

OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
TEST STAND 1

Component Hydraulic System

SAFETY-KLEEN PERFORMANCE PLUS HYD. AW32 (300 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

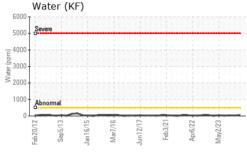
Fluid Condition

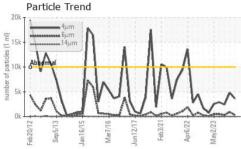
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

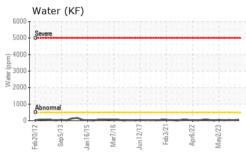
Sample Number Client Info ST46392 ST46389 ST41960 Sample Date Client Info 28 May 2024 12 Feb 2024 14 Nov 2023 14 Nov 2023 12 Feb 2024 14 Nov 2023 14 Nov 2023 16 Normal 15 Normal	D. AW32 (300 G	AL)	52012 Sep20	is Janzuis Marzuis	Jun2017 Feb2021 Apr2022 N	nayzuzs	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 0 0 0 0 0 0 0	Sample Number		Client Info		ST46392	ST46389	ST41960
Oil Changed	Sample Date		Client Info		28 May 2024	12 Feb 2024	14 Nov 2023
Client Info N/A N/A N/A N/A N/A NORMAL N	Machine Age	hrs	Client Info		0	0	0
NORMAL NORMAL NORMAL NORMAL NORMAL WEAR METALS method limit/base current history1 history2 history3 histo	Oil Age	hrs	Client Info		-		
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >40 <1	Oil Changed		Client Info				
Iron	Sample Status				NORMAL	NORMAL	NORMAL
Chromium ppm ASTM D5185m >4 <1 0 <1 Nickel ppm ASTM D5185m >20 0 0 <1 Tittanium ppm ASTM D5185m 0 0 0 <1 Silver ppm ASTM D5185m 0 0 0 0 Aluminum ppm ASTM D5185m >0 0 0 0 Aluminum ppm ASTM D5185m >0 1 1 1 Lead ppm ASTM D5185m >0 32 32 33 33 Tin ppm ASTM D5185m >4 <1 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 <1 <1 <1 <1 ADDITIVES method limit/base current history1 history2 Barium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>40	<1	0	<1
Description	Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Silver	Nickel	ppm	ASTM D5185m	>20	0	0	<1
Aluminum	Titanium	ppm	ASTM D5185m		0	0	<1
Lead	Silver	ppm	ASTM D5185m		0	0	0
Description	Aluminum	ppm	ASTM D5185m	>4	3	0	0
Tin	Lead	ppm	ASTM D5185m	>10			1
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m <1 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 1 0 0 0 Barium ppm ASTM D5185m 0.0 0 <1 0 Molybdenum ppm ASTM D5185m 1.2 0 0 <1 Magnesium ppm ASTM D5185m 1.2 0 0 <1 Magnesium ppm ASTM D5185m 0.0 <1 2 <1 Magnesium ppm ASTM D5185m 35 43 47 52 Phosphorus ppm ASTM D5185m 324 288 328 421 Zinc ppm ASTM D5185m 30 463 422 500 Sulfur ppm ASTM D5185m 1528 1017 888 1212	Copper	ppm	ASTM D5185m	>60	32	32	33
Cadmium ppm ASTM D5185m <1 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 1.0 0 0 0 Barium ppm ASTM D5185m 0.0 0 <1	Tin	ppm	ASTM D5185m	>4	<1	0	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 11 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		<1	<1	<1
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 1.2 0 0 <1 Manganese ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m	11	0	0	0
Manganese ppm ASTM D5185m <1 1 <1 Magnesium ppm ASTM D5185m 0.0 <1 2 <1 Calcium ppm ASTM D5185m 35 43 47 52 Phosphorus ppm ASTM D5185m 324 288 328 421 Zinc ppm ASTM D5185m 400 463 422 500 Sulfur ppm ASTM D5185m 400 463 422 500 Sulfur ppm ASTM D5185m 1528 1017 888 1212 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1 <1 1 Godium ppm ASTM D5185m >20 <1 <1 1 Potatissium ppm ASTM D5185m >20 2 <1 1 Water % ASTM D6304 >0.05 0.006 <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0.0</td> <th>0</th> <td><1</td> <td>0</td>	Barium	ppm	ASTM D5185m	0.0	0	<1	0
Magnesium ppm ASTM D5185m 0.0 <1 2 <1 Calcium ppm ASTM D5185m 35 43 47 52 Phosphorus ppm ASTM D5185m 324 288 328 421 Zinc ppm ASTM D5185m 400 463 422 500 Sulfur ppm ASTM D5185m 400 463 422 500 Sulfur ppm ASTM D5185m 400 463 422 500 Sulfur ppm ASTM D5185m 1528 1017 888 1212 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m	1.2	0	0	<1
Calcium ppm ASTM D5185m 35 43 47 52 Phosphorus ppm ASTM D5185m 324 288 328 421 Zinc ppm ASTM D5185m 400 463 422 500 Sulfur ppm ASTM D5185m 400 463 422 500 Sulfur ppm ASTM D5185m 1528 1017 888 1212 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m		<1	1	<1
