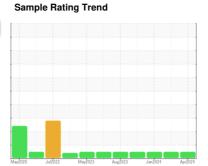


# **OIL ANALYSIS REPORT**

### ODT









# Action Newark CATERPILLAR 5582

Diesel Engine

**DIESEL ENGINE OIL SAE 15W40 (--- GAL)** 

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil

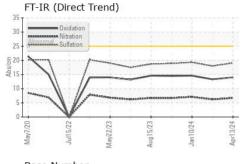
## **Fluid Condition**

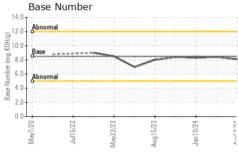
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

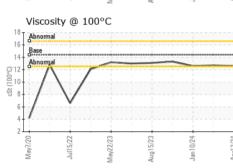
Sample Date							
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age	Sample Number		Client Info		WC0924837	WC0900108	WC0875476
Oil Age Oil Changed         hrs         Client Info         N/A	Sample Date		Client Info		13 Apr 2024	21 Feb 2024	10 Jan 2024
Contamed   Client Info   N/A   N/A   N/A   NORMAL   NOR	Machine Age	hrs	Client Info		29589	29320	29002
NORMAL   NORMAL   NORMAL   NORMAL	Oil Age	hrs	Client Info		0	0	0
Fuel	Oil Changed		Client Info		N/A	N/A	N/A
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol         WC Method WC Method         >0.2         NEG NEG         NEG NEG         NEG NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         7         5         11           Chromium         ppm         ASTM D5185m         >20         0         <1         <1           Nickel         ppm         ASTM D5185m         >2         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Copper         ppm         ASTM D5185m         >33         <1         <1         1           Tin         ppm         ASTM D5185m         >15         0         <1         <1         <1           Vanadium         ppm         ASTM D5185m         >10         <1         <1         <1         <1         <1         <1         <1         <1         <1	CONTAMINATION	<b>J</b>	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         7         5         11           Chromium         ppm         ASTM D5185m         >20         0         <1         <1           Nickel         ppm         ASTM D5185m         >2         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Lead         ppm         ASTM D5185m         >40         <1         <1         2         2           Lead         ppm         ASTM D5185m         >15         0         <1         <1         1           Copper         ppm         ASTM D5185m         >15         0         <1         <1         1           Calcium         ppm         ASTM D5185m	Water		WC Method	>0.2	NEG	NEG	NEG
	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	7	5	11
Titanium	Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper         ppm         ASTM D5185m         >330         <1	Aluminum	ppm	ASTM D5185m	>25	<1	2	2
Tin	Lead	ppm	ASTM D5185m	>40	<1	<1	2
Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         250         8         12         13           Barium         ppm         ASTM D5185m         10         <1	Copper	ppm	ASTM D5185m	>330	<1	<1	1
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         250         8         12         13           Barium         ppm         ASTM D5185m         10         <1         0         0           Molybdenum         ppm         ASTM D5185m         100         55         54         58           Manganese         ppm         ASTM D5185m         0         0         <1           Magnesium         ppm         ASTM D5185m         450         803         823         856           Calcium         ppm         ASTM D5185m         3000         1145         1099         1064           Phosphorus         ppm         ASTM D5185m         1150         976         1027         1002           Zinc         ppm         ASTM D5185m         1350         1189         1186         1145           Sulfur         ppm         ASTM D5185m         25         3         4         4           CONTAMINANTS         method         limit/base         current         history1	Tin	ppm	ASTM D5185m	>15	0	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron   ppm   ASTM D5185m   250   8   12   13	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         10         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         100         55         54         58           Manganese         ppm         ASTM D5185m         0         0         <1	Boron	ppm	ASTM D5185m	250	8	12	13
Manganese         ppm         ASTM D5185m         0         0         <1	Barium	ppm	ASTM D5185m	10	<1	0	0
Magnesium         ppm         ASTM D5185m         450         803         823         856           Calcium         ppm         ASTM D5185m         3000         1145         1099         1064           Phosphorus         ppm         ASTM D5185m         1150         976         1027         1002           Zinc         ppm         ASTM D5185m         1350         1189         1186         1145           Sulfur         ppm         ASTM D5185m         4250         3520         3452         3182           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >158         2         <1         0           Potassium         ppm         ASTM D5185m         >20         0         1         4           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.3           Nitration         Abs/.1mm         *ASTM	Molybdenum	ppm	ASTM D5185m	100	55	54	58
Calcium         ppm         ASTM D5185m         3000         1145         1099         1064           Phosphorus         ppm         ASTM D5185m         1150         976         1027         1002           Zinc         ppm         ASTM D5185m         1350         1189         1186         1145           Sulfur         ppm         ASTM D5185m         4250         3520         3452         3182           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >158         2         <1         0           Potassium         ppm         ASTM D5185m         >20         0         1         4           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.3           Nitration         Abs/.1mm         *ASTM D7415         >30         19.1         18.0         19.3           FLUID DEGRADATION         meth	Manganese	ppm	ASTM D5185m		0	0	<1
Phosphorus         ppm         ASTM D5185m         1150         976         1027         1002           Zinc         ppm         ASTM D5185m         1350         1189         1186         1145           Sulfur         ppm         ASTM D5185m         4250         3520         3452         3182           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >158         2         <1         0           Potassium         ppm         ASTM D5185m         >20         0         1         4           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.3           Nitration         Abs/.mm         *ASTM D7415         >30         19.1         18.0         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm <t< th=""><th>Magnesium</th><th>ppm</th><th>ASTM D5185m</th><th></th><th>803</th><th>823</th><th>856</th></t<>	Magnesium	ppm	ASTM D5185m		803	823	856
Zinc         ppm         ASTM D5185m         1350         1189         1186         1145           Sulfur         ppm         ASTM D5185m         4250         3520         3452         3182           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >158         2         <1         0           Potassium         ppm         ASTM D5185m         >20         0         1         4           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         6.7         6.2         7.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         18.0         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm <th>Calcium</th> <th>ppm</th> <th>ASTM D5185m</th> <th>3000</th> <th>1145</th> <th>1099</th> <th>1064</th>	Calcium	ppm	ASTM D5185m	3000	1145	1099	1064
Sulfur         ppm         ASTM D5185m         4250         3520         3452         3182           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >158         2         <1	Phosphorus		ASTM D5185m		976	1027	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >158         2         <1         0           Potassium         ppm         ASTM D5185m         >20         0         1         4           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         6.7         6.2         7.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         18.0         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.0         13.3         14.6	Zinc	ppm	ASTM D5185m	1350	1189	1186	1145
Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >158         2         <1	Sulfur	ppm	ASTM D5185m	4250	3520		
Sodium         ppm         ASTM D5185m         >158         2         <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         0         1         4           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         6.7         6.2         7.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         18.0         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.0         13.3         14.6	Silicon	ppm	ASTM D5185m	>25	3	4	
INFRA-RED	Sodium	ppm	ASTM D5185m	>158	2	<1	0
Soot %         %         *ASTM D7844 >3         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624 >20         6.7         6.2         7.1           Sulfation         Abs/.1mm         *ASTM D7415 >30         19.1         18.0         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         14.0         13.3         14.6	Potassium	ppm	ASTM D5185m	>20	0	1	4
Nitration         Abs/cm         *ASTM D7624         >20         6.7         6.2         7.1           Sulfation         Abs/.1mm         *ASTM D7615         >30         19.1         18.0         19.3           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.0         13.3         14.6	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         18.0         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.0         13.3         14.6	Soot %	%	*ASTM D7844	>3	0.2	0.2	0.3
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 14.0 13.3 14.6	Nitration	Abs/cm	*ASTM D7624	>20	6.7	6.2	7.1
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.1	18.0	19.3
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Base Number (BN)         mg KOH/g         ASTM D2896         8.5         8.1         8.4         8.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.0	13.3	14.6
	Base Number (BN)	mg KOH/g	ASTM D2896	8.5	8.1	8.4	8.3



