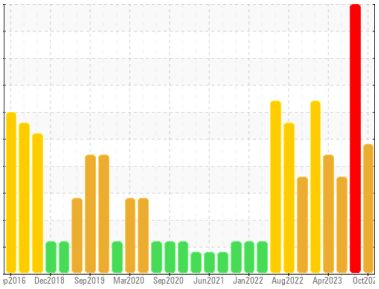
PROBLEM SUMMARY

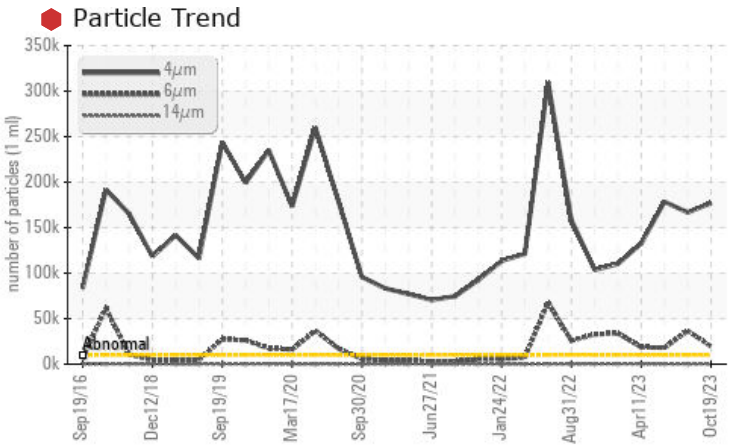
Sample Rating Trend

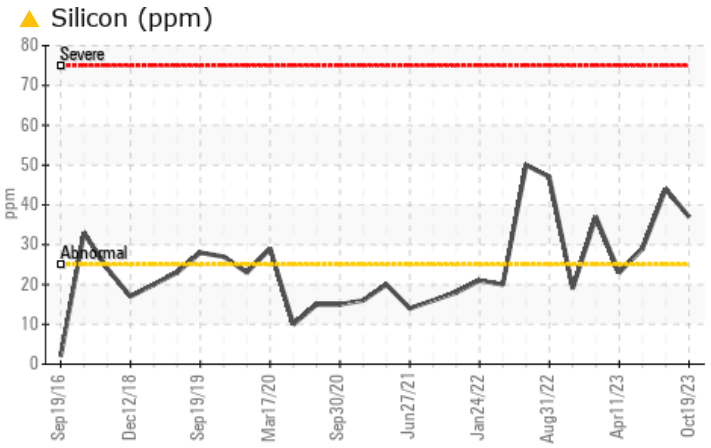


DIRT

Area
BRUCE B/0B/54300
Machine Id
0B-54300-EPG1-CP1-OIL
Component
Compressor
Fluid
ESSO NUTO H ISO 150 (--- GAL)

COMPONENT CONDITION SUMMARY

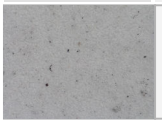




RECOMMENDATION

Check seals and/or filters for points of contaminant entry. We advise that you check for visible metal particles in the oil. 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. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	SEVERE
Silicon	ppm	ASTM D5185(m)	>25	▲ **37**	▲ 44	▲ 29
Particles >4µm		ASTM D7647	>10000	⬢ **177075**	⬢ 166715	⬢ 178475
Particles >6µm		ASTM D7647	>2500	▲ **19457**	⬢ 36651	▲ 17992
Oil Cleanliness		ISO 4406 (c)	>20/18/15	⬢ **25/21/14**	⬢ 25/22/14	⬢ 25/21/14
White Metal	scalar	Visual*	NONE	▲ **VLITE**	NONE	NONE
PrtFilter					*no image*	*no image*

Customer Id: BRUTIV
Sample No.: WC0642817
Lab Number: 02591048
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
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gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Check Breathers	---	---	?	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.
Check For Visual Metal	---	---	?	We advise that you check for visible metal particles in the oil.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

ISO

13 Sep 2023 Diag: Bill Quesnel

Check seals and/or filters for points of contaminant entry. 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. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.Wear particle analysis indicates that the ferrous rolling particles are abnormal. Severity Index and total particles, large particles and small particles levels are abnormal. Wear particle analysis indicates that the ferrous corrosive particles are abnormal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. High silicon level indicates possible contamination with silicone-based oil or silicone-based fitting compound/grease. Advise investigate any possible cross-contamination with silicone-based oil, or any points that are sealed/greased with silicone-based compound/grease. High amount of ingressed dirt has caused abrasive wear to the component. The viscosity of the oil is higher than normal, possibly indicating the addition of a heavier grade of oil. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report

