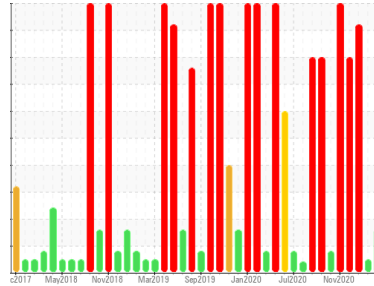


PROBLEM SUMMARY

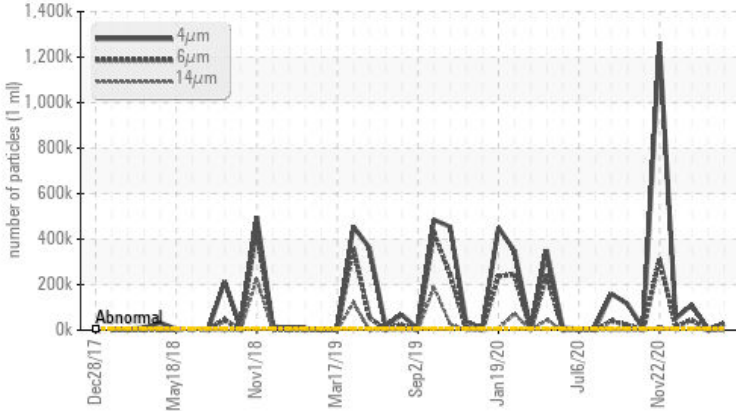
Area
Aft Machinery Space [450188488]
 Machine Id
Thruster Aft Starboard - Seal Oil System (S/N Sample Tag CL-06003-S3)
 Component
Sealing System
 Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)

Sample Rating Trend



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	NORMAL	SEVERE
Particles >4µm	ASTM D7647	>5000	▲ 28148	4589	● 110306
Particles >6µm	ASTM D7647	>1300	▲ 6179	756	● 44433
Particles >14µm	ASTM D7647	>160	▲ 184	24	● 6195
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 22/20/15	19/17/12	● 24/23/20

Customer Id: TERHAM
 Sample No.: PC
 Lab Number: 02582299
 Test Package: MAR 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
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

19 Jul 2023 Diag: Kevin Marson

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. 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 fluid is suitable for further service.

view report



ISO



11 Jun 2023 Diag: Kevin Marson

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this fluid. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Resample in 30-45 days to monitor this situation. All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the fluid. There is a moderate concentration of water present in the fluid. The AN level is acceptable for this fluid.

view report



ISO

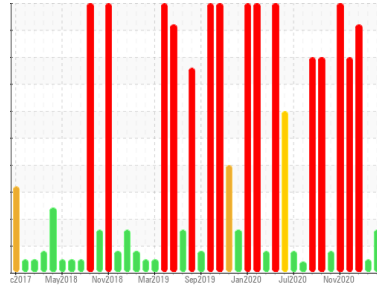


31 Mar 2023 Diag: Kevin Marson

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the fluid. The AN level is acceptable for this fluid. The fluid is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report





Area
Aft Machinery Space [450188488]
Machine Id
Thruster Aft Starboard - Seal Oil System (S/N Sample Tag CL-06003-S3)
Component
Sealing System
Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)

DIAGNOSIS

Recommendation
We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

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

Fluid Condition
The AN level is acceptable for this fluid. The fluid 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	PC	PC	PC0040122
Sample Date	Client Info	14 Aug 2023	19 Jul 2023	11 Jun 2023
Machine Age	hrs	0	0	0
Oil Age	hrs	0	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	NORMAL	SEVERE

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	0	8	0
Iron	ppm	9	16	16
Chromium	ppm	0	<1	0
Nickel	ppm	0	<1	<1
Titanium	ppm	0	0	0
Silver	ppm	0	0	0
Aluminum	ppm	<1	<1	<1
Lead	ppm	0	0	0
Copper	ppm	<1	<1	<1
Tin	ppm	0	0	0
Antimony	ppm	0	0	0
Vanadium	ppm	0	0	0
Beryllium	ppm	0	0	0
Cadmium	ppm	0	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm	11	<1	2
Barium	ppm	0	0	0
Molybdenum	ppm	<1	<1	<1
Manganese	ppm	<1	<1	<1
Magnesium	ppm	<1	2	2
Calcium	ppm	4	3	2
Phosphorus	ppm	268	278	294
Zinc	ppm	8	11	11
Sulfur	ppm	13115	8850	8920
Lithium	ppm	<1	<1	<1

