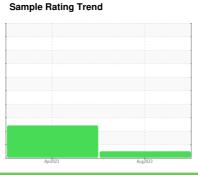


# **OIL ANALYSIS REPORT**

Propulsion Shaft Bearings **Propulsion Shaft Bearings Port** 

Rear Left Bearing

PETRO CANADA TURBOFLO R&O 100 (--- GAL)





### DIAGNOSIS Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. The fluid was specified as PETRO CANADA TURBOFLO R&O 100, however, a fluid match indicates that this fluid is ISO 100 R&O Hydraulic Oil. Please confirm the oil type and grade on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### **Fluid Condition**

Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service.

Sample Number         Client Info         WC0810840         WC0810870            Sample Date         Client Info         05 Aug 2023         14 Apr 2023            Machine Age         hrs         Client Info         0         0            Oil Age         hrs         Client Info         0         0            Oil Changed         Client Info         Changed         N/A            Sample Status         NORMAL         ABNORMAL            WEAR METALS         method         Imitibbase         current         history1           Iron         ppm         ASTM D5185(m)         >20         <1         2            Chromium         ppm         ASTM D5185(m)         >20         <1         2            Chromium         ppm         ASTM D5185(m)         >2         0         0            Iron         ppm         ASTM D5185(m)         >2         <1         0            Silver         ppm         ASTM D5185(m)         >5         0         <1            Lead         ppm         ASTM D5185(m)         >5         <1	GAL)			Apr2023	Aug2023		
Sample Date   Client Info   05 Aug 2023   14 Apr 2023	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date   Client Info   05 Aug 2023   14 Apr 2023	Sample Number		Client Info		WC0810840	WC0810870	
Machine Age   hrs   Client Info   0   0   0   0   0   0   0   0   0			Client Info		05 Aug 2023	14 Apr 2023	
Client Info   Changed   N/A	Machine Age	hrs	Client Info		_		
NORMAL	Oil Age	hrs	Client Info		0	0	
NORMAL   ABNORMAL	Oil Changed		Client Info		Changed	N/A	
Chromium	Sample Status				NORMAL	ABNORMAL	
Chromium         ppm         ASTM D5185(m)         >2         0         0	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)	>20	<1	2	
Titanium         ppm         ASTM D5185(m)         0         0	Chromium	ppm	ASTM D5185(m)	>2	0	0	
Silver	Nickel	ppm	ASTM D5185(m)	>2	<1	0	
Aluminum	Titanium	ppm	ASTM D5185(m)		0	0	
Lead	Silver	ppm	ASTM D5185(m)		0	0	
Copper	Aluminum	ppm	ASTM D5185(m)	>5	0	<1	
Trin	Lead	ppm	ASTM D5185(m)	>25	12	<b>▲</b> 37	
Antimony	Copper	ppm	ASTM D5185(m)	>5	<1	<1	
Antimony         ppm         ASTM D5185(m)         2         6	Tin	ppm	ASTM D5185(m)	>15	2	7	
Beryllium	Antimony				2	6	
Cadmium         ppm         ASTM D5185(m)         <1         1            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         0            Molybdenum         ppm         ASTM D5185(m)         0         0            Molybdenum         ppm         ASTM D5185(m)         0         -1            Magnesium         ppm         ASTM D5185(m)         0         -1            Magnesium         ppm         ASTM D5185(m)         0         4         15            Calcium         ppm         ASTM D5185(m)         0         4         15            Phosphorus         ppm         ASTM D5185(m)         0         4         15            Zinc         ppm         ASTM D5185(m)         0         5         14            Zinc         ppm         ASTM D5185(m)         0         5         14            Zinc         ppm         ASTM D5185(m)         -1         -1         -1            Zinc	Vanadium	ppm	ASTM D5185(m)		0	0	
Cadmium         ppm         ASTM D5185(m)         <1         1            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         0            Manum         ppm         ASTM D5185(m)         0         0            Molybdenum         ppm         ASTM D5185(m)         0         -1            Manum         ppm         ASTM D5185(m)         0         -1            Magnesium         ppm         ASTM D5185(m)         0         4         15            Calcium         ppm         ASTM D5185(m)         0         4         15            Phosphorus         ppm         ASTM D5185(m)         0         5         14            Phosphorus         ppm         ASTM D5185(m)         0         5         14            Zinc         ppm         ASTM D5185(m)         0         5         14            Sulfur         ppm         ASTM D5185(m)         <1	Beryllium	ppm	ASTM D5185(m)		0	0	
