

OIL ANALYSIS REPORT



Machine Id

LOW DR

Gearbox Fluid AW HYDRAULIC OIL ISO 100 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil.

Fluid Condition

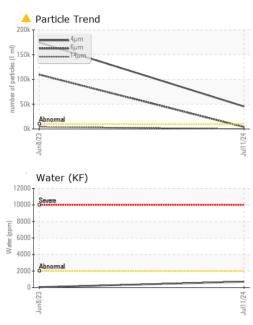
The oil viscosity is lower than normal. Confirmed. The AN level is acceptable for this fluid.

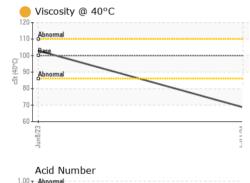
Iron ppm ASTM D5185m >200 2 71 Chromium ppm ASTM D5185m >15 0 <1 Nickel ppm ASTM D5185m >15 0 0 Silver ppm ASTM D5185m >15 0 0 Aluminum ppm ASTM D5185m >25 <1 1 Lead ppm ASTM D5185m >200 1 12 Vanadium ppm ASTM D5185m >200 1 12 Vanadium ppm ASTM D5185m >200 0 ADDITIVES method limit/base current history1 history1 Barium ppm ASTM D5185m 5 0 0 Magnesium ppm ASTM D5185m 5 0 0 Magnesium ppm ASTM D5185m 5	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 Oil Age hrs Client Info 0 0 Sample Status Client Info N/A N/A N/A WEAR METALS method Imil/base current history1 WEAR METALS method Imil/base current history1 Nickel ppm ASTM D5185m >15 0 Nickel ppm ASTM D5185m >15 0 0 Aluminum ppm ASTM D5185m >100 0 Aluminum ppm ASTM D5185m >200 1 12 Adadium ppm ASTM D5185m >0 0 Adadium ppm ASTM D5185m 5 0 0 Adadium ppm ASTM D5185m 5 0 0 <td>Sample Number</td> <td></td> <td>Client Info</td> <td></td> <td>USP0012258</td> <td>USP244793</td> <td></td>	Sample Number		Client Info		USP0012258	USP244793	
Oil Age hrs Client Info 0 0 Oil Changed Client Info N/A N/A ABNORMAL WEAR METALS method limit/base current history1 Iron ppm ASTM D5186m >200 2 7.1 Chromium ppm ASTM D5186m >15 0 Nickel ppm ASTM D5186m >15 0 0 Aluminum ppm ASTM D5186m >200 1 1 Lead ppm ASTM D5186m >200 1 12 Vanadium ppm ASTM D5186m >200 1 12 Vanadium ppm ASTM D5186m >200 1 12 Addenium ppm ASTM D5186m 5 0 0 Addenium ppm ASTM D5186m 5 0 0 <td>Sample Date</td> <td></td> <td>Client Info</td> <td></td> <td>11 Jul 2024</td> <td>08 Jun 2023</td> <td></td>	Sample Date		Client Info		11 Jul 2024	08 Jun 2023	
Oil Changed Client Info N/A N/A N/A ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history1 history1 WEAR METALS method limit/base current history1 history1 nistory1 Iron ppm ASTM D5185m >200 2 71 Other ppm ASTM D5185m >200 0 0 Silver ppm ASTM D5185m >25 <1 1 Aluminum ppm ASTM D5185m >200 1 122 Cadmium ppm ASTM D5185m >200 1 12 Cadmium ppm ASTM D5185m >200 0 0 ABDITIVES method limit/base current history1 history Manganese ppm ASTM D5185m 5 0 0 Malo	Machine Age	hrs	Client Info		0	0	
Sample Status method limit/base current history1 history1 WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >200 2 71 Chromium ppm ASTM D5185m >15 0 0 Nickel ppm ASTM D5185m >10 0 0 Aluminum ppm ASTM D5185m >20 1 12 Aluminum ppm ASTM D5185m >200 1 12 Adamium ppm ASTM D5185m >200 1 12 Cadmium ppm ASTM D5185m >20 0 ADDITIVES method limit/base current history1 history1 Barium ppm ASTM D5185m 5 0 0 Molybdenum ppm ASTM D5185m 55 <	Oil Age	hrs	Client Info		0	0	
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5165m >200 2 71 Chromium ppm ASTM D5165m >15 0 0 Nickel ppm ASTM D5165m 0 0 0 Silver ppm ASTM D5165m >25 <1	Oil Changed		Client Info		N/A	N/A	
Iron ppm ASTM D5185m >200 2 71 Chromium ppm ASTM D5185m >15 0 <1	-				ABNORMAL	ABNORMAL	
Ppm ASTM D5185m >15 0 <1 Nickel ppm ASTM D5185m >15 0 0 Silver ppm ASTM D5185m >25 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >15 0 0 Titanium ppm ASTM D5185m 0 0 Sliver ppm ASTM D5185m >25 <1	Iron	ppm	ASTM D5185m	>200	2	71	
Nickel ppm ASTM D5185m >15 0 0 Titanium ppm ASTM D5185m 0 0 Silver ppm ASTM D5185m >25 <1	Chromium	ppm	ASTM D5185m	>15	0	<1	
Titanium ppm ASTM D5185m 0 0 Silver ppm ASTM D5185m >25 <1	Nickel		ASTM D5185m	>15	0	0	
Silver ppm ASTM D5185m >25 <1 1 Aluminum ppm ASTM D5185m >25 <1	Titanium				0		
Aluminum ppm ASTM D5185m >25 <1 1 Lead ppm ASTM D5185m >100 0 0 Copper ppm ASTM D5185m >200 1 12 Vanadium ppm ASTM D5185m >20 1 12 Cadmium ppm ASTM D5185m >20 1 1 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 5 0 0 Maganese ppm ASTM D5185m 5 0 0 Maganese ppm ASTM D5185m 25 0 0 Calcium ppm ASTM D5185m 200 37 66 Sulfur ppm ASTM D5185m 2500 1508 1312 ContAMINANTS method imit/base current <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td>					-		
