

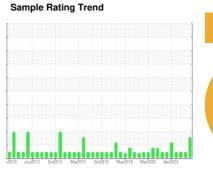
# **OIL ANALYSIS REPORT**

Area **SLAUGHTER** 

# FES / KOBI TYSPASS 5 FES (S/N 129355)

Refrigeration Compressor

USPI 1009-68 SC (--- GAL)





### Recommendation

The oil is near the end of it's useful service life. We recommend schedule an oil change. Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

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

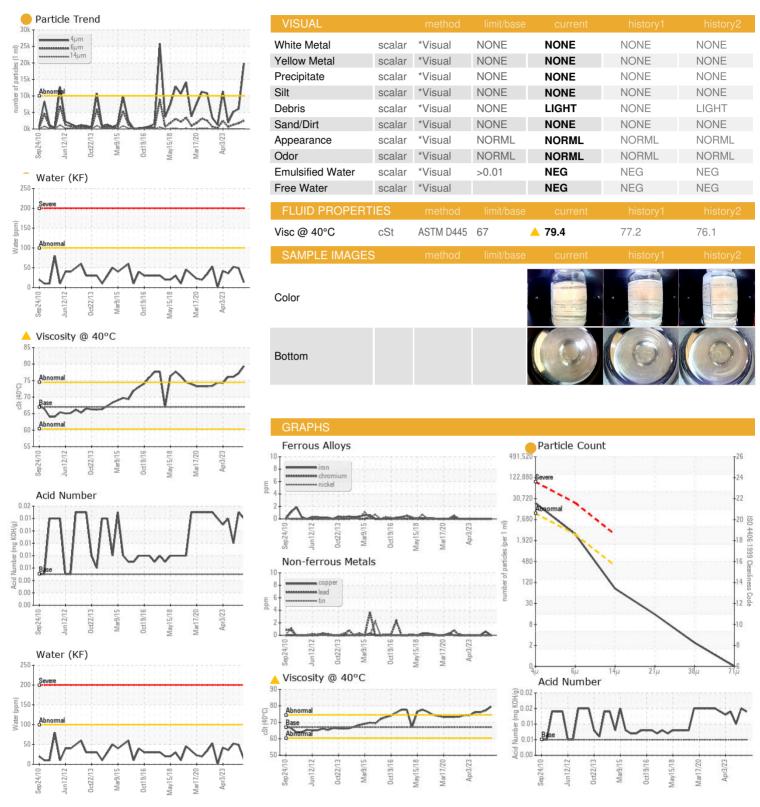
### Fluid Condition

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

SAMPLE INFORMATION     method     limit/base     current     history1     history2       Sample Date     Client Info     29 May 2024     15 Feb 2024     21 Nov 2023       Machine Age     hrs     Client Info     6704     0     0       Oil Age     hrs     Client Info     0     0     0       Oil Changed     Client Info     N/A     N/A     N/A       Sample Status     method     Imit base     current     history1     history2       Iron     ppm     ASTM D5185m     >2     0     0     0       Nickel     ppm     ASTM D5185m     >2     0     0     0       Chromium     ppm     ASTM D5185m     >2     0     0     0       Nickel     ppm     ASTM D5185m     >2     0     0     0       Itranium     ppm     ASTM D5185m     >2     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Capper     p							
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age Oil Age     hrs     Client Info     6704     0     0       Oil Age     hrs     Client Info     0     0     0       Oil Changed     Client Info     N/A     N/A     N/A     N/A       Sample Status     method     limit/bass     current     history1     history2       Iron     ppm     ASTM D5185m     >8     0     0     0       Chromium     ppm     ASTM D5185m     >8     0     0     0       Nickel     ppm     ASTM D5185m     >2     0     0     0       Titanium     ppm     ASTM D5185m     >2     0     0     0       Silver     ppm     ASTM D5185m     >2     0     0     0       Capper     ppm     ASTM D5185m     >2     0     0     0       Capper     ppm     ASTM D5185m     >2     0     0     0       Capper     ppm     ASTM D5185m     >2     0     0     0       Ca	Sample Number		Client Info		USP0012574	USP0006931	USP0003566
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       WEAR METALS     method     limit/base     current     history1     nistory2       Iron     ppm     ASTM D5185m     >8     0     0     0       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       Aluminum     ppm     ASTM D5185m     >2     0     0     0       Lead     ppm     ASTM D5185m     >2     0     0     0       Copper     ppm     ASTM D5185m     >4     0     0     0       Tin     ppm     ASTM D5185m     0     0     0     0 <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>29 May 2024</th> <th>15 Feb 2024</th> <th>21 Nov 2023</th>	Sample Date		Client Info		29 May 2024	15 Feb 2024	21 Nov 2023
Oil Changed Sample Status     Client Info     N/A     N/A     N/A     N/A     N/A     N/A     NA     Pa     Patritorise     Patritorise	Machine Age	hrs	Client Info		6704	0	0
Sample Status     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >8     0     0     0       Chromium     ppm     ASTM D5185m     >2     0     0     0       Nickel     ppm     ASTM D5185m     0     0     0     0       Silver     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     >4     0     0     0       Tin     ppm     ASTM D5185m     >4     0     0     0       Cadium     ppm     ASTM D5185m     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0 <th>Oil Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Oil Age	hrs	Client Info		0	0	0
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >8     0     0     0       Nickel     ppm     ASTM D5185m     0     0     0       Titanium     ppm     ASTM D5185m     0     0     0       Silver     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     >8     0     <1     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       Magnesium	Oil Changed		Client Info		N/A	N/A	N/A
