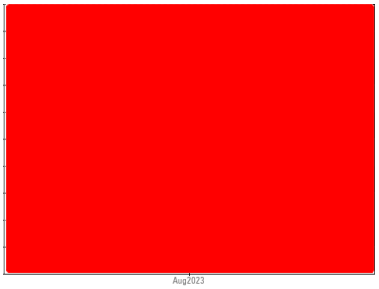
PROBLEM SUMMARY

Area
PG 46
Machine Id
AK100017886 - CORTINA
Component
Filter
Fluid
{not provided} (10 GAL)

Sample Rating Trend



WEAR PARTICLES

COMPONENT CONDITION SUMMARY

No relevant graphs to display

RECOMMENDATION

Filter as found was collapsed internally, and the plastic components were hard and brittle. Overall analysis of the wear debris, oxide debris, and filter status suggests that this system has suffered from a severe overheating problem - either currently or in the recent past. If the system is still functional, thermography should be able to find the source for investigation and correction. Aside from this, there will likely be bluing on steel surfaces near the excessive heat if this unit has failed. Note that other low-alloy steels will discolor with bluing or straw color, but high alloy metals may not discolor. Thermal problems such as this are possibly from several issues in the system, but the most common source of this is a lack of lubrication - either from a low fluid level or possibly a plugged port or valve preventing proper lubrication of an isolated section of the system.

PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	---	---
Ferrous Rubbing	Scale 0-10	*ASTM D7684	7		
Ferrous Sliding	Scale 0-10	*ASTM D7684	2		
Ferrous Rolling	Scale 0-10	*ASTM D7684	4		
Ferrous Spheres	Scale 0-10	*ASTM D7684	2		
Ferrous Black Oxides	Scale 0-10	*ASTM D7684	3		

Customer Id: UCFLUSCH
Sample No.: UFD0000101
Lab Number: 05936885
Test Package: FLTR

To manage this report scan the QR code

To discuss the diagnosis or test data:
Aaron Black +1
aaron.black@wearcheck.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

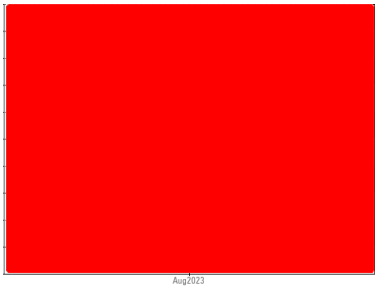
RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR PARTICLES

Area
PG 46
Machine Id
AK100017886 - CORTINA
Component
Filter
Fluid
{not provided} (10 GAL)

DIAGNOSIS

Recommendation

Filter as found was collapsed internally, and the plastic components were hard and brittle. Overall analysis of the wear debris, oxide debris, and filter status suggests that this system has suffered from a severe overheating problem - either currently or in the recent past. If the system is still functional, thermography should be able to find the source for investigation and correction. Aside from this, there will likely be bluing on steel surfaces near the excessive heat if this unit has failed. Note that other low-alloy steels will discolor with bluing or straw color, but high alloy metals may not discolor. Thermal problems such as this are possibly from several issues in the system, but the most common source of this is a lack of lubrication - either from a low fluid level or possibly a plugged port or valve preventing proper lubrication of an isolated section of the system.

Wear Particles

The most likely alloy match is Low alloy steel 92XX (92XX). Wear particle analysis indicates that the ferrous rolling and ferrous rubbing particles are severe. Wear particle analysis indicates that the ferrous spheres and ferrous black oxides particles are abnormal. Wear particle analysis indicates that the ferrous sliding particles are marginal. Black oxides are produced when metal particles are completely oxidized. This can be caused by insufficient or spent lubricant, or extreme heat at the wear surface. Tempered wear particles exhibit blue and/or purple colors. The colors are the result of oxidation of the particle and signify high heat in the area that the particle was formed.

Contaminants

The filter contained only normal levels of contaminants, and debris. All filter contaminant levels are normal.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**UFD0000101**	---	---
Sample Date		Client Info		**24 Aug 2023**	---	---
Machine Age	hrs	Client Info		**2300**	---	---
Oil Age	hrs	Client Info		**2300**	---	---
Oil Changed		Client Info		**Changed**	---	---
Sample Status				**SEVERE**	---	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m		**2358**	---	---
Chromium	ppm	ASTM D5185m		**4**	---	---
Nickel	ppm	ASTM D5185m		**2**	---	---
Titanium	ppm	ASTM D5185m		**0**	---	---
Silver	ppm	ASTM D5185m		**2**	---	---
Aluminum	ppm	ASTM D5185m		**6**	---	---
Lead	ppm	ASTM D5185m		**2**	---	---
Copper	ppm	ASTM D5185m		**7**	---	---
Tin	ppm	ASTM D5185m		**2**	---	---
Antimony	ppm	ASTM D5185m		**<1**	---	---
Vanadium	ppm	ASTM D5185m		**<1**	---	---
Beryllium	ppm	ASTM D5185m		**<1**	---	---
Cadmium	ppm	ASTM D5185m		**0**	---	---

