

OIL ANALYSIS REPORT



Machine Id 123 Component Hydraulic System SHELL TELLUS 68 (42 GAL)

DIAGNOSIS

A Recommendation

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

Wear

All component wear rates are normal.

Contamination

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

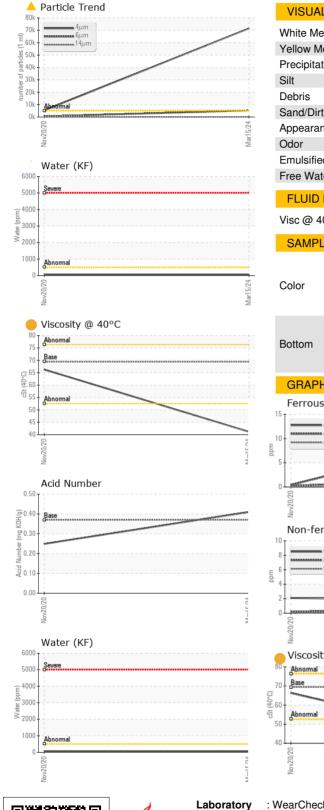
Fluid Condition

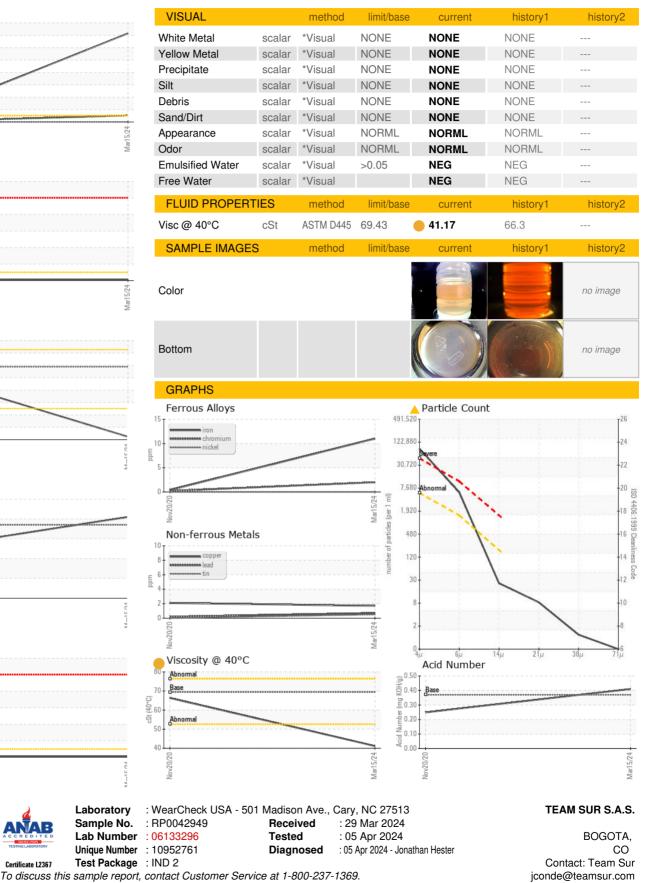
Viscosity of sample indicates oil is within ISO 46 range, advise investigate. Confirm oil type. The AN level is acceptable for this fluid.

