

# **OIL ANALYSIS REPORT**

### Sample Rating Trend

## **NORMAL**



# TORO SPRAYER 5800-G 15585 (S/N 403442799)

**Hydraulic System** 

**TORO HYDRO-TRANS (14 GAL)** 

### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

#### Contamination

The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

### **Fluid Condition**

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION   method   limit/base   current   history1   history2							
Sample Number   Client Info   TR05967771   TR05387947				0ct2021	Sep 2023		
Sample Number   Client Info   TR05967771   TR05387947	SAMPLE INFORM	/ATION	method	limit/base	current	historv1	historv2
Sample Date   Client Info   872   420							•
Machine Age   hrs   Client Info   872   420       Oil Age   hrs   Client Info   872   420       Oil Changed   Client Info   Not Changd   Not Changd       Sample Status   NORMAL   NORMAL       WEAR METALS   method   limit/base   current   history1   history2     Iron   ppm   ASTM D5185m   >20   3   2       Chromium   ppm   ASTM D5185m   >10   0   0       Nickel   ppm   ASTM D5185m   >10   0   0       Nickel   ppm   ASTM D5185m   >10   0   0       Titanium   ppm   ASTM D5185m   >10   0   0       Silver   ppm   ASTM D5185m   >10   0   <1       Lead   ppm   ASTM D5185m   >10   0   <1       Lead   ppm   ASTM D5185m   >10   3   1       Copper   ppm   ASTM D5185m   >10   3   1       Copper   ppm   ASTM D5185m   >10   <1   0       Antimony   ppm   ASTM D5185m   >10   <1   0       Antimony   ppm   ASTM D5185m   >10   <1   0       Antimony   ppm   ASTM D5185m   0   0   0       Cadmium   ppm   ASTM D5185m   0   0   0       ADDITIVES   method   limit/base   current   history1   history2     Boron   ppm   ASTM D5185m   0   0   0       Manganese   ppm   ASTM D5185m   0   0   0       Manganese   ppm   ASTM D5185m   0   0   0       Manganese   ppm   ASTM D5185m   0   0   0       Manganesum   ppm   ASTM D5185m   0   0   0       Manganesum   ppm   ASTM D5185m   2   <1   <1       Calcium   ppm   ASTM D5185m   20   0       Sulfur   ppm   ASTM D5185m   20   0       Calcium   ppm   ASTM D5185m   2	<u> </u>						
Oil Age         hrs         Client Info         872         420            Oil Changed Sample Status         Client Info         Not Changd	•	hrs			-		
Oil Changed   Cilient Info   Not Changd   NoRMAL   NOR					_		
Sample Status   MORMAL   NORMAL   Filter	-	1110					
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         3         2            Chromium         ppm         ASTM D5185m         >10         0         0            Nickel         ppm         ASTM D5185m         0         0             Silver         ppm         ASTM D5185m         0         0         -1            Aluminum         ppm         ASTM D5185m         0         0         -1            Aluminum         ppm         ASTM D5185m         10         3         1            Aluminum         ppm         ASTM D5185m         >10         3         1            Acaded         ppm         ASTM D5185m         -1         -1         0            Tin         ppm         ASTM D5185m         0         0            Antimony         ppm         ASTM D5185m         0         0            Cadmium         ppm         ASTM D5185m         0         0            B	-					Ü	
Iron			method	limit/base			hietory?
Chromium         ppm         ASTM D5185m         >10         0         0							
Nickel         ppm         ASTM D5185m         >10         0         0            Titanium         ppm         ASTM D5185m         0         0            Sliver         ppm         ASTM D5185m         0         <1						_	
Titanium         ppm         ASTM D5185m         0         0            Silver         ppm         ASTM D5185m         0         <1					-		
Silver         ppm         ASTM D5185m         0         <1         ····           Aluminum         ppm         ASTM D5185m         >10         0         <1				>10	-		
Aluminum					-		
Lead         ppm         ASTM D5185m         >10         3         1            Copper         ppm         ASTM D5185m         >75         2         3            Tin         ppm         ASTM D5185m         >10         <1				. 10			
Copper         ppm         ASTM D5185m         >75         2         3            Tin         ppm         ASTM D5185m         >10         <1					-		
Tin ppm ASTM D5185m >10 <1 0 Antimony ppm ASTM D5185m 0 0 0 Antimony ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0  ADDITIVES method limit/base current history1 history2  Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m <1 <1 Manganesium ppm ASTM D5185m 2 <1 Calcium ppm ASTM D5185m 2 <1 Calcium ppm ASTM D5185m 106 124 Phosphorus ppm ASTM D5185m 21 16 Zinc ppm ASTM D5185m 21 16 Sulfur ppm ASTM D5185m 21 16 Sulfur ppm ASTM D5185m 1620 1437  CONTAMINANTS method limit/base current history1 history2  Silicon ppm ASTM D5185m <10 0 Sodium ppm ASTM D5185m >20 2 0 Sodium ppm ASTM D5185m >20 1 0 Sodium ppm ASTM D5185m >20 1 0  FUID CLEANLINESS method limit/base current history1 history2  Particles >4μm ASTM D6304 >0.1 0.058 FLUID CLEANLINESS method limit/base current history1 history2  Particles >6μm ASTM D647 >5000 193 914 Particles >6μm ASTM D7647 >100 0 0 Particles >21μm ASTM D7647 >100 0 0 Particles >71μm ASTM D7647 >3 0 0 0							
Antimony         ppm         ASTM D5185m          0            Vanadium         ppm         ASTM D5185m         0         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0            Barium         ppm         ASTM D5185m         0         0            Molybdenum         ppm         ASTM D5185m         <1	•				_		
