

PROBLEM SUMMARY

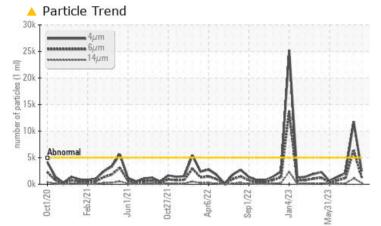
Area MELT SHOP - HYDRAULIC Machine Id MELT SHOP I ADLE WALL LADLE DDEHEATED HYDRAULIC LINIT (S/N)

MELT SHOP LADLE WALL LADLE PREHEATER HYDRAULIC UNIT (S/N 15-3000-0741-0020) Component

Tank Hydraulic System

FIRE-RESISTANT FLUID ISO 46 (20 GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

PROBLEMATIC TEST R	ESULTS				
Sample Status			ATTENTION	SEVERE	ATTENTION
Particles >6µm	ASTM D7647	>1300	<u> </u>	6 431	1166
Particles >14µm	ASTM D7647	>160	🔺 227	1094	1 98
Particles >21µm	ASTM D7647	>40	<u> </u>	A 369	6 7
Particles >38µm	ASTM D7647	>10	<u> </u>	5 7	10
Oil Cleanliness	ISO 4406 (c)	>19/17/14	<u> </u>	1 /20/17	▲ 18/17/15

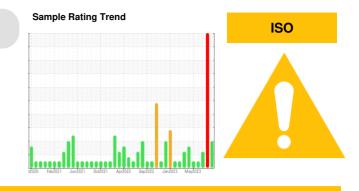
Customer Id: OUTCALAL Sample No.: RP0035495 Lab Number: 05964689 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Doug Bogart +1 (800)237-1369 x4016 <u>dougb@wearcheckusa.com</u>

To change component or sample information: Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u>



RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

29 Aug 2023 Diag: Doug Bogart



We recommend you service the filters on this component. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.Bearing and/or bushing wear is indicated. There is a high amount of particulates present in the oil. The pH level of this fluid is within the acceptable limits @ 10.0.

26 Jul 2023 Diag: Jonathan Hester

28 Jun 2023 Diag: Jonathan Hester



No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of particulates present in the oil. The pH level of this fluid is within the acceptable limits. pH is 9. The condition of the oil is acceptable for the time in service.



view report









No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable. The pH level of this fluid is within the acceptable limits at 9.0. The condition of the oil is acceptable for the time in service.



OIL ANALYSIS REPORT

Area MELT SHOP - HYDRAULIC Machine Id MELT SHOP LADLE WALL LADLE PREHEATER HYDRAULIC UNIT (S/N 15-3000-0741-0020) Component

Tank Hydraulic System

FIRE-RESISTANT FLUID ISO 46 (20 GAL)

DIAGNOSIS

A Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

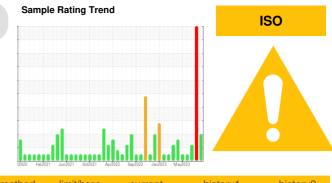
All component wear rates are normal.

Contamination

There is a moderate amount of particulates present in the oil.

Fluid Condition

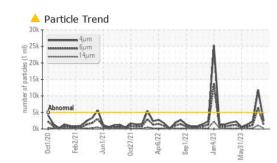
The pH level of this fluid is within the acceptable limits. pH is 11.0. The condition of the oil is acceptable for the time in service.