Lead ppm ASTM D5185m >100 0 0 Copper ppm ASTM D5185m >200 1 12 Tin ppm ASTM D5185m >25 <1				>25	-		
Copper ppm ASTM D5185m >200 1 12 Tin ppm ASTM D5185m >25 <1							
Tin ppm ASTM D5185m >25 <1 1 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history1 Barium ppm ASTM D5185m 5 0 0 Malganese ppm ASTM D5185m 5 0 0 Magnesium ppm ASTM D5185m 25 0 0 Calcium ppm ASTM D5185m 200 37 66 Sulfur ppm ASTM D5185m 200 37 64 Sulfur ppm ASTM D5185m 2500 1508 1312 Sodium ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >20 1							
Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 5 0 0 Barium ppm ASTM D5185m 5 0 0 Magnese ppm ASTM D5185m 20 0 Magnesium ppm ASTM D5185m 200 37 66 Calcium ppm ASTM D5185m 200 37 66 Sulfur ppm ASTM D5185m 200 1508 1312 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >20 21							
Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 5 0 0 Barium ppm ASTM D5185m 5 0 0 Molybdenum ppm ASTM D5185m 5 0 0 Magnesium ppm ASTM D5185m 25 0 0 Calcium ppm ASTM D5185m 200 37 66 Calcium ppm ASTM D5185m 200 377 66 Sulfur ppm ASTM D5185m 200 1508 1312 Sulfur ppm ASTM D5185m 250 2 8 Sodium ppm ASTM D5185m >20 <1 Sodium ppm ASTM D5185m >20 2 <				>20			
ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 5 0 0 Barium ppm ASTM D5185m 5 0 0 Molybdenum ppm ASTM D5185m 5 0 0 Magnese ppm ASTM D5185m 25 0 0 Magnesium ppm ASTM D5185m 200 37 66 Phosphorus ppm ASTM D5185m 300 535 642 Sulfur ppm ASTM D5185m 370 0 28 Sulfur ppm ASTM D5185m 2500 1508 1312 Sodium ppm ASTM D5185m 20 <1							
Boron ppm ASTM D5185m 5 0 0	Cadmium	ppm	ASTM D5185m		0	0	
Barium ppm ASTM D5185m 5 0 0 Molybdenum ppm ASTM D5185m 5 0 0 Manganese ppm ASTM D5185m 25 0 0 Magnesium ppm ASTM D5185m 200 37 66 Calcium ppm ASTM D5185m 200 37 66 Calcium ppm ASTM D5185m 200 37 66 Calcium ppm ASTM D5185m 200 37 66 Zinc ppm ASTM D5185m 300 535 642 Sulfur ppm ASTM D5185m 370 0 28 Soliton ppm ASTM D5185m 50 2 8 Soliton ppm ASTM D5185m >20 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 5 0 0 Manganese ppm ASTM D5185m 25 0 0 Magnesium ppm ASTM D5185m 25 0 0 Calcium ppm ASTM D5185m 200 37 66 Calcium ppm ASTM D5185m 300 535 642 Zinc ppm ASTM D5185m 370 0 28 Sulfur ppm ASTM D5185m 2500 1508 1312 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >20 <1	Boron	ppm	ASTM D5185m	5	0	0	
Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 25 0 0 Calcium ppm ASTM D5185m 200 37 66 Phosphorus ppm ASTM D5185m 300 535 642 Zinc ppm ASTM D5185m 370 0 28 Sulfur ppm ASTM D5185m 2500 1508 1312 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >50 2 8 Potassium ppm ASTM D5185m >20 <1	Barium	ppm	ASTM D5185m	5	0	0	
Magnesium ppm ASTM D5185m 25 0 0 Calcium ppm ASTM D5185m 200 37 66 Phosphorus ppm ASTM D5185m 300 535 642 Zinc ppm ASTM D5185m 370 0 28 Sulfur ppm ASTM D5185m 2500 1508 1312 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >50 2 8 Potassium ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m	5	0	0	
Calcium ppm ASTM D5185m 200 37 66 Phosphorus ppm ASTM D5185m 300 535 642 Zinc ppm ASTM D5185m 370 0 28 Sulfur ppm ASTM D5185m 2500 1508 1312 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >50 2 8 Potassium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m		0	<1	
Phosphorus ppm ASTM D5185m 300 535 642 Zinc ppm ASTM D5185m 370 0 28 Sulfur ppm ASTM D5185m 2500 1508 1312 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >50 2 8 Potassium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	25	0	0	
Phosphorus ppm ASTM D5185m 300 535 642 Zinc ppm ASTM D5185m 370 0 28 Sulfur ppm ASTM D5185m 2500 1508 1312 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >50 2 8 Potassium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m	200	37	66	
Zinc ppm ASTM D5185m 370 0 28 Sulfur ppm ASTM D5185m 2500 1508 1312 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >50 2 8 Potassium ppm ASTM D5185m >20 <1	Phosphorus		ASTM D5185m	300	535	642	