Vanadium         ppm         ASTM D5185m         0         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0            Barium         ppm         ASTM D5185m         0         0            Molybdenum         ppm         ASTM D5185m         <1         <1            Manganese         ppm         ASTM D5185m         <1         <1            Magnesium         ppm         ASTM D5185m         2         <1            Magnesium         ppm         ASTM D5185m         106         124            Phosphorus         ppm         ASTM D5185m         449         460            Zinc         ppm         ASTM D5185m         21         16            Sulfur         ppm         ASTM D5185m         20         2         0            Sulfur         ppm         ASTM D5185m         >20         2         0				>10			
Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0            Barium         ppm         ASTM D5185m         0         0            Molybdenum         ppm         ASTM D5185m         <1	•						
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0            Barium         ppm         ASTM D5185m         0         0            Molybdenum         ppm         ASTM D5185m         <1							
Boron   ppm   ASTM D5185m   O   O		ppm	ASTM D5185m		U	0	
Barium         ppm         ASTM D5185m         0         0            Molybdenum         ppm         ASTM D5185m         <1         <1            Manganese         ppm         ASTM D5185m         2         <1            Magnesium         ppm         ASTM D5185m         106         124            Calcium         ppm         ASTM D5185m         106         124            Phosphorus         ppm         ASTM D5185m         21         16            Zinc         ppm         ASTM D5185m         21         16            Sulfur         ppm         ASTM D5185m         20         2         0            Sulfur         ppm         ASTM D5185m         >20         2         0            Sodium         ppm         ASTM D518	ADDITIVES		method	limit/base		history1	history2
Molybdenum   ppm   ASTM D5185m   <1   <1   <	Boron	ppm	ASTM D5185m			0	
Manganese         ppm         ASTM D5185m         <1		ppm	ASTM D5185m		0	0	
Magnesium         ppm         ASTM D5185m         2         <1	Molybdenum		ASTM D5185m		<1	<1	
Calcium         ppm         ASTM D5185m         106         124            Phosphorus         ppm         ASTM D5185m         449         460            Zinc         ppm         ASTM D5185m         21         16            Sulfur         ppm         ASTM D5185m         1620         1437            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         2         0            Sodium         ppm         ASTM D5185m         >20         2         0            Sodium         ppm         ASTM D5185m         >20         2         0            Potassium         ppm         ASTM D5185m         >20         2         0            Water         %         ASTM D5185m         >20         2         1         0            FLUID CLEANLINESS         method         limit/base         current         history1         history2           FLUID CLEANLINESS         method	•	ppm	ASTM D5185m				
Phosphorus         ppm         ASTM D5185m         449         460            Zinc         ppm         ASTM D5185m         21         16            Sulfur         ppm         ASTM D5185m         1620         1437            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         2         0            Sodium         ppm         ASTM D5185m         >20         <1         2            Potassium         ppm         ASTM D5185m         >20         <1         0            Water         %         ASTM D6304         >0.1         0.058             Water         %         ASTM D6304         >0.0         580             ppm Water         ppm         ASTM D647         >5000         193         914            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >1300         50         173	Magnesium	ppm	ASTM D5185m		_		
Zinc         ppm         ASTM D5185m         21         16            Sulfur         ppm         ASTM D5185m         1620         1437            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         2         0            Sodium         ppm         ASTM D5185m         >20         <1         2            Potassium         ppm         ASTM D5185m         >20         <1         0            Water         %         ASTM D5185m         >20         <1         0            Water         %         ASTM D5185m         >20         <1         0            Water         %         ASTM D5185m         >20         <1         0            Ppm Water         %         ASTM D6304         >0.1         0.058             ***Pub Water         ppm         ASTM D6304         >1000         580             ***Pub Water         ppm         ASTM D7647         >5000         193         <		ppm	ASTM D5185m				
Sulfur         ppm         ASTM D5185m         1620         1437            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         2         0            Sodium         ppm         ASTM D5185m         >20         <1         2            Potassium         ppm         ASTM D5185m         >20         <1         0            Water         %         ASTM D5185m         >20         <1         0            Particles >4         Mater         ASTM D6304         >1000         580             Particles >4 µm         ASTM D7647         >5000         193         914	Phosphorus	ppm	ASTM D5185m		449	460	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         2         0            Sodium         ppm         ASTM D5185m         >20         <1	Zinc	ppm	ASTM D5185m		21		
