# LIEBHERR

## **CONSTRUCTION EQUIPMENT**

#### LIEBHERR A934 038332-1006 - Rear Differential

Sample No: VCE104423

Oil Type: GEAR OIL SAE 80W90

SAMPLE INFORMATION	_						
Sample Number         VCE104423         DJJ005708         DJJ009266         LHMC040640           Sample Date         01 May 2019         23 Jan 2013         28 Mar 2012         28 Jul 2011           Machine Hours         13156         7377         6219         5209           Oil Hours         0         1000         2000         1000           Oil Changed         Changed         Changed         Normad         Normad         Normad           Sample Status         NORMAL         ABNORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION           Silicon         ppm         <1	U SAME	LE INFOR	MATION				
Sample Date         01 May 2019         23 Jan 2013         28 Mar 2012         28 Jul 2011           Machine Hours         13156         7377         6219         5209           Oil Hours         0         1000         2000         1000           Oil Changed         Changed         Changed         Normal         Normal         Normal           Sample Status         NORMAL         ABNORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION           Silicon         ppm         <1         12         3         9           Sodium         ppm         <1         <1         4         4         4           Potassium         ppm         30         2         0         0         1           WEAR METALS           Iron         ppm         26         35         73         50           Copper         ppm         10         9         20         12           Lead         ppm         0         0         0         0           Aluminum         ppm         <1         0         0         0           Aluminum         ppm         <1				D.11005700	D. I. Ioooooo	111110010010	
Machine Hours         13156         7377         6219         5209           Oil Hours         0         1000         2000         1000           Oil Changed         Changed         Changed         Not Changed           Sample Status         NORMAL         ABNORMAL         NORMAL         NORMAL           CONTAMINATION           Silicon         ppm         0 < 1         12         3         9           Sodium         ppm         0 < 1         0 < 4         0          4           Potassium         ppm         30         2         0         1         0         1           WEAR METALS           Iron         ppm         26         35         73         50         50           Copper         ppm         0 10         9         20         12         1           Lead         ppm         2         < 1         0         < 1         < 1           Tin         ppm         0         0         0         0         < 1         < 1         < 1         < 1         < 1         < 1         < 1         < 1         < 1         < 1         < 1							
Oil Hours         0         1000         2000         1000           Oil Changed         Changed         Changed         Not Changed           Sample Status         NORMAL         ABNORMAL         NORMAL           OIL CONDITION           Visc @ 40°C         CSt         124         131.5         131.5         129.6           CONTAMINATION           Silicon         ppm         <1	•						
Oil Changed         Changed         Changed         Changed         Not Changed           Sample Status         NORMAL         ABNORMAL         NORMAL         NORMAL           OIL CONDITION           CONTAMINATION           Silicon         ppm         Image: square of the color of the							
Sample Status							
OIL CONDITION           Visc @ 40°C	-			-		_	
Visc @ 40°C         cSt         124         131.5         131.5         129.6           CONTAMINATION           Silicon         ppm         <1	Sample Status		NORMAL	ABNORMAL	NORMAL	NORMAL	
Visc @ 40°C         cSt         124         131.5         131.5         129.6           CONTAMINATION           Silicon         ppm         <1							
CONTAMINATION  Silicon	OIL CC	NOITION					
CONTAMINATION  Silicon	Visc @ 40°C	cSt	<b>○ 124</b>	O 131 5	O 131 5	O 129 6	
Silicon         ppm         Image: square squ	- I	001	<b>12</b> 4	0 101.0	0 101.0	0 120.0	
Silicon         ppm         Image: square squ							
Sodium         ppm         Image: square squa	CONT	AMINATIO	DN				
Potassium         ppm         30         2         0         1           WEAR METALS           Iron         ppm         26         35         73         50           Copper         ppm         10         9         20         12           Lead         ppm         2         -1         0         -1           Tin         ppm         0         0         0         0         0           Aluminum         ppm         -1         2         1         2           Chromium         ppm         -1         -1         -1         -1           Molybdenum         ppm         0         -1         -1         -1           Nickel         ppm         -1         -1         0         -1	Silicon	ppm	<b>0</b> <1	O 12	<b>3</b>	<b>9</b>	