Iron	Sample Status				ATTENTION	NORMAL	NORMAL
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       Lead     ppm     ASTM D5185m     >2     0     0     0       Copper     ppm     ASTM D5185m     >4     0     0     0       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       Barium     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     0     0     0       Titanium     ppm     ASTM D5185m     0     0     0       Silver     ppm     ASTM D5185m     >2     0     0     0       Aluminum     ppm     ASTM D5185m     >2     0     0     0       Aluminum     ppm     ASTM D5185m     >2     0     0     0       Lead     ppm     ASTM D5185m     >8     0     <1     0       Copper     ppm     ASTM D5185m     >8     0     <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       Boron     ppm     ASTM D5185m     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0       Barium     <	Iron	ppm	ASTM D5185m	>8	0	0	0
Titanium     ppm     ASTM D5185m     0     0     0       Silver     ppm     ASTM D5185m     >2     0     0     0       Aluminum     ppm     ASTM D5185m     >2     0     0     0       Lead     ppm     ASTM D5185m     >3     0     <1	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     0     0     0     0       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0       Magnesium     ppm     ASTM D5185m     0     1     1     1	Nickel	ppm	ASTM D5185m		0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>3	0	0	0
Tin	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     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     0       Magnesium     ppm     ASTM D5185m     0     -1     -1     -1       Magnesium     ppm     ASTM D5185m     0     1     1     1       Phosphorus     ppm     ASTM D5185m     0     0     0     0       Zinc     ppm     ASTM D5185m     0     0     0     0       Sulfur     ppm     ASTM D5185m     0     0     1     1       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185	Copper	ppm	ASTM D5185m	>8	0	<1	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     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     0       Manganese     ppm     ASTM D5185m     0     <1     0       Magnesium     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     0       Sulfur     ppm     ASTM D5185m     0     0     1     0       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     1     <1     0<	Tin	ppm	ASTM D5185m	>4	0	0	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron     ppm     ASTM D5185m     0     0     0       Barium     ppm     ASTM D5185m     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     0       Manganese     ppm     ASTM D5185m     0     <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum     ppm     ASTM D5185m     0     0     0       Manganese     ppm     ASTM D5185m     <1	Boron	ppm	ASTM D5185m		0	0	0
Manganese     ppm     ASTM D5185m     <1	Barium	ppm	ASTM D5185m		0	0	0
Magnesium     ppm     ASTM D5185m     0     <1	Molybdenum	ppm	ASTM D5185m		0	0	0
Calcium     ppm     ASTM D5185m     0     1     1       Phosphorus     ppm     ASTM D5185m     0     0     0       Zinc     ppm     ASTM D5185m     0     0     0       Sulfur     ppm     ASTM D5185m     50     0     11     0       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >15     0     <1     0       Sodium     ppm     ASTM D5185m     >1     <1     0     0       Potassium     ppm     ASTM D5185m     >20     <1     <1     0       Vater     %     ASTM D5185m     >20     <1     <1     0       Water     %     ASTM D5185m     >20     <1     <1     0       Water     %     ASTM D5185m     >20     <1     <1     0       Particles >4µm     ASTM D6304     >0.01     0.0001     1.0001     0.0004     0.0004	Manganese	ppm	ASTM D5185m		<1	<1	<1
