

# **PROBLEM SUMMARY**

## Area 8 Machine Id 8-2-301-C FM #2 Trunion - Discharge End Journal Bearing Fluid

## Fluid MOBIL MOBILGEAR SHC 460 (350 LTR)

## COMPONENT CONDITION SUMMARY



## RECOMMENDATION

We recommend an early resample to monitor this condition. Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF). Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

PROBLEMATIC TEST RESULTS							
Sample Status				SEVERE	SEVERE	SEVERE	
Tin	ppm	ASTM D5185(m)	>80	<b>4</b> 593	▲ 362	▲ 685	
Antimony	ppm	ASTM D5185(m)		<u> </u>	<b>4</b> 32	<b>6</b> 0	

Customer Id: STMBOW Sample No.: WC0925375 Lab Number: 02629337 Test Package: IND 2



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*To discuss the diagnosis or test data:* Kevin Marson +1 (289)291-4644 x4644 <u>Kevin.Marson@wearcheck.com</u>

*To change component or sample information:* Gloria Gonzalez +1 (289)291-4643 x4643 <u>gloria.gonzalez@wearcheck.com</u>



DECOM		П
	ACTION	ų,

Action Resample	Status	Date	Done By
Contact Poquirod			?
Contact nequired			?
Alert			?

## Description

We recommend an early resample to monitor this condition. Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF). Please contact your representative for information regarding the proper sampling kits for your service.

NOTE: We recommend using IND 3 test kits,

## HISTORICAL DIAGNOSIS



## 21 Feb 2024 Diag: Kevin Marson



We recommend an early resample to monitor this condition. Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF). Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid. Tin ppm levels are severe. Antimony ppm levels are abnormal. Bearing wear is indicated. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



## 29 Nov 2023 Diag: Kevin Marson



Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF). We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid. Tin ppm levels are severe. Iron and antimony ppm levels are abnormal. Bearing wear is indicated. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.



#### 14 Sep 2023 Diag: Bill Quesnel



Resample at the next service interval to monitor.All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.





# **OIL ANALYSIS REPORT**

## Area 8 Machine Id 8-2-301-C FM #2 Trunion - Discharge End Journal Bearing

MOBIL MOBILGEAR SHC 460 (350 LTR)

## DIAGNOSIS

### Recommendation

We recommend an early resample to monitor this condition. Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF). Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

## A Wear

Tin ppm levels are severe. Antimony ppm levels are abnormal. Bearing wear is indicated.

#### Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

## Fluid Condition

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



SAMPLE INFORM	<b>MATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0925375	WC0902103	WC0869918
Sample Date		Client Info		04 Apr 2024	21 Feb 2024	29 Nov 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	SEVERE	SEVERE
CONTAMINATIO	N	method	limit/base	current	history1	history2
Water		WC Method	>2	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>60	37	42	<b>1</b> 74
Chromium	ppm	ASTM D5185(m)	>20	0	0	<1
Nickel	ppm	ASTM D5185(m)	>20	<1	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	0	<1
Aluminum	ppm	ASTM D5185(m)	>4	2	3	3
Lead	ppm	ASTM D5185(m)	>250	4	4	6
Copper	ppm	ASTM D5185(m)	>125	20	16	28
Tin	ppm	ASTM D5185(m)	>80	<b>4</b> 593	▲ 362	<b>6</b> 85
Antimony	ppm	ASTM D5185(m)		<u> </u>	▲ 32	<b>6</b> 0
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base 5.7	current 6	history1 11	history2 7
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185(m) ASTM D5185(m)	limit/base 5.7 0.0	current 6 <1	history1 11 0	history2 7 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 5.7 0.0 0.0	current 6 <1 0	history1 11 0 0	history2 7 0 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0	current 6 <1 0 <1	history1 11 0 0 0	history2 7 0 0 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	Method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0	current 6 <1 0 <1 3	history1 11 0 0 0 0 3	history2 7 0 0 <1 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 0.0	current 6 <1 0 <1 3 50	history1 11 0 0 0 0 3 46	history2 7 0 0 <1 3 56
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 0.0 180	current           6           <1           0           <1           3           50           338	history1 11 0 0 0 3 46 367	history2 7 0 0 <1 3 56 342
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 180 0.8	current           6           <1           0           <1           3           50           338           <1	history1 11 0 0 0 0 3 46 367 <1	history2 7 0 0 <1 3 56 342 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 180 0.8 4270	current           6           <1           0           <1           3           50           338           <1           3371	history1 11 0 0 0 0 3 46 367 <1 4120	history2 7 0 0 <1 3 56 342 1 4030
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185(m)ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 180 0.8 4270	current         6         <1         0         <1         3         50         338         <1         3371         <1	history1         11         0         0         0         3         46         367         <1         4120         <1	history2 7 0 0 <1 3 56 342 1 4030 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 180 0.8 4270 limit/base	current         6         <1         0         <1         3         50         338         <1         3371         <1         current	history1         11         0         0         0         3         46         367         <1         4120         <1         history1	history2         7         0         1         3         56         342         1         4030         <1         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 180 0.8 4270 limit/base >50	current         6         <1         0         <1         3         50         338         <1         3371         <1         current	history1         11         0         0         0         3         46         367         <1         4120         <1         history1         8	history2         7         0         0         <1         3         56         342         1         4030         <1         history2         10
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 180 0.8 4270 limit/base >50	current         6         <1         0         <1         3         50         338         <1         3371         <1         current         7         <1	history1         11         0         0         0         3         46         367         <1         4120         <1         history1         8         <1	history2         7         0         0         0         0         0         0         0         0         0         0         0         0         0         1         4030         <1         history2         10         <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 180 0.8 4270 0.8 4270 limit/base >50	current         6         <1         0         <1         3         50         338         <1         3371         <1         current         7         <1         3	history1         11         0         0         0         3         46         367         <1         4120         <1         history1         8         <1         3	history2         7         0         -         3         56         342         1         4030         <1         history2         10         <1         2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	limit/base         5.7         0.0         0.0         0.0         0.0         180         0.8         4270         limit/base         >50         >20	current         6         <1         0         <1         3         50         338         <1         3371         <1         Current         7         <1         3         current         3         current         3         current	history1         11         0         0         0         3         46         367         <1         4120         <1         history1         8         <1         3         +120         +120         <1         history1         8         <1         3         history1	history2         7         0         0         0         0         3         56         342         1         4030         <1         history2         10         <1         2         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4um	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	limit/base         5.7         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         180         0.8         4270         limit/base         >50         .20	current         6         <1         0         <1         3         50         338         <1         3371         <1            7         <1         3         current         7         <1         3         current         206897	history1         11         0         0         3         46         367         <1         4120         <1         history1         8         <1         3         history1         3         history1         323430	history2         7         0         -         3         56         342         1         4030         <1         history2         10         <1         2         history2         244459
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	limit/base         5.7         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         180         0.8         4270         limit/base         >50	current         6         <1         0         <1         3         50         338         <1         3371         <1         current         7         <1         3         current         206897         181253	history1         11         0         0         3         46         367         <1         4120         <1         history1         8         <1         3         history1         3         history1         323430         271422	history2         7         0         0         <1         3         56         342         1         4030         <1         history2         10         <1         2         history2         244459         217554
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 180 0.8 4270 limit/base >50 s20 limit/base >320000 >160000	current         6         <1         0         <1         3         50         338         <1         3371         <1         Current         7         <1         3         current         206897         181253         55575	history1         11         0         0         3         46         367         <1         4120         <1         history1         8         <1         3         history1         323430         271422         61640	history2         7         0         -         3         56         342         1         4030         <1         history2         10         <1         2         history2         244459         217554         79550
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)           ASTM D7647           ASTM D7647           ASTM D7647	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 180 0.8 4270 limit/base >20 limit/base >320000 >160000 >40000	current         6         <1         0         <1         3         50         338         <1         3371         <1         Current         7         <1         3         current         206897         181253         55575         5568	history1         11         0         0         3         46         367         <1         4120         <1         history1         8         <1         3         history1         323430         271422         61640         5599	history2         7         0         1         3         56         342         1         4030         <1         history2         10         <1         2         history2         244459         217554         79550         12421
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >4µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647	limit/base 5.7 0.0 0.0 0.0 0.0 0.0 180 180 0.8 4270 limit/base >50 s20 limit/base >320000 >160000 >40000 >10000	current         6         <1         0         <1         3         50         338         <1         3371         <1         0         <1         3371         <1         206897         181253         55575         5568         7	history1         11         0         0         0         3         46         367         <1         4120         <1         history1         8         <1         3         history1         323430         271422         61640         5599         1	history2         7         0         -         3         56         342         1         4030         <1         history2         10         <1         2         history2         244459         217554         79550         12421         2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >4µm Particles >14µm Particles >38µm Particles >71µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185(m)           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647 <t< th=""><th>limit/base         5.7         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         180         0.8         4270         limit/base         &gt;50         s         limit/base         &gt;20         limit/base         &gt;320000         &gt;160000         &gt;40000         &gt;2500</th><th>current         6         &lt;1         3         50         338         &lt;1         3371         &lt;1            7         &lt;1         3            206897         181253         55575         5568         7         6</th><th>history1         11         0         0         3         46         367         &lt;1         4120         &lt;1         history1         8         &lt;1         3         history1         3         history1         323430         271422         61640         5599         1         0</th><th>history2         7         0            3         56         342         1         4030         &lt;1         4030         &lt;1         4030         &lt;1         bistory2         10         &lt;1         2         history2         244459         217554         79550         12421         2         1</th></t<>	limit/base         5.7         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         180         0.8         4270         limit/base         >50         s         limit/base         >20         limit/base         >320000         >160000         >40000         >2500	current         6         <1         3         50         338         <1         3371         <1            7         <1         3            206897         181253         55575         5568         7         6	history1         11         0         0         3         46         367         <1         4120         <1         history1         8         <1         3         history1         3         history1         323430         271422         61640         5599         1         0	history2         7         0            3         56         342         1         4030         <1         4030         <1         4030         <1         bistory2         10         <1         2         history2         244459         217554         79550         12421         2         1



# **OIL ANALYSIS REPORT**











FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.38	0.59	0.87	0.67
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	VLITE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	LIGHT	VLITE	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
Emulsified Water	scalar	Visual*	>2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	477	444	438	426
SAMPLE IMAGES	3	method	limit/base	current	history1	history2
Color						

Bottom



Laboratory CALA Sample No. Lab Number : 02629337 Tested : 17 Apr 2024 ISO 17025:2017 Accredited Laboratory Unique Number : 5762469 Diagnosed : 17 Apr 2024 - Kevin Marson Test Package : IND 2 (Additional Tests: TAN Man) 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.

Report Id: STMBOW [WCAMIS] 02629337 (Generated: 04/17/2024 15:10:14) Rev: 1

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Submitted By: ?
    Page 4 of 4
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