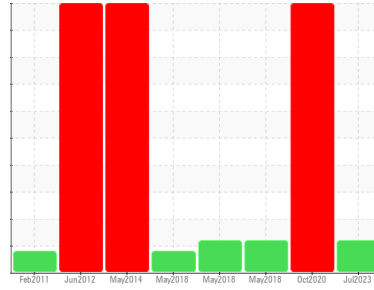


PROBLEM SUMMARY

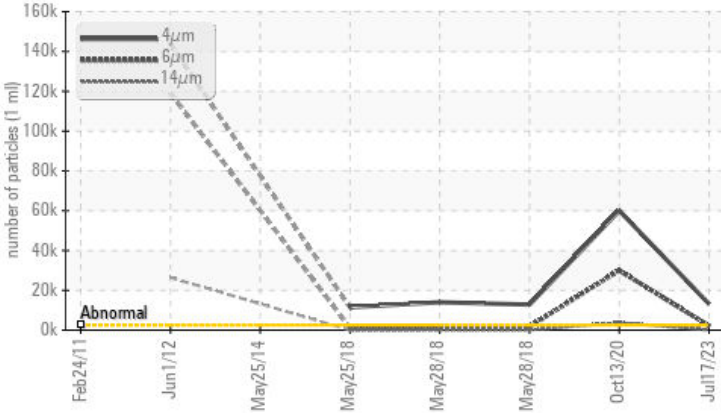
Area
Fwd Machinery Space [450164930]
 Machine Id
Thruster Aft Center - Steering Tube Seal (S/N Sample Tag CL-06001-S5)
 Component
Steering
 Fluid
CASTROL ALPHA SP150 (35 LTR)

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	SEVERE	ABNORMAL
Particles >4µm	ASTM D7647	>2500	▲ 13177	● 60000	▲ 14028
Particles >6µm	ASTM D7647	>640	▲ 2174	● 30000	▲ 2000
Oil Cleanliness	ISO 4406 (c)	>18/16/13	▲ 21/18/13	● 23/22/19	▲ 21/18/14

Customer Id: TERHAM
 Sample No.: PC
 Lab Number: 02573835
 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	MISSED	Aug 03 2023	?	We recommend you service the filters on this component.
Resample	MISSED	Aug 03 2023	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

WATER



13 Oct 2020 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. We recommend that you drain the fluid from the component if this has not already been done. 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. Please note that the fluid was too thick to perform some of the normal laboratory tests. PQ levels are abnormal. Iron ppm levels are abnormal. Water Water and ppm water contamination levels are severe. Particles >14µm are severely high. Particles >21µm are severely high. Particles >38µm are severely high. Particles >6µm are severely high. Particles >4µm are severely high. Particles >71µm are abnormally high. Lithium (Li) level severe at 66ppm., indicates possible grease contamination. There is a high concentration of water present in the fluid. Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The fluid is no longer serviceable due to the presence of contaminants.

view report



28 May 2018 Diag: Wes Davis

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high. The water content is negligible. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

view report



ISO



28 May 2018 Diag: Wes Davis

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high. The water content is negligible. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

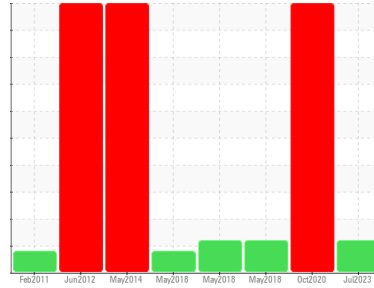
view report



ISO



Sample Rating Trend



Area
Fwd Machinery Space [450164930]
Machine Id
Thruster Aft Center - Steering Tube Seal (S/N Sample Tag CL-06001-S5)
Component
Steering
Fluid
CASTROL ALPHA SP150 (35 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	PC
Sample Date	Client Info	17 Jul 2023	13 Oct 2020	28 May 2018
Machine Age	days	0	0	0
Oil Age	days	0	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	SEVERE	ABNORMAL

