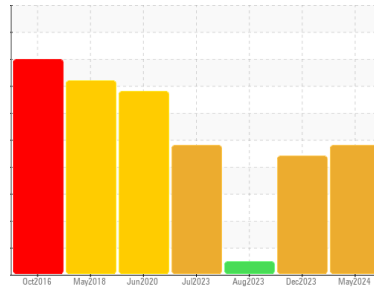


PROBLEM SUMMARY

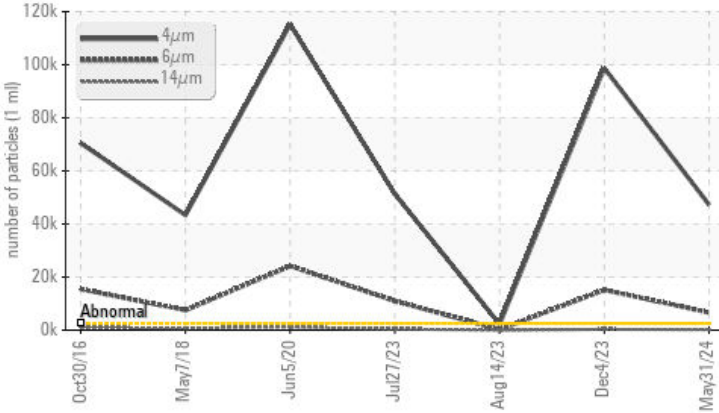
Area
Fwd Machinery Space [450348225]
 Machine Id
Thruster Fwd Fore - Steering Tube Seal (S/N Sample Tag CL-06005-S5)
 Component
Steering
 Fluid
CASTROL ALPHA SP150 (35 LTR)

Sample Rating Trend



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. 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 recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	SEVERE	NORMAL
Particles >4µm	ASTM D7647	>2500	▲ 47250	▲ 98700	2254
Particles >6µm	ASTM D7647	>640	▲ 6600	▲ 15152	232
Particles >14µm	ASTM D7647	>80	▲ 164	▲ 305	3
Oil Cleanliness	ISO 4406 (c)	>18/16/13	▲ 23/20/15	▲ 24/21/15	18/15/9

Customer Id: TERHAM
 Sample No.: PC0080673
 Lab Number: 02643720
 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	---	---	?	Resample in 30-45 days to monitor this situation.
Check Breathers	---	---	?	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.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

ISO

04 Dec 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



NORMAL

14 Aug 2023 Diag: Bill Quesnel
 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 water content is negligible. 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

27 Jul 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. Confirm the source of the lubricant being utilized for top-up/fill. 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 water content is negligible. Additive levels indicate the addition of a different brand, or type of 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

Fwd Machinery Space [450348225]

Machine Id

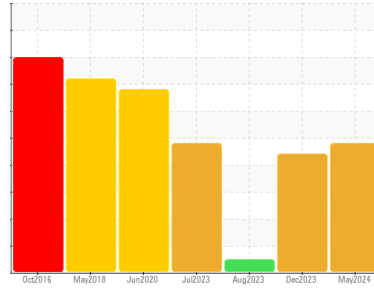
Thruster Fwd Fore - Steering Tube Seal (S/N Sample Tag CL-06005-S5)

Component

Steering

Fluid

CASTROL ALPHA SP150 (35 LTR)



DIAGNOSIS

▲ Recommendation

Check seals and/or filters for points of contaminant entry. 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 recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

Wear

All component wear rates are normal.

▲ Contamination

There is a high 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	PC0080673	PC	PC0062031
Sample Date	Client Info	31 May 2024	04 Dec 2023	14 Aug 2023
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		SEVERE	SEVERE	NORMAL

CONTAMINATION method limit/base current history1 history2

Water	WC Method	>0.2	NEG	NEG	NEG
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WEAR METALS method limit/base current history1 history2

PQ	ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m) >50	8	11	<1
Chromium	ppm	ASTM D5185(m) >15	<1	<1	0
Nickel	ppm	ASTM D5185(m) >5	<1	<1	0
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	0
Aluminum	ppm	ASTM D5185(m) >5	<1	<1	0
Lead	ppm	ASTM D5185(m) >10	0	<1	0
Copper	ppm	ASTM D5185(m) >50	<1	<1	<1
Tin	ppm	ASTM D5185(m) >5	0	0	0
Antimony	ppm	ASTM D5185(m)	<1	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

