

### **OIL ANALYSIS REPORT**

Machine Id

# FES TYSTEWCB 1 (S/N 01087011)

Component Refrigeration Compressor

Fluid USPI 1009-68 SC (--- GAL)

#### DIAGNOSIS

#### A 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 Date         Client Info         17 Jun 2024         02 Apr 2024         03 Jan 2           Machine Age         hrs         Client Info         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         Imit/base         current         history1         history1           VEAR METALS         method         Imit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >2         0         0         <1           Titanium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0         1           Lead         ppm         ASTM D5185m         >2         0         0         0         1           Copper         ppm         ASTM D5185m         >2         0         0         0         1           Audinum         ppm         ASTM D5185m         0         0         0         1	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         0         0         0         0           Oil Age         hrs         Client Info         N/A         N/A         N/A         N/A           Sample Status         Client Info         N/A         N/A         N/A         N/A         N/A           WEAR METALS         method         limit/base         current         history1         history1           WEAR METALS         method         limit/base         current         history1         history1           WEAR METALS         method         limit/base         current         history1         history1           Transium         ppm         ASTM D5185m         >2         0         0         <1	Sample Number		Client Info		USP0013220	USP0008114	USP0004640
Oil Age         hrs         Client Info         0         0         0           Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         method         limit/base         current         history1         history1           VEAR METALS         method         limit/base         current         history1         history1           Chromium         ppm         ASTM D5185m         >2         0         0         <1	Sample Date		Client Info		17 Jun 2024	02 Apr 2024	03 Jan 2024
Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         Image Status         Image Status         ABNORMAL         ATTENTION         ABNORM           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >8         0         0         <1	Machine Age	hrs	Client Info		0	0	0
Sample Status         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >8         0         0         <1	Oil Age	hrs	Client Info		0	0	0
WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >8         0         0         <1	Oil Changed		Client Info		N/A	N/A	N/A
ron         ppm         ASTM D5185m         >8         0         0         <1           Nickel         ppm         ASTM D5185m         >2         0         0         <1	Sample Status				ABNORMAL	ATTENTION	ABNORMAL
Chromium         ppm         ASTM D5185m         >2         0         0         <1           Nickel         ppm         ASTM D5185m         0         0         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         0         0         <1           Titanium         ppm         ASTM D5185m         2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         1           Lead         ppm         ASTM D5185m         >3         <1	Iron	ppm	ASTM D5185m	>8	0	0	<1
Titanium         ppm         ASTM D5185m         0         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         -1           Lead         ppm         ASTM D5185m         >2         0         0         -1           Copper         ppm         ASTM D5185m         >2         0         0         -1           Vanadium         ppm         ASTM D5185m         0         -1         0         0           Cadmium         ppm         ASTM D5185m         0         0         -1         0           ADDITIVES         method         limit/base         current         history1         history1           Marganese         ppm         ASTM D5185m         0         0         -1           Marganese         ppm         ASTM D5185m         0         0         -1           Calcium         ppm         ASTM D5185m         0         0         -1           Calcium         ppm         ASTM D5185m         0         0         0           Sulfur         ppm	Chromium	ppm	ASTM D5185m	>2	0	0	<1
Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >3         <1	Nickel	ppm	ASTM D5185m		0	0	<1
Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >3         <1	Titanium		ASTM D5185m		0	0	0
Aluminum         ppm         ASTM D5185m         >3         <1         0         1           Lead         ppm         ASTM D5185m         >2         0         0         <1	Silver		ASTM D5185m	>2	0	0	
Lead         ppm         ASTM D5185m         >2         0         0         <1           Copper         ppm         ASTM D5185m         >8         <1	Aluminum		ASTM D5185m	>3	<1	0	1
Copper         ppm         ASTM D5185m         >8         <1         0         0           Tin         ppm         ASTM D5185m         >4         <1							<1
Tin         ppm         ASTM D5185m         >4         <1         <1         <1           Vanadium         ppm         ASTM D5185m         0         0         <1							
Vanadium         ppm         ASTM D5185m         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         <1						÷	
Cadmium         ppm         ASTM D5185m         0         0         <1           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         0         0         0         1           Molybdenum         ppm         ASTM D5185m         0         0         1         1           Manganese         ppm         ASTM D5185m         0         0         21         0           Magnesium         ppm         ASTM D5185m         0         0         21         0         0           Calcium         ppm         ASTM D5185m         0         0         21         0         0         21           Phosphorus         ppm         ASTM D5185m         0 <t< td=""><td></td><td></td><td></td><td></td><th></th><td></td><td></td></t<>							
Boron         ppm         ASTM D5185m         0         0         0           Barium         ppm         ASTM D5185m         0         0         1           Molybdenum         ppm         ASTM D5185m         0         0         <1							
Barium         ppm         ASTM D5185m         0         0         1           Molybdenum         ppm         ASTM D5185m         0         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         0         0         <1           Manganese         ppm         ASTM D5185m         <1	Boron	ppm	ASTM D5185m		0	0	0
