

# **PROBLEM SUMMARY**



# WS0200725MC006GS12

Grease

Fluid KLUBER KLUBERPLEX BEM 41-301 (--- GAL)

## COMPONENT CONDITION SUMMARY



### RECOMMENDATION

We recommend that you purge and re-grease the component if this has not already been done. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS								
Sample Status				ABNORMAL				
PQ		ASTM D8184	>200	<u> </u>				
Ferrous Sliding	Scale 0-10	ASTM D7684		<b>A</b> 3				
Ferrous Rolling	Scale 0-10	ASTM D7684		<b>_</b> 5				
Nonferrous Sliding	Scale 0-10	ASTM D7684		<b>2</b>				
PrtFilter				•	no image	no image		
Filter Image 1				no image	no image	no image		
Filter Image 2				no image	no image	no image		

Customer Id: CUSANY Sample No.: WC1234567 Lab Number: 01234567 Test Package: GRS 3



To manage this report scan the QR code

To discuss the diagnosis or test data: Bill Quesnel CLS,OMA II,MLA-III,LLA-I +1 (905)569-8600 x4641 Bill.Quesnel@wearcheck.com

*To change component or sample information:* Gloria Gonzalez +1 (905)569-8600 x4643 gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS						
Action	Status	Date	Done By	Description		
Change Fluid			?	We recommend that you drain the grease from the component if this has not already been done.		
Resample			?	We recommend an early resample to monitor this condition.		

HISTORICAL DIAGNOSIS



# **GREASE ANALYSIS**

Sample Rating Trend



Machine Id WS0200725MC006GS12 Component

Grease

KLUBER KLUBERPLEX BEM 41-301 (--- GAL)

#### DIAGNOSIS

#### A Recommendation

We recommend that you purge and re-grease the component if this has not already been done. We recommend an early resample to monitor this condition.

## 🔺 Wear

PQ levels are abnormal. Wear particle analysis indicates that the ferrous rolling, ferrous sliding and nonferrous sliding particles are abnormal. The very high ferrous density (PQ) index indicates that severe wear is occurring. The ferrous particles are comprised of low alloy steel.

## **Grease Condition**

Linear Sweep Voltammetry (RULER – ASTM D6971) testing indicates normal levels of antioxidants present in the oil. The grease is no longer serviceable as a result of the abnormal and/or severe wear.

#### Contaminants

There is no indication of any contamination in the grease.

,				Sep2020		
SAMPLE INFORM	ATION	method	limit/base	current	history 1	history 2
Sample Number				WC		
Sample Date				24 Sep 2020		
Machine Age	hrs			0		
Grease Age	hrs			0		
Grease Serviced				N/A		
Sample Status				ABNORMAL		
WEAR METALS		method	limit/base	current	history 1	history 2
PQ		ASTM D8184	>200	<u> </u>		
Iron	ppm	ASTM D5185(m)	>250	12		
Chromium	ppm	ASTM D5185(m)	>10	<1		
Nickel	ppm	ASTM D5185(m)	>5	0		
Cadmium	ppm	ASTM D5185(m)		0		
Titanium	ppm	ASTM D5185(m)		0		
Vanadium	ppm	ASTM D5185(m)		<1		
Lead	ppm	ASTM D5185(m)	>25	2		
Copper	ppm	ASTM D5185(m)	>75	25		
Tin	ppm	ASTM D5185(m)	>5	0		
Silver	ppm	ASTM D5185(m)	>5	0		
ADDITIVES		method	limit/base	current	history 1	history 2
Boron	ppm	ASTM D5185(m)	0	<1		
Magnesium	ppm	ASTM D5185(m)	0	<1		
Manganese	ppm	ASTM D5185(m)	0	<1		
Molybdenum	ppm	ASTM D5185(m)	625	581		
Phosphorus	ppm	ASTM D5185(m)	20	17		
Zinc	ppm	ASTM D5185(m)	150	144		
Antimony	ppm	ASTM D5185(m)		71		
THICKENER/SOA	P	method	limit/base	current	history 1	history 2
Aluminum	ppm	ASTM D5185(m)	5	5		
Barium	ppm	ASTM D5185(m)	0	0		
Calcium	ppm	ASTM D5185(m)	5	3		
Sodium	ppm	ASTM D5185(m)	5	2		
Lithium	ppm	ASTM D5185(m)	350	330		
Sulfur	ppm	ASTM D5185(m)	750	705		
CONTAMINANTS		method	limit/base	current	history 1	history 2
Silicon	ppm	ASTM D5185(m)	>150	6		
Potassium	ppm	ASTM D5185(m)		<1		
Water	%	ASTM D6304	>0.1	0.044		
ppm Water	ppm	ASTM D6304	>1000	442.5		
GREASE CONDIT	ΓΙΟΝ	method	limit/base	current	history 1	history 2
Grease Color		Visual	yellow	Yellow		
Texture		In-house		Long fiber		
NLGI Consistency	NLGI Scale	SKF Method	1	1		
Anti-Oxidant 1	%	ASTM D6971	<25%	98		
Anti-Oxidant 2	%	ASTM D6971	<25%	92		