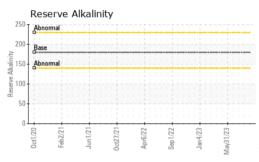
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 ● 76 2 Chromium ppm ASTM D5185m >20 0 14 1 Nickel ppm ASTM D5185m >20 0 14 1 Nickel ppm ASTM D5185m >20 0 1 1 Nickel ppm ASTM D5185m >20 0 1	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine AgehrsClient Info000Oil AgehrsClient Info000Oil ChangedClient InfoN/AN/AN/ASample StatusImageClient InfoN/AN/AN/AWEAR METALSmethodImit/basecurrenthistory1history2IronppmASTM D5185m>200762ChromiumppmASTM D5185m>2001NickelppmASTM D5185m>2001NickelppmASTM D5185m>2001ItaniumppmASTM D5185m>2001LeadppmASTM D5185m>2001LeadppmASTM D5185m>2001CopperppmASTM D5185m>2001VanadiumppmASTM D5185m>2001CadmiumppmASTM D5185m>2001ADDITIVESmethodImit/basecurrenthistory1history2BoronppmASTM D5185m5001MagneseppmASTM D5185m5001MagnesiumppmASTM D5185m5410AgenovinumppmASTM D5185m5410CodaiumppmASTM D5185m50021 <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>RP0035495</th> <th>RP0038424</th> <th>RP0035478</th>	Sample Number		Client Info		RP0035495	RP0038424	RP0035478
Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status Client Info N/A ATTENTION SEVERE ATTENTION WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 76 2 Chromium ppm ASTM D5185m >20 0 14 <1 Nickel ppm ASTM D5185m >20 0 <1 <1 Nickel ppm ASTM D5185m >20 0 <1 <1 Nickel ppm ASTM D5185m >20 0 <1 <1 Lead ppm ASTM D5185m >20 0 <1 <1 Copper ppm ASTM D5185m >20 0 <1 <1 Cadmium ppm ASTM D5185m >20 0 <1 <1 Cadmium ppm ASTM D5185m >20 <1 4 <1 Vanadium ppm ASTM D5185m >0 0 <1 <1 Cadmium ppm ASTM D5185m	Sample Date		Client Info		27 Sep 2023	29 Aug 2023	26 Jul 2023
Oil Changed Client Info N/A N/A N/A N/A Sample Status method limit/base current history1 history2 Iron ppm ASTM D5165m >20 0 14 <1	Machine Age	hrs	Client Info		0	0	0
Sample StatusImage: statusATTENTIONSEVEREATTENTIONWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>20014<1NickelppmASTM D5185m>200<14<1NickelppmASTM D5185m>200<11<1TitaniumppmASTM D5185m200<1<1NickelppmASTM D5185m>200<1<1LeadppmASTM D5185m>200▲ 37<1CopperppmASTM D5185m>200▲ 491TinppmASTM D5185m>20<14<1VanadiumppmASTM D5185m>20<14<1CadmiumppmASTM D5185m>20<14<1CadmiumppmASTM D5185m>20<1<1<1BoronppmASTM D5185m500<1BariumppmASTM D5185m5000<1MolybdenumppmASTM D5185m54<10<1PhosphorusppmASTM D5185m54<10<2<1PhosphorusppmASTM D5185m175527210<1<1PhosphorusppmASTM D5185m175527210<1<1Phosphorus<	Oil Age	hrs	Client Info		0	0	0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 76 2 Chromium ppm ASTM D5185m >20 0 14 <1	Oil Changed		Client Info		N/A	N/A	N/A
Ion ppm ASTM D5185m >20 0 7.6 2 Chromium ppm ASTM D5185m >20 0 14 <1 Nickel ppm ASTM D5185m >20 0 <14	Sample Status				ATTENTION	SEVERE	ATTENTION
Chromium ppm ASTM D5185m >20 0 14 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >20 0 <1 <1 Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >20 0 <1	Iron	ppm	ASTM D5185m	>20	0	• 76	2
Titanium ppm ASTM D5185m 0 0 0 Silver ppm ASTM D5185m >20 0 <1	Chromium	ppm	ASTM D5185m	>20	0	14	<1
SilverppmASTM D5185m>200AluminumppmASTM D5185m>200<1	Nickel	ppm	ASTM D5185m	>20	0	<1	<1
Aluminum ppm ASTM D5185m >20 0 <1 <1 Lead ppm ASTM D5185m >20 0 ▲ 37 <1	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >20 0 ▲ 37 <1 Copper ppm ASTM D5185m >20 0 ▲ 49 1 Tin ppm ASTM D5185m >20 <1	Silver	ppm	ASTM D5185m		0	0	0
Copper ppm ASTM D5185m >20 0 ▲ 49 1 Tin ppm ASTM D5185m >20 <1	Aluminum	ppm	ASTM D5185m	>20	0	<1	<1
Tin ppm ASTM D5185m >20 <1 4 <1 Vanadium ppm ASTM D5185m 0 0 <1	Lead	ppm	ASTM D5185m	>20	0	A 37	<1
TinppmASTM D5185m>20<14<1VanadiumppmASTM D5185m00<1	Copper		ASTM D5185m	>20	0	<u> </u>	1
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 <1			ASTM D5185m	>20	<1	4	<1
Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 5 0 0 <1 Barium ppm ASTM D5185m 5 0 0 <1 Molybdenum ppm ASTM D5185m 5 0 0 0 1 Magnesium ppm ASTM D5185m 5 0 0 2 <1 Magnesium ppm ASTM D5185m 5 4 <1 0 Calcium ppm ASTM D5185m 50 2 272 10 Zinc ppm ASTM D5185m 175 5 2722 19 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 0 10 2 Sodium ppm ASTM D6185m >20 0	Vanadium		ASTM D5185m		0	0	<1
Boron ppm ASTM D5185m 5 0 0 <1 Barium ppm ASTM D5185m 5 0 0 1 Molybdenum ppm ASTM D5185m 5 0 0 0 Manganese ppm ASTM D5185m 5 0 0 0 Magnesium ppm ASTM D5185m 5 4 <1	Cadmium				0	0	<1
Barium ppm ASTM D5185m 5 0 0 1 Molybdenum ppm ASTM D5185m 5 0 0 0 Magnesee ppm ASTM D5185m 5 4 <1	ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 5 0 0 1 Molybdenum ppm ASTM D5185m 5 0 0 0 Manganese ppm ASTM D5185m 5 4 <1	Boron	ppm	ASTM D5185m	5	0	0	<1
Molybdenum ppm ASTM D5185m 5 0 0 0 Manganese ppm ASTM D5185m 5 4 <1	Barium		ASTM D5185m	5	0	0	1
Manganese ppm ASTM D5185m 0 2 <1 Magnesium ppm ASTM D5185m 5 4 <1	Molybdenum		ASTM D5185m	5	0	0	0