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	*ASTM D7684		**7**		
Ferrous Sliding	Scale 0-10	*ASTM D7684		**2**		
Ferrous Cutting	Scale 0-10	*ASTM D7684				
Ferrous Rolling	Scale 0-10	*ASTM D7684		**4**		
Ferrous Break-in	Scale 0-10	*ASTM D7684				
Ferrous Spheres	Scale 0-10	*ASTM D7684		**2**		
Ferrous Black Oxides	Scale 0-10	*ASTM D7684		**3**		
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				
Nonferrous Cutting	Scale 0-10	*ASTM D7684				
Nonferrous Rolling	Scale 0-10	*ASTM D7684				
Nonferrous Other	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		**2**		
Patch Weight	mg	*ASTM D7684		**341**	---	---

OIL ANALYSIS REPORT

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**20**	---	---
Barium	ppm	ASTM D5185m		**7**	---	---
Molybdenum	ppm	ASTM D5185m		**1**	---	---
Manganese	ppm	ASTM D5185m		**17**	---	---
Magnesium	ppm	ASTM D5185m		**3**	---	---
Calcium	ppm	ASTM D5185m		**63**	---	---
Phosphorus	ppm	ASTM D5185m		**98210**	---	---
Zinc	ppm	ASTM D5185m		**5**	---	---
Sulfur	ppm	ASTM D5185m		**80**	---	---
Lithium	ppm	ASTM D5185m		**<1**	---	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m		**41**	---	---
Sodium	ppm	ASTM D5185m		**206**	---	---
Potassium	ppm	ASTM D5185m	>20	**24**	---	---

SAMPLE IMAGES				current	history1	history2
Color				*no image*	*no image*	*no image*
Bottom				*no image*	*no image*	*no image*

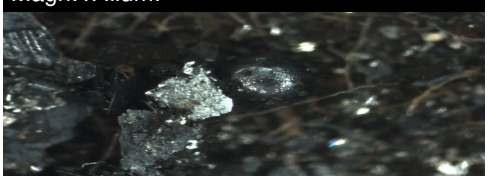
GRAPHS

Magn: 10x Illum: RW

Magn: 60x Illum: RW

Magn: 30x Illum: RW

Magn: x Illum:



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : UFD0000101 **Received** : 28 Aug 2023
Lab Number : 05936885 **Diagnosed** : 14 Sep 2023
Unique Number : 10622156 **Diagnostician** : Aaron Black
Test Package : FLTR (Additional Tests: ICP-DIGEST, KF)

Certificate L2367

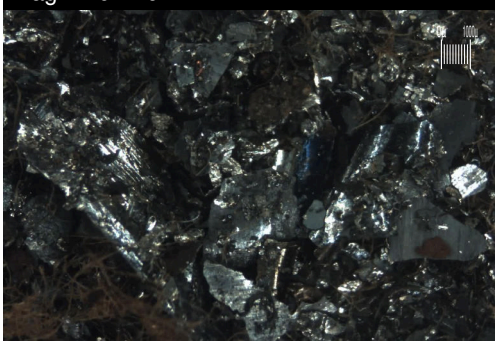
To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

FLUID-AIRE DYNAMICS
550 ALBION AVE
SCHAUMBURG, IL
US 60193
Contact: NICOLE WIERSUM
nicole.wiersum@fluidairedynamics.com
T:
F:

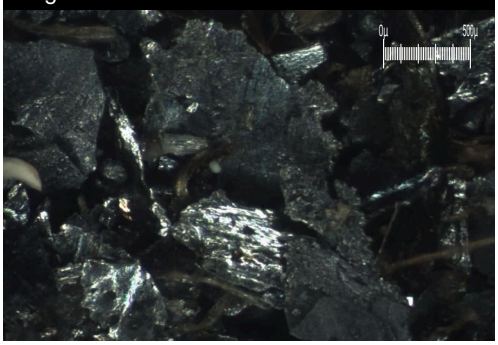
FILTER REPORT

Area
PG 46
Machine Id
AK100017886 - CORTINA
Component
Filter
Fluid
{not provided} (10 GAL)

Magn: 10x Illum: RW



Magn: 60x Illum: RW



Magn: 30x Illum: RW

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	*ASTM D7684		7		
Ferrous Sliding	Scale 0-10	*ASTM D7684		2		
Ferrous Cutting	Scale 0-10	*ASTM D7684				
Ferrous Rolling	Scale 0-10	*ASTM D7684		4		
Ferrous Break-in	Scale 0-10	*ASTM D7684				
Ferrous Spheres	Scale 0-10	*ASTM D7684		2		
Ferrous Black Oxides	Scale 0-10	*ASTM D7684		3		
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				
Nonferrous Cutting	Scale 0-10	*ASTM D7684				
Nonferrous Rolling	Scale 0-10	*ASTM D7684				
Nonferrous Other	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		2		
Patch Weight	mg	*ASTM D7684		341	---	---

WEAR

The most likely alloy match is Low alloy steel 92XX (92XX). Wear particle analysis indicates that the ferrous rolling and ferrous rubbing particles are severe. Wear particle analysis indicates that the ferrous spheres and ferrous black oxides particles are abnormal. Wear particle analysis indicates that the ferrous sliding particles are marginal. Black oxides are produced when metal particles are completely oxidized. This can be caused by insufficient or spent lubricant, or extreme heat at the wear surface. Tempered wear particles exhibit blue and/or purple colors. The colors are the result of oxidation of the particle and signify high heat in the area that the particle was formed.

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