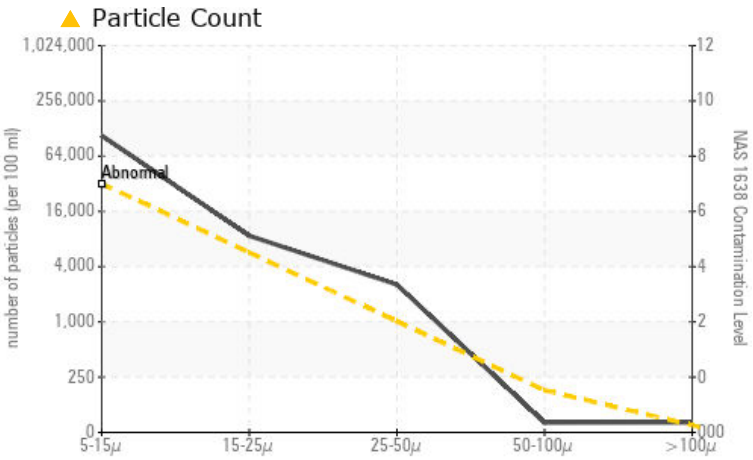
PROBLEM SUMMARY

Area
(C-GRXM)
Machine Id
PILATWS PCE-R40095 AGB
Component
Jet Turbine
Fluid
EASTMAN TURBO OIL 2380 (--- GAL)

Sample Rating Trend

ISO

COMPONENT CONDITION SUMMARY



RECOMMENDATION

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.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	---	---
Particles 5-15µm	count	NAS 1638	>32000	▲ **107346**	---	---
Particles 15-25µm	count	NAS 1638	>5700	▲ **8679**	---	---
Particles 25-50µm	count	NAS 1638	>1012	▲ **2549**	---	---
Particles >100µm	count	NAS 1638	>32	▲ **45**	---	---

Customer Id: ORN513MIS
Sample No.: PP
Lab Number: 02553095
Test Package: AVI 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 (289)291-4641 x4641
Bill.Quesnel@wearcheck.com

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

OIL ANALYSIS REPORT

Sample Rating Trend

ISO

Area
(C-GRXM)
Machine Id
PILATWS PCE-R40095 AGB
Component
Jet Turbine
Fluid
EASTMAN TURBO OIL 2380 (--- GAL)

DIAGNOSIS

Recommendation

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.

Wear

All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.

Contaminants

There is a moderate amount of particulates (2 to 100 microns in size) present in the oil. The water content is negligible. The system cleanliness is above the acceptable limit for the target SAE AS4059 (replaces NAS 1638) cleanliness code.

Oil 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	history1	history2
Sample Number		Client Info		**PP**	---	---
Sample Date		Client Info		**20 Apr 2023**	---	---
TSN	hrs	Client Info		**0**	---	---
TSO	hrs	Client Info		**1091**	---	---
Oil Age	hrs	Client Info		**0**	---	---
Oil Changed		Client Info		**N/A**	---	---
Sample Status				**ABNORMAL**	---	---

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	---	---
Iron	ppm	ASTM D5185(m)	>8	**0**	---	---
Chromium	ppm	ASTM D5185(m)	>2	**0**	---	---
Nickel	ppm	ASTM D5185(m)	>2	**<1**	---	---
Titanium	ppm	ASTM D5185(m)	>2	**0**	---	---
Silver	ppm	ASTM D5185(m)	>2	**0**	---	---
Aluminum	ppm	ASTM D5185(m)	>2	**0**	---	---
Lead	ppm	ASTM D5185(m)	>3	**<1**	---	---
Copper	ppm	ASTM D5185(m)	>3	**0**	---	---
Tin	ppm	ASTM D5185(m)	>2	**0**	---	---
Antimony	ppm	ASTM D5185(m)		**<1**	---	---
Vanadium	ppm	ASTM D5185(m)		**0**	---	---
Beryllium	ppm	ASTM D5185(m)		**0**	---	---
Cadmium	ppm	ASTM D5185(m)		**0**	---	---