# **GREASE ANALYSIS**



RULER)	SAMPLE IMAGES	method	limit/base	current	history 1	history 2
	Color				no image	no image
	Bottom				no image	no image
٥	PrtFilter				no image	no image
	Filter Image 1			no image	no image	no image
	Filter Image 2			no image	no image	no image
	GRAPHS		L			
	Ferrous Alloys			PQ		
	12 10 iron		450-			
	8 - mickel		400 -	Severe		
	E 6-		350.			
	4					
	0		300 -			
	124/20		250			
	Si su como su		Sep Sep	Abnormal		
	<sup>25</sup> T		-	- 0		
	20 - copper lead		150 -			
			100-			
	Ë 10					
	5-		50-			
	0 2 2		0.	20		20
	Sep 24		Sep 24	Sep 24/		Sep 24/
				Water		
	Grease Appearance	(Magn: 10)	0.60-	Severe		
		•	0.48	•		
	•	•	ag0.36 ≥ ≥ š0.24			
			0.12	Abnormal		
			0.00-			
				Sep24/20		Sep 24/20
Laboratory : WearCheck Sample No. : WC123456 Lab Number : 01234567 Unique Number : 12345678 Test Package : GRS 3 ( Ac To discuss this sample report	<ul> <li>&lt; - C8-1175 Appleby Line, Burlin</li> <li>7 Received : 16 Oc</li> <li>Diagnosed : 12 Nc</li> <li>Diagnostician : Bill Q</li> <li>Iditional Tests: BottomAnalysis )</li> <li>t, contact Customer Service at 1</li> </ul>	gton, ON L7L ct 2020 ov 2020 uesnel - <i>800-268-213</i> 1	5H9	iim.	Cusany 1212 Con leduc@cusanvl	Logistics Inc. Industrial Place Centerville, OH USA 75900 tact: Jim Leduc ogisticsinc.com

(m) Denotes a modified test method, (e) Denotes a test conducted using an external laboratory.

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# **FERROGRAPHY REPORT**



#### Machine Id WS0200725MC006GS12 Component

Grease

Fluid KLUBERPLEX BEM 41-301 (--- GAL)



Magn: 50x Illum: RW



Magn: 100x Illum: RW



Magn: 200x Illum: RW



FERROGRAPHY		method	limit/base	current	history 1	history 2
Ferrous Rubbing	Scale 0-10	ASTM D7684		5		
Ferrous Sliding	Scale 0-10	ASTM D7684		A 3		
Ferrous Cutting	Scale 0-10	ASTM D7684				
Ferrous Rolling	Scale 0-10	ASTM D7684		<b>_</b> 5		
Ferrous Break-in	Scale 0-10	ASTM D7684				
Ferrous Spheres	Scale 0-10	ASTM D7684				
Ferrous Black Oxides	Scale 0-10	ASTM D7684		2		
Ferrous Red Oxides	Scale 0-10	ASTM D7684				
Ferrous Corrosive	Scale 0-10	ASTM D7684				
Ferrous Other	Scale 0-10	ASTM D7684				
Nonferrous Rubbing	Scale 0-10	ASTM D7684				
Nonferrous Sliding	Scale 0-10	ASTM D7684		<mark></mark> 2		
Nonferrous Cutting	Scale 0-10	ASTM D7684				
Nonferrous Rolling	Scale 0-10	ASTM D7684				
Nonferrous Other	Scale 0-10	ASTM D7684				
Carbonaceous Material	Scale 0-10	ASTM D7684				
Lubricant Degradation	Scale 0-10	ASTM D7684				
Sand/Dirt	Scale 0-10	ASTM D7684		2		
Fibres	Scale 0-10	ASTM D7684				
Spheres	Scale 0-10	ASTM D7684				
Other	Scale 0-10	ASTM D7684				

## WEAR

PQ levels are abnormal. Wear particle analysis indicates that the ferrous rolling, ferrous sliding and nonferrous sliding particles are abnormal. The very high ferrous density (PQ) index indicates that severe wear is occurring. The ferrous particles are comprised of low alloy steel. This page left intentionally blank