

# **OIL ANALYSIS REPORT**



## Machine Id 800-101T Component Hydraulic System Fluid SHELL TELLUS T32 (300 GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

## Wear

All component wear rates are normal.

#### Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

# Fluid Condition

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

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0917852	WCI2327798	
Sample Date		Client Info		14 May 2024	16 Mar 2018	
Machine Age	hrs	Client Info		41	627	
Oil Age	hrs	Client Info		0	0	
Oil Changed		Client Info		Filtered	N/A	
Sample Status				NORMAL	NORMAL	
CONTAMINATION	1	method	limit/base	current	history1	history2
Water		WC Method	>0.05	NEG	NEG	
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	0	<1	
Chromium	ppm	ASTM D5185m	>20	0	<1	
Nickel	ppm	ASTM D5185m	>20	0	0	
Titanium	ppm	ASTM D5185m		0	0	
Silver	ppm	ASTM D5185m		<1	0	
Aluminum	ppm	ASTM D5185m	>20	0	2	
Lead	ppm	ASTM D5185m	>20	0	0	
Copper	ppm	ASTM D5185m	>20	<1	2	
Tin	ppm	ASTM D5185m	>20	0	<1	
Antimony	ppm	ASTM D5185m			1	
Vanadium	ppm	ASTM D5185m		<1	0	
Cadmium	ppm	ASTM D5185m		0	0	
	1-1-			•	U	
ADDITIVES	PP	method	limit/base	current	history1	history2
	ppm		limit/base			history2
ADDITIVES		method	limit/base	current	history1	
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 3	
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current 0 <1	history1 3 <1	
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 0 <1 0	history1 3 <1 <1	
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 0 <1 0 0	history1 3 <1 <1 <1	 
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		Current 0 <1 0 0 44	history1 3 <1 <1 <1 <1 16	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	48	Current 0 <1 0 0 0 44 10	history1 3 <1 <1 <1 <1 16 52	   
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	48 337	Current 0 <1 0 0 44 10 322	history1 3 <1 <1 <1 <1 16 52 316	   
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	48 337 426	Current 0 <1 0 0 44 10 322 253	history1 3 <1 <1 <1 <1 16 52 316 266	    
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	48 337 426 2280 limit/base	Current 0 <1 0 0 44 10 322 253 728	history1 3 <1 <1 <1 16 52 316 266 2198	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	48 337 426 2280 limit/base	Current 0 <1 0 0 44 10 322 253 728 Current	history1 3 <1 <1 <1 16 52 316 266 2198 history1	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	48 337 426 2280 Iimit/base >15	current           0           <1           0           0           44           10           322           253           728           current           <1	history1         3         <1         <1         <1         52         316         266         2198         history1	     history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	48 337 426 2280 Iimit/base >15	current           0           <1           0           44           10           322           253           728           current           <1           2	history1         3         <1         <1         <1         52         316         266         2198         history1         1         2	    history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	48 337 426 2280 limit/base >15 >20	current           0           <1           0           44           10           322           253           728           current           <1           2           <1           2           <0	history1         3         <1         <1         <1         52         316         266         2198         history1         1         2         <1	    history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method         ASTM D5185m	48 337 426 2280 <b>limit/base</b> >15 >20 <b>limit/base</b>	current           0           <1           0           44           10           322           253           728           current           <1           2           0           <1           2           0           current           112	history1         3         <1         <1         <1         52         316         266         2198         history1         1         2         <1         4         1         2         <1         history1	     history2    history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method         ASTM D5185m	48 337 426 2280 limit/base >15 >20 limit/base >20	current           0           <1           0           44           10           322           253           728           current           <1           2           0           <1           2           0           current           <1           2           0           current	history1         3         <1         <1         <1         52         316         266         2198         history1         1         2         <1         1         2         <1         247	     history2   history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method         ASTM D5185m	48 337 426 2280 limit/base >15 >20 limit/base >2500 >320 >320 >80	current         0         <1         0         44         10         322         253         728         current         <1         2         0         <1         2         0         current         1112         37	history1         3         <1         <1         <1         52         316         266         2198         history1         1         2         <1         1         2         <1         59	history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method         ASTM D5185m	48 337 426 2280 limit/base >15 >20 limit/base >2500 >320 >320 >80	current         0         <1         0         44         10         322         253         728         current         <1         2         0         <1         2         0         current         1112         37         4	history1         3         <1         <1         <1         52         316         266         2198         history1         1         2         <1         1         2         <1         59         6	    history2    history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method         ASTM D5185m         ASTM D7647         ASTM D7647         ASTM D7647         ASTM D7647         ASTM D7647	48 337 426 2280 imit/base >15 >20 imit/base >200 >320 >80 >20 >20 >4	current         0         <1         0         44         10         322         253         728         current         <1         2         0         current         1112         37         4         1	history1         3         <1         <1         <1         52         316         266         2198         history1         1         2         <1         4         1         2         <1         1         2         <1         1         2         <1         bistory1         247         59         6         3	    history2  history2  history2

