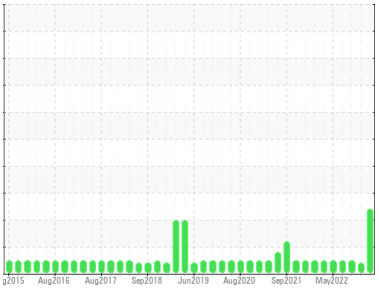
PROBLEM SUMMARY

Sample Rating Trend

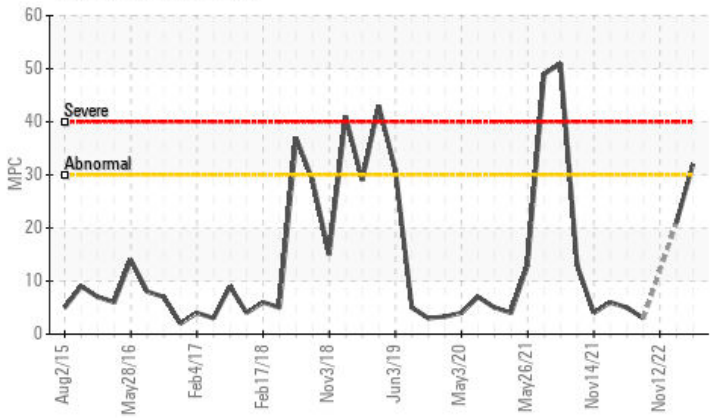


DEGRADATION

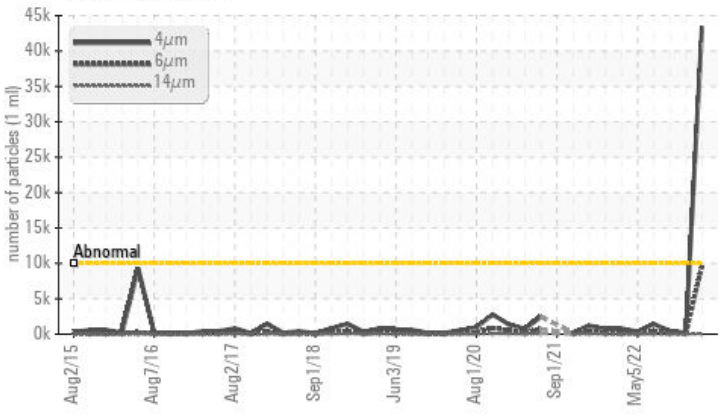
Area
E1 RULer Conductivity
Machine Id
NUOVO-PIGNONE E1 Pignone Frame 5-70001-TB
Component
Turbine
Fluid
ROYAL PURPLE SYNFILM 32 (2730 GAL)

COMPONENT CONDITION SUMMARY

▲ Varnish Potential



▲ Particle Trend



RECOMMENDATION

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. Conductivity low at 203 pS. (Customer Sample Comment: Oil was sampled after filters were changed due to high DP oil sample was sent to Kuparuk along with sample Sluge found on hydraulic filter . Stadis 425 / 16 Oz. added to oil after sample)

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	MARGINAL	NORMAL
Particles >4µm		ASTM D7647	>10000	▲ **43393**	200	432
Particles >6µm		ASTM D7647	>1300	▲ **9626**	72	142
Oil Cleanliness		ISO 4406 (c)	>20/17/14	▲ **23/20/13**	15/13/10	16/14/11
MPC Varnish Potential	Scale	ASTM D7843	>15	▲ **32**	▲ 21	---
Resistivity	10^12ohmcm	ASTM D1169		▲ **203**	878	---

Customer Id: CONANCAK
Sample No.: WC0821213
Lab Number: 05935382
Test Package: AOM 1

To manage this report scan the QR code

To discuss the diagnosis or test data:
Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component if applicable.