Sulfur ppm ASTM D5185m 2500 1508 1312 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m >50 2 8 Potassium ppm ASTM D5185m >20 <1 <1 Water % ASTM D6304 >0.2 0.071 0.005 ppm ASTM D6304 >0.2 0.071 0.1055 ppm ASTM D6304 >0.2 0.071 0.1055 ppm ASTM D6304 >0.2 0.071 0.1055 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 45509 174571 Particles >1µm ASTM D7647 >2500 4088 109667 Particles >21µm ASTM D7647 460 6 587			ASTM D5185m	370	0	28	
Silicon ppm ASTM D5185m >50 2 8 Sodium ppm ASTM D5185m 0 <1	-				-		
Sodium ppm ASTM D5185m 0 <1 Potassium ppm ASTM D5185m >20 <1	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1 <1 Water % ASTM D6304 >0.2 0.071 0.005 opm Water ppm ASTM D6304 >2000 710 51.8 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 ▲ 45509 174571 Particles >6µm ASTM D7647 >2500 4088 109667 Particles >14µm ASTM D7647 >640 56 4 4284 Particles >14µm ASTM D7647 >160 6 587 Particles >21µm ASTM D7647 >10 0 0 Particles >71µm ASTM D7647 >10 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19	Silicon	ppm	ASTM D5185m	>50	2	8	
Water % ASTM D6304 >0.2 0.071 0.005 ppm Water ppm ASTM D6304 >2000 710 51.8 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 ▲ 45509 ▲ 174571 Particles >6µm ASTM D7647 >2500 ● 4088 ▲ 109667 Particles >6µm ASTM D7647 >640 56 ▲ 4284 Particles >1µm ASTM D7647 >160 6 ▲ 587 Particles >21µm ASTM D7647 >10 0 4 Particles >38µm ASTM D7647 >10 0 0 Particles >71µm ASTM D7647 >10 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1	Sodium	ppm	ASTM D5185m		0	<1	
Water % ASTM D6304 >0.2 0.071 0.005 ppm Water ppm ASTM D6304 >2000 710 51.8 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 ▲ 45509 174571 Particles >6µm ASTM D7647 >2500 ● 4088 109667 Particles >14µm ASTM D7647 >640 56 ▲ 4284 Particles >21µm ASTM D7647 >160 6 587 Particles >38µm ASTM D7647 >10 0 0 Particles >71µm ASTM D7647 >10 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1	Potassium	ppm	ASTM D5185m	>20	<1	<1	
ppm Water ppm ASTM D6304 >2000 710 51.8 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 45509 174571 Particles >6µm ASTM D7647 >2500 4088 109667 Particles >6µm ASTM D7647 >640 56 4284 Particles >14µm ASTM D7647 >160 6 587 Particles >21µm ASTM D7647 >100 0 4 Particles >38µm ASTM D7647 >100 0 4 Particles >71µm ASTM D7647 >10 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1	Water		ASTM D6304	>0.2	0.071	0.005	
Particles >4μm ASTM D7647 >10000 45509 174571 Particles >6μm ASTM D7647 >2500 4088 109667 Particles >14μm ASTM D7647 >640 56 4284 Particles >21μm ASTM D7647 >160 6 587 Particles >21μm ASTM D7647 >40 0 4 Particles >38μm ASTM D7647 >10 0 0 Particles >71μm ASTM D7647 >10 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1			ASTM D6304	>2000	710	51.8	
Particles >6µm ASTM D7647 >2500 4088 109667 Particles >14µm ASTM D7647 >640 56 4284 Particles >21µm ASTM D7647 >160 6 587 Particles >21µm ASTM D7647 >100 0 4 Particles >38µm ASTM D7647 >40 0 4 Particles >71µm ASTM D7647 >10 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >14µm ASTM D7647 >640 56 4284 Particles >21µm ASTM D7647 >160 6 587 Particles >21µm ASTM D7647 >40 0 4 Particles >38µm ASTM D7647 >40 0 4 Particles >71µm ASTM D7647 >10 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1	Particles >4µm		ASTM D7647	>10000	45509	174571	
Particles >21μm ASTM D7647 >160 6 587 Particles >38μm ASTM D7647 >40 0 4 9 Particles >38μm ASTM D7647 >40 0 4 9 Particles >71μm ASTM D7647 >10 0 0 9 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1	Particles >6µm		ASTM D7647	>2500	<u> </u>	▲ 109667	
Particles >38μm ASTM D7647 >40 0 4 Particles >71μm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1	· · · · · ·		ASTM D7647	>640	56	4284	
Particles >38μm ASTM D7647 >40 0 4 Particles >71μm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1	Particles >21µm		ASTM D7647	>160	6	▲ 587	
Particles >71μm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1							
Oil Cleanliness ISO 4406 (c) >20/18/16 23/19/13 25/24/19 FLUID DEGRADATION method limit/base current history1 history1	•						
					-		
	FLUID DEGRADA		method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 0.57 0.07 0.28						0.28	

