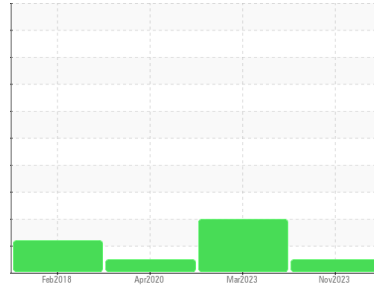


Area
Aft Machinery Space [450215791]
Machine Id
Thruster Aft Port - Lower Gearbox (S/N Sample Tag CL-06002-S6)
Component
Lower Gearbox
Fluid
CASTROL ALPHA SP150 (5000 LTR)



DIAGNOSIS

Recommendation
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 MAR 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

Wear
Component wear rates appear to be normal (unconfirmed).

Contamination
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

Fluid Condition
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PC	PC	PC
Sample Date	Client Info		05 Nov 2023	31 Mar 2023	15 Apr 2020
Machine Age	hrs	Client Info	0	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			NORMAL	ABNORMAL	NORMAL

CONTAMINATION

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

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m) >150	4	28	44
Chromium	ppm	ASTM D5185(m) >10	0	0	<1
Nickel	ppm	ASTM D5185(m) >10	<1	<1	0
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	<1	0	0
Aluminum	ppm	ASTM D5185(m) >5	<1	<1	2
Lead	ppm	ASTM D5185(m) >65	0	0	0
Copper	ppm	ASTM D5185(m) >80	<1	0	<1
Tin	ppm	ASTM D5185(m) >8	0	0	0
Antimony	ppm	ASTM D5185(m) >5	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	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	10	2	<1
Barium	ppm	ASTM D5185(m) 4	<1	0	<1
Molybdenum	ppm	ASTM D5185(m)	0	0	<1
Manganese	ppm	ASTM D5185(m)	0	<1	<1
Magnesium	ppm	ASTM D5185(m) 4	0	1	<1
Calcium	ppm	ASTM D5185(m) 4	3	<1	3
Phosphorus	ppm	ASTM D5185(m) 330	170	317	290
Zinc	ppm	ASTM D5185(m) 4	10	6	15
Sulfur	ppm	ASTM D5185(m)	13519	8392	9089
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

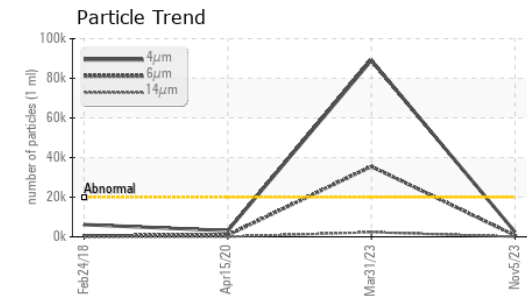
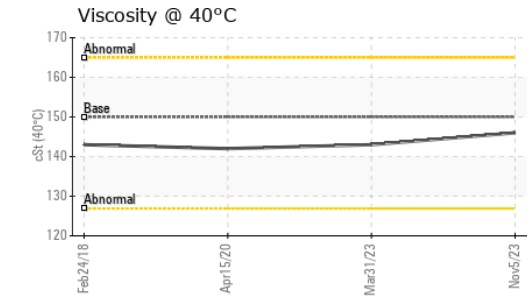
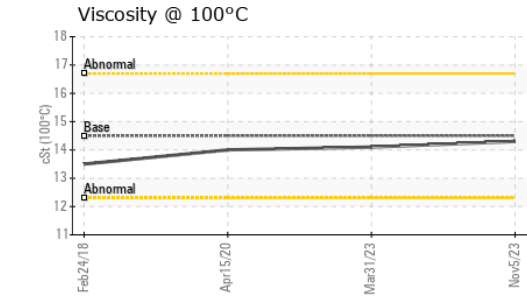
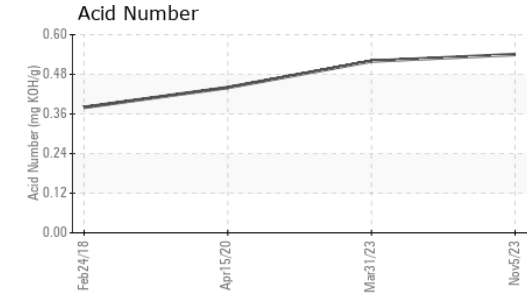
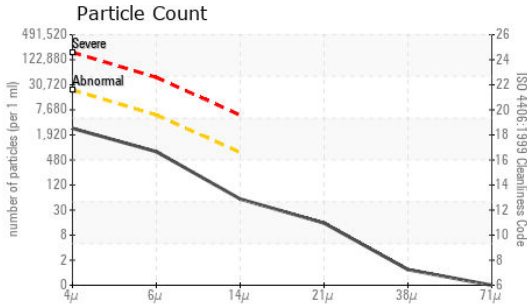
CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >20	1	6	2
Sodium	ppm	ASTM D5185(m)	1	4	0
Potassium	ppm	ASTM D5185(m) >20	0	<1	<1

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	2412	▲ 89055	3087
Particles >6µm	ASTM D7647	>5000	667	▲ 35500	843
Particles >14µm	ASTM D7647	>640	49	▲ 2300	62
Particles >21µm	ASTM D7647	>160	13	▲ 545	21
Particles >38µm	ASTM D7647	>40	1	22	0
Particles >71µm	ASTM D7647	>10	0	1	0
Oil Cleanliness	ISO 4406 (c)	>21/19/16	18/17/13	▲ 24/22/18	19/17/13

OIL ANALYSIS REPORT

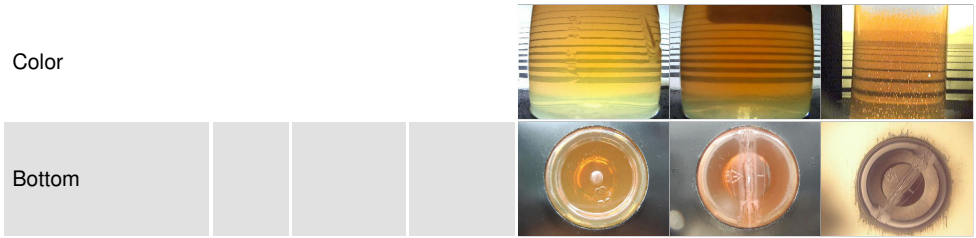


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.54	0.52	0.44

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	VLITE	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*	>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	146	143	142
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	14.3	14.1	14.0
Viscosity Index (VI)	Scale	ASTM D2270*	95	95	95	94

SAMPLE IMAGES



Color

Bottom



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02599130
Unique Number : 5684210
Test Package : MAR 2 (Additional Tests: KV100, TAN Man, VI)

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.