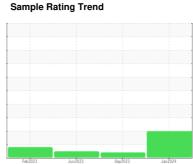


OIL ANALYSIS REPORT



ISO



TDSH163L

Component

Refrigeration Compressor

FRICK COMPRESSOR OIL #3 (--- GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

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

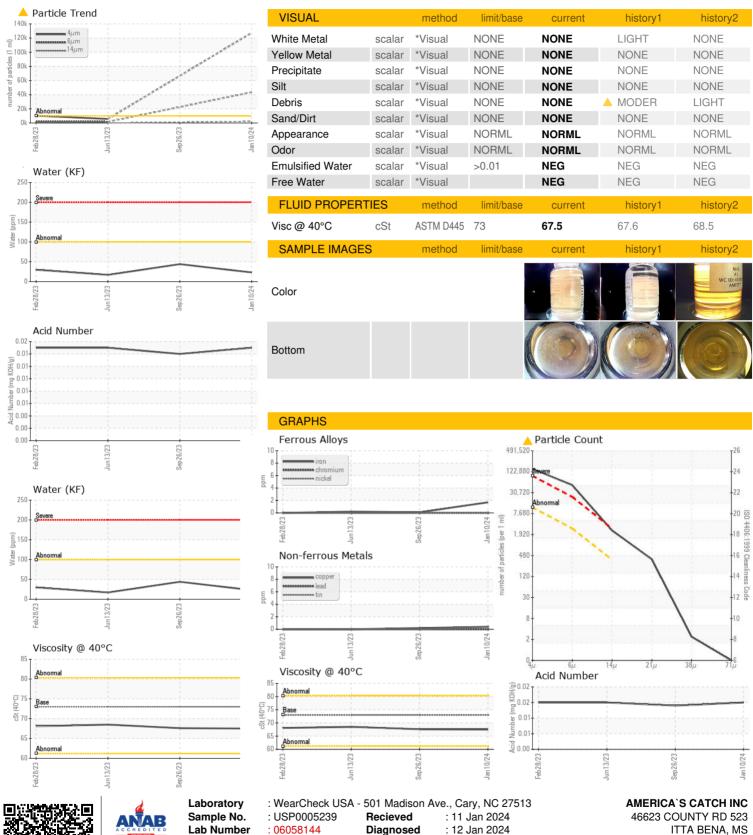
Fluid Condition

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			Feb 202	3 Jun2023	Sep2023 Ja	in2024	
Sample Date Client Info 10 Jan 2024 26 Sep 2023 13 Jun 2023 Machine Age hrs Client Info 0 0 0 0 Oil Age hrs Client Info N/A N/A N/A N/A Oil Ochanged Client Info N/A N/A N/A N/A N/A Sample Status ABNORMAL ABNORMAL ABNORMAL NORMAL NORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185n >8 2 -1 -1 Ohromium ppm ASTM D5185n >8 2 -1 </th <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 0 0 0 0 Oil Age hrs Client Info 0 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status Method limit/base current history1 history2 Iron ppm ASTM D5185m >8 2 <1	Sample Number		Client Info		USP0005239	USP0001844	USP244537
Oil Age hrs Client Info N/A N/A N/A N/A Sample Status Method Ilmit/base current history1 history2 Iron ppm ASTM D5185m >8 2 <1 <1 Chromium ppm ASTM D5185m >8 2 <1 <1 Chromium ppm ASTM D5185m >2 0 0 0 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >2 0 0 0 Cadmium ppm ASTM D5185m >3 0 0 0 Copper ppm ASTM D5185m 0 0 0	Sample Date		Client Info		10 Jan 2024	26 Sep 2023	13 Jun 2023
Oil Changed Sample Status Client Info N/A N/A N/A N/A WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >8 2 <1 <1 Chromium ppm ASTM D5185m >2 0 0 0 Nickel ppm ASTM D5185m >2 0 0 0 Titanium ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >3 0 0 0 Copper ppm ASTM D5185m >3 0 0 0 Cadmium ppm ASTM D5185m >8 <1 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 <	Machine Age	hrs	Client Info		0	0	0
Sample Status method limit/base current history1 history2 Iron ppm ASTM D5185m >8 2 <1 <1 Chromium ppm ASTM D5185m >2 0 0 0 Nickel ppm ASTM D5185m 0 0 0 0 Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >2 0 0 0 Tin ppm ASTM D5185m >4 <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m <1 0 0 0	Oil Age	hrs	Client Info		0	0	0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >8 2 <1 <1 Chromium ppm ASTM D5185m >2 0 0 0 Nickel ppm ASTM D5185m >2 0 0 0 Titanium ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >8 <1 <1 0 0 Tin ppm ASTM D5185m >4 <1 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 0	Oil Changed		Client Info		N/A	N/A	N/A
Iron	Sample Status				ABNORMAL	ABNORMAL	NORMAL
Chromium ppm ASTM D5185m >2 0 0 0 Nickel ppm ASTM D5185m <1 <1 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >4 <1 0 0 Tin ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 <	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m	Iron	ppm	ASTM D5185m	>8	2	<1	<1
Titanium ppm ASTM D5185m	Chromium	ppm	ASTM D5185m	>2	0	0	0
Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Lead ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >2 0 0 0 Tin ppm ASTM D5185m >4 <1	Nickel	ppm	ASTM D5185m		0	0	0
Aluminum ppm ASTM D5185m >3 0 0 0 Lead ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >8 <1 <1 0 Tin ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m <1 0 0 0 Barium ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 <th>Titanium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th><1</th> <th><1</th> <th>0</th>	Titanium	ppm	ASTM D5185m		<1	<1	0