# **OIL ANALYSIS REPORT**



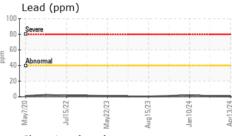


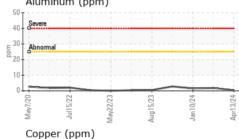


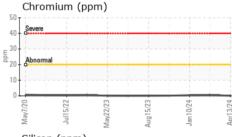
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

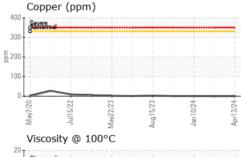
I LOID I NOI LI	TILO	memou			HISTOLYT	HISTOLYZ
Visc @ 100°C	cSt	ASTM D445	14.4	12.6	12.7	12.6

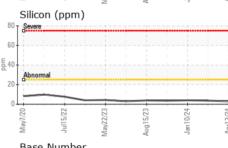
0 - Severe					
0					
Abnom	nal		1		
0					
0					
May7/20	Jul15/22 +	May22/23 -	Aug15/23	0/24	Anr.13/24

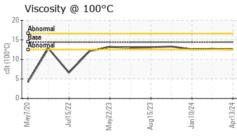


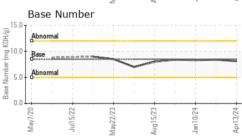
















Certificate 12367

Laboratory Sample No.

: WC0924837 Lab Number : 06157432 Unique Number : 10992855

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 23 Apr 2024

**Tested** : 24 Apr 2024 Diagnosed : 24 Apr 2024 - Wes Davis

Test Package : MOB 1 ( 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)

**INTERSTATE WASTE-NEWARK** 

110 EVERGREEN AVE, BAY 3 NEWARK, NJ

US 07114

Contact: Robert Witynski RWitynski@interstatewaste.com

T: F: