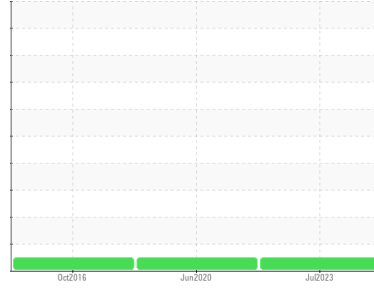




Area
Fwd Machinery Space
Machine Id
ThrusterFwdFore - Lower Gearbox (S/N Sample Tag CL-06005 - S6)
Component
Lower Gearbox
Fluid
CASTROL ALPHA SP150 (5000 LTR)



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	27 Jul 2023	07 Jun 2020	31 Oct 2016
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	NORMAL	NORMAL

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185(m) >150	<1	2	2
Chromium	ppm ASTM D5185(m) >10	0	0	0
Nickel	ppm ASTM D5185(m) >10	<1	<1	0
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	<1	<1	0
Aluminum	ppm ASTM D5185(m) >5	0	<1	<1
Lead	ppm ASTM D5185(m) >65	0	0	<1
Copper	ppm ASTM D5185(m) >80	<1	<1	<1
Tin	ppm ASTM D5185(m) >8	0	0	0
Antimony	ppm ASTM D5185(m) >5	0	<1	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)	15	2	3
Barium	ppm ASTM D5185(m) 4	0	<1	0
Molybdenum	ppm ASTM D5185(m)	0	<1	<1
Manganese	ppm ASTM D5185(m)	0	<1	0
Magnesium	ppm ASTM D5185(m) 4	<1	<1	0
Calcium	ppm ASTM D5185(m) 4	<1	4	2
Phosphorus	ppm ASTM D5185(m) 330	172	306	311
Zinc	ppm ASTM D5185(m) 4	4	10	6
Sulfur	ppm ASTM D5185(m)	8273	11495	10864
Lithium	ppm ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >20	2	3	3
Sodium	ppm ASTM D5185(m)	<1	1	<1
Potassium	ppm ASTM D5185(m) >20	0	<1	0

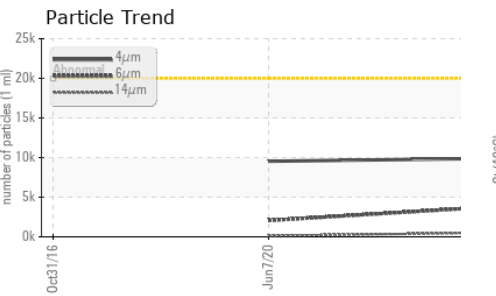
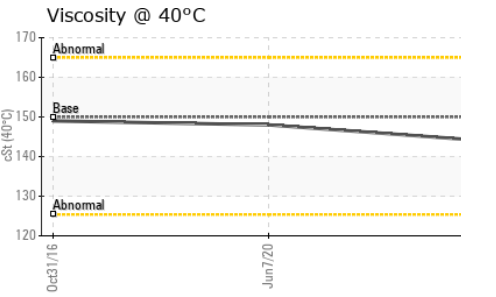
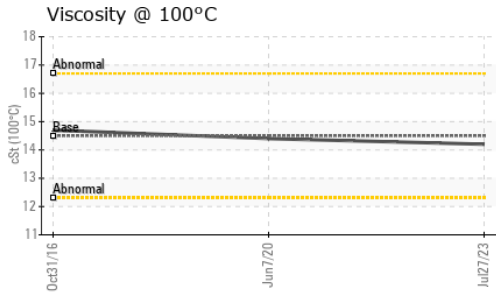
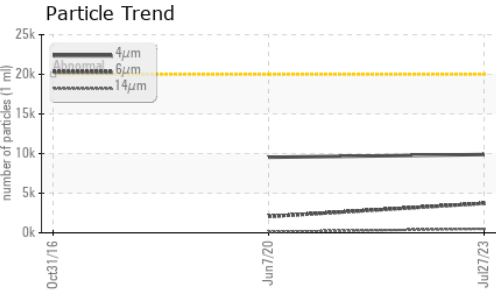
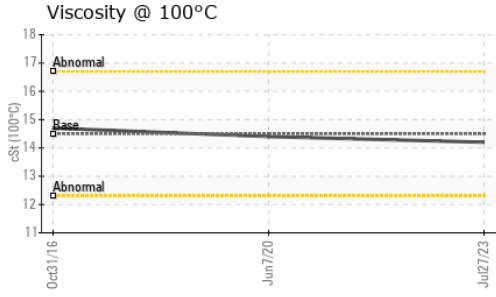
FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >20000	9884	9533	---
Particles >6µm	ASTM D7647 >5000	3719	2062	---
Particles >14µm	ASTM D7647 >640	496	133	---
Particles >21µm	ASTM D7647 >160	154	43	---
Particles >38µm	ASTM D7647 >40	8	2	---
Particles >71µm	ASTM D7647 >10	2	0	---
Oil Cleanliness	ISO 4406 (c) >21/19/16	20/19/16	20/18/14	---

