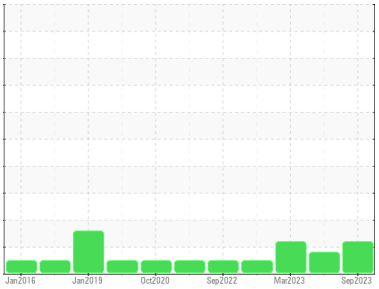
PROBLEM SUMMARY

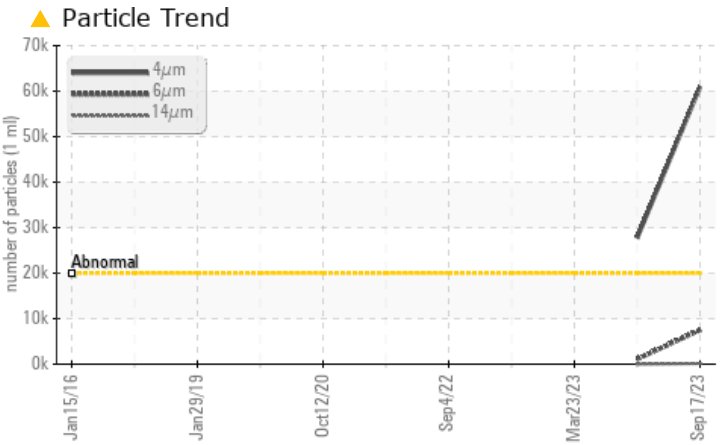
Sample Rating Trend



ISO

Machine Id
PH631.010.17 (S/N 3436)
Component
Starboard Variable Pitch Prop
Fluid
PETRO CANADA ULTIMA EP 150 (4500 LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using Advanced Oil Monitoring (AOM) kits for this system. The AOM test package includes advanced level testing to determine the suitability of turbine and large industrial compressor oils for continued use.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	ATTENTION	ABNORMAL
Particles >4µm		ASTM D7647	>20000	▲ **60973**	▲ 27739	---
Particles >6µm		ASTM D7647	>5000	▲ **7504**	1122	---
Oil Cleanliness		ISO 4406 (c)	>21/19/15	▲ **23/20/14**	▲ 22/17/12	---

Customer Id: PLACHOPE
Sample No.: WC0797080
Lab Number: 02587813
Test Package: MAR 3

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
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Contact Required	---	---	?	Please contact your representative for information regarding the proper sampling kits for your service.
Alert	---	---	?	NOTE: We recommend using Advanced Oil Monitoring (AOM) kits for this system. The AOM test package includes advanced level testing to determine the suitability of turbine and large industrial compressor oils for continued use.

HISTORICAL DIAGNOSIS

17 Apr 2023 Diag: Kevin Marson

ISO

We recommend you service the filters on this component. Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using Advanced Oil Monitoring (AOM) kits for this system. The AOM test package includes advanced level testing to determine the suitability of turbine and large industrial compressor oils for continued use.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. 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 acceptable for the time in service (unconfirmed).

view report

23 Mar 2023 Diag: Kevin Marson

VISUAL METAL

We advise that you check for visible metal particles in the oil. We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using Advanced Oil Monitoring (AOM) kits for this system. The AOM test package includes advanced level testing to determine the suitability of turbine and large industrial compressor oils for continued use.Light concentration of visible metal present. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service (unconfirmed).

view report

29 Dec 2022 Diag: Kevin Marson

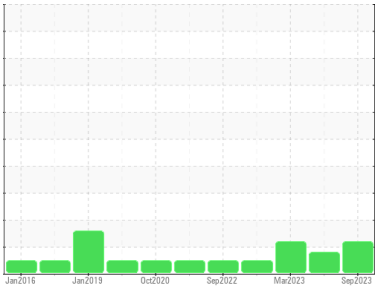
NORMAL

Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using Advanced Oil Monitoring (AOM) kits for this system. The AOM test package includes advanced level testing to determine the suitability of turbine and large industrial compressor oils for continued use. this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.Component wear rates appear to be normal (unconfirmed). There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service (unconfirmed).

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
PH631.010.17 (S/N 3436)
Component
Starboard Variable Pitch Prop
Fluid
PETRO CANADA ULTIMA EP 150 (4500 LTR)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using Advanced Oil Monitoring (AOM) kits for this system. The AOM test package includes advanced level testing to determine the suitability of turbine and large industrial compressor oils for continued use.

Wear

Component wear rates appear to be normal (unconfirmed). The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.