HISTORICAL DIAGNOSIS

14 May 2023 Diag: Doug Bogart

INSOLUBLES

No corrective action is recommended at this time. Resample at the next service interval to monitor. Conductivity is acceptable at 878 pS.All component wear rates are normal. MPC (Membrane Patch Colorimetry) test indicates a light concentration of varnish present. The amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

12 Nov 2022 Diag: Doug Bogart

NORMAL

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

01 Sep 2022 Diag: Doug Bogart

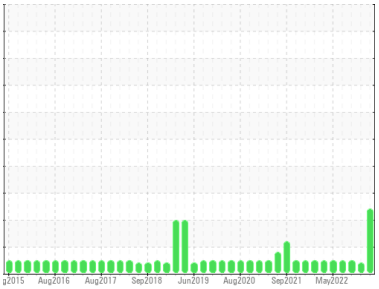
NORMAL

Resample at the next service interval to monitor. Please submit a sample of the new (unused) oil to establish a current RULer baseline. Conductivity is acceptable at 252 pS.All component wear rates are normal. MPC (Membrane Patch Colorimetry) test indicates acceptable levels of varnish present. There is no indication of any contamination in the oil. The amount and size of particulates present in the system are 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 Rating Trend



DEGRADATION

Area
E1 RULer Conductivity
Machine Id
NUOVO-PIGNONE E1 Pignone Frame 5-70001-TB
Component
Turbine
Fluid
ROYAL PURPLE SYNFILM 32 (2730 GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. Conductivity low at 203 pS. (Customer Sample Comment: Oil was sampled after filters were changed due to high DP oil sample was sent to Kuparuk along with sample Sluge found on hydraulic filter . Stadis 425 / 16 Oz. added to oil after sample)

Wear

All component wear rates are normal.

Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil. MPC (Membrane Patch Colorimetry) test indicates a moderate concentration of varnish present.

Fluid Condition

Linear Sweep Voltammetry (RULER – ASTM D6971) testing indicates normal levels of anti-oxidants present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0821213**	WC0745593	WC0670617
Sample Date		Client Info		**20 Aug 2023**	14 May 2023	12 Nov 2022
Machine Age	hrs	Client Info		**196900**	194625	190241
Oil Age	hrs	Client Info		**196900**	194625	0
Oil Changed		Client Info		**Not Changd**	N/A	N/A
Sample Status				**ABNORMAL**	MARGINAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	**0**	0	0
Chromium	ppm	ASTM D5185m	>4	**0**	0	0
Nickel	ppm	ASTM D5185m	>2	**0**	0	0
Titanium	ppm	ASTM D5185m		**0**	<1	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>10	**0**	3	<1
Lead	ppm	ASTM D5185m		**0**	0	0
Copper	ppm	ASTM D5185m	>5	**12**	12	11
Tin	ppm	ASTM D5185m	>5	**0**	<1	0
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	<1

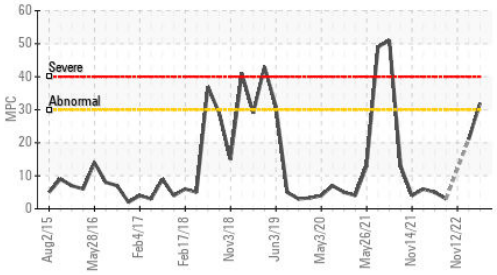
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	0
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**0**	0	0
Manganese	ppm	ASTM D5185m		**0**	<1	0
Magnesium	ppm	ASTM D5185m	90	**5**	69	71
Calcium	ppm	ASTM D5185m		**0**	6	2
Phosphorus	ppm	ASTM D5185m		**0**	0	4
Zinc	ppm	ASTM D5185m		**0**	18	0
Sulfur	ppm	ASTM D5185m		**20340**	18902	20747

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>15	**<1**	<1	<1
Sodium	ppm	ASTM D5185m		**1**	7	6
Potassium	ppm	ASTM D5185m	>20	**0**	2	3
Water	%	ASTM D6304	>0.03	**0.011**	0.006	0.016
ppm Water	ppm	ASTM D6304	>300	**110.0**	69.1	166.8

