



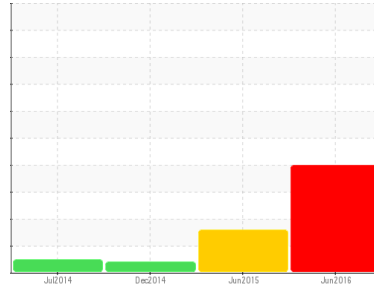
PROBLEM SUMMARY

Sample Rank Trend

ISO

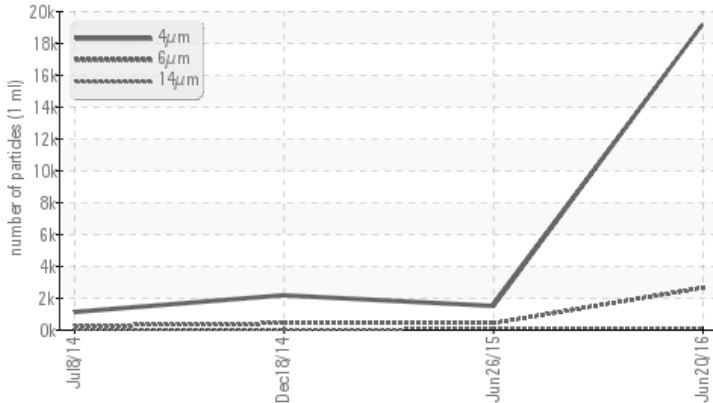


Area
Ravenswood SP-24224
 Machine Id
36259 PROOF LINE T4
 Component
Wind Turbine Gearbox
 Fluid
GEAR OIL (PAO) ISO 320 (--- GAL)



COMPONENT CONDITION SUMMARY

Particle Trend



RECOMMENDATION

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status	ASTM D7647	SEVERE	ABNORMAL	ATTENTION
Particles >6µm	>320	2632	401	398
Particles >14µm	>40	143	62	28
Particles >21µm	>10	50	27	7
Particles >38µm	>3	6	6	0
Oil Cleanliness	ISO 4406 (c) >--/15/12	21/19/14	18/16/13	18/16/12

Customer Id: CUSANY
 Sample No.: WC1234567
 Lab Number: 01234567
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
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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 Filter	MISSED	Feb 10 2017	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	MISSED	Feb 10 2017	?	Resample in 30-45 days to monitor this situation.
Alert	MISSED	Feb 10 2017	?	Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment.
Information Required	MISSED	Feb 10 2017	?	Please specify the brand, type, and viscosity of the oil on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
Check Breathers	MISSED	Feb 10 2017	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Dirt Access	MISSED	Feb 10 2017	?	We advise that you check all areas where contaminants can enter the system.
Filter Fluid	MISSED	Feb 10 2017	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS



26 Jun 2015 Diag: Kevin Marson

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. Particles >21µm are abnormally high. Particles >38µm are abnormally high. Particles >6µm are notably high. Particles >14µm are notably high. The water content is negligible. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report



18 Dec 2014 Diag: Kevin Marson

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



08 Jul 2014 Diag: Kevin Marson

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. 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 (PAO) ISO 320. Please confirm. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. 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.

view report





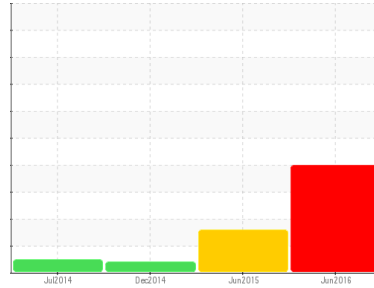
OIL ANALYSIS REPORT

Sample Rank Trend

ISO



Area
Ravenwood SP-24224
 Machine Id
36259 PROOF LINE T4
 Component
Wind Turbine Gearbox
 Fluid
GEAR OIL (PAO) ISO 320 (--- GAL)



DIAGNOSIS

Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

Particles >6µm are severely high. Oil Cleanliness is severe. Particles >14µm are abnormally high. Particles >21µm are abnormally high. Particles >38µm are abnormally high. The water content is negligible.

Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION

	method	limit/base	current	history 1	history 2
Sample Number			WC940309	WC	WC894895
Sample Date			20 Jun 2016	26 Jun 2015	18 Dec 2014
Machine Age	cyc		0	0	0
Oil Age	cyc		0	0	0
Oil Changed			N/A	N/A	N/A
Sample Status			SEVERE	ABNORMAL	ATTENTION

WEAR METALS

	method	limit/base	current	history 1	history 2
PQ	In-house	>50	9	11	10
Iron	ppm	ASTM D5185 >30	28	25	20
Chromium	ppm	ASTM D5185 >3	0.2	0.2	0.1
Manganese	ppm	ASTM D5185	0.4	0.4	0.3
Nickel	ppm	ASTM D5185 >3	0.2	0.2	0.1
Titanium	ppm	ASTM D5185 >10	0.0	0.0	0.0
Silver	ppm	ASTM D5185	0.0	0.0	0.0
Aluminum	ppm	ASTM D5185 >30	0.0	0.0	0.1
Lead	ppm	ASTM D5185 >15	0.1	0.0	0.0
Copper	ppm	ASTM D5185 >10	1.2	1.3	1.1
Tin	ppm	ASTM D5185	0.0	0.0	0.0
Antimony	ppm	ASTM D5185	0.0	0.1	0.2
Vanadium	ppm	ASTM D5185	0.0	0.0	0.0
Beryllium	ppm	ASTM D5185	0.0	0.0	0.0
Cadmium	ppm	ASTM D5185	0.0	0.0	0.0

ADDITIVES

	method	limit/base	current	history 1	history 2
Boron	ppm	ASTM D5185 25	0.4	0.7	0.4
Barium	ppm	ASTM D5185 12	0.0	0.0	0.0
Molybdenum	ppm	ASTM D5185 5	0.2	0.3	0.4
Magnesium	ppm	ASTM D5185 25	0.0	0.0	0.3
Calcium	ppm	ASTM D5185 25	0.0	0.2	0.3
Phosphorus	ppm	ASTM D5185 375	315	305	308
Zinc	ppm	ASTM D5185 25	7.0	7.4	7.0
Sulfur	ppm	ASTM D5185 4900	3579	3800	3612
Lithium	ppm	ASTM D5185	0.1	0.1	0.1

CONTAMINANTS

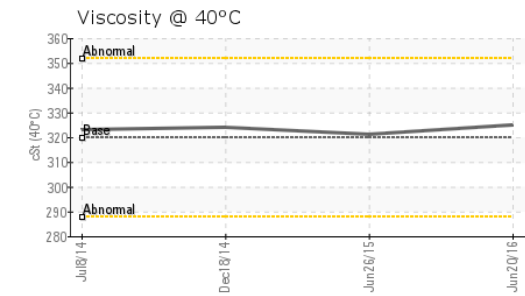
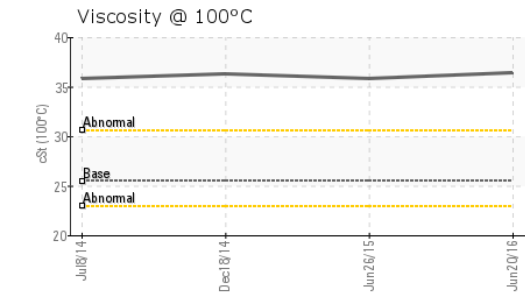
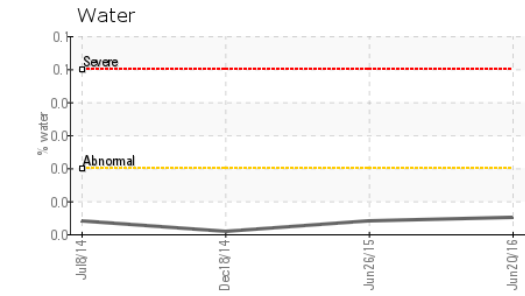
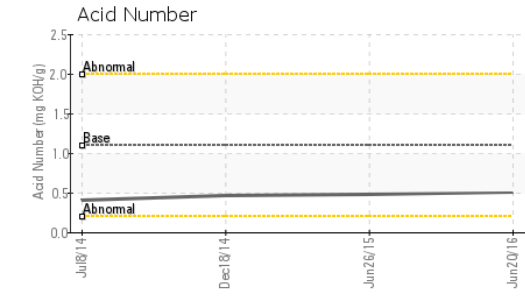
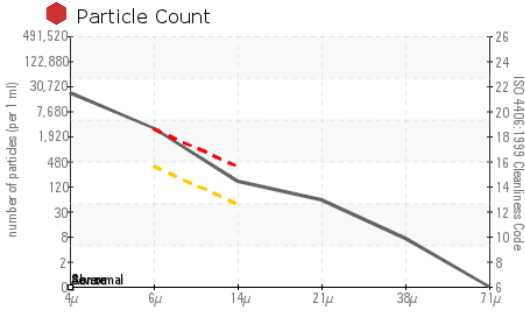
	method	limit/base	current	history 1	history 2
Silicon	ppm	ASTM D5185 >15	4.8	3.2	5.6
Sodium	ppm	ASTM D5185	1.0	0.7	0.0
Potassium	ppm	ASTM D5185 >20	0.4	0.5	1.7
Water	%	ASTM D6304 >0.02	0.005	0.004	0.001
ppm Water	ppm	ASTM D6304 >200	55.7	44.6	19.6