Magnesium ppm ASTM D5185m 5 4 <1 0 Calcium ppm ASTM D5185m 50 2 11 <1	Manganese		ASTM D5185m		0	2	<1
Calcium ppm ASTM D5185m 50 2 11 <1 Phosphorus ppm ASTM D5185m 175 5 272 10 Zinc ppm ASTM D5185m 175 5 272 10 Zinc ppm ASTM D5185m 62 11 722 19 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 0 10 2 Sodium ppm ASTM D5185m >20 0 <11	•		ASTM D5185m	5	4	<1	0
Phosphorus ppm ASTM D5185m 175 5 272 10 Zinc ppm ASTM D5185m 62 11 722 19 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 0 10 2 Sodium ppm ASTM D5185m >15 0 10 2 Sodium ppm ASTM D5185m >20 0 0 21 7 Potassium ppm ASTM D5185m >20 0 0 22 Water % ASTM D6304 >55 31.4 39.0 42.9 ppm Water ppm ASTM D6304 >55000 314000 390000 429000 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 2445 11805 2140 Particles >6µm ASTM D7647 1300	Calcium		ASTM D5185m	50	2	11	<1
Zinc ppm ASTM D5185m 62 11 722 19 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 0 10 2 Sodium ppm ASTM D5185m >15 0 10 2 Sodium ppm ASTM D5185m >20 0 0 2 Potassium ppm ASTM D6304 >55 31.4 39.0 42.9 ppm Water ppm ASTM D6304 >55000 314000 390000 429000 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 2445 11805 2140 Particles >6µm ASTM D7647 >1300 1332 6431 1166 Particles >14µm ASTM D7647 >160 227 1094 198 Particles >21µm ASTM D7647 >40 76	Phosphorus			175	5	272	10
Silicon ppm ASTM D5185m >15 0 10 2 Sodium ppm ASTM D5185m 0 <10 2 Potassium ppm ASTM D5185m >20 0 <1 7 Potassium ppm ASTM D5185m >20 0 0 21 7 Vater % ASTM D6304 >55 31.4 39.0 42.9 ppm Water ppm ASTM D6304 >55000 314000 390000 429000 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 2445 11805 2140 Particles >6µm ASTM D7647 >1300 1332 6431 1166 Particles >14µm ASTM D7647 >160 227 1094 198 Particles >21µm ASTM D7647 >40 76 369 67 Particles >38µm ASTM D7647 10 12 57			ASTM D5185m	62	11	722	19
Sodium ppm ASTM D5185m 0 <1	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 0 <1 7 Potassium ppm ASTM D5185m >20 0 0 2 Water % ASTM D6304 >55 31.4 39.0 42.9 ppm Water ppm ASTM D6304 >55000 314000 390000 429000 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 2445 11805 2140 Particles >6µm ASTM D7647 >1300 1332 6431 1166 Particles >14µm ASTM D7647 >160 227 1094 198 Particles >21µm ASTM D7647 >10 76 369 67 Particles >38µm ASTM D7647 >10 12 57 10	Silicon	ppm	ASTM D5185m	>15	0	10	2
Water % ASTM D6304 >55 31.4 39.0 42.9 ppm Water ppm ASTM D6304 >55000 314000 390000 429000 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 2445 11805 2140 Particles >6µm ASTM D7647 >1300 1332 6431 1166 Particles >14µm ASTM D7647 >160 227 1094 198 Particles >21µm ASTM D7647 >40 76 369 67 Particles >38µm ASTM D7647 >10 12 57 10	Sodium	ppm	ASTM D5185m		0	<1	7
Water % ASTM D6304 >55 31.4 39.0 42.9 ppm Water ppm ASTM D6304 >55000 314000 390000 429000 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 2445 11805 2140 Particles >6µm ASTM D7647 >1300 1332 6431 1166 Particles >14µm ASTM D7647 >160 227 1094 198 Particles >21µm ASTM D7647 >40 76 369 67 Particles >38µm ASTM D7647 >10 12 57 10	Potassium	ppm	ASTM D5185m	>20	0	0	2
ppm Water ppm ASTM D6304 >55000 314000 390000 429000 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 2445 11805 2140 Particles >6µm ASTM D7647 >1300 1332 6431 1166 Particles >14µm ASTM D7647 >160 227 1094 198 Particles >21µm ASTM D7647 >40 76 369 67 Particles >38µm ASTM D7647 >10 12 57 10	Water		ASTM D6304	>55	31.4	39.0	42.9
Particles >4µm ASTM D7647 >5000 2445 ▲ 11805 2140 Particles >6µm ASTM D7647 >1300 ▲ 1332 ▲ 6431 1166 Particles >14µm ASTM D7647 >160 ▲ 227 ▲ 1094 ▲ 198 Particles >21µm ASTM D7647 >40 ▲ 76 ▲ 369 ▲ 67 Particles >38µm ASTM D7647 >10 ▲ 12 ▲ 57 10	ppm Water	ppm	ASTM D6304	>55000	314000	390000	429000
Particles >6µm ASTM D7647 >1300 ▲ 1332 ▲ 6431 1166 Particles >14µm ASTM D7647 >160 ▲ 227 ▲ 1094 ▲ 198 Particles >21µm ASTM D7647 >40 ▲ 76 ▲ 369 ▲ 67 Particles >38µm ASTM D7647 >10 ▲ 12 ▲ 57 10	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >160 ▲ 227 ▲ 1094 ▲ 198 Particles >21μm ASTM D7647 >40 ▲ 76 ▲ 369 ▲ 67 Particles >38μm ASTM D7647 >10 ▲ 12 ▲ 57 10	Particles >4µm		ASTM D7647	>5000	2445	▲ 11805	2140
Particles >14μm ASTM D7647 >160 ▲ 227 ▲ 1094 ▲ 198 Particles >21μm ASTM D7647 >40 ▲ 76 ▲ 369 ▲ 67 Particles >38μm ASTM D7647 >10 ▲ 12 ▲ 57 10	Particles >6µm		ASTM D7647	>1300	<u> </u>	6 431	1166
Particles >21µm ASTM D7647 >40 ▲ 76 ▲ 369 ▲ 67 Particles >38µm ASTM D7647 >10 ▲ 12 ▲ 57 10	Particles >14µm					▲ 1094	
Particles >38μm ASTM D7647 >10 ▲ 12 ▲ 57 10	•						
Particles $> 1 \text{ Lum}$ AS LM $V/64/>3$	Particles >71µm		ASTM D7647	>3	1	<u> </u>	1
Oil Cleanliness ISO 4406 (c) >19/17/14 ▲ 18/18/15 ▲ 21/20/17 ▲ 18/17/15	•						