Boron	•				<1	1	
Barium         ppm         ASTM D5185(m)         0         0            Molybdenum         ppm         ASTM D5185(m)         0         0            Manganese         ppm         ASTM D5185(m)         0         -1            Magnesium         ppm         ASTM D5185(m)         0         4         15            Calcium         ppm         ASTM D5185(m)         0         4         15            Phosphorus         ppm         ASTM D5185(m)         4         62         247            Zinc         ppm         ASTM D5185(m)         0         5         14            Sulfur         ppm         ASTM D5185(m)         791         △ 3537            Lithium         ppm         ASTM D5185(m)         <1	ADDITIVES		method	limit/base	current	history1	history2
Barium         ppm         ASTM D5185(m)         0         0            Molybdenum         ppm         ASTM D5185(m)         0         0            Manganese         ppm         ASTM D5185(m)         0         <1	Boron	ppm	ASTM D5185(m)		6	<b>4</b> 39	
Manganese         ppm         ASTM D5185(m)         0         <1            Magnesium         ppm         ASTM D5185(m)         <1	Barium		ASTM D5185(m)		0	0	
Manganese         ppm         ASTM D5185(m)         0         <1            Magnesium         ppm         ASTM D5185(m)         <1	Molybdenum		ASTM D5185(m)		0	0	
Calcium         ppm         ASTM D5185(m)         0         4         15            Phosphorus         ppm         ASTM D5185(m)         4         62         ▲ 247            Zinc         ppm         ASTM D5185(m)         0         5         14            Sulfur         ppm         ASTM D5185(m)         791         ▲ 3537            Lithium         ppm         ASTM D5185(m)         <1	Manganese	ppm			0	<1	
Phosphorus         ppm         ASTM D5185(m)         4         62         ▲ 247            Zinc         ppm         ASTM D5185(m)         0         5         14            Sulfur         ppm         ASTM D5185(m)         791         ▲ 3537            Lithium         ppm         ASTM D5185(m)         <1	Magnesium	ppm	ASTM D5185(m)		<1	<1	
Zinc         ppm         ASTM D5185(m)         0         5         14            Sulfur         ppm         ASTM D5185(m)         791         3537            Lithium         ppm         ASTM D5185(m)         <1	Calcium	ppm	ASTM D5185(m)	0	4	15	
Sulfur         ppm         ASTM D5185(m)         791         ▲ 3537            Lithium         ppm         ASTM D5185(m)         <1	Phosphorus	ppm	ASTM D5185(m)	4	62	<u> </u>	
Lithium         ppm         ASTM D5185(m)         <1         <1            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         1         7            Sodium         ppm         ASTM D5185(m)         >20         <1			ASTM D5185(m)	0	5	14	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         1         7            Sodium         ppm         ASTM D5185(m)         >15         1         7            Sodium         ppm         ASTM D5185(m)         >20         <1	Sulfur		ASTM D5185(m)		791	<b>△</b> 3537	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         1         7            Sodium         ppm         ASTM D5185(m)         >20         <1	Lithium		ASTM D5185(m)		<1	<1	
Silicon	CONTAMINANTS			limit/base	current	history1	history2
Sodium						•	
Potassium         ppm         ASTM D5185(m)         >20         <1         <1            VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         NONE         NONE            Yellow Metal         scalar         Visual*         NONE         NONE         NONE            Precipitate         scalar         Visual*         NONE         NONE         NONE            Silt         scalar         Visual*         NONE         NONE         NONE            Debris         scalar         Visual*         NONE         NONE         VLITE            Sand/Dirt         scalar         Visual*         NONE         NONE         NONE            Appearance         scalar         Visual*         NORML         NORML         NORML         NORML           Odor         scalar         Visual*         NORML         NORML         NORML            Emulsified Water         scalar         Visual*         NOR         NEG         NEG				1.0	-		
