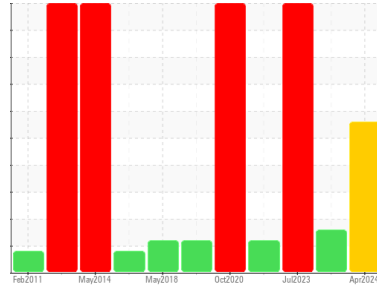


PROBLEM SUMMARY

Area
Fwd Machinery Space [450316344]
 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

No relevant graphs to display

RECOMMENDATION

We recommend that you drain the fluid from the component if this has not already been done. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	SEVERE
Appearance	scalar	Visual*	NORML	▲ WGOIL	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	▲ 1%	NEG	NEG
Free Water	scalar	Visual*		▲ >10%	NEG	NEG

Customer Id: TERHAM
 Sample No.: PC
 Lab Number: 02634784
 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 Fluid	---	---	?	We recommend that you drain the fluid from the component if this has not already been done.
Resample	---	---	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS



01 Aug 2023 Diag: Kevin Marson

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of silt (particulates < 14 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



17 Jul 2023 Diag: Kevin Marson

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. Iron and nickel ppm levels are abnormal. Lithium (Li) level abnormal at 8ppm., indicates possible grease contamination. There is a high amount of particulates (2 to 100 microns in size) present in the fluid. Additive levels indicate the addition of a different brand, or type of fluid. The AN level is acceptable for this fluid. The fluid is no longer serviceable as a result of the abnormal and/or severe wear.

view report

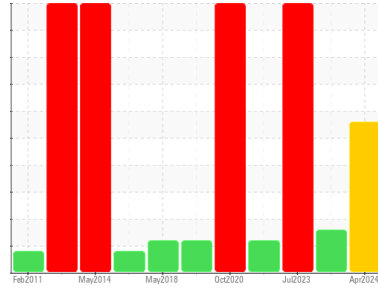


17 Jul 2023 Diag: Kevin Marson

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of silt (particulates < 14 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





WATER



Area

Fwd Machinery Space [450316344]

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 that you drain the fluid from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

Component wear rates appear to be normal (unconfirmed).

▲ Contamination

Insufficient sample was received to conduct all the routine laboratory tests. Excessive free water present.

Fluid Condition

The fluid is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PC	PC	PC
Sample Date	Client Info		13 Apr 2024	01 Aug 2023	17 Jul 2023
Machine Age	days	Client Info	0	0	0
Oil Age	days	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			SEVERE	ABNORMAL	SEVERE

CONTAMINATION

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

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		0	17	11
Iron	ppm	ASTM D5185(m) >50	---	6	▲ 63
Chromium	ppm	ASTM D5185(m) >15	---	0	9
Nickel	ppm	ASTM D5185(m) >5	---	0	▲ 6
Titanium	ppm	ASTM D5185(m)	---	0	0
Silver	ppm	ASTM D5185(m)	---	0	0
Aluminum	ppm	ASTM D5185(m) >5	---	<1	<1
Lead	ppm	ASTM D5185(m) >10	---	0	0
Copper	ppm	ASTM D5185(m) >50	---	<1	<1
Tin	ppm	ASTM D5185(m) >5	---	0	0
Antimony	ppm	ASTM D5185(m)	---	0	<1
Vanadium	ppm	ASTM D5185(m)	---	0	0
Beryllium	ppm	ASTM D5185(m)	---	0	0
Cadmium	ppm	ASTM D5185(m)	---	0	0

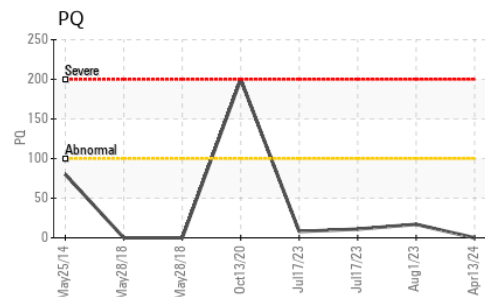
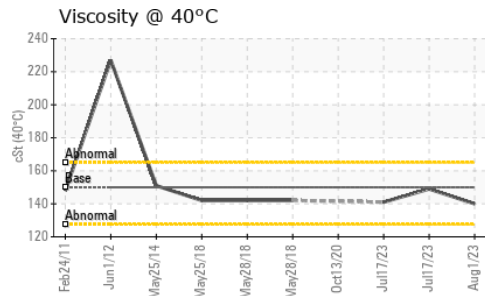
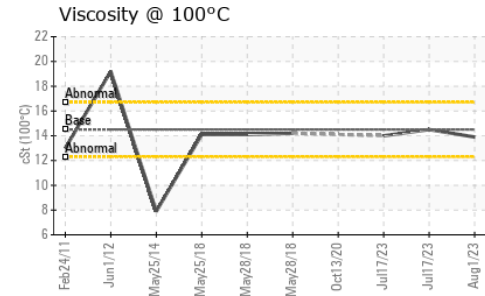
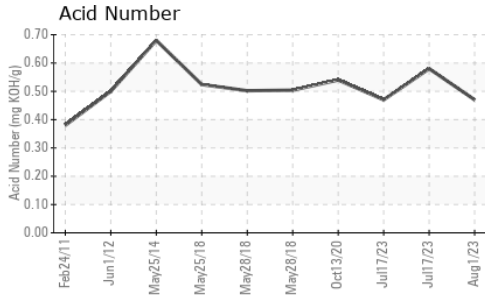
ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	---	4	2
Barium	ppm	ASTM D5185(m) 4	---	0	0
Molybdenum	ppm	ASTM D5185(m)	---	0	3
Manganese	ppm	ASTM D5185(m)	---	0	1
Magnesium	ppm	ASTM D5185(m) 4	---	<1	2
Calcium	ppm	ASTM D5185(m) 4	---	1	● 50
Phosphorus	ppm	ASTM D5185(m) 330	---	330	247
Zinc	ppm	ASTM D5185(m) 4	---	4	● 29
Sulfur	ppm	ASTM D5185(m)	---	7551	8156
Lithium	ppm	ASTM D5185(m)	---	<1	▲ 8

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	---	2	10
Sodium	ppm	ASTM D5185(m)	---	<1	6
Potassium	ppm	ASTM D5185(m) >20	---	<1	<1

OIL ANALYSIS REPORT

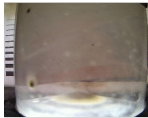
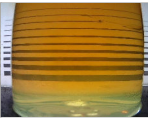






FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	---	▲ 19886	▲ 135697	
Particles >6µm	ASTM D7647	>640	---	▲ 3368	▲ 82068	
Particles >14µm	ASTM D7647	>80	---	● 91	▲ 9511	
Particles >21µm	ASTM D7647	>20	---	18	▲ 2539	
Particles >38µm	ASTM D7647	>4	---	0	▲ 56	
Particles >71µm	ASTM D7647	>3	---	0	4	
Oil Cleanliness	ISO 4406 (c)	>18/16/13	---	▲ 21/19/14	▲ 24/24/20	

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	---	0.47	0.58	

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	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	VLITE
Appearance	scalar	Visual*	NORML	▲ WGOIL	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	▲ 1%	NEG	NEG
Free Water	scalar	Visual*		▲ >10%	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	150.0	---	140	149
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	---	13.9	14.5

SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						
Bottom						



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02634784
Unique Number : 5775937
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man)

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Strret
 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.