

OIL ANALYSIS REPORT

ISV2401090001] Machine Id MCQUAY CAMDEN YARDS CHILLER 2 (S/N 58A81051-00) Component

Refrigeration Compressor

MOBIL EAL ARTIC ISO 46 (8 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

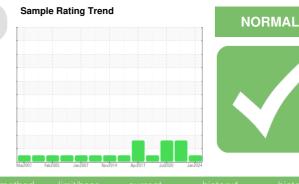
All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

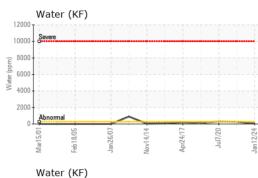
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

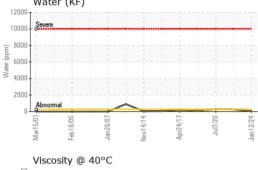


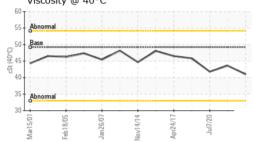
Sample Date Client Info 12 Jan 2024 01 Apr 2021 07 Jul 20 Machine Age hrs Client Info 51550 48310 47720 Oil Age hrs Client Info 51550 48310 47720 Oil Changed Client Info Not Changd Not Changd Not Changd Not Changd Sample Status method limit/base current history1 histor Iron ppm ASTM D5185m >100 3 4 2 Chromium ppm ASTM D5185m >2 <1 0 0 Nickel ppm ASTM D5185m >2 0 <1 0 Nickel ppm ASTM D5185m >2 0 <1 0 Silver ppm ASTM D5185m >2 <1 1 1 1 Copper ppm ASTM D5185m >4 <1 <1 0 Auminum ppm ASTM D5185m 0 0 0 <th>SAMPLE INFORM</th> <th>MATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 51550 48310 47720 Oil Age hrs Client Info S1550 48310 47720 Oil Changed Client Info Not Changd Not Changd Not Changd Not Changd Sample Status Imit Distas Imit Distas Current history1 history1 WEAR METALS method Imit/base current history1 history1 Iron ppm ASTM D5185m >2 <1 0 0 Nickel ppm ASTM D5185m >2 0 <1 0 Nickel ppm ASTM D5185m >2 0 <1 0 Silver ppm ASTM D5185m >2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Sample Number		Client Info		WC0814433	WC0525438	WCI2322189
Oil Age hrs Client Info 51550 48310 47720 Oil Changed Client Info Not Changd Not Changd Not Changd Not Changd Sample Status method limit/base current history1 history1 Iron ppm ASTM D5185m >100 3 4 2 Chromium ppm ASTM D5185m >2 <1 0 0 Nickel ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >2 <1 1 <1 Copper ppm ASTM D5185m >2 <1 1 0 Antimony ppm ASTM D5185m >2 <1 1 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0<	Sample Date		Client Info		12 Jan 2024	01 Apr 2021	07 Jul 2020
Oil Changed Sample Status Client Info Not Changd NORMAL Not Changd MARGINAL Not Changd MARGINAL Not Changd MARGINAL WEAR METALS method imit/base current history1 histor Iron ppm ASTM D5185m >100 3 4 2 Chromium ppm ASTM D5185m >2 <1 0 0 Nickel ppm ASTM D5185m >2 <1 0 0 Nickel ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >2 <1 1 1 Copper ppm ASTM D5185m >2 <1 1 1 Tin ppm ASTM D5185m >100 2 1 1 1 Copper ppm ASTM D5185m >100 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Borium ppm ASTM D5	Machine Age	hrs	Client Info		51550	48310	47720
Sample Status Image: Control of the status NORMAL MARGINAL MARGINAL MARGINAL WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 3 4 2 Chromium ppm ASTM D5185m >22 <1 0 0 Nickel ppm ASTM D5185m 22 <1 0 0 Silver ppm ASTM D5185m >22 0 <1 0 Aluminum ppm ASTM D5185m >22 0 <1 0 Aluminum ppm ASTM D5185m >2 1 1 1 Tin ppm ASTM D5185m >100 2 1 1 1 Tin ppm ASTM D5185m >100 2 1 1 1 Copper ppm ASTM D5185m 0 0 0 0 Cadatium ppm ASTM D5185m	Oil Age	hrs	Client Info		51550	48310	47720
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 3 4 2 Chromium ppm ASTM D5185m >2 <1 0 0 Nickel ppm ASTM D5185m 2 <1 0 0 Silver ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >50 2 4 3 Lead ppm ASTM D5185m >100 2 1 1 Tin ppm ASTM D5185m >100 2 1 1 Vanadium ppm ASTM D5185m >100 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDTIVES method limit/base current history1 hist	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Iron ppm ASTM D5185m >100 3 4 2 Chromium ppm ASTM D5185m >2 <1 0 0 Nickel ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >50 2 4 3 Lead ppm ASTM D5185m >2 <1 1 <1 Copper ppm ASTM D5185m >100 2 1 1 1 Tin ppm ASTM D5185m >100 2 1 1 1 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0	Sample Status				NORMAL	MARGINAL	MARGINAL
Chromium ppm ASTM D5185m >2 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m 0 0 - 1 Titanium ppm ASTM D5185m >2 0 <1	Iron	ppm	ASTM D5185m	>100	3	4	2
Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m<>2 0 <1	Chromium	ppm	ASTM D5185m	>2	<1	0	0
Silver ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >50 2 4 3 Lead ppm ASTM D5185m >2 <1	Nickel	ppm	ASTM D5185m		0	0	<1