Sample Number Sample Date Machine Age Machine Age Nrs Oil Age Nrs Oil Age Sample Status VEAR METALS VEAR METALS Iron Chromium pn Chromium pn Chromium pn Silver pn Aluminum pn Lead pn Copper pn Copper pn Cadmium pn Cadmium pn Cadmium pn Cadmium pn Manganese pn Magnesium pn Calcium pn CoNTAMINANTS Silicon pn Sodium pn Contassium pn CoNTAMINANTS Silicon pn CONTAMINANTS Silicon pn CONTAMINANTS Silicon pn CONTAMINANTS Silicon pn Contassium pn Calcium pn Contassium pn Calcium pn Contassium pn Catassium pn Catassi	ASTM D5185r ASTM D5185r	i i i i i >20 i i i i	11 2 0 <1 0 3 <1 2 <1 2 <1 <1 <1	RP202491 20 Nov 2020 25000 25000 ATTENTION history1 <1 <1 0 <1 0 <1 0 <1 0 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <10 <	
Machine AgehrsOil AgehrsOil ChangedhrsSample StatusWEAR METALSpnIronppnChromiumppnNickelppnSilverppnAluminumppnLeadppnCopperppnAntimonyppnAntimonyppnBoronppnBariumppnMagnesiumppnColticumppnSiliconppnSiliconppnSiliconppnSodiumppnCONTAMINANTSppnSiliconppnSudiumppnFLUID CLEANLINESSppnParticles >4µmparticles >6µm	Client Info Client Info Client Info Client Info Client Info ASTM D5185r ASTM D5185r	Iimit/base i >20 <	3795 3795 Not Changd ABNORMAL 2 11 2 0 <1 3 <1 2 <1 2 <1 2 <1 2 <1 <1 <1 <1 <1 <1 0	25000 25000 Not Changd ATTENTION 	 history2 -
Oil AgehrsOil ChangedSample StatusWEAR METALSIronppnChromiumppnNickelppnSilverppnAluminumppnLeadppnCopperppnAntimonyppnVanadiumppnBoronppnManganeseppnMagnesiumppnCoNTAMINANTSppnSiliconppnSoliumppnFLUID CLEANLINESSppnParticles >4µmppnParticles >4µmppn	Client Info Client Info Client Info ASTM D5185r ASTM D5185r	Iimit/base i >20 Imit/base Imit/base	3795 Not Changd ABNORMAL current 11 2 0 <1 0 3 <1 2 <1 2 <1 2 <1 <1 <1 <1 current 0	25000 Not Changd ATTENTION <1	 history2 -
Oil ChangedSample StatusWEAR METALSpnIronppnChromiumppnNickelppnNickelppnSilverppnAluminumppnLeadppnCopperppnAntimonyppnCadmiumppnBoronppnBariumppnManganeseppnMagnesiumppnZincppnSiliconppnSiliconppnSodiumppnSodiumppnSodiumppnFLUID CLEANLINESSParticles >4µmpaticlesParticles >4µmp	Client Info method ASTM D5185r ASTM D5185r	limit/base >20 Imit/base	Not Changd ABNORMAL current 11 2 0 <1 0 3 <1 2 <1 2 <1 2 <1 <1 <1 <1 current 0	Not Changd ATTENTION <1	 history2 -
Sample Status WEAR METALS Iron ppn Chromium ppn Nickel ppn Nickel ppn Silver ppn Aluminum ppn Lead ppn Copper ppn Antimony ppn Vanadium ppn Boron ppn Manganese ppn Magnesium ppn Zinc ppn Silicon ppn Sodium ppn Sodium ppn Potassium ppn Water % ppm Water % Particles >4µm Particles >6µm	method ASTM D5185r ASTM D5185r MASTM D5185r	Iimit/base >20 1 >20 Imit/base	ABNORMAL current 11 2 0 <1 0 3 <1 2 <1 2 <1 <1 <1 <1 current 0	ATTENTION history1 <1 <1 0 <1 0 <1 <1 <21 0 <1 2 0 0 0 0 0 0 history1	 history2 -
WEAR METALS Iron ppm Chromium ppm Nickel ppm Nickel ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Antimony ppm Vanadium ppm Cadmium ppm Boron ppm Manganese ppm Magnesium ppm CoNTAMINANTS Silicon Silicon ppm Sodium ppm Vater % ppm Water % Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r MASTM D5185r	 >20 >20	11 2 0 <1	<1	history2
Iron ppm Chromium ppm Chromium ppm Nickel ppm Titanium ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Antimony ppm Vanadium ppm Cadmium ppm ADDITIVES ppm Boron ppm Manganese ppm Magnesium ppm Zinc ppm Silicon ppm Sodium ppm Potassium ppm Water % ppm FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r MASTM D5185r	 >20 >20	11 2 0 <1 0 3 <1 2 <1 2 <1 <1 <1 <1 current 0	<1 <1 0 <1 0 <1 0 <1 2 0 0 0 0 0 0 0 0 0 history1	
Chromium ppn Nickel ppn Titanium ppn Silver ppn Aluminum ppn Lead ppn Copper ppn Tin ppn Antimony ppn Antimony ppn Cadmium ppn Cadmium ppn ADDITIVES Boron ppn Barium ppn Manganese ppn Manganese ppn Manganese ppn Magnesium ppn Calcium ppn Calcium ppn Calcium ppn Solium ppn Sodium ppn Sodium ppn Potassium ppn Sodium ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r MASTM D5185r	1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 1 1 imit/base	2 0 <1 0 3 <1 2 <1 2 <1 <1 <1 <1 current 0	<1 0 <1 0 <1 2 0 0 0 0 0 0 0 0 0 history1	