ISO 4406 (c) >18/15/13

17/12/9

**Oil Cleanliness** 

15/13/10



# **OIL ANALYSIS REPORT**

Particle Trend			FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
anoma 4μm			Acid Number (AN)	mg KOH/g	ASTM D8045	.6	0.37	0.360	
2k - 14μm			VISUAL		method	limit/base	current	history1	history2
te 2k			White Metal	scalar	*Visual	NONE	NONE	NONE	
Jo Jagumu 1k			Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
			Precipitate	scalar	*Visual	NONE	NONE	NONE	
UK		4/24	Silt	scalar	*Visual	NONE	NONE	NONE	
Mar1 6/18		May14/24	Debris	scalar	*Visual	NONE	NONE	NONE	
Acid Number			Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
0.70			Appearance	scalar	*Visual	NORML	NORML	NORML	
0.60 Base			Odor	scalar	*Visual	NORML	NORML	NORML	
0.50			Emulsified Water	scalar	*Visual	>0.05	NEG	NEG	
			Free Water	scalar	*Visual		NEG	NEG	
0.20			FLUID PROPERT	TIES	method	limit/base	current	history1	history2
0.10			Visc @ 40°C	cSt	ASTM D445	32.21	32.7	34.01	
Mar16/18		May14/24	SAMPLE IMAGE	S	method	limit/base	current	history1	history2
Viscosity @ 40°	°C	PW	Color						no image
34 - Base 32 - Base 30 - Abnormal			Bottom						no image
28			GRAPHS						
Mar16/18 -		tor.	Ferrous Alloys				Particle Count		
Mari		h.h	10 iron			491,520			1 <sup>26</sup>
Particle Trend			E. 5-			122,880			-24
3k						30,720	Severe		-22
$\overline{E}^{3k} - \frac{4\mu m}{14\mu m}$			0			= 7,680			-20 2
2 k			Mar16/18			s (per 1 m) \$	Abnormal		10 4408
						User [per ]		-1	10 1999
1k			Non-ferrous Meta	ls		May 14/24 May 14/24 1.900 1.0000 1.00000 1.0000 1.0000 1.0000 1.0000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.0000000 1.00000 1.0000000 1.00000000	1		-20 4406:1999 Cleanliness -16 Cleanliness -16 -14
			copper			ມ ຊື່ 120-		•	
0k⊥ <del>constantionstan E</del>		č.	E 5-			30			-12 Gd
Mar16/18		1 FW				8			+10
		-	0			+z 2			-8
			Mar16			May14/24			
			– Viscosity @ 40°C			∠ 0	ہوں Acid Number	14μ 21μ	38µ 71µ
			40 T			\$0.80	Τ		
			C 35 Base			(DHO) BW 0.60	Base		
			중 30 - Abnormal			5 U.4U		<u></u>	
						0.20			
			25 L				18//8		4/24 -
			Mar16/18			May14/24	Mar16/18		May14,/24
	Certificate L2367	Sample No. Lab Number Unique Number Test Package	: 11032616	Recei Teste Diagn	ved : 16 d : 17 osed : 17	6 May 2024 7 May 2024 May 2024 - W		RI	) S FRONT ST CHLANDS, VA US 24641 Mark McKinley

Contact/Location: Mark McKinley - SPAFRA