WEAR METALS           Iron         ppm         ② 26         ③ 35         ③ 73         ⑤ 50           Copper         ppm         ⑤ 10         ⑨ 9         ② 20         ○ 12           Lead         ppm         ⑥ 2         ○ <1         ○ 0         ○ <1           Tin         ppm         ⑥ 0         ○ 0         ○ 0         ○ <1           Tin         ppm         ○ <1         ○ 2         ○ 1         ○ 2           Aluminum         ppm         ○ <1         ○ <1         ○ <1         ○ <1           Chromium         ppm         ○ <1         ○ <1         ○ <1         ○ <1           Molybdenum         ppm         ○ <1         ○ <1         ○ <1         ○ <1           Nickel         ppm         ○ <1         <1         0         <1	Sodium	ppm	<b>0</b> <1	O <1	<b>4</b>	<b>4</b>	
Iron   ppm   Q 26   Q 35   Q 73   Q 50     Copper   ppm   Q 10   Q 9   Q 20   Q 12     Lead   ppm   Q 2   Q < 1   Q 0   Q < 1     Tin   ppm   Q 0   Q 0   Q 0     Aluminum   ppm   Q < 1   Q 2   Q 1   Q 2     Chromium   ppm   Q < 1   Q < 1   Q < 1     Molybdenum   ppm   Q 0   Q < 1   Q < 1     Nickel   ppm   Q < 1   Q 1   Q < 1     Nickel   ppm   Q < 1   Q 1     Nickel   ppm   Q < 1   Q 1     Nickel   pom   Q < 1     Nickel   pom   Q	Potassium	ppm	<b>30</b>	O 2	O 0	01	
Iron   ppm   Q 26   Q 35   Q 73   Q 50     Copper   ppm   Q 10   Q 9   Q 20   Q 12     Lead   ppm   Q 2   Q < 1   Q 0   Q < 1     Tin   ppm   Q 0   Q 0   Q 0     Aluminum   ppm   Q < 1   Q 2   Q 1   Q 2     Chromium   ppm   Q < 1   Q < 1   Q < 1     Molybdenum   ppm   Q 0   Q < 1   Q < 1     Nickel   ppm   Q < 1   Q 1   Q < 1     Nickel   ppm   Q < 1   Q 1     Nickel   ppm   Q < 1   Q 1     Nickel   pom   Q < 1     Nickel   pom   Q	<b>**</b>						
Copper         ppm         10         9         20         12           Lead         ppm         2         <1         0         <1           Tin         ppm         0         0         0         0           Aluminum         ppm         <1         2         1         2           Chromium         ppm         <1         <1         <1         <1           Molybdenum         ppm         0         <1         <1         <1         <1           Nickel         ppm         <1         <1         0         <1	WEAR METALS						
Lead         ppm         2         <1         0         <1           Tin         ppm         0         0         0         0           Aluminum         ppm         <1         2         1         2           Chromium         ppm         <1         <1         <1         <1           Molybdenum         ppm         0         <1         <1         <1         <1           Nickel         ppm         <1         <1         0         <1	Iron	ppm	<b>26</b>	<b>35</b>	O 73	O 50	
Tin         ppm         0         0         0         0           Aluminum         ppm         0 <1	Copper	ppm	<b>10</b>	<b>9</b>	<b>20</b>	O 12	
Aluminum         ppm         Image: square sq	Lead	ppm	<b>2</b>	O <1	O 0	O <1	
Chromium         ppm         ◯ <1	Tin	ppm	<b>0</b>	O 0	<b>0</b>	O 0	
Molybdenum         ppm         0         <1	Aluminum	ppm	<b>0</b> <1	O 2	<b>1</b>	O 2	
<b>Nickel</b> ppm	Chromium	ppm	<b>0</b> <1	O <1	O <1	O <1	
	Molybdenum	ppm	<b>0</b>	O <1	O <1	O <1	
Titanium ppm 0 <1 0	Nickel	ppm	<b>0</b> <1	<1	0	<1	
Thailian ppin	Titanium	ppm	0	<1	0	<1	
<b>Silver</b> ppm <b>0</b> 0 <1	Silver	ppm	0	0	0	<1	
Manganese ppm	Manganese	ppm	<b>0</b> <1	<b>1</b>	O 2	<b>1</b>	
<b>Vanadium</b> ppm <b>0</b> 0 0	Vanadium	ppm	0	0	0	0	
ADDITIVES	ADDIT	<b>TIVES</b>					
Calcium         ppm <b>Q</b> 7 <b>Q</b> 22 <b>Q</b> 9 <b>Q</b> 17	Calcium	ppm	<b>7</b>	O 22	<b>9</b>	O 17	
<b>Magnesium</b> ppm <b>○ 1</b> ○ 1 ○ 0	Magnesium	ppm	<b>1</b>	<b>1</b>	0	O 2	
<b>Zinc</b> ppm <b>Q 9 Q 21</b> 28 <b>Q 26</b>	Zinc	ppm	<b>9</b>	O 21	28	O 26	
<b>Phosphorus</b> ppm <b>○ 671 ○</b> 792 <b>○</b> 982 <b>○</b> 1047	Phosphorus	ppm	<b>671</b>	792	982	<b>1047</b>	
<b>Barium</b> ppm <b>○ 0</b> ○ 0 ○ 0 <1	Barium		<b>0</b>	0	O 0	O <1	
Boron ppm <b>Q 19 Q 127 Q 172 Q 193</b>	Boron	ppm	<b>19</b>	<b>127</b>	O 172	<b>193</b>	
Calcium         ppm         7         22         9         17           Magnesium         ppm         1         1         0         2           Zinc         ppm         9         21         28         26           Phosphorus         ppm         671         792         982         1047	Calcium Magnesium Zinc Phosphorus	ppm ppm ppm	<ul><li>○ 1</li><li>○ 9</li><li>○ 671</li></ul>	<ul><li>○ 1</li><li>○ 21</li><li>○ 792</li></ul>	0 28 982	② 2 ② 26 ③ 1047	
	Boron				O 172	O 193	



