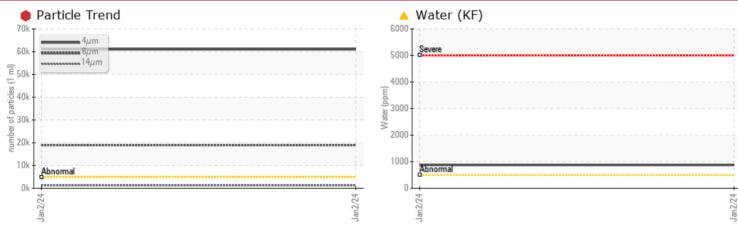


## **PROBLEM SUMMARY**

# NO UNIT PC321172

Hydraulic System Fluid AW HYDRAULIC OIL ISO 32 (--- GAL)

## COMPONENT CONDITION SUMMARY



### 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. Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use offline filtration with water adsorbent filters to attempt to remove the water from this oil. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Resample in 30-45 days to monitor this situation. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) AW HYDRAULIC OIL ISO 32. Please confirm. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Customer Id: ELEBAR Sample No.: PC321172 Lab Number: 02613438 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Bill Quesnel CLS,OMA II,MLA-III,LLA-I +1 (289)291-4641 x4641 Bill.Quesnel@wearcheck.com

To change component or sample information: Gloria Gonzalez +1 (289)291-4643 x4643 gloria.gonzalez@wearcheck.com

## PROBLEMATIC TEST RESULTS

Sample Status				SEVERE			
Water	%	ASTM D6304*	>0.05	<u> </u>			
ppm Water	ppm	ASTM D6304*	>500	<b>A</b> 874			
Particles >4µm		ASTM D7647	>5000	61001			
Particles >6µm		ASTM D7647	>1300	🛑 18967			
Particles >14µm		ASTM D7647	>160	🔺 1186			
Particles >21µm		ASTM D7647	>40	🔺 162			
Oil Cleanliness		ISO 4406 (c)	>19/17/14	<b>e</b> 23/21/17			

## Sample Rating Trend

RECOMMENDED ACTIONS								
Action	Status	Date	Done By	Description				
Change Filter			?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.				
Resample			?	Resample in 30-45 days to monitor this situation.				
Alert			?	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.				
Information Required			?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.				
Check Breathers			?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.				
Check Dirt Access			?	We advise that you check all areas where contaminants can enter the system.				
Check Seals			?	Check seals and/or filters for points of contaminant entry.				
Filter Fluid			?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.				

HISTORICAL DIAGNOSIS



## **OIL ANALYSIS REPORT**



# NO UNIT PC321172

Hydraulic System Fluid AW HYDRAULIC OIL ISO 32 (--- 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. Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Resample in 30-45 days to monitor this situation. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) AW HYDRAULIC OIL ISO 32. 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

There is a high amount of particulates (2 to 100 microns in size) present in the oil. There is a moderate concentration of water present in the oil.

