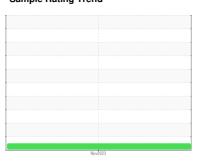


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



^{Machine Id}
18-PC-23 (S/N 38)

MIL-PRF-83282 (--- LTR)

Hydraulic System

Recommendation

Resample at the next service interval to monitor. Chlorine measured at 11.8 ppm.

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.

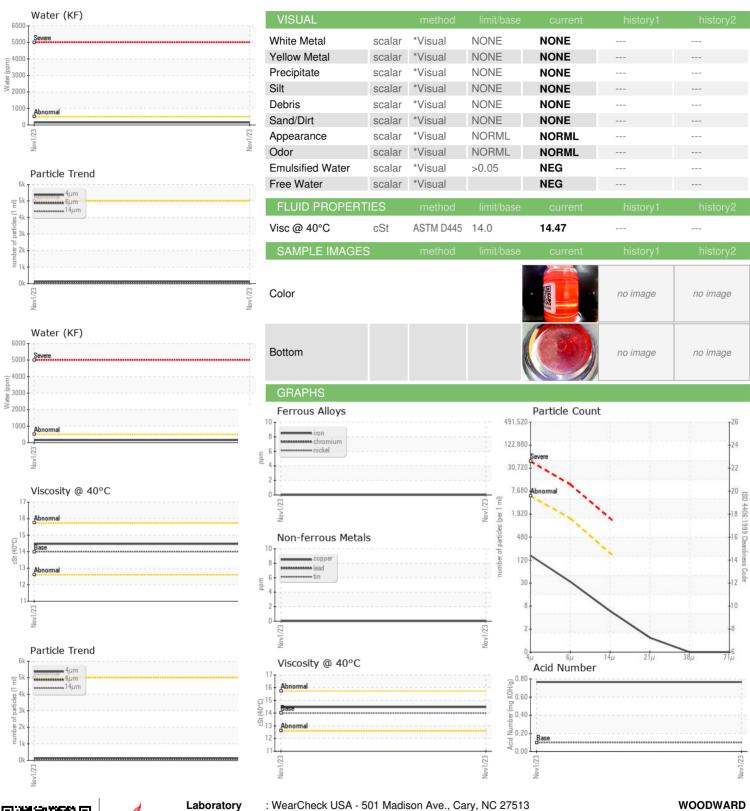
Fluid Condition

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

SAMPLE INFORMATION method limit/base current history1 history2							
Sample Number Client Info WC0826396 Sample Date Client Info O1 Nov 2023 Sample Date Client Info O1 Nov 2023 Sample Date Sample Date Scient Info O1 Nov 2023 Sample Date					Nov2023		
Sample Date Client Info O1 Nov 2023	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date Client Info O1 Nov 2023	Sample Number		Client Info		WC0826396		
Machine Age hrs Client Info 0 .							
Oil Changed Oil Changed Client Info N/A	•	hrs					
Oil Changed Sample Status Client Info N/A							
WEAR METALS	J .				-		
Pron	-						
Chromium ppm ASTM D5185m ≥20 0 Nickel ppm ASTM D5185m ≥20 0 Titanium ppm ASTM D5185m 0 Silver ppm ASTM D5185m ≥20 0 Aluminum ppm ASTM D5185m ≥20 0 Lead ppm ASTM D5185m ≥20 0 Copper ppm ASTM D5185m ≥20 0 Vanadium ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 0 Magnasium ppm	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>20	0		
Titanium	Chromium	ppm	ASTM D5185m	>20	0		
Silver	Nickel	ppm	ASTM D5185m	>20	0		
Astronomic As	Titanium	ppm	ASTM D5185m		0		
Astronometric Astronometr	Silver	ppm	ASTM D5185m		0		
Lead ppm ASTM D5185m >20 0 Copper ppm ASTM D5185m >20 0 Tin ppm ASTM D5185m >20 0 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 0 Mangaese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 0 Calcium ppm ASTM D5185m 0 Phosphorus ppm ASTM D5185m 0 Sulfur ppm ASTM D5185m 98	Aluminum		ASTM D5185m	>20			
Copper ppm ASTM D5185m >20 0 Tin ppm ASTM D5185m >20 0 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 0 Calcium ppm ASTM D5185m 0 Phosphorus ppm ASTM D5185m 15 Zinc ppm ASTM D5185m 15 <	Lead		ASTM D5185m	>20	0		
Tin	Copper			>20			
Vanadium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 0 Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 0 Calcium ppm ASTM D5185m 0 Phosphorus ppm ASTM D5185m 625 Zinc ppm ASTM D5185m 15 Sulfur ppm ASTM D5185m 98 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	• •						
Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 0 Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 0 Calcium ppm ASTM D5185m 0 Phosphorus ppm ASTM D5185m 625 Zinc ppm ASTM D5185m 98 Sulfur ppm ASTM D5185m 98 Silicon ppm ASTM D5185m 0 Sodium ppm ASTM D5185m 0	Vanadium						
Boron ppm ASTM D5185m Q							
Barium ppm ASTM D5185m 0	ADDITIVES		method	limit/base	current	history1	history2
Manganese ppm ASTM D5185m 0 Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 0 Calcium ppm ASTM D5185m 0 Phosphorus ppm ASTM D5185m 625 Zinc ppm ASTM D5185m 15 Sulfur ppm ASTM D5185m 98 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 98 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m 0 Chlorine Content ppm ASTM D5185m 11.8 Water % ASTM D6304 >0.05 0.014 ppm Water ppm ASTM D6304 >500 147.7 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >5000 139 Particles >21μm ASTM D7647 >40 1 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >3 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Boron	ppm	ASTM D5185m		0		
Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 0 Calcium ppm ASTM D5185m 0 Phosphorus ppm ASTM D5185m 625 Zinc ppm ASTM D5185m 15 Sulfur ppm ASTM D5185m 98 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 98 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m 0 Water % ASTM D5185m 11.8 Water % ASTM D6304 >0.05 0.014 ppm Water ppm ASTM D6647 >5000 139	Barium	ppm	ASTM D5185m		0		
Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 0 Calcium ppm ASTM D5185m 0 Phosphorus ppm ASTM D5185m 625 Zinc ppm ASTM D5185m 15 Sulfur ppm ASTM D5185m 98 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 98 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m 0 Water % ASTM D5185m 11.8 Water % ASTM D6304 >0.05 0.014 ppm Water ppm ASTM D6647 >5000 139	Molybdenum	ppm	ASTM D5185m		0		
Magnesium ppm ASTM D5185m 0 Calcium ppm ASTM D5185m 0 Phosphorus ppm ASTM D5185m 625 Zinc ppm ASTM D5185m 15 Sulfur ppm ASTM D5185m 98 Sulfur ppm ASTM D5185m 98 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 98 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m 20 0 Potassium ppm ASTM D5185m 11.8 Water % ASTM D6304 >0.05 0.014 Water % ASTM D6304 >500 147.7			ASTM D5185m		0		
Calcium ppm ASTM D5185m 0 Phosphorus ppm ASTM D5185m 625 Zinc ppm ASTM D5185m 15 Sulfur ppm ASTM D5185m 98 Sulfur ppm ASTM D5185m 98 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	Magnesium	ppm	ASTM D5185m		0		
Zinc ppm ASTM D5185m 98 Sulfur ppm ASTM D5185m 98 Sulfur ppm ASTM D5185m 98 Sulfur ppm ASTM D5185m >15 <1 Sodium ppm ASTM D5185m >15 <1 Sodium ppm ASTM D5185m >20 0 Sodium ppm ASTM D5185m >20 0 Sodium ppm ASTM D5185m 11.8 Sodium ppm ASTM D5185m >20 0 Sodium ppm ASTM D5185m >20 0 Sodium ppm ASTM D6304 >0.05 0.014 Sodium Ppm ASTM D6304 >500 147.7 Sodium	Calcium	ppm	ASTM D5185m		0		
Zinc ppm ASTM D5185m 15 Sulfur ppm ASTM D5185m 98 Sulfur ppm ASTM D5185m 98 Sulfur ppm ASTM D5185m >15 <1 Sulfur Sulfur ppm ASTM D5185m >15 <1 Sulfur ppm ASTM D5185m >20 0 Sulfur ppm ASTM D5185m >20 0 Sulfur ppm ASTM D5185m >20 0 Sulfur ppm ASTM D5185m 11.8 Sulfur ppm ASTM D6304 >0.05 0.014 Sulfur ppm ASTM D6304 >500 147.7 Sulfur ppm ASTM D6304 >500 147.7 Sulfur ppm ASTM D7647 >5000 139 Sulfur ppm ASTM D7647 >1300 29 Particles >6μm ASTM D7647 >160 5 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >3 0 Particles >71μm ASTM D7647 >3 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Phosphorus	ppm	ASTM D5185m		625		
Sulfur ppm ASTM D5185m 98 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1			ASTM D5185m		15		
Silicon ppm ASTM D5185m >15 <1 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 0 Chlorine Content ppm ASTM D5185m 11.8 Water % ASTM D6304 >0.05 0.014 ppm Water ppm ASTM D6304 >500 147.7 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 139 Particles >6µm ASTM D7647 >1300 29 Particles >14µm ASTM D7647 >160 5 Particles >21µm ASTM D7647 >40 1 Particles >38µm ASTM D7647 >10 0 Particles >71µm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Sulfur		ASTM D5185m		98		