Manganese         ppm         ASTM D5185m         <1         0         0           Magnesium         ppm         ASTM D5185m         0         0         <1	Barium	ppm	ASTM D5185m		0	0	1
Magnesium         ppm         ASTM D5185m         0         <1           Calcium         ppm         ASTM D5185m         0         0         <1	Molybdenum	ppm	ASTM D5185m		0	0	<1
Calcium         ppm         ASTM D5185m         0         0         <1           Phosphorus         ppm         ASTM D5185m         0         0         0         0           Zinc         ppm         ASTM D5185m         0         0         0         0         0           Sulfur         ppm         ASTM D5185m         50         21         13         0         0           CONTAMINANTS         method         limit/base         current         history1         histor           Silicon         ppm         ASTM D5185m         >15         2         <1	Manganese	ppm	ASTM D5185m		<1	0	0
Phosphorus         ppm         ASTM D5185m         0         0         0           Zinc         ppm         ASTM D5185m         0         0         0         0           Sulfur         ppm         ASTM D5185m         50         21         13         0           CONTAMINANTS         method         limit/base         current         history1         histor           Silicon         ppm         ASTM D5185m         >15         2         <1         1           Sodium         ppm         ASTM D5185m         >15         2         <1         1           Sodium         ppm         ASTM D5185m         >20         2         <1         0           Potassium         ppm         ASTM D6304         >0.01         0.005         0.002         0.003           ppm Water         ppm         ASTM D7647         >10000         A 33219         11554         53047           Particles >4µm         ASTM D7647         >2500         10602         2002         12225           Particles >6µm         ASTM D7647         >320         410         39         565           Particles >1µm         ASTM D7647         >80         59         7         123 <td>Magnesium</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>0</th> <td>0</td> <td>&lt;1</td>	Magnesium	ppm	ASTM D5185m		0	0	<1
Zinc         ppm         ASTM D5185m         0         0         0           Sulfur         ppm         ASTM D5185m         50         21         13         0           CONTAMINANTS         method         limit/base         current         history1         histor           Silicon         ppm         ASTM D5185m         >15         2         <1	Calcium	ppm	ASTM D5185m		0	0	<1
Sulfur         ppm         ASTM D5185m         50         21         13         0           CONTAMINANTS         method         limit/base         current         history1         histor           Silicon         ppm         ASTM D5185m         >15         2         <1         1           Sodium         ppm         ASTM D5185m         >15         2         <1         1           Sodium         ppm         ASTM D5185m         >20         2         <1         0           Potassium         ppm         ASTM D5185m         >20         2         <1         <1           Water         %         ASTM D5185m         >20         2         <1         <1           Water         %         ASTM D6304         >0.01         0.005         0.002         0.003           ppm Water         ppm         ASTM D6304         >100         55         25         31           FLUID CLEANLINESS         method         limit/base         current         history1         history1           Particles >4µm         ASTM D7647         >10000         33219         11554         53047           Particles >21µm         ASTM D7647         >200         3	Phosphorus	ppm	ASTM D5185m		0	0	0
CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >15         2         <1	Zinc	ppm	ASTM D5185m		0	0	0
Silicon       ppm       ASTM D5185m       >15       2       <1       1         Sodium       ppm       ASTM D5185m       20       2       1       0         Potassium       ppm       ASTM D5185m       >20       2       <1       <1       0         Potassium       ppm       ASTM D5185m       >20       2       <1       <1       0         Water       %       ASTM D6304       >0.01       0.005       0.002       0.003         ppm Water       ppm       ASTM D6304       >100       55       25       31         FLUID CLEANLINESS       method       limit/base       current       history1       histor         Particles >4µm       ASTM D7647       >10000       33219       11554       53047         Particles >6µm       ASTM D7647       >2500       10602       2002       12225         Particles >14µm       ASTM D7647       >320       410       39       565         Particles >21µm       ASTM D7647       >20       3       0       3         Particles >38µm       ASTM D7647       >20       3       0       3         Particles >71µm       ASTM D7647       20       3 <td>Sulfur</td> <td>ppm</td> <td>ASTM D5185m</td> <td>50</td> <th>21</th> <td>13</td> <td>0</td>	Sulfur	ppm	ASTM D5185m	50	21	13	0
Sodium         ppm         ASTM D5185m         2         1         0           Potassium         ppm         ASTM D5185m<>20         2         <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         2         <1         <1           Water         %         ASTM D6304         >0.01         0.005         0.002         0.003           ppm Water         ppm         ASTM D6304         >100         55         25         31           FLUID CLEANLINESS         method         limit/base         current         history1         histor           Particles >4µm         ASTM D7647         >10000         ▲         33219         11554         ▲         53047           Particles >6µm         ASTM D7647         >2500         ▲         10602         2002         ▲         12225           Particles >6µm         ASTM D7647         >320         ▲         410         39         565           Particles >14µm         ASTM D7647         >320         ▲         410         39         565           Particles >21µm         ASTM D7647         >20         3         0         3         3           Particles >38µm         ASTM D7647         >20         3         0         3         3           Particles >71µm         ASTM D7647         >4         0         0         0         0         3	Silicon	ppm	ASTM D5185m	>15	2	<1	1