DIRT

26 May 2023 Diag: Kevin Marson

Check seals and/or filters for points of contaminant entry. 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. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible. High silicon level indicates possible contamination with silicone-based oil or silicone-based fitting compound/grease. Advise investigate any possible cross-contamination with silicone-based oil, or any points that are sealed/greased with silicone-based compound/grease. The oil viscosity is lower than typical, possibly indicating the addition of lighter grade oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

WEAR PARTICLES

11 Apr 2023 Diag: Kevin Marson

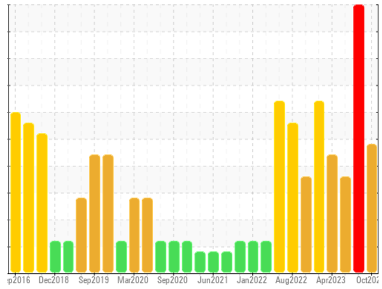
Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. No other corrective action is recommended at this time.Wear particle analysis indicates that the ferrous rubbing particles are noted. Wear particle analysis indicates that the ferrous cutting particles are marginal. All other component wear rates are normal. Cutting wear particles are caused by either hard protuberances (mis-aligned components, etc.), or abrasives entering the system and embeding themselves in softer materials (sand, etc.), and gouging out mating surfaces. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible. The oil viscosity is lower than typical, possibly indicating the addition of lighter grade oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

OIL ANALYSIS REPORT

Area
BRUCE B/0B/54300
Machine Id
0B-54300-EPG1-CP1-OIL
Component
Compressor
Fluid
ESSO NUTO H ISO 150 (--- GAL)

Sample Rating Trend



DIRT

DIAGNOSIS

Recommendation

Check seals and/or filters for points of contaminant entry. We advise that you check for visible metal particles in the oil. 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. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

Wear

Light concentration of visible metal present.

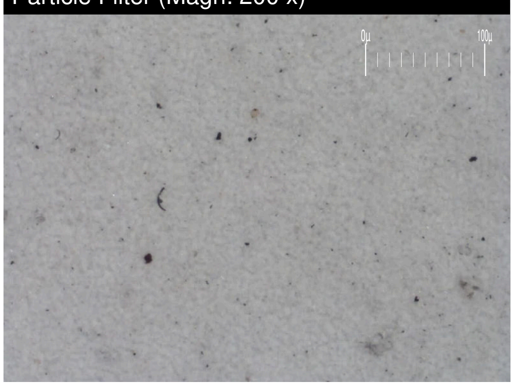
Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible. High silicon level indicates possible contamination with silicone-based oil or silicone-based fitting compound/grease. Advise investigate any possible cross-contamination with silicone-based oil, or any points that are sealed/greased with silicone-based compound/grease.

Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Particle Filter (Magn: 200 x)



SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0642817**	WC0642811	WC0642764
Sample Date		Client Info		**19 Oct 2023**	13 Sep 2023	26 May 2023
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				**SEVERE**	SEVERE	SEVERE

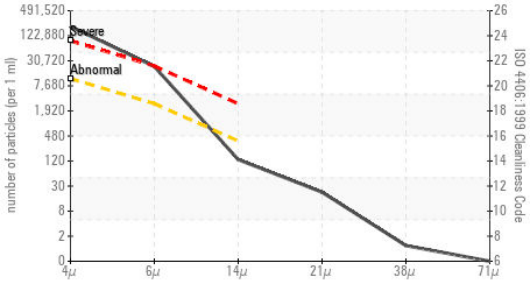
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>50	**10**	13	10
Chromium	ppm	ASTM D5185(m)	>10	**0**	0	0
Nickel	ppm	ASTM D5185(m)		**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>25	**<1**	1	<1
Lead	ppm	ASTM D5185(m)	>25	**<1**	<1	<1
Copper	ppm	ASTM D5185(m)	>50	**3**	4	2
Tin	ppm	ASTM D5185(m)	>15	**<1**	<1	<1
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)		**1**	2	1

DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		**119.3**	▲ 33.6	23.9
Small Particles		DR-Ferr*		**64.2**	▲ 13.7	11.8
Total Particles		DR-Ferr*	>---	**183.5**	▲ 47.3	35.7
Large Particles Percentage	%	DR-Ferr*		**30**	42.1	33.9
Severity Index		DR-Ferr*		**6573**	▲ 669	289

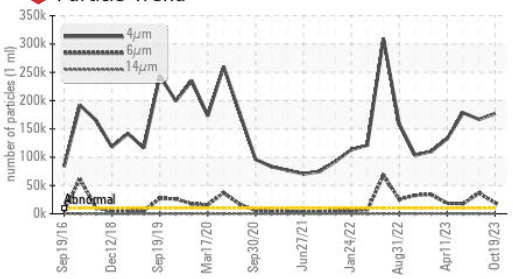
FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*			6	5
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*			▲ 3	2
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*			▲ 5	2
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*			3	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*				2

OIL ANALYSIS REPORT

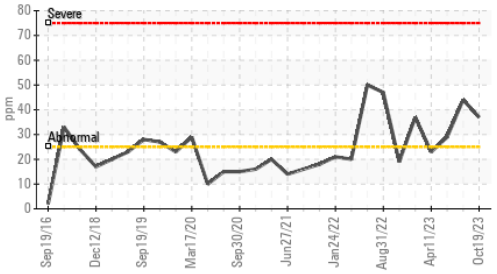
Particle Count



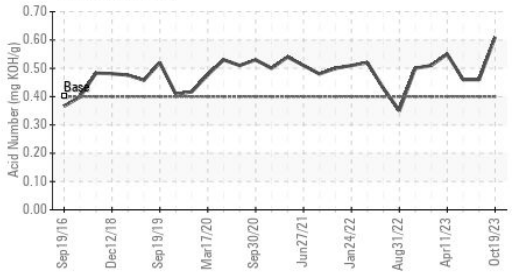
Particle Trend



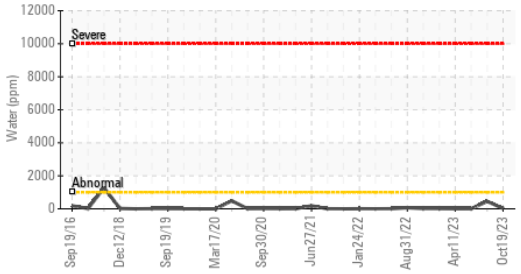
Silicon (ppm)



Acid Number



Water (KF)



ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**<1**	<1	0
Barium	ppm	ASTM D5185(m)		**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	<1	<1
Magnesium	ppm	ASTM D5185(m)		**<1**	<1	<1
Calcium	ppm	ASTM D5185(m)		**23**	24	28
Phosphorus	ppm	ASTM D5185(m)		**333**	359	378
Zinc	ppm	ASTM D5185(m)		**362**	368	373
Sulfur	ppm	ASTM D5185(m)		**1320**	1322	1352
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	▲ **37**	▲ 44	▲ 29
Sodium	ppm	ASTM D5185(m)		**2**	2	2
Potassium	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Water	%	ASTM D6304*	>0.1	**0.002**	0.045	0.001
ppm Water	ppm	ASTM D6304*	>1000	**21.1**	451.3	4.2

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>10000	⬢ **177075**	⬢ 166715	⬢ 178475
Particles >6µm		ASTM D7647	>2500	▲ **19457**	⬢ 36651	▲ 17992
Particles >14µm		ASTM D7647	>320	**115**	114	91
Particles >21µm		ASTM D7647	>80	**19**	15	13
Particles >38µm		ASTM D7647	>20	**1**	1	1
Particles >71µm		ASTM D7647	>4	**0**	0	1
Oil Cleanliness		ISO 4406 (c)	>20/18/15	⬢ **25/21/14**	⬢ 25/22/14	⬢ 25/21/14

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	.40	**0.61**	0.46	0.46

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	▲ **VLITE**	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**	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*	>0.1	**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)	151.3	**135**	134	134

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

CALA
ISO 17025:2017 Accredited Laboratory

Laboratory
Sample No.
Lab Number
Unique Number
Test Package

To discuss this sample report, cc
Test denoted (*) outside scope o
Validity of results and interpretati