FLUID DEGRADATION

method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	0.45	0.56	0.44

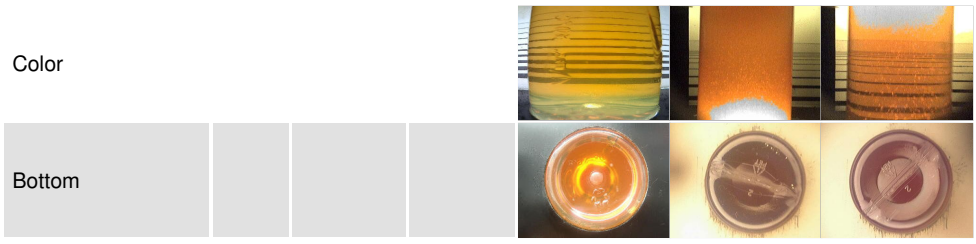
OIL ANALYSIS REPORT



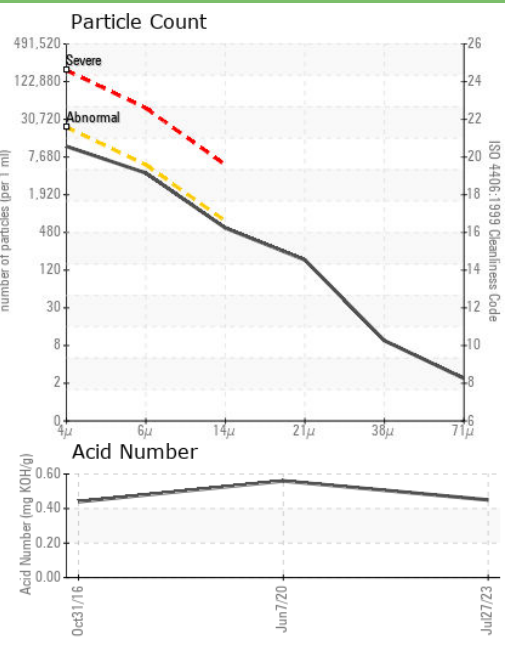
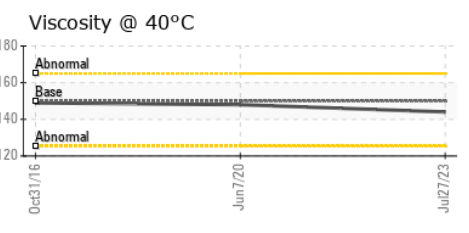
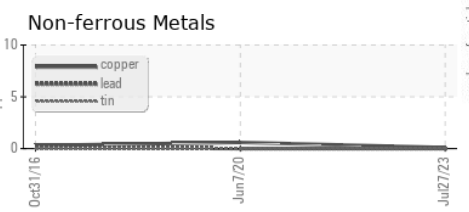
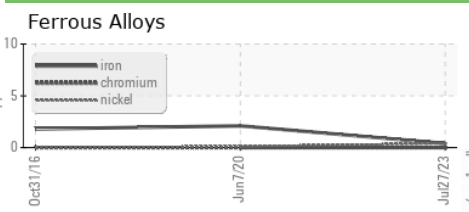
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	NEG	.2%
Free Water	scalar	Visual*		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	150.0	148	149
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	14.4	14.7
Viscosity Index (VI)	Scale	ASTM D2270*	95	94	97

SAMPLE IMAGES method limit/base current history1 history2



GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02576270
Unique Number : 5629330
Test Package : MAR 2 (Additional Tests: KV100, VI)
Received : 16 Aug 2023
Diagnosed : 17 Aug 2023
Diagnostician : Kevin Marson

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