

PROBLEM SUMMARY

Sample Rating Trend

WEAR

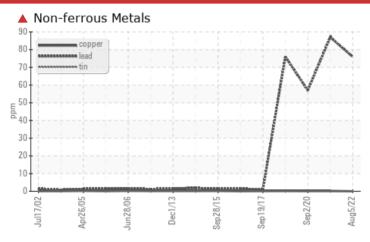
Machine Id

A3 - Generator (Upper) Guide Bearing Component

Upper Bearing

PETRO CANADA TURBOFLO R&O 46 (363 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).

PROBLEMATIC TEST RESULTS							
Sample Status				SEVERE	SEVERE	SEVERE	
Lead	ppm	ASTM D5185(m)	>20	A 76	A 87	▲ 57	

Customer Id: CHUCHU Sample No.: WC0312099 Lab Number: 02508119 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Kevin Marson +1 (289)291-4644 x4644 Kevin.Marson@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
Resample	MISSED	Dec 22 2023	?	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).

HISTORICAL DIAGNOSIS

17 Oct 2021 Diag: Kevin Marson

WEAR



We recommend you service the filters on this component. Resample at the next service interval to monitor. Resampling 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). Lead ppm levels are severe. Bearing wear is indicated. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



02 Sep 2020 Diag: Kevin Marson

WEAR



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). Lead ppm levels are severe. 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.

28 Jul 2019 Diag: Kevin Marson

WEAR



We recommend you service the filters on this component. Resample at the next service interval to monitor. Resampling 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. Lead ppm levels are severe. Bearing wear is indicated. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.





OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

A3 - Generator (Upper) Guide Bearing

Component

Upper Bearing

PETRO CANADA TURBOFLO R&O 46 (363 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).