### AMERICAN STATE EQUIPMENT CO.

2400 NORTH 14TH AVENUE WAUSAU, WI US 54401 Contact: CHRIS BARTNIK

cbartnik@amstate.com T: (715)675-6900 F: (715)675-9748

#### Diagnosis

Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) GEAR OIL SAE 80W90. Please confirm.

All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

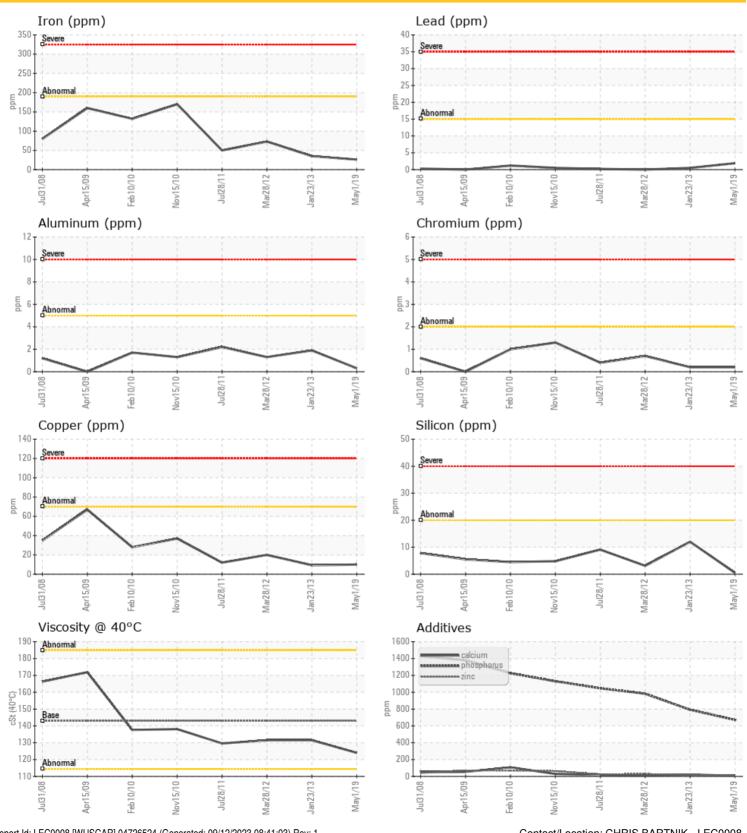
Depot: LEC0008
Unique No: 8618298
Signed: Wes Davis
Report Date: 05 Jun 2019

**CONSTRUCTION EQUIPMENT** 





#### **GRAPHS**



Report Id: LEC0008 [WUSCAR] 04726524 (Generated: 09/12/2023 08:41:03) Rev: 1

Contact/Location: CHRIS BARTNIK - LEC0008