Nickel ppn Titanium ppn Silver ppn Aluminum ppn Lead ppn Copper ppn Tin ppn Antimony ppn Antimony ppn Cadmium ppn ADDITIVES Boron ppn Barium ppn Magnesium ppn Magnesium ppn Calcium ppn Calcium ppn Calcium ppn Calcium ppn Silicon ppn Silicon ppn Sodium ppn Sodium ppn Potassium ppn CONTAMINANTS Silicon ppn Sodium ppn Magnes ppn CONTAMINANTS Silicon ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r MASTM D5185r	n >20 n >20 n >20 n >20 n >20 n >20 n >20 n >20 n	0 <1 0 3 <1 2 <1 <1 <1 <1 current 0	0 0 <1 0 <1 2 0 0 0 0 0 history1	 history2
Titanium ppn Silver ppn Aluminum ppn Lead ppn Copper ppn Tin ppn Antimony ppn Vanadium ppn Cadmium ppn ADDITIVES Boron ppn Barium ppn Molybdenum ppn Molybdenum ppn Magnesium ppn Calcium ppn Calcium ppn Calcium ppn Solicon ppn Solicon ppn Sodium ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r MASTM D5185r	i >20	<1 0 3 <1 2 <1 <1 <1 <1 current 0	0 <1 0 <1 2 0 0 0 0 0 0 0 0 0 history1	 history2
Titanium ppn Silver ppn Aluminum ppn Lead ppn Copper ppn Tin ppn Antimony ppn Vanadium ppn Cadmium ppn ADDITIVES ppn Boron ppn Molybdenum ppn Magnesium ppn CoNTAMINANTS ppn Silicon ppn Sodium ppn Potassium ppn Water % ppn Water % Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r MASTM D5185r	1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 1 limit/base	0 3 <1 2 <1 <1 <1 <1 current 0	<1 0 <1 2 0 0 0 0 0 0 0 0 history1	 history2
Silver ppn Aluminum ppn Lead ppn Copper ppn Tin ppn Antimony ppn Cadmium ppn Cadmium ppn ADDITIVES Boron ppn Barium ppn Molybdenum ppn Manganese ppn Manganese ppn Magnesium ppn Calcium ppn Calcium ppn Calcium ppn Solicon ppn Solicon ppn Solicon ppn Fhosphorus ppn CONTAMINANTS Silicon ppn Sodium ppn Potassium ppn Potassium ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r MASTM D5185r Method	1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1 1 limit/base	3 <1 2 <1 <1 <1 current 0	0 <1 2 0 0 0 0 0 0 history1	 history2
Aluminum ppn Lead ppn Copper ppn Tin ppn Antimony ppn Vanadium ppn Cadmium ppn ADDITIVES Boron ppn Barium ppn Malganese ppn Manganese ppn Manganese ppn Manganese ppn Calcium ppn Calcium ppn Calcium ppn Calcium ppn Solicon ppn Solicon ppn Sodium ppn Phosphorus ppn CONTAMINANTS Silicon ppn Sodium ppn Potassium ppn Potassium ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r MASTM D5185r MASTM D5185r	1 >20 1 >20 1 >20 1 >20 1 >20 1 >20 1	3 <1 2 <1 <1 <1 current 0	0 <1 2 0 0 0 0 0 0 history1	 history2
Lead ppn Copper ppn Tin ppn Antimony ppn Vanadium ppn Cadmium ppn ADDITIVES Boron ppn Barium ppn Molybdenum ppn Manganese ppn Manganese ppn Calcium ppn Calcium ppn Calcium ppn Calcium ppn Solium ppn CONTAMINANTS Silicon ppn Sodium ppn Potassium ppn Potassium ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r method	1 >20 1 >20 1 >20 1 >20 1 	<1 2 <1 <1 <1 <1 current 0	<1 2 0 0 0 0 0 0 0 history1	 history2
Copper ppn Copper ppn Tin ppn Antimony ppn Antimony ppn Cadmium ppn Cadmium ppn ADDITIVES Boron Boron ppn Manganese ppn Magnesium ppn Calcium ppn Zinc ppn Solicon ppn Solicon ppn Sodium ppn Vater % ppm Water ppn FLUID CLEANLINESS Particles >4µm Particles >6µm [ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r method	1 >20 1 >20 1 	2 <1 <1 <1 <1 current 0	2 0 0 0 0 0 history1	 history2
Tin ppm Antimony ppm Antimony ppm Vanadium ppm Cadmium ppm ADDITIVES ppm Boron ppm Barium ppm Malganese ppm Magnesium ppm Contamination ppm Zinc ppm Silicon ppm Sodium ppm Potassium ppm Water % opm Water ppm FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r method	1 >20 1 1 1 1 1 1 1 1	<1 <1 <1 current 0	0 0 0 0 history1	 history2
Antimony ppn Vanadium ppn Cadmium ppn ADDITIVES Boron ppn Barium ppn Molybdenum ppn Magnesium ppn Calcium ppn Calcium ppn Zinc ppn CONTAMINANTS ppn Sodium ppn Sodium ppn Potassium ppn Potassium ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r ASTM D5185r ASTM D5185r method	I Imit/base	 <1 <1 current 0	0 0 0 history1	 history2