Silicon         ppm         ASTM D5185m         >20         2         0            Sodium         ppm         ASTM D5185m         <1         2            Potassium         ppm         ASTM D5185m         >20         <1         0            Water         %         ASTM D6304         >0.1         0.058             ppm Water         ppm         ASTM D6304         >1000         580             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         193         914            Particles >6µm         ASTM D7647         >1300         50         173            Particles >14µm         ASTM D7647         >160         6         46            Particles >21µm         ASTM D7647         >40         2         11            Particles >71µm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >19/17/14         15/13/10         17/15/13      <	Sulfur	ppm	ASTM D5185m		1620	1437	
Sodium         ppm         ASTM D5185m         <1	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1         0            Water         %         ASTM D6304         >0.1         0.058             ppm Water         ppm         ASTM D6304         >1000         580             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         193         914            Particles >6μm         ASTM D7647         >1300         50         173            Particles >14μm         ASTM D7647         >160         6         46            Particles >21μm         ASTM D7647         >40         2         11            Particles >38μm         ASTM D7647         >10         0         0            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >19/17/14         15/13/10         17/15/13	Silicon	ppm	ASTM D5185m	>20	2	0	
Water         %         ASTM D6304         >0.1         0.058             ppm Water         ppm         ASTM D6304         >1000         580             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         193         914            Particles >6μm         ASTM D7647         >1300         50         173            Particles >14μm         ASTM D7647         >160         6         46            Particles >21μm         ASTM D7647         >40         2         11            Particles >38μm         ASTM D7647         >10         0         0            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >19/17/14         15/13/10         17/15/13	Sodium	ppm	ASTM D5185m		<1	2	
ppm Water         ppm ASTM D6304         >1000         580             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         193         914            Particles >6μm         ASTM D7647         >1300         50         173            Particles >14μm         ASTM D7647         >160         6         46            Particles >21μm         ASTM D7647         >40         2         11            Particles >38μm         ASTM D7647         >10         0         0            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >19/17/14         15/13/10         17/15/13	Potassium	ppm	ASTM D5185m	>20	<1	0	
FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         193         914            Particles >6μm         ASTM D7647         >1300         50         173            Particles >14μm         ASTM D7647         >160         6         46            Particles >21μm         ASTM D7647         >40         2         11            Particles >38μm         ASTM D7647         >10         0         0            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >19/17/14         15/13/10         17/15/13	Water	%	ASTM D6304	>0.1	0.058		
Particles >4μm       ASTM D7647       >5000       193       914          Particles >6μm       ASTM D7647       >1300       50       173          Particles >14μm       ASTM D7647       >160       6       46          Particles >21μm       ASTM D7647       >40       2       11          Particles >38μm       ASTM D7647       >10       0       0          Particles >71μm       ASTM D7647       >3       0       0          Oil Cleanliness       ISO 4406 (c)       >19/17/14       15/13/10       17/15/13	ppm Water	ppm	ASTM D6304	>1000	580		
Particles >6μm         ASTM D7647         >1300         50         173            Particles >14μm         ASTM D7647         >160         6         46            Particles >21μm         ASTM D7647         >40         2         11            Particles >38μm         ASTM D7647         >10         0         0            Particles >71μm         ASTM D7647         >3         0         0            Oil Cleanliness         ISO 4406 (c)         >19/17/14         15/13/10         17/15/13	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >14μm       ASTM D7647       >160       6       46          Particles >21μm       ASTM D7647       >40       2       11          Particles >38μm       ASTM D7647       >10       0       0          Particles >71μm       ASTM D7647       >3       0       0          Oil Cleanliness       ISO 4406 (c)       >19/17/14       15/13/10       17/15/13	Particles >4µm		ASTM D7647	>5000	193	914	
Particles >21μm       ASTM D7647       >40       2       11          Particles >38μm       ASTM D7647       >10       0       0          Particles >71μm       ASTM D7647       >3       0       0          Oil Cleanliness       ISO 4406 (c)       >19/17/14       15/13/10       17/15/13	Particles >6µm		ASTM D7647	>1300	50	173	
Particles >38μm       ASTM D7647       >10       0       0          Particles >71μm       ASTM D7647       >3       0       0          Oil Cleanliness       ISO 4406 (c)       >19/17/14       15/13/10       17/15/13	Particles >14µm		ASTM D7647	>160	6	46	
Particles >71μm       ASTM D7647       >3       0       0          Oil Cleanliness       ISO 4406 (c)       >19/17/14       15/13/10       17/15/13	Particles >21µm		ASTM D7647	>40	2	11	
Oil Cleanliness ISO 4406 (c) >19/17/14 <b>15/13/10</b> 17/15/13	Particles >38µm		ASTM D7647	>10	0	0	
	Particles >71μm		ASTM D7647	>3	0	0	
FLUID DEGRADATION method limit/base current history1 history2	Oil Cleanliness		ISO 4406 (c)	>19/17/14	15/13/10	17/15/13	
	FLUID DEGRADA	NOITA	method	limit/base	current	history1	history2