Water         %         ASTM D6304         >0.01         0.005         0.002         0.003           ppm Water         ppm         ASTM D6304         >100         55         25         31           FLUID CLEANLINESS         method         limit/base         current         history1         histor           Particles >4µm         ASTM D7647         >10000         ▲         33219         11554         ▲         53047           Particles >6µm         ASTM D7647         >2500         ▲         10602         2002         ▲         12225           Particles >14µm         ASTM D7647         >320         ▲         410         39         ▲         565           Particles >21µm         ASTM D7647         >80         59         7         ▲         123           Particles >38µm         ASTM D7647         >20         3         0         3         3           Particles >71µm         ASTM D7647         >4         0         0         0         0           OIl Cleanliness         ISO 4406 (c)         >20/18/15         ▲         22/21/16         21/18/12         ▲         23/21/	Sodium	ppm	ASTM D5185m		2	1	0
ppm Water         ppm         ASTM D6304         >100         55         25         31           FLUID CLEANLINESS         method         limit/base         current         history1         history1           Particles >4µm         ASTM D7647         >10000         33219         11554         53047           Particles >6µm         ASTM D7647         >2500         10602         2002         12225           Particles >14µm         ASTM D7647         >320         410         39         565           Particles >14µm         ASTM D7647         >80         59         7         123           Particles >21µm         ASTM D7647         >20         3         0         3           Particles >38µm         ASTM D7647         >20         3         0         3           Particles >71µm         ASTM D7647         >4         0         0         0           Oil Cleanliness         ISO 4406 (c)         >20/18/15         22/21/16         21/18/12         23/21/2           FLUID DEGRADATION         method         limit/base         current         history1         history1	Potassium	ppm	ASTM D5185m	>20	2	<1	<1
FLUID CLEANLINESS       method       limit/base       current       history1       history1         Particles >4µm       ASTM D7647       >10000       33219       11554       53047         Particles >6µm       ASTM D7647       >2500       10602       2002       12225         Particles >6µm       ASTM D7647       >320       410       39       565         Particles >14µm       ASTM D7647       >320       410       39       565         Particles >21µm       ASTM D7647       >80       59       7       123         Particles >38µm       ASTM D7647       >20       3       0       3         Particles >71µm       ASTM D7647       >4       0       0       0         Oil Cleanliness       ISO 4406 (c)       >20/18/15       22/21/16       21/18/12       23/21/2         FLUID DEGRADATION       method       limit/base       current       history1       history1	Water	%	ASTM D6304	>0.01	0.005	0.002	0.003
Particles >4μm       ASTM D7647       >10000       ▲ 33219       11554       ▲ 53047         Particles >6μm       ASTM D7647       >2500       ▲ 10602       2002       ▲ 12225         Particles >14μm       ASTM D7647       >320       ▲ 410       39       ▲ 565         Particles >21μm       ASTM D7647       >80       59       7       ▲ 123         Particles >38μm       ASTM D7647       >20       3       0       3         Particles >38μm       ASTM D7647       >20       3       0       3         Particles >71μm       ASTM D7647       >4       0       0       0         Oil Cleanliness       ISO 4406 (c)       >20/18/15       ▲ 22/21/16       21/18/12       ▲ 23/21/         FLUID DEGRADATION       method       limit/base       current       history1       history1	ppm Water	ppm	ASTM D6304	>100	55	25	31
Particles >6µm       ASTM D7647       >2500       ▲ 10602       2002       ▲ 12225         Particles >14µm       ASTM D7647       >320       ▲ 410       39       ▲ 565         Particles >21µm       ASTM D7647       >80       59       7       ▲ 123         Particles >38µm       ASTM D7647       >20       3       0       3         Particles >38µm       ASTM D7647       >20       3       0       3         Particles >71µm       ASTM D7647       >4       0       0       0         Oil Cleanliness       ISO 4406 (c)       >20/18/15       22/21/16       21/18/12       23/21/2	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >14µm       ASTM D7647       >320       ▲ 410       39       ▲ 565         Particles >21µm       ASTM D7647       >80       59       7       ▲ 123         Particles >38µm       ASTM D7647       >20       3       0       3         Particles >38µm       ASTM D7647       >20       3       0       3         Particles >71µm       ASTM D7647       >4       0       0       0         Oil Cleanliness       ISO 4406 (c)       >20/18/15       22/21/16       21/18/12       23/21/2         FLUID DEGRADATION       method       limit/base       current       history1       history1	Particles >4µm		ASTM D7647	>10000		-	▲ 53047
Particles >21μm         ASTM D7647         >80 <b>59</b> 7         123           Particles >38μm         ASTM D7647         >20 <b>3</b> 0         3           Particles >38μm         ASTM D7647         >20 <b>3</b> 0         3           Particles >71μm         ASTM D7647         >4 <b>0</b> 0         0           Oil Cleanliness         ISO 4406 (c)         >20/18/15 <b>22/21/16</b> 21/18/12         23/21/           FLUID DEGRADATION         method         limit/base         current         history1         history1	Particles >6µm		ASTM D7647	>2500	<u> </u>	2002	▲ 12225
Particles >38μm         ASTM D7647         >20         3         0         3           Particles >71μm         ASTM D7647         >4         0         0         0           Oil Cleanliness         ISO 4406 (c)         >20/18/15         22/21/16         21/18/12         23/21/           FLUID DEGRADATION         method         limit/base         current         history1         history1	Particles >14µm		ASTM D7647	>320	<b>410</b>	39	🔺 565
Particles >71μm         ASTM D7647         >4         0         0         0           Oil Cleanliness         ISO 4406 (c)         >20/18/15         22/21/16         21/18/12         23/21/16           FLUID DEGRADATION         method         limit/base         current         history1         history1	Particles >21µm		ASTM D7647	>80	59	7	<b>1</b> 23
Oil Cleanliness       ISO 4406 (c)       >20/18/15 ▲ 22/21/16       21/18/12 ▲ 23/21/         FLUID DEGRADATION       method       limit/base       current       history1       history1	Particles >38µm		ASTM D7647	>20	3	0	3
FLUID DEGRADATION method limit/base current history1 histor	Particles >71µm		ASTM D7647	>4	0	0	0
	Oil Cleanliness		ISO 4406 (c)	>20/18/15	<u> </u>	21/18/12	▲ 23/21/16
Acid Number (AN) mg KOH/g ASTM D974 0.005 0.014 0.015	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D974	0.005	0.014	0.014	0.015