White Metal         scalar         Visual*         NONE         NONE         NONE            Yellow Metal         scalar         Visual*         NONE         NONE         NONE            Precipitate         scalar         Visual*         NONE         NONE         NONE            Silt         scalar         Visual*         NONE         NONE         NONE            Debris         scalar         Visual*         NONE         NONE         VLITE            Sand/Dirt         scalar         Visual*         NORML         NORML         NORML            Appearance         scalar         Visual*         NORML         NORML         NORML            Odor         scalar         Visual*         NORML         NORML         NORML            Emulsified Water         scalar         Visual*         >0.1         NEG         NEG            Free Water         scalar         Visual*         NEG         NEG			, ,	>20			
Yellow Metal         scalar         Visual*         NONE         NONE <td>VISUAL</td> <td></td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	VISUAL		method	limit/base	current	history1	history2
Precipitate         scalar         Visual*         NONE         NONE         NONE            Silt         scalar         Visual*         NONE         NONE         NONE            Debris         scalar         Visual*         NONE         NONE         VLITE            Sand/Dirt         scalar         Visual*         NONE         NONE         NONE            Appearance         scalar         Visual*         NORML         NORML         NORML            Odor         scalar         Visual*         NORML         NORML         NORML            Emulsified Water         scalar         Visual*         >0.1         NEG         NEG            Free Water         scalar         Visual*         NEG         NEG	White Metal	scalar	Visual*	NONE	NONE	NONE	
Silt         scalar         Visual*         NONE         NONE         NONE            Debris         scalar         Visual*         NONE         NONE         VLITE            Sand/Dirt         scalar         Visual*         NONE         NONE         NONE            Appearance         scalar         Visual*         NORML         NORML         NORML            Odor         scalar         Visual*         NORML         NORML         NORML            Emulsified Water         scalar         Visual*         >0.1         NEG         NEG            Free Water         scalar         Visual*         NEG         NEG	Yellow Metal	scalar	Visual*	NONE	NONE	NONE	
Debris         scalar         Visual*         NONE         NONE         VLITE            Sand/Dirt         scalar         Visual*         NONE         NONE         NONE            Appearance         scalar         Visual*         NORML         NORML         NORML            Odor         scalar         Visual*         NORML         NORML         NORML            Emulsified Water         scalar         Visual*         >0.1         NEG         NEG            Free Water         scalar         Visual*         NEG         NEG	Precipitate	scalar	Visual*	NONE	NONE	NONE	
Sand/Dirt         scalar         Visual*         NONE         NONE         NONE            Appearance         scalar         Visual*         NORML         NORML         NORML            Odor         scalar         Visual*         NORML         NORML         NORML            Emulsified Water         scalar         Visual*         >0.1         NEG         NEG            Free Water         scalar         Visual*         NEG         NEG	Silt	scalar	Visual*	NONE	NONE	NONE	
Appearance scalar Visual* NORML NORML NORML Odor scalar Visual* NORML NORML NORML Emulsified Water scalar Visual* >0.1 NEG NEG Free Water scalar Visual* NEG NEG	Debris	scalar	Visual*	NONE	NONE	VLITE	
Odor scalar Visual* NORML NORML NORML Emulsified Water scalar Visual* >0.1 NEG NEG Free Water scalar Visual* NEG NEG	Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	
Emulsified Water     scalar     Visual*     >0.1     NEG     NEG        Free Water     scalar     Visual*     NEG     NEG	Appearance	scalar	Visual*	NORML	NORML	NORML	
Emulsified Water     scalar     Visual*     >0.1     NEG     NEG        Free Water     scalar     Visual*     NEG     NEG	Odor	scalar	Visual*	NORML	NORML	NORML	
	Emulsified Water	scalar		>0.1	NEG	NEG	
	Free Water	scalar	Visual*		NEG		
						Submitted By:	Vincent Massey



# **OIL ANALYSIS REPORT**





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5628993 Test Package : MAR 1

: WC0810840 : 02575933

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received : 15 Aug 2023 Diagnosed

: 16 Aug 2023 Diagnostician : Kevin Marson

**Canadian Coast Guard** CCGS Vincent Massey, 101 Boul. Champlain

Quebec, QC **CA G1K 7Y7** 

Contact: Vincent Massey vincentmasseyse@ccgs-ngcc.gc.ca T: (418)573-7423

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.