Vanadium ppm Cadmium ppm ADDITIVES ppm Boron ppm Barium ppm Molybdenum ppm Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm Silicon ppm Sodium ppm Potassium ppm Water % ppm Water ppm FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r ASTM D5185r method	limit/base	<1 <1 current 0	0 0 history1	 history2
Cadmium ppn ADDITIVES ppn Boron ppn Barium ppn Molybdenum ppn Manganese ppn Magnesium ppn Calcium ppn Phosphorus ppn Zinc ppn Silicon ppn Sodium ppn Potassium ppn Water % ppm Water ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	n ASTM D5185r method	ו limit/base	<1 current 0	0 history1	 history2
ADDITIVES Boron ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm Sodium ppm Sodium ppm Potassium ppm Water % ppm Water ppm FLUID CLEANLINESS Particles >4µm Particles >6µm []	method	limit/base	current 0	history1	history2
Boron ppn Barium ppn Molybdenum ppn Manganese ppn Magnesium ppn Calcium ppn Zinc ppn CONTAMINANTS Silicon ppn Sodium ppn Potassium ppn Water % ppm Water ppn FLUID CLEANLINESS Particles >4µm Particles >6µm		1	0		
Barium ppn Molybdenum ppn Manganese ppn Magnesium ppn Calcium ppn Calcium ppn Zinc ppn CONTAMINANTS Silicon ppn Sodium ppn Potassium ppn Water % ppm Water % ppm Water ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	1 ASTM D5185r	1		0	
Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Calcium ppm Zinc ppm CONTAMINANTS Silicon ppm Sodium ppm Potassium ppm Water % opm Water ppm FLUID CLEANLINESS Particles >4µm Particles >6µm			<1		
Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm CONTAMINANTS Silicon Sodium ppm Potassium ppm Water % opm Water % PLUID CLEANLINESS Particles >4μm Particles >6μm	n ASTM D5185r			0	
Magnesium ppn Calcium ppn Phosphorus ppn Zinc ppn CONTAMINANTS Silicon Solicon ppn Sodium ppn Potassium ppn Water % opm Water ppn FLUID CLEANLINESS Particles >4μm Particles >6μm	n ASTM D5185r	1	<1	<1	
Calcium ppn Phosphorus ppn Zinc ppn CONTAMINANTS Silicon ppn Sodium ppn Potassium ppn Water % ppm Water ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r	1	<1	0	
Phosphorus ppn Zinc ppn CONTAMINANTS Silicon ppn Sodium ppn Potassium ppn Water % ppm Water ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	n ASTM D5185r	n 11	4	<1	
Zinc ppn CONTAMINANTS Silicon ppn Sodium ppn Potassium ppn Water % ppm Water ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	ASTM D5185r	n 39	210	34	
CONTAMINANTS Silicon ppm Sodium ppm Potassium ppm Water % ppm Water ppm FLUID CLEANLINESS Particles >4µm Particles >6µm	n ASTM D5185r	260	324	297	
Silicon ppn Sodium ppn Potassium ppn Water % ppm Water ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	n ASTM D5185r	1 279	396	361	
Sodium ppn Potassium ppn Water % ppm Water ppn FLUID CLEANLINESS Particles >4µm Particles >6µm	method	limit/base	current	history1	history2
Potassium ppm Water % ppm Water ppm FLUID CLEANLINESS Particles >4µm Particles >6µm	n ASTM D5185r	ı > 1 5	6	0	
Water % ppm Water ppm FLUID CLEANLINESS Particles >4µm Particles >6µm	n ASTM D5185r	1	0	0	
ppm Water ppm FLUID CLEANLINESS Particles >4µm Particles >6µm	n ASTM D5185r	n >20	2	<1	
FLUID CLEANLINESS Particles >4μm Particles >6μm	ASTM D6304	4 >0.05	0.004	0.004	
Particles >4μm Particles >6μm	ASTM D6304	+ >500	49	47.5	
Particles >6µm	method	limit/base	current	history1	history2
	ASTM D764	7 >5000	A 71559	5347	
	107117	7 >1300	<u> </u>	526	
	ASTM D764	7 >160	22	23	
Particles >21µm	ASTM D764 ASTM D764	7 >40	7	7	
Particles >38µm	ASTM D764		1	0	
Particles >71µm	ASTM D764 ASTM D764	-			
Oil Cleanliness	ASTM D764 ASTM D764 ASTM D764	7 >3		0	
FLUID DEGRADATION	ASTM D764 ASTM D764		0	0	
Acid Number (AN) mg K	ASTM D764 ASTM D764 ASTM D764 ASTM D764 ISO 4406 (c		0 ▲ 23/20/12		 history2



OIL ANALYSIS REPORT





* - 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: TEABOG [WUSCAR] 06133296 (Generated: 04/05/2024 22:47:26) Rev: 1

Certificate 12367

Sample No.

Submitted By: Team Sur Page 2 of 2

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