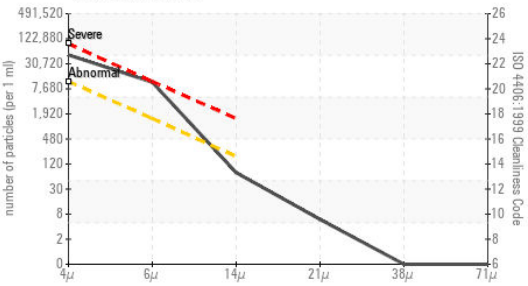
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>10000	**43393**	200	432
Particles >6µm		ASTM D7647	>1300	**9626**	72	142
Particles >14µm		ASTM D7647	>160	**66**	7	17
Particles >21µm		ASTM D7647	>40	**5**	2	5
Particles >38µm		ASTM D7647	>10	**0**	0	1
Particles >71µm		ASTM D7647	>3	**0**	0	1
Oil Cleanliness		ISO 4406 (c)	>20/17/14	**23/20/13**	15/13/10	16/14/11

OIL ANALYSIS REPORT

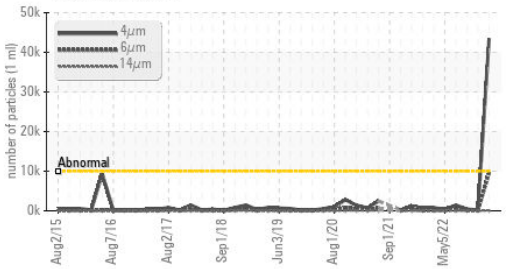
Varnish Potential



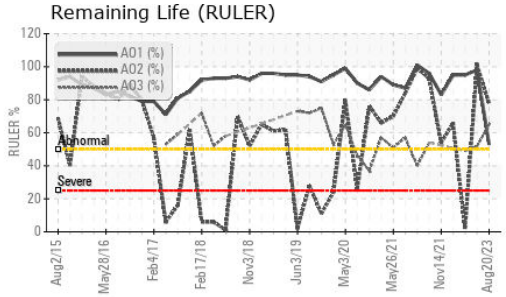
Particle Count



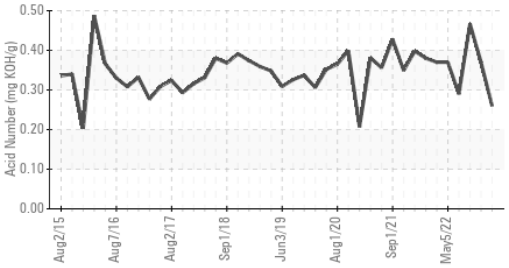
Particle Trend



Remaining Life (RULER)



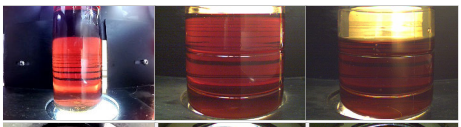
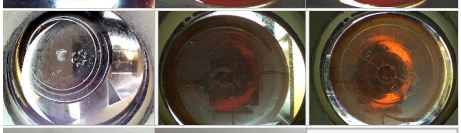
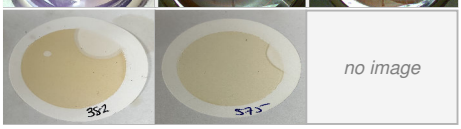
Acid Number



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.26**	0.37	0.467
Anti-Oxidant 1	%	ASTM D6971	<25	**53**	98	---
Anti-Oxidant 2	%	ASTM D6971	<25	**78**	101	---
Anti-Oxidant 3	%	ASTM D6971	<25	**65**	52	---
MPC Varnish Potential	Scale	ASTM D7843	>15	▲ **32**	▲ 21	---

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	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	>0.03	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32	**31.9**	32.4	34.0
Resistivity	10^12ohmcm	ASTM D1169		▲ **203**	878	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
MPC					

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0821213 **Received** : 25 Aug 2023
Lab Number : 05935382 **Diagnosed** : 05 Sep 2023
Unique Number : 10620653 **Diagnostician** : Doug Bogart
Test Package : AOM 1 (Additional Tests: Conductivity, KF, RESISTIVITY)

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)