▲ Wear

Lead ppm levels are severe. 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 INFORMATION method limit/base current history1 history2	B LTR)		Jul2002 Ap	.2005 Jun2006 Dec20	13 Sep2015 Sep2017 Sep20	20 Aug202;	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info N/A N/A N/A Oil Changed Client Info N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A SEVERE SEVERE SEVERE SEVERE CONTAMINATION method Imit base current history1 history2 WEAR METALS method Imit base current history1 history2 Iron ppm ASTM D5165(m) >20 <1 0 <1 Chromium ppm ASTM D5165(m) >20 <1 0 0 Nickel ppm ASTM D5165(m) >20 <0 0 0 Alluminum ppm ASTM D5165(m) >20 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	Sample Number		Client Info		WC0312099	WC987340	WC893719
Oil Age hrs Client Info N/A N/A N/A N/A Sample Status SEVERE SEVERE SEVERE SEVERE SEVERE CONTAMINATION 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) >20 < 1 0 < 1 Chromium ppm ASTM D5185(m) >20 0 0 0 Nickel ppm ASTM D5185(m) >20 0 0 0 Silver ppm ASTM D5185(m) 0 0 0 1 Lead ppm ASTM D5185(m) 20 4 76 AST 57 Copper ppm ASTM D5185(m) 20 0 -1 -1 -1 Vanadium ppm ASTM D5185(m) 20	Sample Date		Client Info		05 Aug 2022	17 Oct 2021	02 Sep 2020
Oil Changed Status	·	hrs	Client Info		0	0	
Sample Status	Oil Age	hrs	Client Info		0	0	0
CONTAMINATION method limit/base current history1 history2	Oil Changed		Client Info		N/A	N/A	N/A
Water WC Method >2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185(m) >20 <1	Sample Status				SEVERE	SEVERE	SEVERE
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185(m) >20 <1 0 <1 Chromium ppm ASTM D5185(m) >20 0 0 0 Nickel ppm ASTM D5185(m) >20 0 0 0 Silver ppm ASTM D5185(m) >0 0 <1 <1 Aluminum ppm ASTM D5185(m) >20 <1 <1 <1 Lead ppm ASTM D5185(m) >20 <76 № 87 >57 Copper ppm ASTM D5185(m) >20 0 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	CONTAMINATIO	N	method	limit/base	current	history1	history2
Iron	Water		WC Method	>2	NEG	NEG	NEG
Chromium ppm ASTM D5185(m) >20 0 0 0 Nickel ppm ASTM D5185(m) >20 0 0 0 Titanium ppm ASTM D5185(m) 0 0 0 1 Aluminum ppm ASTM D5185(m) >20 <1 <1 <1 Lead ppm ASTM D5185(m) >20 <76 ▲ 87 ▲ 57 Copper ppm ASTM D5185(m) >20 0 <1 <1 Tin ppm ASTM D5185(m) >20 0 0 0 Antimony ppm ASTM D5185(m) >20 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 0 Barium ppm ASTM D5185(m) 0 0	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)	>20	<1	0	<1
Titanium	Chromium	ppm	ASTM D5185(m)	>20	0	0	0
Silver	Nickel	ppm	ASTM D5185(m)	>20	0	0	0
Aluminum ppm ASTM D5185(m) >20 <1 <1 <1 Lead ppm ASTM D5185(m) >20 ▲ 76 ▲ 87 ▲ 57 Copper ppm ASTM D5185(m) >20 0 <1	Titanium	ppm	ASTM D5185(m)		0	0	0
Lead ppm ASTM D5185(m) >20 ♠ 76 ♠ 87 ♠ 57 Copper ppm ASTM D5185(m) >20 0 <1 <1 Tin ppm ASTM D5185(m) >20 0 0 0 Antimony ppm ASTM D5185(m) 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 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 Barium ppm ASTM D5185(m) 0 0 0 Barium ppm ASTM D5185(m) 0 0 0 0 Magnesium ppm ASTM D5185(m) 0 0 0 1 Calcium ppm ASTM D5185(m) <1 0 <1 1 Phosphorus ppm ASTM D	Silver	ppm	ASTM D5185(m)		0	0	<1
Copper	Aluminum	ppm	ASTM D5185(m)	>20	<1	<1	<1
Tin	Lead	ppm	ASTM D5185(m)	>20	4 76	A 87	▲ 57
Antimony	Copper	ppm	ASTM D5185(m)	>20	0	<1	<1
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 Boron ppm ASTM D5185(m) 0 0 1 <1 Barium ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 0 Manganese ppm ASTM D5185(m) 0 0 <1 0 <1 Magnesium ppm ASTM D5185(m) 0 <1 <1 0 <1 Calcium ppm ASTM D5185(m) 3 7 6 6 6 Zinc ppm ASTM D5185(m) 0 1 1 1 2 Sulfur ppm ASTM D5185(m) >1 1<	Tin	ppm	ASTM D5185(m)	>20	0	0	0
Beryllium	Antimony	ppm	ASTM D5185(m)		<1	<1	<1
Cadmium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 0 <1	Vanadium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES	Beryllium	ppm	ASTM D5185(m)		0	0	0