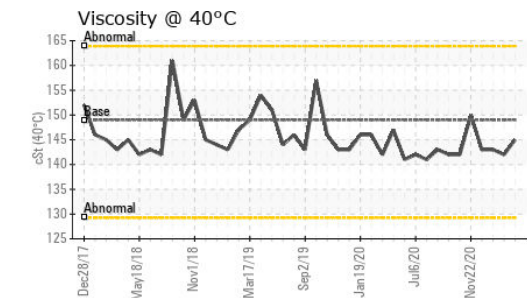
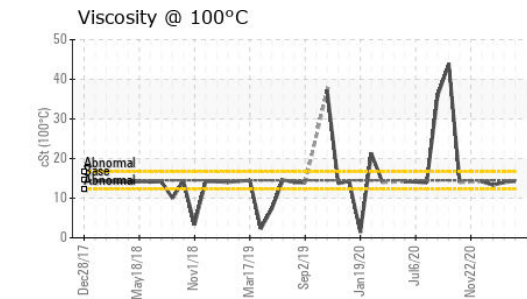
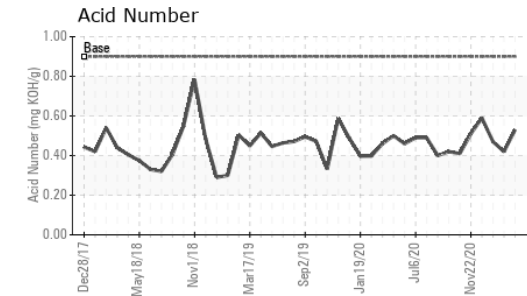
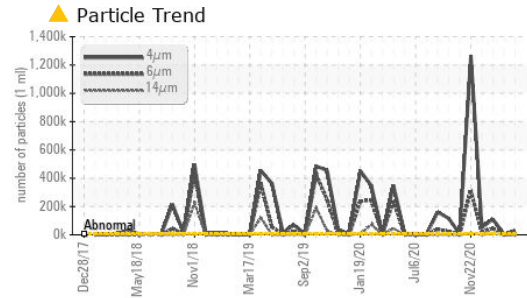
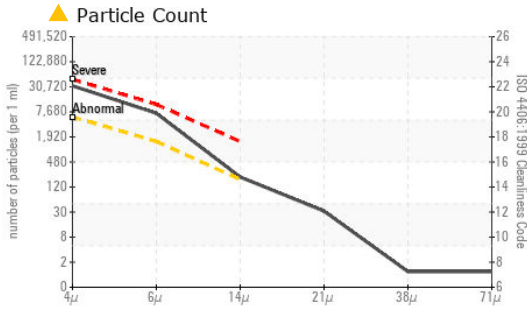
CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm	1	5	8
Sodium	ppm	<1	2	8
Potassium	ppm	<1	<1	<1

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	28148	4589	110306
Particles >6µm	ASTM D7647	6179	756	44433
Particles >14µm	ASTM D7647	184	24	6195
Particles >21µm	ASTM D7647	28	6	1756
Particles >38µm	ASTM D7647	1	1	7
Particles >71µm	ASTM D7647	1	0	1
Oil Cleanliness	ISO 4406 (c)	22/20/15	19/17/12	24/23/20

OIL ANALYSIS REPORT



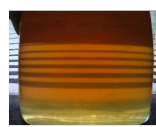
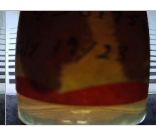

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02582299
Unique Number : 5643364
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man, VI)
Received : 13 Sep 2023
Diagnosed : 15 Sep 2023
Diagnostician : Kevin Marson

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.

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.9	0.53	0.42	0.47

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	VLITE	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*		NEG	NEG	▲ .5%
Free Water	scalar	Visual*		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	149	145	142	143
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	14.3	14.0	13.3
Viscosity Index (VI)	Scale	ASTM D2270*		95	94	84

SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						
Bottom				