Aluminum ppm ASTM D5185m >50 2 4 3 Lead ppm ASTM D5185m >2 <1 1 <11 Copper ppm ASTM D5185m >2 <1 1 <1 Tin ppm ASTM D5185m >4 <1 <1 0 Antimony ppm ASTM D5185m >4 <1 <1 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Vanadium ppm ASTM D5185m <1 3 2 2 Barium ppm ASTM D5185m <0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 </td <td>Titanium</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>0</th> <td>0</td> <td>0</td>	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >2 <1 1 <1 Copper ppm ASTM D5185m >100 2 1 1 1 Tin ppm ASTM D5185m >4 <1	Silver	ppm	ASTM D5185m	>2	0	<1	0
Copper ppm ASTM D5185m >100 2 1 1 Tin ppm ASTM D5185m >4 <1	Aluminum	ppm	ASTM D5185m	>50	2	4	3
Tin ppm ASTM D5185m >4 <1 <1 0 Antimony ppm ASTM D5185m <1	Lead	ppm	ASTM D5185m	>2	<1	1	<1
Antimony ppm ASTM D5185m <1 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>100	2	1	1
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 histor Boron ppm ASTM D5185m <1 3 2 Barium ppm ASTM D5185m <1 3 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 14 6 Sulfur ppm ASTM D5185m 0 20 18 Sodium ppm ASTM D5185m 0 20 18 Sodium ppm ASTM D5185m	Tin	ppm	ASTM D5185m	>4	<1	<1	0
CadmiumppmASTM D5185m000ADDITIVESmethodlimit/basecurrenthistory1history1BoronppmASTM D5185m<1	Antimony	ppm	ASTM D5185m			<1	0
ADDITIVESmethodlimit/basecurrenthistory1historBoronppmASTM D5185m<1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m <1 3 2 Barium ppm ASTM D5185m 3 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 3 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m		<1	3	2
Marganese ppm ASTM D5185m 0 <1 0 Magnesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m		3	0	0
Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m <1	Molybdenum	ppm	ASTM D5185m		0	0	0
Calcium ppm ASTM D5185m <1 <1 0 Phosphorus ppm ASTM D5185m 303 20 8 Zinc ppm ASTM D5185m 0 14 6 Sulfur ppm ASTM D5185m 0 2 8 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >50 20 20 18 Sodium ppm ASTM D5185m >50 20 20 18 Sodium ppm ASTM D5185m >50 20 3 3 Potassium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m		0	<1	0
Phosphorus ppm ASTM D5185m 303 20 8 Zinc ppm ASTM D5185m 0 14 6 Sulfur ppm ASTM D5185m 0 2 8 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >50 20 20 18 Sodium ppm ASTM D5185m >50 20 20 18 Sodium ppm ASTM D5185m >50 20 33 3 Potassium ppm ASTM D5185m >0 0 3 3 Water % ASTM D6304 >0.02 0.003 0.026 0.029 ppm ASTM D6304 >250 33 269.2 297.1 FLUID DEGRADATION method limit/base current history1 history1	Magnesium	ppm	ASTM D5185m		0	0	0
Zinc ppm ASTM D5185m 0 14 6 Sulfur ppm ASTM D5185m 0 2 8 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >50 20 20 18 Sodium ppm ASTM D5185m >50 20 3 3 Potassium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m		<1	<1	0
SulfurppmASTM D5185m028CONTAMINANTSmethodlimit/basecurrenthistory1historSiliconppmASTM D5185m>50202018SodiumppmASTM D5185m>033PotassiumppmASTM D5185m>20<1	Phosphorus	ppm	ASTM D5185m		303	20	
CONTAMINANTSmethodlimit/basecurrenthistory1historSiliconppmASTM D5185m<>50202018SodiumppmASTM D5185m033PotassiumppmASTM D5185m<>20<1	Zinc	ppm	ASTM D5185m		0	14	6
Silicon ppm ASTM D5185m >50 20 20 18 Sodium ppm ASTM D5185m <0 3 3 Potassium ppm ASTM D5185m >20 <1 0 0 Water % ASTM D6304 >0.02 0.003 ▲ 0.026 ▲ 0.029 ppm Water ppm ASTM D6304 >250 33 ▲ 269.2 ▲ 297.1 FLUID DEGRADATION method limit/base current history1 history1	Sulfur	ppm	ASTM D5185m		0	2	8
Sodium ppm ASTM D5185m 0 3 3 Potassium ppm ASTM D5185m<>20 <1	CONTAMINANTS	6	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1 0 0 Water % ASTM D6304 >0.02 0.003 ▲ 0.026 ▲ 0.029 ppm Water ppm ASTM D6304 >250 33 ▲ 269.2 ▲ 297.1 FLUID DEGRADATION method limit/base current history1 history1	Silicon	ppm	ASTM D5185m	>50	20	20	18
Water % ASTM D6304 >0.02 0.003 0.026 0.029 ppm Water ppm ASTM D6304 >250 33 269.2 297.1 FLUID DEGRADATION method limit/base current history1 history1	Sodium	ppm	ASTM D5185m		0	3	3
ppm WaterppmASTM D6304>25033269.2297.1FLUID DEGRADATIONmethodlimit/basecurrenthistory1history1	Potassium	ppm	ASTM D5185m	>20	<1	0	0
FLUID DEGRADATION method limit/base current history1 histo	Water	%	ASTM D6304	>0.02	0.003	▲ 0.026	▲ 0.029
	ppm Water	ppm	ASTM D6304	>250	33	▲ 269.2	2 97.1
Acid Number (AN) mg KOH/g ASTM D974 0.028 0.016 0.032	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D974		0.028	0.016	0.032



