         95         195           Barium         ppm         ASTM D5185(m)         <1	Vanadium	ppm	ASTM D5185(m)		0	0	1
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         54         95         195           Barium         ppm         ASTM D5185(m)         <1	Beryllium	ppm	ASTM D5185(m)		0	0	0
Boron         ppm         ASTM D5185(m)         54         95         195           Barium         ppm         ASTM D5185(m)         <1         <1         <1         <1           Molybdenum         ppm         ASTM D5185(m)         60         61         68           Manganese         ppm         ASTM D5185(m)         <1         1         1           Magnesium         ppm         ASTM D5185(m)         337         429         464           Calcium         ppm         ASTM D5185(m)         1419         1249         1137           Phosphorus         ppm         ASTM D5185(m)         989         1064         1038           Zinc         ppm         ASTM D5185(m)         1068         916         878           Sulfur         ppm         ASTM D5185(m)         2695         2470         2870           Lithium         ppm         ASTM D5185(m)         <1         <1         0           CONTAMINANTS         method         limit/base         current         history1         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm	Cadmium	ppm	ASTM D5185(m)		0	0	<1
Barium         ppm         ASTM D5185(m)         <1         <1         <1           Molybdenum         ppm         ASTM D5185(m)         60         61         68           Manganese         ppm         ASTM D5185(m)         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185(m)         60         61         68           Manganese         ppm         ASTM D5185(m)         <1         1         1           Magnesium         ppm         ASTM D5185(m)         337         429         464           Calcium         ppm         ASTM D5185(m)         1419         1249         1137           Phosphorus         ppm         ASTM D5185(m)         989         1064         1038           Zinc         ppm         ASTM D5185(m)         1068         916         878           Sulfur         ppm         ASTM D5185(m)         2695         2470         2870           Lithium         ppm         ASTM D5185(m)         <1         <1         0           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm         ASTM D5185(m)         >401         155         708         308           Potassium         ppm         ASTM D5185(m)         >20         37         234         208	Boron	ppm	ASTM D5185(m)		54	95	195
Manganese         ppm         ASTM D5185(m)         <1         1         1           Magnesium         ppm         ASTM D5185(m)         337         429         464           Calcium         ppm         ASTM D5185(m)         1419         1249         1137           Phosphorus         ppm         ASTM D5185(m)         989         1064         1038           Zinc         ppm         ASTM D5185(m)         1068         916         878           Sulfur         ppm         ASTM D5185(m)         2695         2470         2870           Lithium         ppm         ASTM D5185(m)         <1         <1         0           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm         ASTM D5185(m)         >401         155         708         308           Potassium         ppm         ASTM D5185(m)         >20         37         234         208	Barium	ppm	ASTM D5185(m)		<1	<1	<1
Magnesium         ppm         ASTM D5185(m)         337         429         464           Calcium         ppm         ASTM D5185(m)         1419         1249         1137           Phosphorus         ppm         ASTM D5185(m)         989         1064         1038           Zinc         ppm         ASTM D5185(m)         1068         916         878           Sulfur         ppm         ASTM D5185(m)         2695         2470         2870           Lithium         ppm         ASTM D5185(m)         <1         <1         0           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm         ASTM D5185(m)         >401         155         708         308           Potassium         ppm         ASTM D5185(m)         >20         37         234         208	Molybdenum	ppm			60	61	68
Calcium         ppm         ASTM D5185(m)         1419         1249         1137           Phosphorus         ppm         ASTM D5185(m)         989         1064         1038           Zinc         ppm         ASTM D5185(m)         1068         916         878           Sulfur         ppm         ASTM D5185(m)         2695         2470         2870           Lithium         ppm         ASTM D5185(m)         <1	•	ppm	( )				
Phosphorus         ppm         ASTM D5185(m)         989         1064         1038           Zinc         ppm         ASTM D5185(m)         1068         916         878           Sulfur         ppm         ASTM D5185(m)         2695         2470         2870           Lithium         ppm         ASTM D5185(m)         <1         <1         0           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm         ASTM D5185(m)         >401         155         A 708         A 308           Potassium         ppm         ASTM D5185(m)         >20         A 37         A 234         A 208	Magnesium	ppm	ASTM D5185(m)				
Zinc         ppm         ASTM D5185(m)         1068         916         878           Sulfur         ppm         ASTM D5185(m)         2695         2470         2870           Lithium         ppm         ASTM D5185(m)         <1         <1         0           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm         ASTM D5185(m)         >401         155         400         708         308           Potassium         ppm         ASTM D5185(m)         >20         37         234         208		ppm	( )		_		
Sulfur         ppm         ASTM D5185(m)         2695         2470         2870           Lithium         ppm         ASTM D5185(m)         <1         <1         0           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm         ASTM D5185(m)         >401         155         △         708         △         308           Potassium         ppm         ASTM D5185(m)         >20         △         37         △         234         △         208	Phosphorus		( /			1064	1038
Lithium         ppm         ASTM D5185(m)         <1         <1         0           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm         ASTM D5185(m)         >401         ▲ 155         ▲ 708         ▲ 308           Potassium         ppm         ASTM D5185(m)         >20         ▲ 37         ▲ 234         ▲ 208							
CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm         ASTM D5185(m)         >401         155         708         308           Potassium         ppm         ASTM D5185(m)         >20         37         234         208							
Silicon         ppm         ASTM D5185(m)         >25         10         31         13           Sodium         ppm         ASTM D5185(m)         >401         ▲ 155         ▲ 708         ▲ 308           Potassium         ppm         ASTM D5185(m)         >20         ▲ 37         ▲ 234         ▲ 208	Lithium	ppm	ASTM D5185(m)		<1	<1	0
Sodium         ppm         ASTM D5185(m)         >401         ▲ 155         ▲ 708         ▲ 308           Potassium         ppm         ASTM D5185(m)         >20         ▲ 37         ▲ 234         ▲ 208	CONTAMINANTS	5	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185(m)         >20         ▲ 37         ▲ 234         ▲ 208	Silicon	ppm	ASTM D5185(m)	>25	10	31	13
	Sodium	ppm	ASTM D5185(m)	>401	<u> </u>	<b>△</b> 708	△ 308
Glycol	Potassium	ppm	ASTM D5185(m)	>20	<b>△</b> 37	<b>234</b>	<u>^</u> 208
	Glycol	%	ASTM D7922*		0.164	>.70	>.70