Phosphorus ppm ASTM D5185m 324 288 328 421 Zinc ppm ASTM D5185m 400 463 422 500 Sulfur ppm ASTM D5185m 1528 1017 888 1212 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1 <1 1 Sodium ppm ASTM D5185m >20 2 <1 1 Potassium ppm ASTM D5185m >20 2 <1 1 Water % ASTM D5185m >20 2 <1 1 Water % ASTM D5185m >20 2 <1 1 Water % ASTM D6304 >0.05 0.006 0.003 0.003 Particles >4µm ASTM D7647 >10000 3624 4793 2408 Particles >24µm ASTM D7647 >160 11	Magnesium	ppm	ASTM D5185m	0.0			<1
Zinc ppm ASTM D5185m 400 463 422 500	Calcium	ppm	ASTM D5185m	35	43	47	52
Sulfur ppm ASTM D5185m 1528 1017 888 1212 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1	Phosphorus	ppm	ASTM D5185m	324	288	328	421
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1	Zinc	ppm	ASTM D5185m	400	463	422	500
Silicon ppm ASTM D5185m >20 <1 <1 1	Sulfur	ppm	ASTM D5185m	1528	1017	888	1212
Sodium ppm ASTM D5185m 0 3 <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 <1 1 Water % ASTM D6304 >0.05 0.006 0.003 0.003 ppm Water ppm ASTM D6304 >500 62 34 36 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 3624 4793 2408 Particles >6μm ASTM D7647 >1300 318 919 294 Particles >14μm ASTM D7647 >160 11 22 7 Particles >21μm ASTM D7647 >40 5 4 2 Particles >38μm ASTM D7647 >3 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10	Silicon	ppm	ASTM D5185m	>20	<1	<1	1
Water % ASTM D6304 >0.05 0.006 0.003 0.003 opm Water ppm ASTM D6304 >500 62 34 36 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 3624 4793 2408 Particles >6μm ASTM D7647 >1300 318 919 294 Particles >14μm ASTM D7647 >160 11 22 7 Particles >21μm ASTM D7647 >40 5 4 2 Particles >38μm ASTM D7647 >10 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	Sodium	ppm	ASTM D5185m		0	3	<1
Oppm Water ppm ASTM D6304 >500 62 34 36 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 3624 4793 2408 Particles >6μm ASTM D7647 >1300 318 919 294 Particles >14μm ASTM D7647 >160 11 22 7 Particles >21μm ASTM D7647 >40 5 4 2 Particles >38μm ASTM D7647 >10 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	2	<1	1
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 3624 4793 2408 Particles >6μm ASTM D7647 >1300 318 919 294 Particles >14μm ASTM D7647 >160 11 22 7 Particles >21μm ASTM D7647 >40 5 4 2 Particles >38μm ASTM D7647 >10 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	Water	%	ASTM D6304	>0.05	0.006	0.003	0.003
Particles >4μm ASTM D7647 >10000 3624 4793 2408 Particles >6μm ASTM D7647 >1300 318 919 294 Particles >14μm ASTM D7647 >160 11 22 7 Particles >21μm ASTM D7647 >40 5 4 2 Particles >38μm ASTM D7647 >10 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	opm Water	ppm	ASTM D6304	>500	62	34	36
Particles >6μm ASTM D7647 >1300 318 919 294 Particles >14μm ASTM D7647 >160 11 22 7 Particles >21μm ASTM D7647 >40 5 4 2 Particles >38μm ASTM D7647 >10 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >160 11 22 7 Particles >21μm ASTM D7647 >40 5 4 2 Particles >38μm ASTM D7647 >10 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647	>10000	3624	4793	2408
Particles >21μm ASTM D7647 >40 5 4 2 Particles >38μm ASTM D7647 >10 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	318	919	294
Particles >38μm ASTM D7647 >10 0 0 0 Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>160	11	22	7
Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	Particles >21μm		ASTM D7647	>40	5	4	2
Oil Cleanliness ISO 4406 (c) >20/17/14 19/15/11 19/17/12 18/15/10 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>10	0	0	0
FLUID DEGRADATION method limit/base current history1 history2	Particles >71μm		ASTM D7647	>3	0	0	0
	Oil Cleanliness		ISO 4406 (c)	>20/17/14	19/15/11	19/17/12	18/15/10
Acid Number (AN) mg KOH/g ASTM D8045 0.36 0.33 0.29	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045		0.36	0.33	0.29

