

# **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id ES012 Component Auxiliary Hydraulic System Fluid AW HYDRAULIC OIL ISO 46 (--- GAL)

# DIAGNOSIS

### Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) AW HYDRAULIC OIL ISO 46. Please confirm. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

## 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.

				Mar2024		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0914614		
Sample Date		Client Info		11 Mar 2024		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINATIO	N	method	limit/base	current	history1	history2
Water		WC Method	>0.05	NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	0		
Chromium	ppm	ASTM D5185(m)	>20	0		
Nickel	ppm	ASTM D5185(m)	>20	<1		
Titanium	ppm	ASTM D5185(m)		0		
Silver	ppm	ASTM D5185(m)		0		
Aluminum	ppm	ASTM D5185(m)	>20	<1		
Lead	ppm	ASTM D5185(m)	>20	<1		
Copper	ppm	ASTM D5185(m)	>20	17		
Tin	ppm	ASTM D5185(m)	>20	0		
Antimony	ppm	ASTM D5185(m)		0		
Vanadium	ppm	ASTM D5185(m)		0		
Beryllium	ppm	ASTM D5185(m)		0		
Cadmium	ppm	ASTM D5185(m)		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base 5	current <1	history1	history2
	ppm ppm				history1 	
Boron		ASTM D5185(m)	5	<1		
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	5 5	<1 <1		
Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5	<1 <1 0		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5	<1 <1 0 0		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25	<1 <1 0 0 <1		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200	<1 <1 0 0 <1 19	  	  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300	<1 <1 0 <1 19 327	  	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300 370	<1 <1 0 0 <1 19 327 393	    	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300 370	<1 <1 0 <1 19 327 393 899	    	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500	<1 <1 0 <1 19 327 393 899 <1		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500	<1 <ul> <li>&lt;1</li> <li>0</li> <li>0</li> <li>&lt;1</li> <li>19</li> <li>327</li> <li>393</li> <li>899</li> <li>&lt;1</li> </ul>	      history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m)	5 5 25 200 300 370 2500	<1 <1 0 <1 19 327 393 899 <1 <b>current</b> 0	      history1 	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300 370 2500 <b>limit/base</b> >15	<1 <1 0 0 <1 1 19 327 393 899 <1 Current 0 0 0	      history1	       history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 200 300 370 2500 2500 <b>limit/base</b> >15	<1 <1 0 0 <1 19 327 393 899 <1 current 0 0 0 <1	      history1  	      history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 200 300 370 2500 2500 <b>limit/base</b> >25 20	<1 <ul> <li>&lt;1</li> <li>0</li> <li>0</li> <li>&lt;1</li> <li>19</li> <li>327</li> <li>393</li> <li>899</li> <li>&lt;1</li> </ul> Current <ul> <li>0</li> <li>0</li> <li>&lt;1</li> </ul>	      history1   history1	      history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 200 300 370 2500 2500 <b>imit/base</b> >20 <b>imit/base</b>	<1 <ul> <li>&lt;1</li> <li>0</li> <li>0</li> <li>&lt;1</li> <li>19</li> <li>327</li> <li>393</li> <li>899</li> <li>&lt;1</li> </ul> Current <ul> <li>0</li> <li>0</li> <li>&lt;1</li> <li>current</li> <li>995</li> </ul>	      history1  history1  history1	      history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 200 300 370 2500 2500 <b>limit/base</b> >20 <b>limit/base</b> >5000 >1300	<1 <1 0 0 <1 19 327 393 899 <1 <i>current</i> 0 0 <1 <i>current</i> 995 279	      history1   history1  history1	      history2  history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	5 5 5 200 300 370 2500 2500 binit/base >15 20 binit/base >5000 >1300 >160	<1 <1 0 0 <1 19 327 393 899 <1 <i>current</i> 0 0 <1 <i>current</i> 995 279 24	       history1  history1	      history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Potassium Particles >4µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	5 5 5 200 300 370 2500 2500 <b>limit/base</b> >15 20 <b>limit/base</b> >5000 >1300 >160 >40	<1 <ul> <li>&lt;1</li> <li>0</li> <li>0</li> <li>&lt;1</li> <li>19</li> <li>327</li> <li>393</li> <li>899</li> <li>&lt;1</li> </ul> Current <ul> <li>0</li> <li>0</li> <li>&lt;1</li> <li>current</li> <li>995</li> <li>279</li> <li>24</li> <li>7</li> </ul>	       history1  history1  history1	       history2  history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	5 5 5 25 200 300 370 2500 2500 <b>imit/base</b> >15 >20 <b>imit/base</b> >5000 >1300 >160 >40 >10	<1 <ul> <li>&lt;1</li> <li>0</li> <li>0</li> <li>&lt;1</li> <li>19</li> <li>327</li> <li>393</li> <li>899</li> <li>&lt;1</li> </ul> Current <ul> <li>0</li> <li>0</li> <li>&lt;1</li> <li>current</li> <li>995</li> <li>279</li> <li>24</li> <li>7</li> <li>1</li> </ul>	       history1  history1  history1	        history2  history2  history2