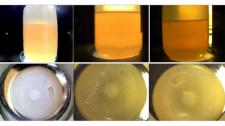
OIL ANALYSIS REPORT



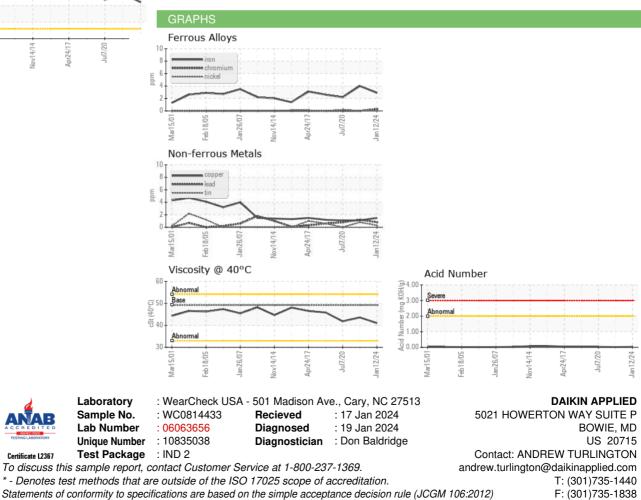




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.02	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	49.2	41.0	43.6	41.8
SAMPLE IMAGES	S	method	limit/base	current	history1	history2
Color				a		



Bottom



Certificate L2367

Contact/Location: ANDREW TURLINGTON - MCQUPP