Contaminants

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

Oil Condition

The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service (unconfirmed). 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		**WC0797080**	WC0797084	WC0671098
Sample Date		Client Info		**17 Sep 2023**	17 Apr 2023	23 Mar 2023
Machine Age	hrs	Client Info		**38502**	37986	37889
Oil Age	hrs	Client Info		**0**	7698	0
Oil Changed		Client Info		**Not Changd**	N/A	Changed
Sample Status				**ABNORMAL**	ATTENTION	ABNORMAL

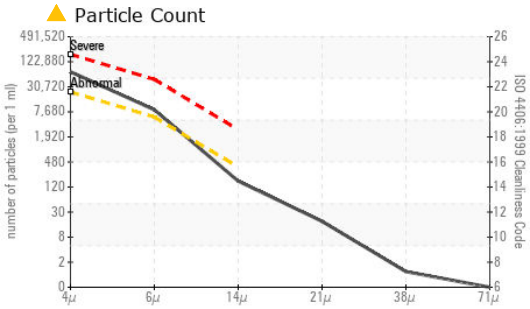
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	---
Iron	ppm	ASTM D5185(m)	>25	**6**	5	5
Chromium	ppm	ASTM D5185(m)	>10	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>10	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>5	**<1**	0	<1
Lead	ppm	ASTM D5185(m)	>5	**4**	3	4
Copper	ppm	ASTM D5185(m)	>55	**32**	32	32
Tin	ppm	ASTM D5185(m)	>5	**3**	3	3
Antimony	ppm	ASTM D5185(m)		**0**	<1	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	<1	0

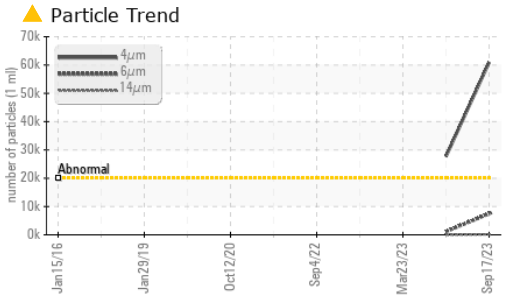
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	50	**26**	47	50
Barium	ppm	ASTM D5185(m)	0	**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)	0	**1**	<1	1
Calcium	ppm	ASTM D5185(m)	0	**11**	9	9
Phosphorus	ppm	ASTM D5185(m)	270	**239**	261	259
Zinc	ppm	ASTM D5185(m)	0	**8**	7	6
Sulfur	ppm	ASTM D5185(m)	5300	**7341**	7592	7739
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

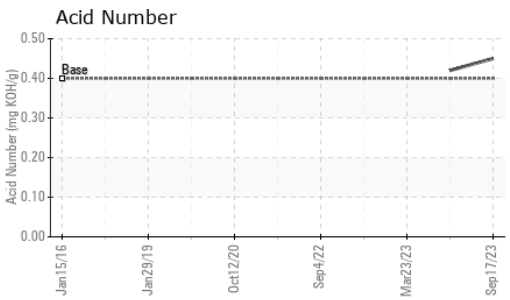
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**2**	2	2
Sodium	ppm	ASTM D5185(m)		**11**	11	10
Potassium	ppm	ASTM D5185(m)	>20	**0**	<1	<1

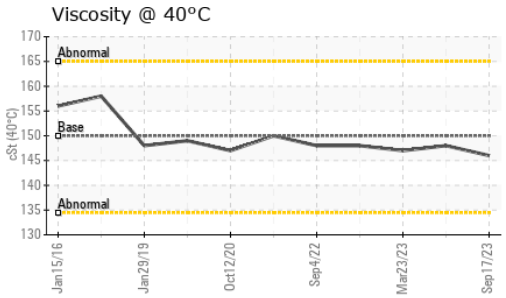
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	▲ **60973**	▲ 27739	---
Particles >6µm		ASTM D7647	>5000	▲ **7504**	1122	---
Particles >14µm		ASTM D7647	>320	**147**	31	---
Particles >21µm		ASTM D7647	>80	**16**	9	---
Particles >38µm		ASTM D7647	>20	**1**	1	---
Particles >71µm		ASTM D7647	>4	**0**	0	---
Oil Cleanliness		ISO 4406 (c)	>21/19/15	▲ **23/20/14**	▲ 22/17/12	---