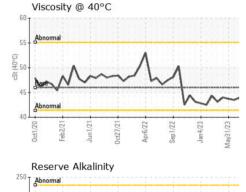


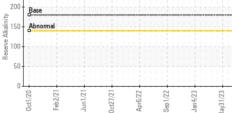
OIL ANALYSIS REPORT











VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	LIGHT
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	🔺 LAYRD	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>55	0.2%	0.2%	0.2%
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
pН	Scale 0-14	ASTM D1287		11.0	10.0	9.00
Visc @ 40°C	cSt	ASTM D445	46	50.3	45.6	43.9
SAMPLE IMAGES	S	method	limit/base	current	history1	history2

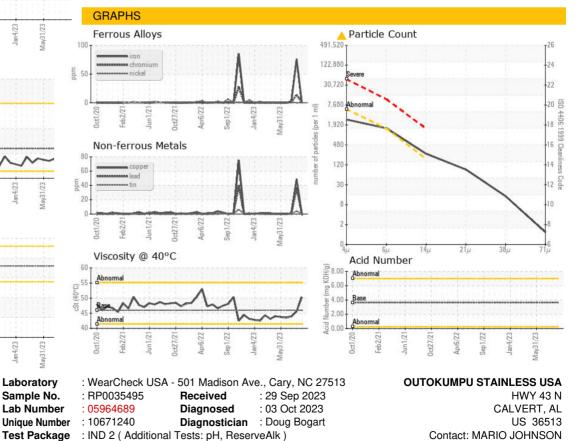


Bottom

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)

Color



Report Id: OUTCALAL [WUSCAR] 05964689 (Generated: 10/04/2023 13:16:47) Rev: 1

Certificate L2367

Submitted By: DALE ROBINSON

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