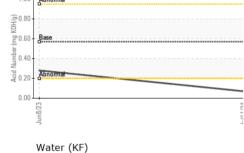
Contact/Location: Service Manager - KRACED Page 1 of 2



OIL ANALYSIS REPORT

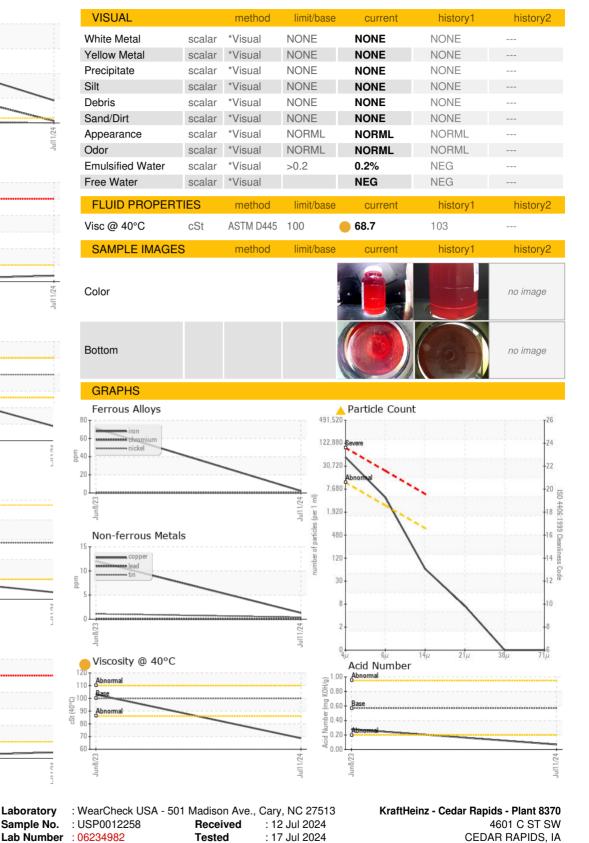








Certificate 12367



: 17 Jul 2024 - Doug Bogart

Report Id: KRACED [WUSCAR] 06234982 (Generated: 07/17/2024 12:51:59) Rev: 1

Laboratory

Sample No.

Unique Number : 11123816

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.

Test Package : IND 2

Diagnosed

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: Service Manager - KRACED

Page 2 of 2

T:

F:

US 52404

Contact: Service Manager