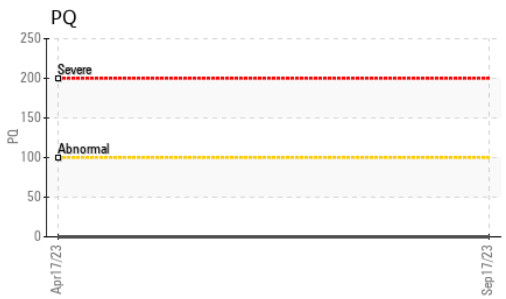
OIL ANALYSIS REPORT











FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.4	**0.45**	0.42	---

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	▲ VLITE
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	VLITE
Sand/Dirt	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**NORML**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.05	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	150.0	**146**	148	147

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

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0797080 **Received** : 06 Oct 2023
Lab Number : 02587813 **Diagnosed** : 12 Oct 2023
Unique Number : 5656879 **Diagnostician** : Kevin Marson
Test Package : MAR 3 (Additional Tests: TAN Man)

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.

CANSHIP UGLAND LTD.
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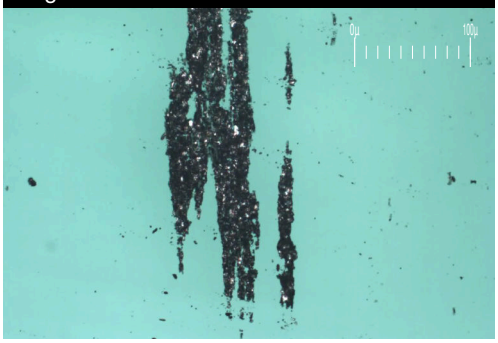
ST. JOHN`S, NL
CA A1B 3N4
Contact: Brian Bishop
bbishop@canship.com
T: (709)782-7341
F: (709)782-0225

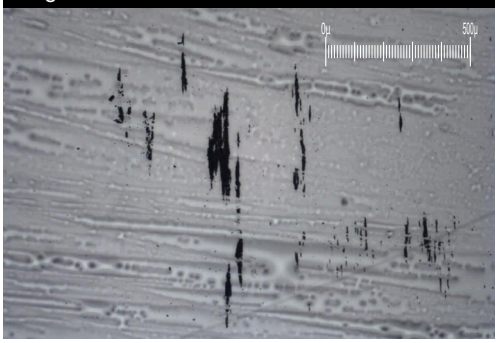
FERROGRAPHY REPORT

Machine Id
PH631.010.17 (S/N 3436)
Component
Starboard Variable Pitch Prop
Fluid
PETRO CANADA ULTIMA EP 150 (4500 LTR)

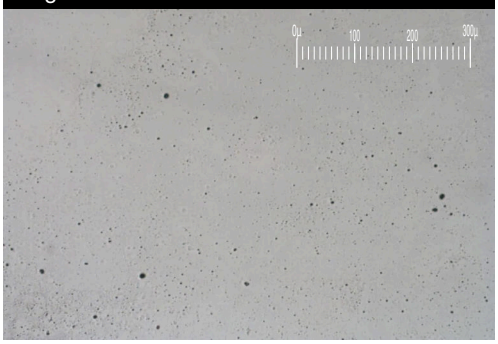
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW

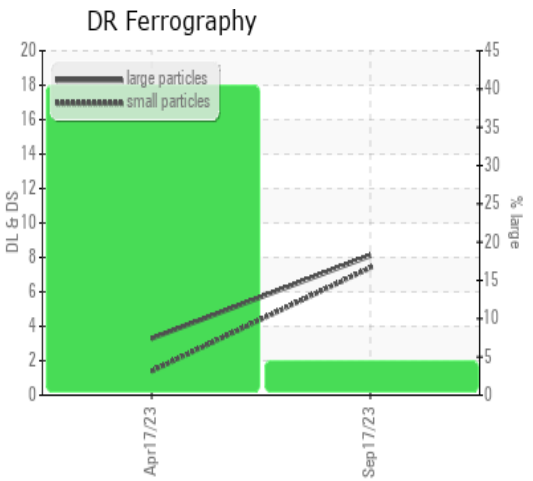


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		**8.1**	3.3	---
Small Particles		DR-Ferr*		**7.4**	1.4	---
Total Particles		DR-Ferr*	>---	**15.5**	4.7	---
Large Particles Percentage	%	DR-Ferr*		**4.5**	40.4	---
Severity Index		DR-Ferr*		**6**	6	---

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		**3**	4	
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		**1**	2	
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*		**1**	1	
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**	1	
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		**1**	2	

WEAR

Component wear rates appear to be normal (unconfirmed). The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.



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