# **OIL ANALYSIS REPORT**

<del>μοποιπια 4</del> μm 		FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
55555555555555555555555555555555555555		Acid Number (AN)	mg KOH/g	ASTM D974*	0.57	0.44		
		VISUAL		method	limit/base	current	history1	history2
		White Metal	scalar	Visual*	NONE	NONE		
		Yellow Metal	scalar	Visual*	NONE	NONE		
		Precipitate	scalar	Visual*	NONE	NONE		
	Mar11/24 -	Silt	scalar	Visual*	NONE	NONE		
	Mar	Debris	scalar	Visual*	NONE	NONE		
cid Number		Sand/Dirt	scalar	Visual*	NONE	NONE		
bnormal		Appearance Odor	scalar	Visual* Visual*	NORML NORML	NORML NORML		
		Emulsified Water	scalar scalar	Visual*	>0.05	NEG		
Base		Free Water	scalar	Visual*	20.00	NEG		
		FLUID PROPERT	IES	method	limit/base	current	history1	history2
nomal		Visc @ 40°C	cSt	ASTM D7279(m)	46	43.4		
	/24	SAMPLE IMAGE		method	limit/base	current	history1	history2
	Mar11/24		5	method	inni/base	23333 )	Thistory	mstoryz
scosity @ 40°C		Calar				WC0914614		
normal		Color					no image	no image
150								
		Bottom					no image	no image
omal								
normal		GRAPHS						
	P. F.	Ferrous Alloys				Particle Count		1 - 63
	M	10 iron 1			491,520			T <sup>26</sup>
article Trend		E 5- mickel			122,880	Severe		-24
<del>ononna </del> 4µm					30,720	· · · · ·		-22
6μm 14μm		042			동 = 7,680	Abnormal		-20
		Mar11/24			Mar11/24	1 may 1 m	· •	-20 -18 -16 -14
		Non-ferrous Metal	s		✓ sappit 480.	1		-16
		<sup>20</sup>					•	+14
		15- E 10-			quint		<hr/>	-12
	VC II	8 10 - 5						
	. W.W.							+10
		Mar11/2 <sup>,</sup>			-2 Mar11/24	•		
		≊ Viscosity @ 40°C			≥ <sub>0.</sub>	и 6µ	14µ 21µ	38µ 71µ
		55 T			\$1.00	Acid Number		
	Ş	50 - Base 45 - Base			a KOH			
	007	45 + Base			40, Hot Windows (Million (Mill	Base		
		40 - Abnormal			Num N	Abnormal		
		35			-00.0 Aci.	1/24		
		Mar11/24				Mar11/		

Contact/Location: Sandip Patel - AMCMIS