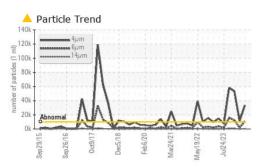
Contact/Location: RANDY CHARLTON - TEWCOU Page 1 of 2

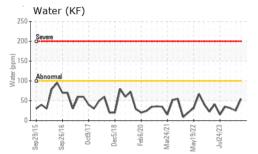
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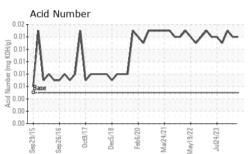
ISO

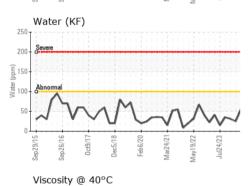


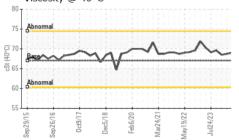
## **OIL ANALYSIS REPORT**





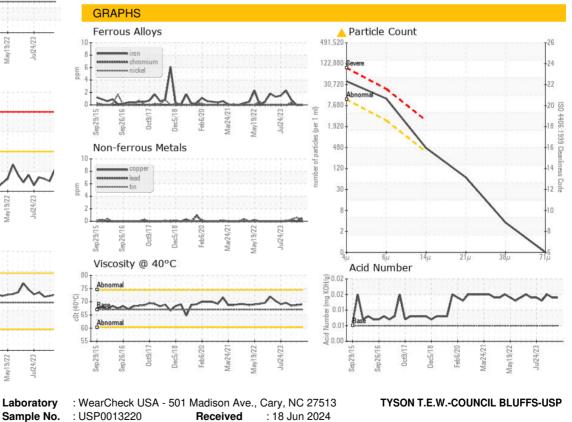






VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	LIGHT	NONE	LIGHT
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.01	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	67	69.0	68.7	68.5
SAMPLE IMAGES	S	method	limit/base	current	history1	history2
Color						N AV

Bottom



: 20 Jun 2024

: 21 Jun 2024 - Jonathan Hester



Unique Number : 11086954 Test Package : IND 2 Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

Lab Number : 06214090

\* - 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)

Tested

Diagnosed

Report Id: TEWCOU [WUSCAR] 06214090 (Generated: 06/23/2024 04:45:41) Rev: 1

Contact/Location: RANDY CHARLTON - TEWCOU Page 2 of 2

T: F:

US

COUNCIL BLUFFS, IA

Contact: RANDY CHARLTON