Sodium ppm ASTM D5185m 0	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 Chlorine Content ppm ASTM D5185m 11.8 Water % ASTM D6304 >0.05 0.014 ppm Water ppm ASTM D6304 >500 147.7 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >5000 139 Particles >6μm ASTM D7647 >1300 29 Particles >14μm ASTM D7647 >160 5 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >3 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Silicon	ppm	ASTM D5185m	>15	<1		
Chlorine Content ppm ASTM D5185m 11.8 Water % ASTM D6304 >0.05 0.014 ppm Water ppm ASTM D6304 >500 147.7 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >5000 139 Particles >6μm ASTM D7647 >1300 29 Particles >14μm ASTM D7647 >160 5 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Sodium	ppm	ASTM D5185m		0		
Water % ASTM D6304 >0.05 0.014 ppm Water ppm ASTM D6304 >500 147.7 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >5000 139 Particles >6μm ASTM D7647 >1300 29 Particles >14μm ASTM D7647 >160 5 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Potassium	ppm	ASTM D5185m	>20	0		
ppm Water ppm ASTM D6304 >500 147.7 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >5000 139 Particles >6μm ASTM D7647 >1300 29 Particles >14μm ASTM D7647 >160 5 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Chlorine Content	ppm	ASTM D5185m		11.8		
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >5000 139 Particles >6μm ASTM D7647 >1300 29 Particles >14μm ASTM D7647 >160 5 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Water	%	ASTM D6304	>0.05	0.014		
Particles >4μm ASTM D7647 >5000 139 Particles >6μm ASTM D7647 >1300 29 Particles >14μm ASTM D7647 >160 5 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	ppm Water	ppm	ASTM D6304	>500	147.7		
Particles >6μm ASTM D7647 >1300 29 Particles >14μm ASTM D7647 >160 5 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >160 5 Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Particles >4µm		ASTM D7647	>5000	139		
Particles >21μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Particles >6µm		ASTM D7647	>1300	29		
Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Particles >14µm		ASTM D7647	>160	5		
Particles >71μm ASTM D7647 >3 0 Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Particles >21µm		ASTM D7647	>40	1		
Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Particles >38µm		ASTM D7647	>10	0		
Oil Cleanliness ISO 4406 (c) >19/17/14 14/12/10	Particles >71µm		ASTM D7647	>3	0		
FLUID DEGRADATION method limit/base current history1 history2	•			>19/17/14	14/12/10		
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2



OIL ANALYSIS REPORT





Laboratory Sample No. Lab Number **Unique Number**

: WC0826396 : 05997066

Received : 10725426

Diagnosed

: 13 Nov 2023 Diagnostician : Doug Bogart

: 02 Nov 2023

Test Package : PLANT (Additional Tests: CHLORINEXRF) Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

WOODWARD 25200 W RYE CANYON RD

SANTA CLARITA, CA US 91355 Contact: REYNARD GOLDMAN

reynard.goldman@woodward.com

T: (661)702-5991 F:

Report Id: WOOSANCA [WUSCAR] 05997066 (Generated: 11/13/2023 13:35:12) Rev: 2