WEAR CHECK

PROBLEM SUMMARY

Sample Rating Trend
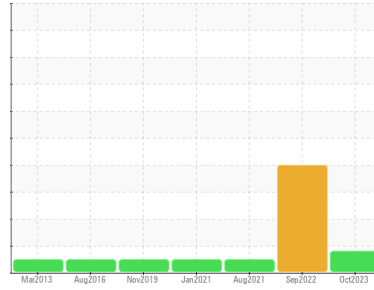
Mar2013 Aug2016 Nov2019 Jan2021 Aug2021 Sep2022 Oct2023

ISO
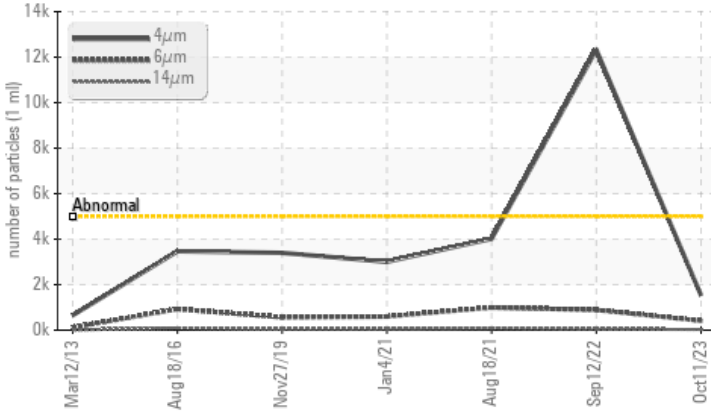

Area
(ZONE3) BRUCE B/7/34330
Machine Id
7-34330-MV3 Actuator-OIL
Component
Hydraulic System
Fluid
ESSO NUTO H ISO 46 (--- GAL)

COMPONENT CONDITION SUMMARY

⚠ Particle Trend

	4μm
	6μm
	14μm

Abnormal

Mar12/13 Aug18/16 Nov27/19 Jan4/21 Aug18/21 Sep12/22 Oct11/23

RECOMMENDATION

We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

PROBLEMATIC TEST RESULTS

Sample Status			**ATTENTION**	ABNORMAL	NORMAL
Particles >6µm	ASTM D7647	>320	⚠ **410**	⚠ 889	994
Oil Cleanliness	ISO 4406 (c)	>19/15/12	⚠ **18/16/12**	⚠ 21/17/13	19/17/14

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Information Required	---	---	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

HISTORICAL DIAGNOSIS

12 Sep 2022 Diag: Kevin Marson

WEAR PARTICLES

⚠️

view report

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.Wear particle analysis indicates that the ferrous rolling and ferrous other particles are abnormal. Oil Cleanliness are abnormally high. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high. The water content is negligible. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

18 Aug 2021 Diag: Wes Davis

NORMAL

✓

view report

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.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 oil is suitable for further service.

04 Jan 2021 Diag: Wes Davis

NORMAL

✓

view report

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.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 oil is suitable for further service.
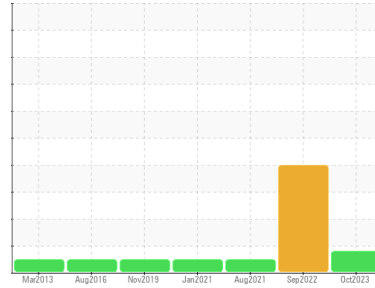
OIL ANALYSIS REPORT

WEAR CHECK

ISO

Area
(ZONE3) BRUCE B/7/34330
Machine Id
7-34330-MV3 Actuator-OIL
Component
Hydraulic System
Fluid
ESSO NUTO H ISO 46 (--- GAL)

Mar2013 Aug2016 Nov2019 Jan2021 Aug2021 Sep2022 Oct2023

DIAGNOSIS

⚠ Recommendation
We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear
All component wear rates are normal.

⚠ Contamination
There is a light amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible.