Boron ppm ASTM D5185(m) 0 <1	Cadmium	ppm	ASTM D5185(m)		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185(m) 0 0 0 Manganese ppm ASTM D5185(m) 0 0 <1 Magnesium ppm ASTM D5185(m) 0 <1 0 <1 Calcium ppm ASTM D5185(m) 0 <1 <1 1 Phosphorus ppm ASTM D5185(m) 3 7 6 6 Zinc ppm ASTM D5185(m) 0 1 1 2 Sulfur ppm ASTM D5185(m) 147 147 157 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 1 1 <1 2 Sodium ppm ASTM D5185(m) >20 1 1 <1 <1 Potassium ppm ASTM D5185(m) >20 1 <1 <	Boron	ppm	ASTM D5185(m)		0	<1	<1
Manganese ppm ASTM D5185(m) 0 0 <1 Magnesium ppm ASTM D5185(m) <1	Barium	ppm	ASTM D5185(m)		0	0	0
Magnesium ppm ASTM D5185(m) <1 0 <1 Calcium ppm ASTM D5185(m) 0 <1	Molybdenum	ppm	ASTM D5185(m)		0	0	0
Calcium ppm ASTM D5185(m) 0 <1 <1 1 Phosphorus ppm ASTM D5185(m) 3 7 6 6 Zinc ppm ASTM D5185(m) 0 1 1 2 Sulfur ppm ASTM D5185(m) 147 147 157 Lithium ppm ASTM D5185(m) <1	Manganese	ppm	ASTM D5185(m)		0	0	<1
Phosphorus ppm ASTM D5185(m) 3 7 6 6 Zinc ppm ASTM D5185(m) 0 1 1 2 Sulfur ppm ASTM D5185(m) 147 147 157 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 1 1 2 Sodium ppm ASTM D5185(m) >15 1 1 <1 2 Sodium ppm ASTM D5185(m) >20 1 1 <1 2 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 1064 18984 7384 Particles >6μm ASTM D7647 >160 15 246 66 Particles >21μm ASTM D7647 >40 4 <t< td=""><td>Magnesium</td><td>ppm</td><td>ASTM D5185(m)</td><td></td><th><1</th><td>0</td><td><1</td></t<>	Magnesium	ppm	ASTM D5185(m)		<1	0	<1
Zinc ppm ASTM D5185(m) 0 1 1 2	Calcium	ppm	ASTM D5185(m)	0	<1	<1	1
Sulfur ppm ASTM D5185(m) 147 147 157 Lithium ppm ASTM D5185(m) <1 <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 1 1 2 Sodium ppm ASTM D5185(m) 1 <1 2 Potassium ppm ASTM D5185(m) >20 1 1 <1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 1064 18984 7384 Particles >6μm ASTM D7647 >160 15 246 66 Particles >21μm ASTM D7647 >40 4 38 19 Particles >71μm ASTM D7647 >10 1 0 2 Particles >71μm ASTM D7647 >3 0 0 0 <	Phosphorus	ppm	ASTM D5185(m)	3	7	6	6
Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 1 1 2 Sodium ppm ASTM D5185(m) >20 1 1 <1	Zinc	ppm	ASTM D5185(m)	0	1	1	2
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 1 1 2 Sodium ppm ASTM D5185(m) 1 <1	Sulfur	ppm	ASTM D5185(m)		147	147	157
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Lithium	ppm	ASTM D5185(m)		<1	<1	<1
Sodium ppm ASTM D5185(m) 1 <1	CONTAMINANTS	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185(m) >20 1 1 <1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 1064 18984 7384 Particles >6μm ASTM D7647 >2500 169 4558 1033 Particles >14μm ASTM D7647 >160 15 246 66 Particles >21μm ASTM D7647 >40 4 38 19 Particles >38μm ASTM D7647 >10 1 0 2 Particles >71μm ASTM D7647 >3 0 0 0	Silicon	ppm	ASTM D5185(m)	>15	1	1	2
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 1064 18984 7384 Particles >6μm ASTM D7647 >2500 169 4558 1033 Particles >14μm ASTM D7647 >160 15 246 66 Particles >21μm ASTM D7647 >40 4 38 19 Particles >38μm ASTM D7647 >10 1 0 2 Particles >71μm ASTM D7647 >3 0 0 0	Sodium	ppm	ASTM D5185(m)		1	<1	2
Particles >4μm ASTM D7647 >10000 1064 18984 7384 Particles >6μm ASTM D7647 >2500 169 4558 1033 Particles >14μm ASTM D7647 >160 15 246 66 Particles >21μm ASTM D7647 >40 4 38 19 Particles >38μm ASTM D7647 >10 1 0 2 Particles >71μm ASTM D7647 >3 0 0 0	Potassium	ppm	ASTM D5185(m)	>20	1	1	<1
Particles >6μm ASTM D7647 >2500 169 4558 1033 Particles >14μm ASTM D7647 >160 15 246 66 Particles >21μm ASTM D7647 >40 4 38 19 Particles >38μm ASTM D7647 >10 1 0 2 Particles >71μm ASTM D7647 >3 0 0 0	FLUID CLEANLII	NESS	method	limit/base	current	history1	history2
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Particles >14μm ASTM D7647 >160 15 246 66 Particles >21μm ASTM D7647 >40 4 38 19 Particles >38μm ASTM D7647 >10 1 0 2 Particles >71μm ASTM D7647 >3 0 0 0	Particles >6µm		ASTM D7647	>2500	169		1033
Particles >21μm ASTM D7647 >40 4 38 19 Particles >38μm ASTM D7647 >10 1 0 2 Particles >71μm ASTM D7647 >3 0 0 0	·						
Particles >38μm ASTM D7647 >10 1 0 2 Particles >71μm ASTM D7647 >3 0 0 0	· ·		ASTM D7647	>40	4	38	19
Particles >71μm ASTM D7647 >3 0 0						0	2
				>3	0	0	0
On Ordaning 100 400 (0) 220/10/14 17/19/11 2/1/10/10 20/17/10	Oil Cleanliness		ISO 4406 (c)	>20/18/14	17/15/11	21/19/15	20/17/13



OIL ANALYSIS REPORT