**INFRA-RED** 

Soot %

Nitration

Sulfation

%

ASTM D7844\*

Abs/cm ASTM D7624\* >20

Abs/.1mm ASTM D7415\*

>3

history1

0.2

4.4

16.0

0

4.6

19.3

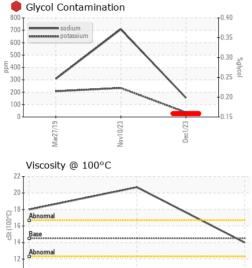
0.4

0.0

24.2



## **OIL ANALYSIS REPORT**



FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	13.8	15.2	26.8
VISUAL		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		▲ MODER
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	NORML
<b>Emulsified Water</b>	scalar	Visual*	>0.2	NEG	<b>1</b> %	1%
Free Water	scalar	Visual*		NEG	<u></u> >10%	NEG
FLUID PROPERTIES		method	limit/base	current	history1	history2

Visc @ 100°C	cSt	ASTM D7279(m)	14.5	14.0	20.7	<b>1</b> 8.0
GRAPHS						
Iron (ppm)				Lead (ppm)	)	
200 Severe				80 Severe		
Abnormal				60 Abnormal		
50+	: :			20	1 1	
0			- 23	0	23	23
Mar27/19	Nov10/23		Dec1/23	Mar27/19	Nov10/23	Dec1/23
Aluminum (ppm)	)			Chromium 50 T	(ppm)	
40 Severe				40 Severe		
Abnormal				Abnormal		
10				10		
0	Z3 -		23	01	23	23
Mar27/19	Nov10/23		Dec1/23	Mar27/19	Nov10/23	Dec1/23
Copper (ppm)				Silicon (ppr	n)	
1				60		
# A00 SEVERMAL				E 40		
200				Abnormal		
0	23		-23	0	23	23
Mar27/19	Nov10/23		Dec1/23	Mar27/19	Nov10/23	Dec1/23
Viscosity @ 100°	С			Glycol Cont	amination	0.40
25				600 sodium		T <sub>0.40</sub>
Abnormal 8 15 + Base				E 400		0.30 gg
දි 15 - Base Abnormal				200	terrestation of the state of th	0.25 <u>8</u> 0.20
10	23		- 53	0	- 53	0.15
Mar27/19	Nov10/23		Dec1/23	Mar27/19	Nov10/23	Dec1/23
_	_			_		



**CALA** ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number

Unique Number : 5693938

: WC801389 : 02600853

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received

: 05 Dec 2023 Diagnosed : 06 Dec 2023 Diagnostician : Kevin Marson

Test Package : MOB 1 (Additional Tests: Visual) 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.

**Delta Power Equipment** 

197211 line 119 St. Mary`s, ON CA N4X 1C5 Contact: Steve Jaques steve.jaques@deltapower.ca

Contact/Location: Steve Jaques - DELSTM

T: (519)349-2180