Acid Number (AN)

mg KOH/g ASTM D8045

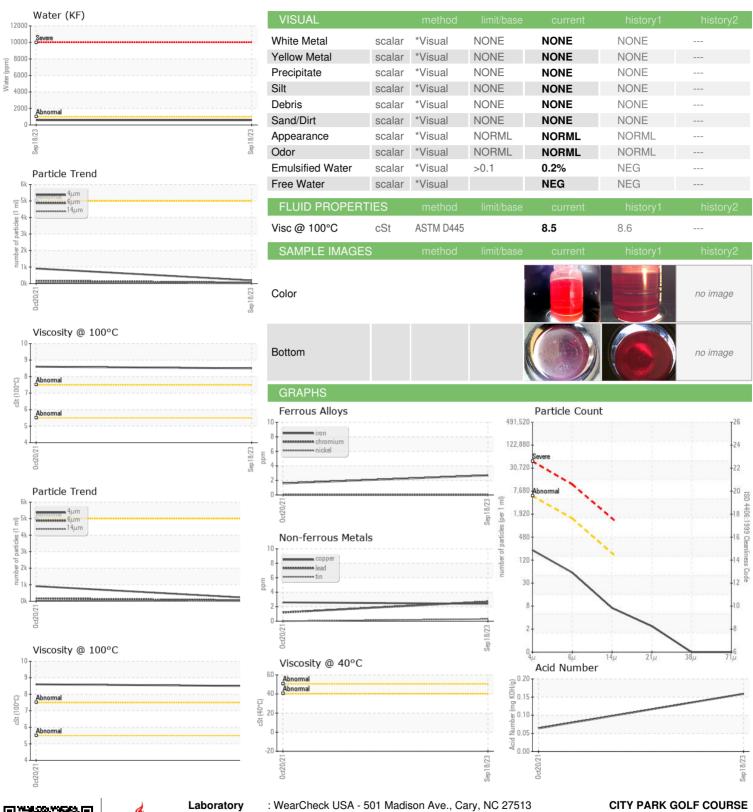
0.064

Report Id: CITDENTR [WUSCAR] 05967771 (Generated: 10/12/2023 12:44:47) Rev: 1

Contact/Location: COLIN MURPHY - CITDENTR



# **OIL ANALYSIS REPORT**





Sample No. Lab Number **Unique Number** 

: 05967771 : 10674322

Received : TR05967771 Diagnosed

: 03 Oct 2023

: 11 Oct 2023

Diagnostician : Doug Bogart Test Package : MOB 2 ( Additional Tests: KF, KV100, VI )

To discuss this sample report, contact Customer Service at 1-800-827-0711. \* - 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)

3201 E 23RD AVE DENVER, CO US 80205 Contact: COLIN MURPHY

Colin.murphy@denvergov.org

T: F:

Report Id: CITDENTR [WUSCAR] 05967771 (Generated: 10/12/2023 12:44:47) Rev: 1

Contact/Location: COLIN MURPHY - CITDENTR