Phosphorus     ppm     ASTM D5185m     0     0     0       Zinc     ppm     ASTM D5185m     0     0     0       Sulfur     ppm     ASTM D5185m     50     0     11     0       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >15     0     <1     0       Sodium     ppm     ASTM D5185m     >15     0     <1     0       Potassium     ppm     ASTM D5185m     >20     <1     <1     0       Vater     %     ASTM D6185m     >20     <1     <1     0       Water     %     ASTM D6185m     >20     <1     <1     0       Water     %     ASTM D6304     >0.01     0.001     0.004     0.005       ppm Water     ppm     ASTM D6304     >100     13     49     52       FLUID CLEANLINESS     method     limit/base     current     history1	Magnesium	ppm	ASTM D5185m		0	<1	0
Zinc     ppm     ASTM D5185m     0     0     0       Sulfur     ppm     ASTM D5185m     50     0     11     0       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >15     0     <1	Calcium	ppm	ASTM D5185m		0	1	1
Sulfur     ppm     ASTM D5185m     50     0     11     0       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >15     0     <1     0       Sodium     ppm     ASTM D5185m     >20     <1     <1     0       Potassium     ppm     ASTM D5185m     >20     <1     <1     0       Water     %     ASTM D6304     >0.01     0.0001     0.004     0.005       Particles >4µm     ASTM D7647     >10000     19785     6068     5219       Particles >4µm     ASTM D7647     >2500     2557     1744	Phosphorus	ppm	ASTM D5185m		0	0	0
CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >15     0     <1     0       Sodium     ppm     ASTM D5185m     >20     <1     <1     0       Potassium     ppm     ASTM D5185m     >20     <1     <1     0       Water     %     ASTM D6304     >0.01     0.001     0.004     0.005       ppm Water     ppm     ASTM D6304     >100     13     49     52       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4µm     ASTM D7647     >10000     19785     6068     5219       Particles >6µm     ASTM D7647     >2500     2557     1744     1311       Particles >14µm     ASTM D7647     >320     71     75     54       Particles >21µm     ASTM D7647     >20     2     0     1       Particles >71µm     ASTM D7647     >4     0     0     0 <th>Zinc</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Zinc	ppm	ASTM D5185m		0	0	0
Silicon     ppm     ASTM D5185m     >15     0     <1	Sulfur	ppm	ASTM D5185m	50	0	11	0
Sodium     ppm     ASTM D5185m     1     <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium     ppm     ASTM D5185m     >20     <1	Silicon	ppm	ASTM D5185m	>15	0	<1	0
Water     %     ASTM D6304     >0.01     0.001     0.004     0.005       ppm Water     ppm     ASTM D6304     >100     13     49     52       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4μm     ASTM D7647     >10000     19785     6068     5219       Particles >6μm     ASTM D7647     >2500     2557     1744     1311       Particles >14μm     ASTM D7647     >320     71     75     54       Particles >21μm     ASTM D7647     >80     13     9     8       Particles >38μm     ASTM D7647     >20     2     0     1       Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     21/19/13     20/18/13     20/18/13       FLUID DEGRADATION     method     limit/base     current     history1     history2	Sodium	ppm	ASTM D5185m		1	<1	0
ppm Water     ppm     ASTM D6304     >100     13     49     52       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4μm     ASTM D7647     >10000     19785     6068     5219       Particles >6μm     ASTM D7647     >2500     2557     1744     1311       Particles >14μm     ASTM D7647     >320     71     75     54       Particles >21μm     ASTM D7647     >80     13     9     8       Particles >38μm     ASTM D7647     >20     2     0     1       Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     21/19/13     20/18/13     20/18/13       FLUID DEGRADATION     method     limit/base     current     history1     history2	Potassium	ppm	ASTM D5185m	>20	<1	<1	0