Lead ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >8 <1 <1 0 Tin ppm ASTM D5185m >4 <1 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1 0 0 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 <	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >8 <1 <1 0 Tin ppm ASTM D5185m >4 <1	Aluminum	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >8 <1 <1 0 Tin ppm ASTM D5185m >4 <1	Lead	ppm	ASTM D5185m	>2	0	0	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>8	<1	<1	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m <1			ASTM D5185m	>4	<1	0	0
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m <1	Vanadium		ASTM D5185m		0	0	0
Boron ppm ASTM D5185m Q 0 0 Barium ppm ASTM D5185m <1	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m <1 0 0 Manganese ppm ASTM D5185m 0 <1 0 Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 12 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 0 0 <1 0 <1 Sodium ppm ASTM D5185m 0 0 0 <1 0 <1 Sodium ppm ASTM D5185m 0 0 0 0 <1 Vater	Boron	ppm	ASTM D5185m		0	0	0
Molybdenum ppm ASTM D5185m <1 0 0 Manganese ppm ASTM D5185m 0 <1 0 Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 12 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 0 0 <1 0 Sodium ppm ASTM D5185m 0 0 0 <1 Sodium ppm ASTM D5185m 0 0 0 <1 Water % ASTM D5185m 0 0	Barium	ppm	ASTM D5185m		<1	0	0
Manganese ppm ASTM D5185m 0 <1 0 Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 12 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 0 0 <1 Sodium ppm ASTM D5185m 0 0 <1 Sodium ppm ASTM D5185m 0 0 0 Potassium ppm ASTM D5185m 0 0 0 0 Water % ASTM D6304 >0.01 0.002 0.004 0.002 Patticles >4µm ASTM D6304 >1000 127401 <t< td=""><th>Molybdenum</th><td>ppm</td><td>ASTM D5185m</td><td></td><th><1</th><td>0</td><td>0</td></t<>	Molybdenum	ppm	ASTM D5185m		<1	0	0
Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 12 CONTAMINANTS method limit/base current history1 history2 CONTAMINANTS method limit/base current histo	-	ppm	ASTM D5185m		0	<1	0
Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 12 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 0 0 <1	-		ASTM D5185m		0	0	0
Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 12 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 0 0 <1 Sodium ppm ASTM D5185m 0 0 0 Potassium ppm ASTM D5185m >20 1 0 1 Water % ASTM D5185m >20 1 0 1 Water % ASTM D5185m >20 1 0 1 Water % ASTM D5185m >20 1 0 0 0 Potassium ppm ASTM D5185m >20 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-	ppm	ASTM D5185m		0	0	0
Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 12 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 0 0 <1	Phosphorus		ASTM D5185m		0	0	0
Sulfur ppm ASTM D5185m 0 0 12 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 0 0 <1 Sodium ppm ASTM D5185m >20 1 0 0 Potassium ppm ASTM D5185m >20 1 0 1 Water % ASTM D6304 >0.01 0.002 0.004 0.002 ppm Water ppm ASTM D6304 >100 23 44.0 16.9 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >10000 127401 5706 Particles >6µm ASTM D7647 >2500 43465 1624 Particles >21µm ASTM D7647 >80 330 77 Particles >38µm ASTM D7647			ASTM D5185m		0	0	0
Silicon ppm ASTM D5185m >15 0 0 <1	Sulfur		ASTM D5185m		0	0	12