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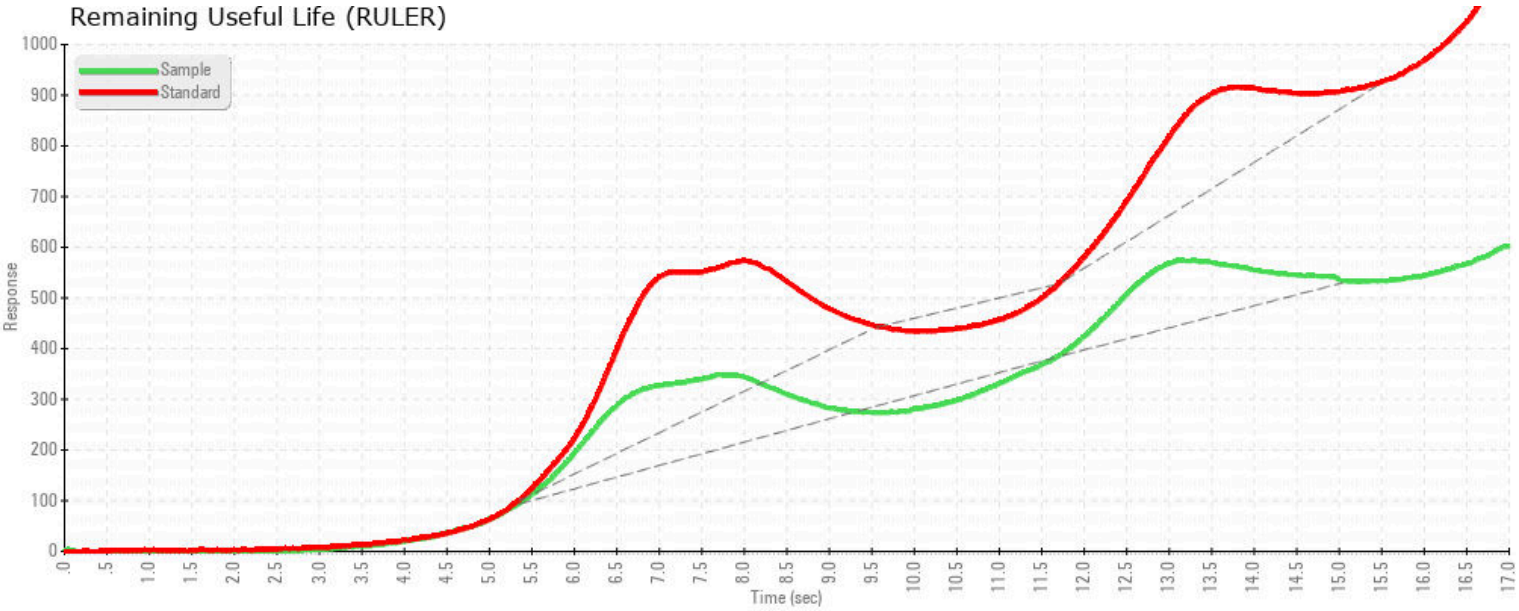
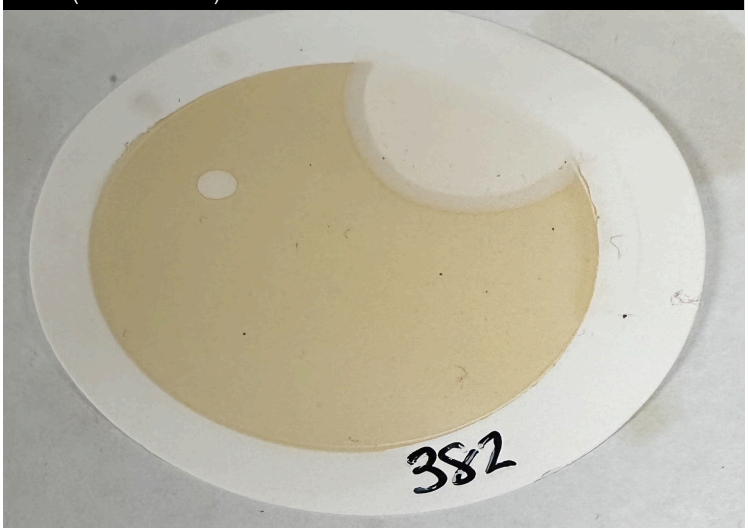


MPC (Varnish Test)



Sample Color & Clarity

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