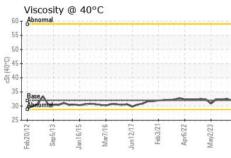


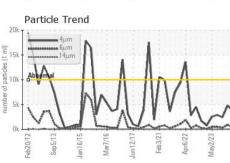
OIL ANALYSIS REPORT

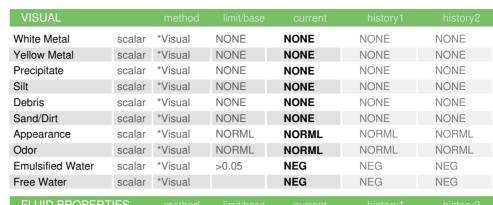








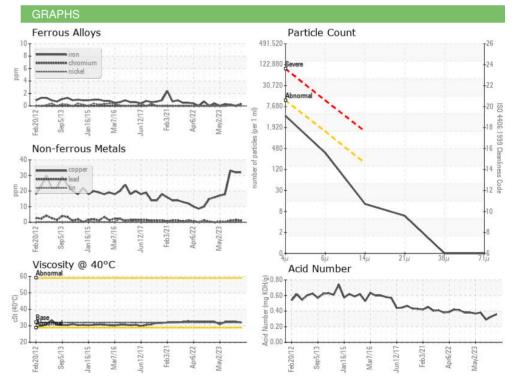




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Visc @ 40°C	cSt	ASTM D445	32.0	32.0	32.6	32.3

SAMPLE IMAGES	method		history2
Color			

Bottom







Certificate 12367

Laboratory Sample No.

: ST46392 Lab Number : 06199191 Unique Number : 11061314

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 04 Jun 2024 **Tested** : 05 Jun 2024

Diagnosed : 06 Jun 2024 - Don Baldridge

Test Package : IND 2 (Additional Tests: KF) To discuss this sample report, contact Customer Service at 1-800-237-1369.

 st - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

US 44691 Contact: TOM NADELIN tomnadelin@woosterhydrostatics.com

WOOSTER HYDROSTATICS

4570 W. OLD LINCOLN WAY

T: (330)263-6555 F: (330)263-4463

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) Report Id: WOOWOO [WUSCAR] 06199191 (Generated: 06/06/2024 12:42:07) Rev: 1

Contact/Location: TOM NADELIN - WOOWOO

WOOSTER, OH