### **Fluid Condition**

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PC321172		
Sample Date		Client Info		02 Jan 2024		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				SEVERE		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	11		
Chromium	ppm	ASTM D5185(m)	>20	0		
Nickel	ppm	ASTM D5185(m)	>20	0		
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	4		
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
Boron	ppm	ASTM D5185(m)	5	<1		
Barium	ppm	ASTM D5185(m)	5	2		
Molybdenum	ppm	ASTM D5185(m)	5	0		
Manganese	ppm	ASTM D5185(m)		0		
Magnesium	ppm	ASTM D5185(m)	25	2		
Calcium	ppm	ASTM D5185(m)	200	23		
Phosphorus	ppm	ASTM D5185(m)	300	307		
Zinc	0000			•••		
	ppm	ASTM D5185(m)	370	281		
Sulfur	ppm	ASTM D5185(m) ASTM D5185(m)				
Sulfur Lithium			370	281		
	ppm ppm	ASTM D5185(m)	370	281 903		
Lithium	ppm ppm	ASTM D5185(m) ASTM D5185(m)	370 2500 limit/base	281 903 <1		
Lithium CONTAMINAN	ppm ppm TS	ASTM D5185(m) ASTM D5185(m) method	370 2500 limit/base >15	281 903 <1 current		
Lithium CONTAMINAN Silicon	ppm ppm TS ppm	ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m)	370 2500 limit/base >15	281 903 <1 current <1	  history1	  history2
Lithium CONTAMINAN Silicon Sodium	ppm ppm TS ppm ppm	ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m) ASTM D5185(m)	370 2500 limit/base >15	281 903 <1 <u>current</u> <1 13	  history1 	  history2 
Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm TS ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	370 2500 limit/base >15 >20	281 903 <1 <u>current</u> <1 13 2	  history1  	 history2
Lithium CONTAMINAN Silicon Sodium Potassium Water	ppm ppm TS ppm ppm ppm % ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5304* ASTM D6304*	370 2500 limit/base >15 >20 >0.05	281 903 <1 current <1 13 2 2 ▲ 0.087	 history1   	  history2  
Lithium CONTAMINAN Silicon Sodium Potassium Water ppm Water	ppm ppm TS ppm ppm ppm % ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5304* ASTM D6304*	370 2500 Imit/base >15 >20 >0.05 >500	281 903 <1 current <1 13 2 ▲ 0.087 ▲ 874	 history1    	 history2
Lithium CONTAMINAN Silicon Sodium Potassium Water ppm Water FLUID CLEANL	ppm ppm TS ppm ppm ppm % ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304*	370 2500 limit/base >15 >20 >0.05 >500 limit/base	281 903 <1 <b>Current</b> <1 13 2 ▲ 0.087 ▲ 874	 history1     history1	 history2     history2
Lithium CONTAMINAN Silicon Sodium Potassium Water ppm Water FLUID CLEANL Particles >4µm	ppm ppm TS ppm ppm ppm % ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D6304* ASTM D6304	370 2500 limit/base >15 >20 >0.05 >500 limit/base >5000	281 903 <1 current <1 13 2 ▲ 0.087 ▲ 874 current € 61001	  history1    history1 	  history2     history2 
Lithium CONTAMINAN Silicon Sodium Potassium Water ppm Water FLUID CLEANL Particles >4µm Particles >6µm	ppm ppm TS ppm ppm ppm % ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647	370 2500 <b>limit/base</b> >15 >20 >20 >500 <b>limit/base</b> >5000 >1300	281 903 <1 current <1 13 2 ▲ 0.087 ▲ 874 current € 61001 ● 18967	 history1     history1 	 history2
Lithium CONTAMINAN Silicon Sodium Potassium Water ppm Water FLUID CLEANL Particles >4µm Particles >6µm Particles >14µm Particles >21µm	ppm ppm TS ppm ppm ppm % ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5304* ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647 ASTM D7647	370 2500 limit/base >15 >20 >0.05 >500 limit/base >5000 >1300 >160	281 903 <1 current <1 13 2 ▲ 0.087 ▲ 874 Current € 61001 € 18967 ▲ 1186	 history1     history1  	 history2    history2 history2
Lithium CONTAMINAN Silicon Sodium Potassium Water ppm Water FLUID CLEANL Particles >4µm Particles >6µm Particles >14µm	ppm ppm TS ppm ppm ppm % ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5304* ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	370 2500 2500 imit/base >15 >20 >0.05 >500 imit/base >5000 >1300 >160 >40	281 903 <1 <1 <1 13 2 ▲ 0.087 ▲ 874 Current € 61001 ● 61001 ● 18967 ▲ 1186 ▲ 162	  history1    history1  history1 	 history2     history2  