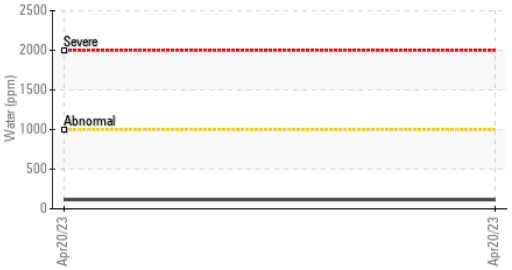
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**<1**	---	---
Barium	ppm	ASTM D5185(m)	0	**0**	---	---
Molybdenum	ppm	ASTM D5185(m)	0	**0**	---	---
Manganese	ppm	ASTM D5185(m)		**0**	---	---
Magnesium	ppm	ASTM D5185(m)	0	**0**	---	---
Calcium	ppm	ASTM D5185(m)	0	**0**	---	---
Phosphorus	ppm	ASTM D5185(m)	2500	**2741**	---	---
Zinc	ppm	ASTM D5185(m)	0	**<1**	---	---
Sulfur	ppm	ASTM D5185(m)	0	**2**	---	---
Lithium	ppm	ASTM D5185(m)		**<1**	---	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>8	**<1**	---	---
Sodium	ppm	ASTM D5185(m)		**<1**	---	---
Potassium	ppm	ASTM D5185(m)	>20	**<1**	---	---
Water	%	ASTM D6304*	>0.1	**0.011**	---	---
ppm Water	ppm	ASTM D6304*	>1000	**115.6**	---	---

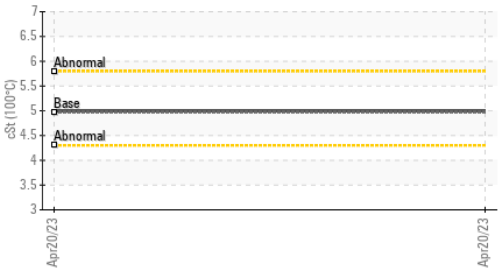
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles 5-15µm	count	NAS 1638	>32000	▲ **107346**	---	---
Particles 15-25µm	count	NAS 1638	>5700	▲ **8679**	---	---
Particles 25-50µm	count	NAS 1638	>1012	▲ **2549**	---	---
Particles 50-100µm	count	NAS 1638	>180	**44**	---	---
Particles >100µm	count	NAS 1638	>32	▲ **45**	---	---
NAS 1638	Class	NAS 1638	>7	**9**	---	---

OIL ANALYSIS REPORT

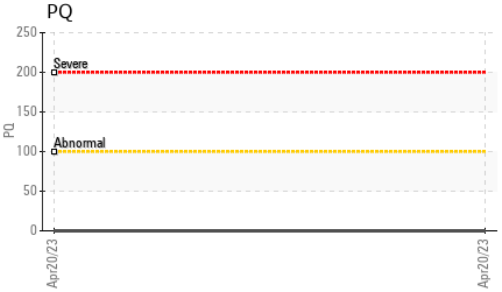
Water (KF)



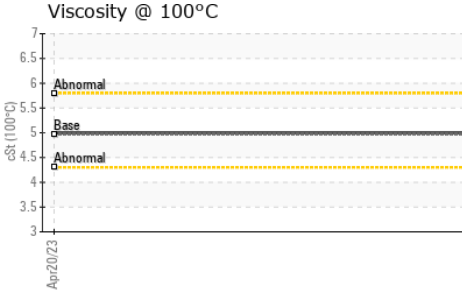
Viscosity @ 100°C



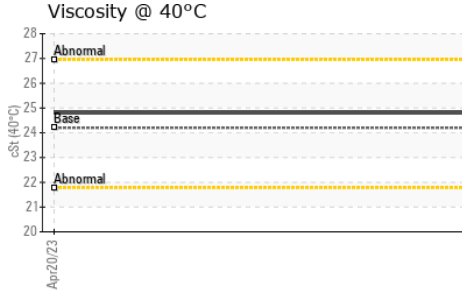
PQ



Viscosity @ 100°C



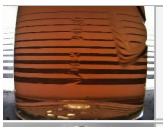
Viscosity @ 40°C



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.43	**0.24**	---	---

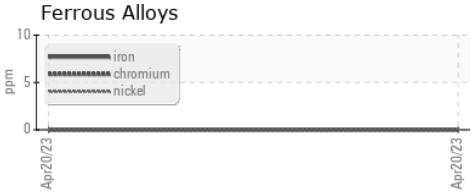
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	---	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	---	---
Precipitate	scalar	Visual*	NONE	**NONE**	---	---
Silt	scalar	Visual*	NONE	**NONE**	---	---
Debris	scalar	Visual*	NONE	**NONE**	---	---
Sand/Dirt	scalar	Visual*	NONE	**NONE**	---	---
Appearance	scalar	Visual*	NORML	**NORML**	---	---
Odor	scalar	Visual*	NORML	**NORML**	---	---
Emulsified Water	scalar	Visual*	>0.1	**NEG**	---	---
Free Water	scalar	Visual*		**NEG**	---	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	24.2	**24.8**	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	4.97	**5**	---	---
Viscosity Index (VI)	Scale	ASTM D2270*	134	**130**	---	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color				*no image*	*no image*
Bottom				*no image*	*no image*