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		**WC0845477**	WC0711364	WC0603528
Sample Date		Client Info		**11 Oct 2023**	12 Sep 2022	18 Aug 2021
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				**ATTENTION**	ABNORMAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>10	**0**	0	0
Chromium	ppm	ASTM D5185(m)	>5	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>5	**0**	0	0
Titanium	ppm	ASTM D5185(m)	>5	**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>5	**0**	0	0
Lead	ppm	ASTM D5185(m)	>5	**0**	1	<1
Copper	ppm	ASTM D5185(m)	>5	**<1**	<1	<1
Tin	ppm	ASTM D5185(m)	>5	**0**	0	<1
Antimony	ppm	ASTM D5185(m)		**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	1	<1

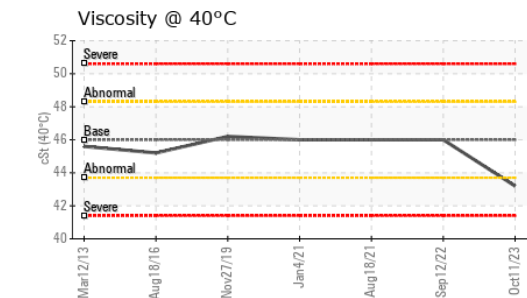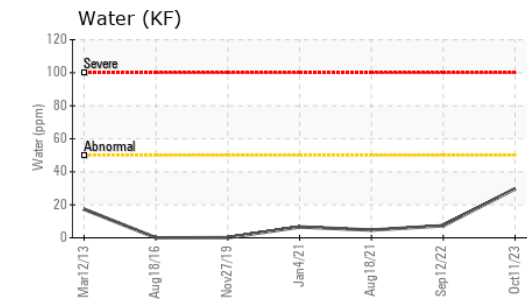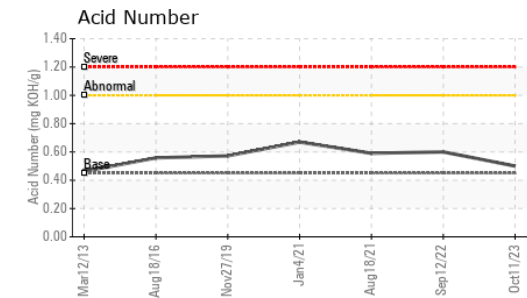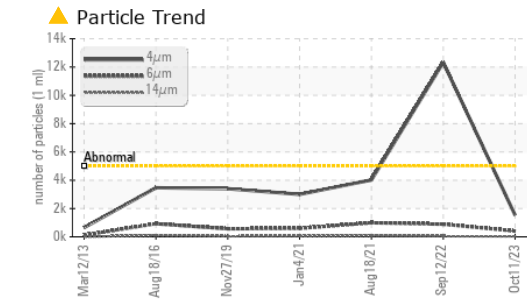| ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)	5	**0**	<1	<1
Calcium	ppm	ASTM D5185(m)	50	**53**	42	44
Phosphorus	ppm	ASTM D5185(m)	330	**330**	352	360
Zinc	ppm	ASTM D5185(m)	410	**431**	432	464
Sulfur	ppm	ASTM D5185(m)	2700	**5777**	2540	2600
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>5	**0**	2	2
Sodium	ppm	ASTM D5185(m)	>5	**<1**	<1	0
Potassium	ppm	ASTM D5185(m)	>20	**0**	<1	<1
Water	%	ASTM D6304*	>0.005	**0.003**	0.001	0.001
ppm Water	ppm	ASTM D6304*	>50	**29.7**	7.3	4.7

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	**1533**	⚠ 12326	4016
Particles >6µm		ASTM D7647	>320	⚠ **410**	⚠ 889	994
Particles >14µm		ASTM D7647	>40	**29**	⚠ 42	82
Particles >21µm		ASTM D7647	>10	**8**	9	21
Particles >38µm		ASTM D7647	>3	**1**	0	1
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/15/12	⚠ **18/16/12**	⚠ 21/17/13	19/17/14

Particle Count

Particle Trend

Acid Number

Water (KF)

Viscosity @ 40°C
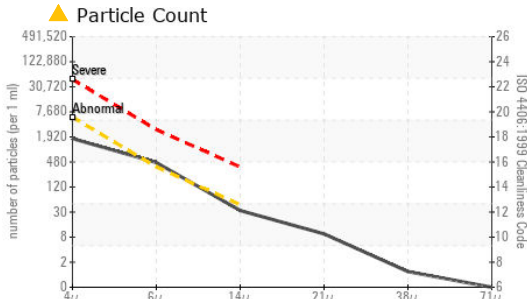
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.45	**0.50**	0.60	0.59

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	**NONE**	NONE	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*	>0.005	**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)	46	**43.2**	46.0	46.0

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter				no image	no image