6000 Sever 5000 - 4000 ng) <sup>2</sup> 3000 3000 Vater ( 1000 Abno 0. Jan2/24

# **OIL ANALYSIS REPORT**

70k -	Particle Trend	FLUID DEGRA		method	limit/base	current	history1	history2
60k.	4μm	Acid Number (AN)	mg KOH/g	ASTM D974*	0.57	0.38		
50k ·		VISUAL		method	limit/base	current	history1	history2
pitted to 30k								motory
ang 20k ·		White Metal	scalar	Visual*	NONE	NONE		
10k •	Abnormal	Yellow Metal Precipitate	scalar scalar	Visual* Visual*	NONE	NONE		
0k -		Silt	scalar	Visual*	NONE	NONE		
	Jan 2/24 Jan 2/24	Debris	scalar	Visual*	NONE	NONE		
		Sand/Dirt	scalar	Visual*	NONE	NONE		
6000-	Water (KF)	Appearance	scalar	Visual*	NORML	NORML		
5000.	Severe	Odor	scalar	Visual*	NORML	NORML		
- 4000 •		Emulsified Water	scalar	Visual*	>0.05	.2%		
3000 -		Free Water	scalar	Visual*		NEG		
2000.		FLUID PROPE	RTIES	method	limit/base	current	history1	history2
1000.	Abnormal	Visc @ 40°C	cSt	ASTM D7279(m)	32	35.2		
0-	24	Visc @ 100°C	cSt	ASTM D7279(m)	5.4	5.9		
	Jan 2./24 Jan 2./24	Viscosity Index (VI)	Scale	ASTM D2270*	102	110		
	Viscosity @ 10000	SAMPLE IMAC	ES	method	limit/base	current	history1	history2
7.5	Viscosity @ 100°C							
7.								
6.5 ·	Abnormal	Color					no image	no image
cSt (100°C)	Base							
	Abnormal							
4.5		Bottom					no image	no image
3.5								
	Jan 2/24 Jan 2/24	GRAPHS						
		GILAITIS						
	Acid Number	Ferrous Alloys				Particle Count		
1.00	Acid Number Abnomal	Ferrous Alloys			491,520	Particle Count		<sup>26</sup>
		Ferrous Alloys				Particle Count		T <sup>26</sup> +24
(B)0.80 -		Ferrous Alloys			491,520 122,880 30,720	Particle Count		-22
(B/UON BU)	Abnormal	Ferrous Alloys			491,520 122,880 30,720	Particle Count		-22
(B/UOV BW) Jacobinson	Abnormal Base	Ferrous Alloys			491,520 122,880 30,720	Severe		-22
(B/UOV BW) Jacobinson	Abnormal	Ferrous Alloys	5		491,520 122,880 30,720	Abnormal		
(B/UOV BW) Jacobinson	Abnomal Base Abnomal	Ferrous Alloys	ls		491,520 122,880 30,720 122,800 122,880 30,720 122,800 123,800	Abnormal		-22
(B/UOV BW) Jacobinson	Abnormal Base	Ferrous Alloys	ls		491,520 122,880 30,720 File 7,680 FUCUER FOR 1,920 September 480	Abnormal		-22 -20 4406:1999 -16 Cleanlines -16 -14
(B/UOV BW) Jacobinson	Abnomal Base Abnomal Abnomal	Ferrous Alloys	s		491,520 122,880 30,720 122,800 122,880 30,720 122,800 123,800	Abnormal		-22
(B/UOV BW) Jacobinson	Abnomal Base Abnomal	Ferrous Alloys	ls		491,520 122,880 30,720 122,800 122,800 122,800 122,800 122,800 122,800 122,800 120 120 120 120 120 120 120 120 120 1	Abnormal		-22 ISO 4406:1999 Cleanlines -16 Cleanlines -14 -14
(100.80 - 0.60 - 0.40 - 0.20 - 0.00 - 7.5 - 7.	Abnomal Base Abnomal Viscosity @ 100°C	Ferrous Alloys	ls		491,520 122,880 30,720 122,800 122,880 30,720 122,800 123,800	Abnormal	144 214	-22 -20 406:1999 Cleantiness Code -16 Code -12 Code -10 -10 -10