FLUID CLEANLINESS

	method	limit/base	current	history 1	history 2
Particles >4µm	ASTM D7647		19154	1483	2107
Particles >6µm	ASTM D7647 >320		2632	401	398
Particles >14µm	ASTM D7647 >40		143	62	28
Particles >21µm	ASTM D7647 >10		50	27	7
Particles >38µm	ASTM D7647 >3		6	6	0
Particles >71µm	ASTM D7647 >3		0	1	0
Oil Cleanliness	ISO 4406 (c)	>--/15/12	21/19/14	18/16/13	18/16/12



OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC1234567 **Received** : 30 Aug 2016
Lab Number : 01234567 **Diagnosed** : 01 Sep 2016
Unique Number : 12345678 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: KF, KV100, PrtCount, VI)

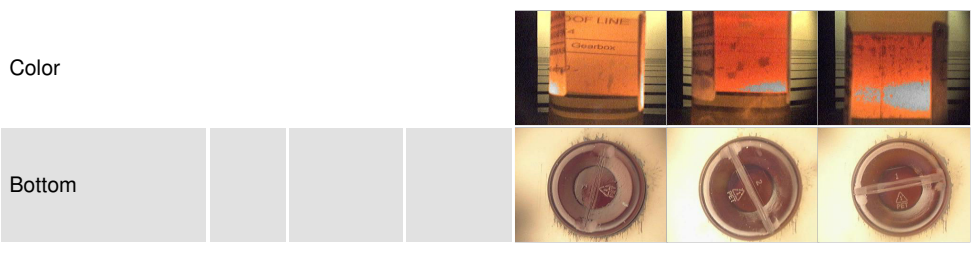
To discuss diagnosis or test data, contact Technical Support at 1-800-268-2131.
 To change component or sample information, contact Customer Service at 1-800-268-2131.

FLUID DEGRADATION		method	limit/base	current	history 1	history 2
Acid Number (AN)	mg KOH/g	ASTM D664	1.10	0.50	0.48	0.47

VISUAL		method	limit/base	current	history 1	history 2
White Metal	scalar	Visual	NONE	NONE	NONE	NONE
Babbitt	scalar	Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual	NONE	NONE	NONE	NONE
Silt	scalar	Visual	NONE	NONE	NONE	NONE
Debris	scalar	Visual	NONE	VLITE	NONE	VLITE
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	>0.02	NEG	NEG	NEG
Free Water	scalar	Visual		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history 1	history 2
Visc @ 40°C	cSt	ASTM D7279	320	325	321	324
Visc @ 100°C	cSt	ASTM D7279	25.5	36.4	35.8	36.3
Viscosity Index (VI)	Scale	ASTM D2270	121	159	158	159

SAMPLE IMAGES		method	limit/base	current	history 1	history 2
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