ppm Water     ppm     ASTM D6304     >100     13     49     52       FLUID CLEANLINESS     method     limit/base     current     history1     history2       Particles >4μm     ASTM D7647     >10000     19785     6068     5219       Particles >6μm     ASTM D7647     >2500     2557     1744     1311       Particles >14μm     ASTM D7647     >320     71     75     54       Particles >21μm     ASTM D7647     >80     13     9     8       Particles >38μm     ASTM D7647     >20     2     0     1       Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     21/19/13     20/18/13     20/18/13       FLUID DEGRADATION     method     limit/base     current     history1     history2	Water	%	ASTM D6304	>0.01	0.001	0.004	0.005
Particles >4μm   ASTM D7647   >10000   19785   6068   5219     Particles >6μm   ASTM D7647   >2500   2557   1744   1311     Particles >14μm   ASTM D7647   >320   71   75   54     Particles >21μm   ASTM D7647   >80   13   9   8     Particles >38μm   ASTM D7647   >20   2   0   1     Particles >71μm   ASTM D7647   >4   0   0   0     Oil Cleanliness   ISO 4406 (c)   >20/18/15   21/19/13   20/18/13   20/18/13     FLUID DEGRADATION   method   limit/base   current   history1   history2	ppm Water		ASTM D6304	>100	13	49	52
Particles >6μm   ASTM D7647   >2500   2557   1744   1311     Particles >14μm   ASTM D7647   >320   71   75   54     Particles >21μm   ASTM D7647   >80   13   9   8     Particles >38μm   ASTM D7647   >20   2   0   1     Particles >71μm   ASTM D7647   >4   0   0   0     Oil Cleanliness   ISO 4406 (c)   >20/18/15   21/19/13   20/18/13   20/18/13     FLUID DEGRADATION   method   limit/base   current   history1   history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Particles >4µm		ASTM D7647	>10000	<b>19785</b>	6068	5219
Particles >21μm     ASTM D7647     >80     13     9     8       Particles >38μm     ASTM D7647     >20     2     0     1       Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     21/19/13     20/18/13     20/18/13       FLUID DEGRADATION     method     limit/base     current     history1     history2	Particles >6µm		ASTM D7647	>2500	<b>2557</b>	1744	1311
Particles >38μm     ASTM D7647     >20     2     0     1       Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     21/19/13     20/18/13     20/18/13       FLUID DEGRADATION     method     limit/base     current     history1     history2	Particles >14μm		ASTM D7647	>320	71	75	54
Particles >71μm     ASTM D7647     >4     0     0     0       Oil Cleanliness     ISO 4406 (c)     >20/18/15     21/19/13     20/18/13     20/18/13       FLUID DEGRADATION     method     limit/base     current     history1     history2	Particles >21µm		ASTM D7647	>80	13	9	8
Oil Cleanliness     ISO 4406 (c)     >20/18/15     21/19/13     20/18/13     20/18/13       FLUID DEGRADATION     method     limit/base     current     history1     history2	Particles >38µm		ASTM D7647	>20	2	0	1
Oil Cleanliness     ISO 4406 (c)     >20/18/15     21/19/13     20/18/13     20/18/13       FLUID DEGRADATION     method     limit/base     current     history1     history2	Particles >71µm		ASTM D7647	>4	0	0	0
	Oil Cleanliness		ISO 4406 (c)	>20/18/15	<b>2</b> 1/19/13	20/18/13	20/18/13
	FLUID DEGRADA	TION _	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D974	0.005	0.014	0.015	



## **OIL ANALYSIS REPORT**







Certificate 12367

Laboratory Sample No. Lab Number

Test Package : IND 2

: USP0012574 : 06199270 Unique Number : 11061393

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 04 Jun 2024

**Tested** : 06 Jun 2024 Diagnosed : 09 Jun 2024 - Doug Bogart **TYSON - PASCO WALLULA -USP** 

DODD RD WALLULA, WA US 99363

T: (402)423-6375

F: (402)423-6661

Contact: RICK DUVALL

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

 $^st$  - 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)

Report Id: TYSWAL [WUSCAR] 06199270 (Generated: 06/09/2024 19:11:13) Rev: 1

Contact/Location: RICK DUVALL - TYSWAL