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	8	▲ 200	0
Iron	ppm ASTM D5185(m) >50	5	▲ 43	<1
Chromium	ppm ASTM D5185(m) >15	0	5	0
Nickel	ppm ASTM D5185(m) >5	0	2	<1
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	0	<1	0
Aluminum	ppm ASTM D5185(m) >5	0	3	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)	0	0	<1
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)	4	3	6
Barium	ppm ASTM D5185(m) 4	0	0	0
Molybdenum	ppm ASTM D5185(m)	0	▲ 544	0
Manganese	ppm ASTM D5185(m)	0	<1	0
Magnesium	ppm ASTM D5185(m) 4	<1	16	<1
Calcium	ppm ASTM D5185(m) 4	1	176	<1
Phosphorus	ppm ASTM D5185(m) 330	334	▲ 102	328
Zinc	ppm ASTM D5185(m) 4	4	30	3
Sulfur	ppm ASTM D5185(m)	7584	▲ 1664	7765
Lithium	ppm ASTM D5185(m)	<1	◆ 66	<1

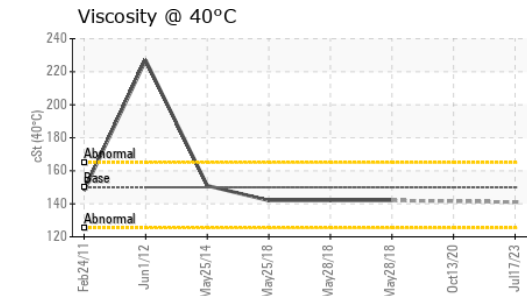
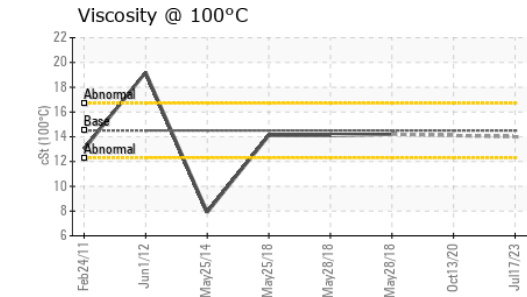
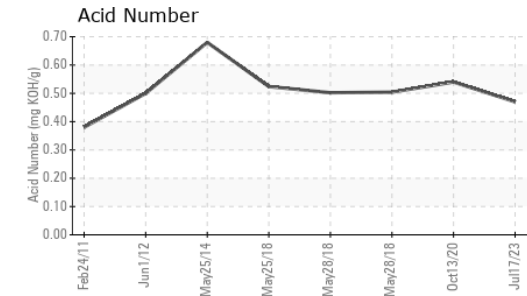
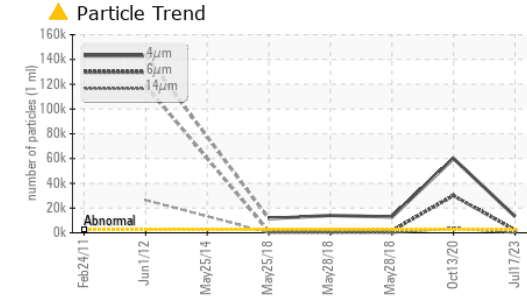
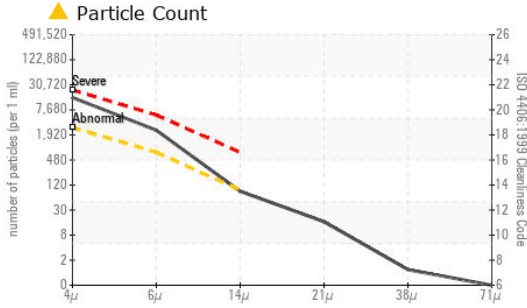
CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >15	2	5	3
Sodium	ppm ASTM D5185(m)	<1	146	3
Potassium	ppm ASTM D5185(m) >20	<1	4	<1

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >2500	▲ 13177	◆ 60000	▲ 14028
Particles >6µm	ASTM D7647 >640	▲ 2174	◆ 30000	▲ 2000
Particles >14µm	ASTM D7647 >80	75	◆ 3750	▲ 114
Particles >21µm	ASTM D7647 >20	14	◆ 480	26
Particles >38µm	ASTM D7647 >4	1	◆ 60	0
Particles >71µm	ASTM D7647 >3	0	▲ 7	0
Oil Cleanliness	ISO 4406 (c) >18/16/13	▲ 21/18/13	◆ 23/22/19	▲ 21/18/14

OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02573835
Unique Number : 5618886
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, VI)

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Strret
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshhynes@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 DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.47	0.54	0.504

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	LIGHT	NONE
Debris	scalar	Visual*	NONE	NONE	LIGHT	VLITE
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*	>0.2	NEG	.2%	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	141	---	142
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	14.0	---	14.2
Viscosity Index (VI)	Scale	ASTM D2270*	95	95	---	97

SAMPLE IMAGES