(B0.80 - (B0.00 - (B0	Abnomal Base Abnomal Abnomal	Ferrous Alloys	s		491,520 122,880 30,720 +272uer +272uer +272uer +272uer +272uer +272uer +272uer 9 +272uer 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Abnormal	14μ 21μ	-22 -20 4406:1999 -16 Cleanlines -16 -14
(B0.80 - (B0.00 - (B0	Abnomal Base Abnomal Viscosity @ 100°C	Ferrous Alloys	s		491,520 122,880 30,720 +272uer +272uer +272uer +272uer +272uer +272uer +272uer 9 +272uer 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Abnormal	14μ 21μ	-22 20 406:1999 Cleanliness Code -18 1999 Cleanliness Code -12 Code -12 Code -10 -10
(10.80 - 0.80 - 0.60 - 0.20 -	Abnomal Base Abnomal Viscosity @ 100°C	Ferrous Alloys	ls		491,520 122,880 30,720 +272uer +272uer +272uer +272uer +272uer +272uer +272uer 9 +272uer 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Abnormal	14μ 21μ	-22 20 406:1999 Cleanliness Code -18 1999 Cleanliness Code -12 Code -12 Code -10 -10
(B0.80 - (B0.00 - (B0	Abnomal Base Abnomal Viscosity @ 100°C Abnomal Base	Ferrous Alloys	ls		491,520 122,880 30,720 +272uer +272uer +272uer +272uer +272uer +272uer +272uer 9 +272uer 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Abnormal	14μ 21μ	-22 20 406:1999 Cleanliness Code -18 1999 Cleanliness Code -12 Code -12 Code -10 -10
(10.80 - 0.80 - 0.60 - 0.20 -	Abnomal Abnomal Viscosity @ 100°C Abnomal Base Abnomal	Ferrous Alloys	S		491,520 122,880 30,720 FUC [iii ] 30,720 FUC [iii ] 30,720 FUC [iii ] 30,720 FUC [iii ] 30,720 FUC [iii ] 7,680 480 480 480 480 480 480 480 480 480 4	Abnormal Abnormal Acid Number Abnormal Base	14μ 21μ	-22 20 4406:1999 CleanInness Code -16 CleanInness Code -10 -10 -8 -6 -38μ 71μ
(0.0.80 (0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.20 0.00 0.20 0.00 0.20 0.	Abnomal Base Abnomal Viscosity @ 100°C Abnomal Base	Ferrous Alloys	S		491,520 122,880 30,720 +272uer +272uer +272uer +272uer +272uer +272uer +272uer 9 +272uer 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Abnormal	14μ 21μ	-22 20 406:1999 Cleanliness Code -18 1999 Cleanliness Code -12 Code -12 Code -10 -10
(D.0.80- (D.0.00 0.600- 0.400 0.400- 0.200- 7.5- 6.5- 6.5- 6.5- 6.5- 6.5- 7- 6.5- 6.5- 7- 6.5- 6.5- 7- 7- 6.5- 7- 7- 7- 8.5- 7- 7- 8.5- 7- 8.5- 7- 8.5- 7- 8.5- 7- 8.5- 7- 8.5- 7- 8.5- 7- 8.5-	Abnomal Abnomal Viscosity @ 100°C Abnomal Base Abnomal	Ferrous Alloys Non-ferrous Meta Viscosity @ 40°C Viscosity @ 40°C	75 Apple Recieved Diagnost Diagnost ests: KF, ice at 1-8	d : 05   ed : 06   ician : Bill KV100, VI ) 200-268-213	491,520 122,880 30,720 400 400 400 400 400 400 400 4	Abnormal Abnormal Acid Number Abnormal Base Abnormal	ELEVA 26 Contact: djanssen@	-22 20 406:1999 CleanInness Code -14 -14 -12 Code -10 -8 -6 -38μ 71μ