Sodium ppm ASTM D5185m 0 0 0 Potassium ppm ASTM D5185m >20 1 0 1 Water % ASTM D6304 >0.01 0.002 0.004 0.002 ppm Water ppm ASTM D6304 >100 23 44.0 16.9 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 Δ 127401 5706 Particles >6μm ASTM D7647 >2500 Δ 43465 1624 Particles >14μm ASTM D7647 >320 Δ 2201 77 Particles >21μm ASTM D7647 >80 Δ 330 11 Particles >71μm ASTM D7647 >4 0 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 0 0 0 Potassium ppm ASTM D5185m >20 1 0 1 Water % ASTM D6304 >0.01 0.002 0.004 0.002 ppm Water ppm ASTM D6304 >100 23 44.0 16.9 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 Δ 127401 5706 Particles >6μm ASTM D7647 >2500 Δ 43465 1624 Particles >14μm ASTM D7647 >320 Δ 2201 77 Particles >21μm ASTM D7647 >80 Δ 330 11 Particles >71μm ASTM D7647 >4 0 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15	Silicon	nnm	ASTM D5185m	>15	0	0	<1
Potassium ppm ASTM D5185m >20 1 0 1 Water % ASTM D6304 >0.01 0.002 0.004 0.002 ppm Water ppm ASTM D6304 >100 23 44.0 16.9 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 ▲ 127401 5706 Particles >6μm ASTM D7647 >2500 ▲ 43465 1624 Particles >14μm ASTM D7647 >320 ▲ 2201 77 Particles >21μm ASTM D7647 >80 ▲ 330 11 Particles >38μm ASTM D7647 >20 2 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 Δ4/23/18 20/18/13				7.0	_		
Water % ASTM D6304 >0.01 0.002 0.004 0.002 ppm Water ppm ASTM D6304 >100 23 44.0 16.9 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 127401 5706 Particles >6μm ASTM D7647 >2500 43465 1624 Particles >14μm ASTM D7647 >320 201 77 Particles >21μm ASTM D7647 >80 330 11 Particles >38μm ASTM D7647 >20 2 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2	Potassium			>20	-		
ppm Water ppm ASTM D6304 >100 23 44.0 16.9 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 ▲ 127401 5706 Particles >6μm ASTM D7647 >2500 ▲ 43465 1624 Particles >14μm ASTM D7647 >320 ▲ 2201 77 Particles >21μm ASTM D7647 >80 ▲ 330 11 Particles >38μm ASTM D7647 >20 2 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2					-		
Particles >4μm ASTM D7647 >10000 ▲ 127401 5706 Particles >6μm ASTM D7647 >2500 ▲ 43465 1624 Particles >14μm ASTM D7647 >320 ▲ 2201 77 Particles >21μm ASTM D7647 >80 ▲ 330 11 Particles >38μm ASTM D7647 >20 2 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2							
Particles >6μm ASTM D7647 >2500 43465 1624 Particles >14μm ASTM D7647 >320 2201 77 Particles >21μm ASTM D7647 >80 330 11 Particles >38μm ASTM D7647 >20 2 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >6μm ASTM D7647 >2500 43465 1624 Particles >14μm ASTM D7647 >320 2201 77 Particles >21μm ASTM D7647 >80 330 11 Particles >38μm ASTM D7647 >20 2 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647	>10000	<u> </u>		5706
Particles >14μm ASTM D7647 >320 ▲ 2201 77 Particles >21μm ASTM D7647 >80 ▲ 330 11 Particles >38μm ASTM D7647 >20 2 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>2500	43465		1624
Particles >21μm ASTM D7647 >80 ▲ 330 11 Particles >38μm ASTM D7647 >20 2 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2	•						
Particles >38μm ASTM D7647 >20 2 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2	· ·						
Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2	•						
Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 24/23/18 20/18/13 FLUID DEGRADATION method limit/base current history1 history2	·						
	•						
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)						



OIL ANALYSIS REPORT





Certificate L2367

Lab Number **Unique Number**

Test Package

: 06058144

Diagnosed : 10829526

Diagnostician : Doug Bogart

Contact: SHANE CARPENTER

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: IND 2

* - 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)

T: (870)692-7712 F:

US 38941