GRAPHS

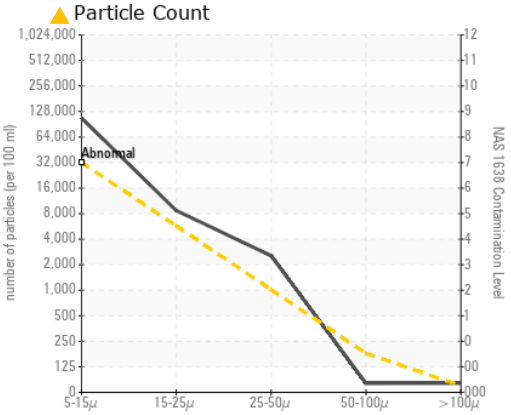
Ferrous Alloys



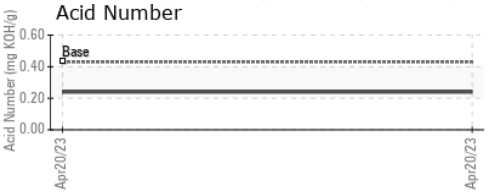
Non-ferrous Metals

Viscosity @ 40°C

Particle Count



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PP **Received** : 24 Apr 2023
Lab Number : 02553095 **Diagnosed** : 24 Apr 2023
Unique Number : 5566110 **Diagnostician** : Bill Quesnel
Test Package : AVI 3 (Additional Tests: PQ, PrtCount, PRTCOUNTNAS)

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.

ORNGE
5130 EXPLORER DRIVE
MISSISSAUGA, ON
CA L4W 5N8
Contact: Darrell Topolinsky
dtopolinsky@ornge.ca
T: (647)428-2005
F:

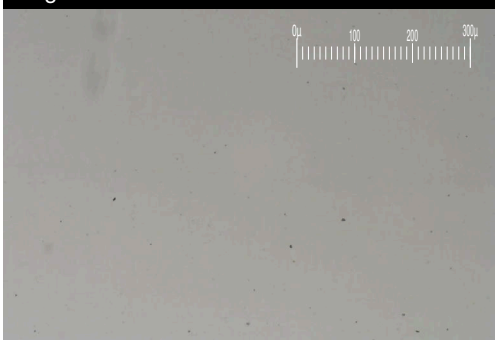
FERROGRAPHY REPORT

Area
(C-GRXM)
Machine Id
PILATWS PCE-R40095 AGB
Component
Jet Turbine
Fluid
EASTMAN TURBO OIL 2380 (--- GAL)

Magn: 200x Illum: BC

Magn: 50x Illum: RW

Magn: 100x Illum: RW

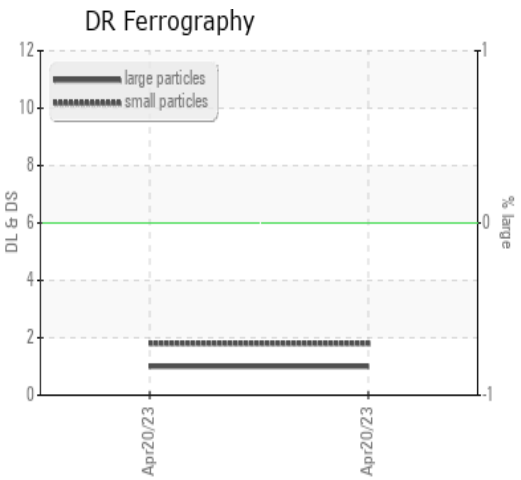


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		**1.0**	---	---
Small Particles		DR-Ferr*		**1.8**	---	---
Total Particles		DR-Ferr*	>---	**2.8**	---	---
Large Particles Percentage	%	DR-Ferr*		**0**	---	---
Severity Index		DR-Ferr*		**1**	---	---

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		**2**		
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		**1**		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
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*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		**1**		
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		**1**		

WEAR

All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.



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