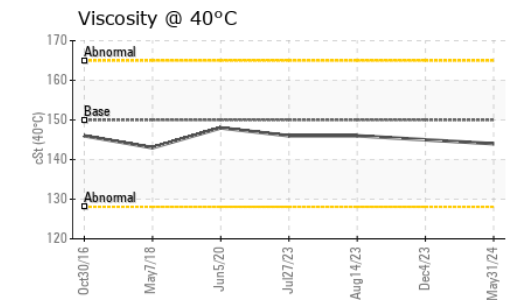
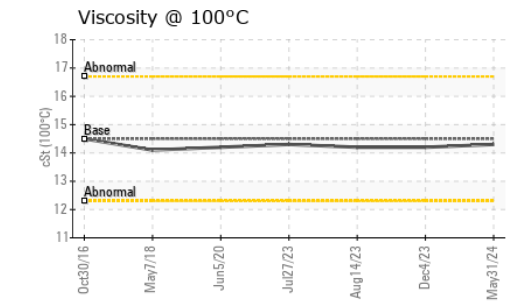
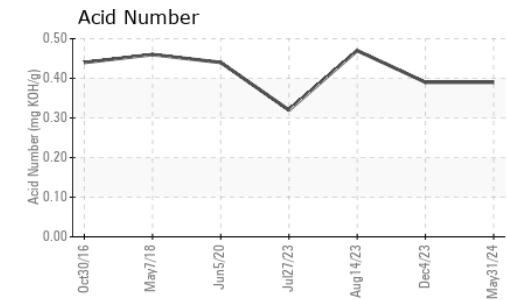
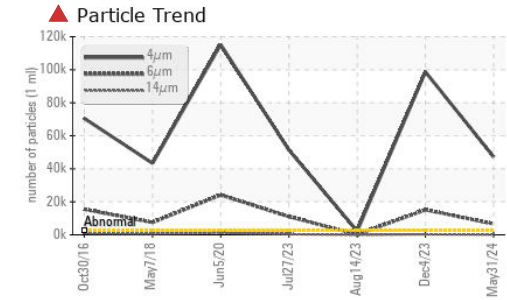
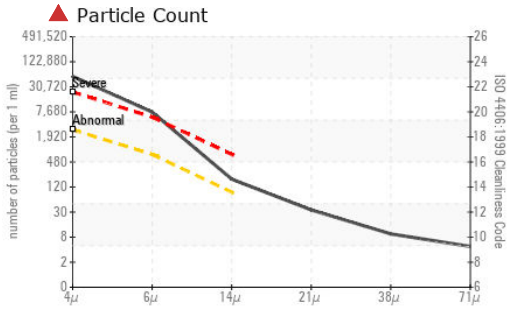
ADDITIVES method limit/base current history1 history2

Boron	ppm	ASTM D5185(m)	8	8	6
Barium	ppm	ASTM D5185(m) 4	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	0	0	0
Magnesium	ppm	ASTM D5185(m) 4	<1	<1	<1
Calcium	ppm	ASTM D5185(m) 4	6	14	4
Phosphorus	ppm	ASTM D5185(m) 330	143	154	191
Zinc	ppm	ASTM D5185(m) 4	6	10	6
Sulfur	ppm	ASTM D5185(m)	9680	11171	12197
Lithium	ppm	ASTM D5185(m)	2	3	<1

CONTAMINANTS method limit/base current history1 history2

Silicon	ppm	ASTM D5185(m) >15	4	5	1
Sodium	ppm	ASTM D5185(m)	1	1	0
Potassium	ppm	ASTM D5185(m) >20	0	0	<1

OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0080673
Lab Number : 02643720
Unique Number : 5801259
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, VI)

Received : 24 Jun 2024
Tested : 25 Jun 2024
Diagnosed : 25 Jun 2024 - Kevin Marson

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshynes@suncor.com
 T: (709)778-3575
 F: (709)724-2835

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 CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	▲ 47250	▲ 98700	2254	
Particles >6µm	ASTM D7647	>640	▲ 6600	▲ 15152	232	
Particles >14µm	ASTM D7647	>80	▲ 164	▲ 305	3	
Particles >21µm	ASTM D7647	>20	▲ 30	▲ 46	2	
Particles >38µm	ASTM D7647	>4	▲ 8	4	0	
Particles >71µm	ASTM D7647	>3	▲ 4	1	0	
Oil Cleanliness	ISO 4406 (c)	>18/16/13	▲ 23/20/15	▲ 24/21/15	18/15/9	

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.39	0.39	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	VLITE
Debris	scalar	Visual*	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	HAZY
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	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	144	145	146
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	14.3	14.2	14.2
Viscosity Index (VI)	Scale	ASTM D2270*	95	96	94	94

SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						
Bottom						

