

## **OIL ANALYSIS REPORT**

Sample Rating Trend

ISO

#### Machine I LINE 2 (S/N 3000) Component

**Hydraulic System** 

### SAFETY-KLEEN PERFORMANCE PLUS HYDRAU

#### DIAGNOSIS

#### Recommendation

No corrective action is recommended at this time. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

#### Wear

All component wear rates are normal.

#### Contamination

Fuel content negligible. There is a moderate amount of silt (particulates < 14 microns in size) 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.

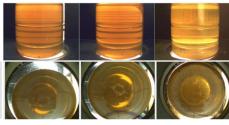
AULIC AW 46 ( GAL)       initial and a strain of the strai	SIS REPU	<b>INI</b>					150	
SAMPLE INFORMATION         method         limit/base         current         history1         history2           Sample Number         Client Info         WC0801321         WC0801232         WC0801232         Mar 2023         18 May 2022           Machine Age         hrs         Client Info         0         0         0         0           Oil Ghanged         Client Info         0         0         0         0         0           Sample Status         Client Info         Not Changd         Not Changd         NA         ABNORMAL         ABNORMAL         ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.05         NEG         NEG         NEG           Water         WC Method         >0.50         NEG         NEG         NEG           Water         WC Method         >0.50         NEG         NEG         NEG           Viral         MST D51555         >2.0         0         0         0           Nickel         ppm         ASTM D51555         >2.0         0         0         0           Aluminum         ppm         ASTM D51555								
SAMPLE INFORMATION         method         limit/base         current         history1         history2           Sample Number         Client Info         WC0801321         WC0801232         WC0801232         Mar 2023         18 May 2022           Machine Age         hrs         Client Info         0         0         0         0           Oil Ghanged         Client Info         0         0         0         0         0           Sample Status         Client Info         Not Changd         Not Changd         NA         ABNORMAL         ABNORMAL         ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.05         NEG         NEG         NEG           Water         WC Method         >0.50         NEG         NEG         NEG           Water         WC Method         >0.50         NEG         NEG         NEG           Viral         MST D51555         >2.0         0         0         0           Nickel         ppm         ASTM D51555         >2.0         0         0         0           Aluminum         ppm         ASTM D51555								
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SAMPLE INFORMATION         method         limit/base         current         history1         history2           Sample Number         Client Info         WC0801321         WC0801232         WC0801232         Mar 2023         18 May 2022           Machine Age         hrs         Client Info         0         0         0         0           Oil Ghanged         Client Info         0         0         0         0         0           Sample Status         Client Info         Not Changd         Not Changd         NA         ABNORMAL         ABNORMAL         ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.05         NEG         NEG         NEG           Water         WC Method         >0.50         NEG         NEG         NEG           Water         WC Method         >0.50         NEG         NEG         NEG           Viral         MST D51555         >2.0         0         0         0           Nickel         ppm         ASTM D51555         >2.0         0         0         0           Aluminum         ppm         ASTM D51555		<b></b>						
Sample Number         Client Info         WC0801321         WC0801321         WC0801323         WC0801323         WC0801323         WC0801321         WC08013         WC0801321         WC08013	AULIC AW 46 (-	GAL)	Oct2019	Aug2020 Apr2021	May2022 Mar2023	May2023		
Sample Date         Client Info         17 May 2023         23 Mar 2023         18 May 2022           Machine Age         hrs         Client Info         0         0         0           Oil Age         hrs         Client Info         0         0         0         0           Oil Changed         Client Info         Not Changd         Not Changd         NA         ABNORMAL         ABNORMAL         ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.05         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D51555         >20         4         2         2           Iron         ppm         ASTM D51555         >20         0         0         0           Glopper         ppm         ASTM D51555         >20         0         0         0           Astmostis55         >20         0         0         0         0         0           Astm D51555         >20         0         0         0	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2	
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Oil Age     hrs     Client Info     Not Changd     N/A       Sample Status     Client Info     Not Changd     N/A       CONTAMINATION     method     limil/base     current     ABNORMAL     ABNORMAL       CONTAMINATION     Wethod     >0.05     NEG     NEG     NEG       Water     WCthod     >0.05     NEG     NEG     NEG       WEAR METALS     method     limil/base     current     history1     history2       Iron     ppm     ASTM D5185m     >20     <1			Client Info		17 May 2023	23 Mar 2023	18 May 2022	
Oil Changed Sample Status     Client Info     Not Changd ABNORMAL     Not Changd ABNORMAL     N/A ABNORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     >0.05     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >20     <1		hrs	Client Info		-	0		
Sample Status         Method         Imit/base         current         ABNORMAL         ABNORMAL         ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.05         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         <1	Oil Age	hrs	Client Info		0	0	0	
CONTAMINATION       method       limit/base       current       history1       history2         Water       WC Method       >0.05       NEG       NEG       NEG         WEAR METALS       method       limit/base       current       history1       history2         Iron       ppm       ASTM D5185m       >20       <1	Oil Changed		Client Info		Not Changd	Not Changd	N/A	
Water         WC Method         >0.05         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         4         2         2           Chromium         ppm         ASTM D5185m         >20         <1	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL	
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         4         2         2           Chromium         ppm         ASTM D5185m         >20         <1	CONTAMINATIO	N	method	limit/base	current	history1	history2	
Iron         ppm         ASTM D5185m         >20         4         2         2           Chromium         ppm         ASTM D5185m         >20         <1	Water		WC Method	>0.05	NEG	NEG	NEG	
Iron         ppm         ASTM D5185m         >20         4         2         2           Chromium         ppm         ASTM D5185m         >20         <1	WEAR METALS		method	limit/base	current	historv1	history2	
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NickelppmASTM D5185m>20<100TitaniumppmASTM D5185m0000SilverppmASTM D5185m>20000AluminumppmASTM D5185m>20000LeadppmASTM D5185m>2021<1	<1							
Titanium         ppm         ASTM D5185m         0         0         0           Silver         ppm         ASTM D5185m         >20         0         0         0           Aluminum         ppm         ASTM D5185m         >20         0         0         0           Lead         ppm         ASTM D5185m         >20         0         0         0           Copper         ppm         ASTM D5185m         >20         0         0         0           Antimony         ppm         ASTM D5185m         >20         0         0         0           Antimony         ppm         ASTM D5185m         >20         0         0         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           Boron         ppm         ASTM D5185m         <1								
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Aluminum         pm         ASTM D5185m         >20         0         0         0           Lead         pm         ASTM D5185m         >20         0         0         0           Copper         pm         ASTM D5185m         >20         2         1         <1								
Lead         ppm         ASTM D5185m         >20         0         0         0           Copper         ppm         ASTM D5185m         >20         2         1         <1	Aluminum			>20		0	0	
Tin         ppm         ASTM D5185m         >20         0         0         0           Antimony         ppm         ASTM D5185m              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         0           Barium         ppm         ASTM D5185m         <1			ASTM D5185m	>20	0	0	0	
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Molybdenum         ppm         ASTM D5185m         <1         <1         <1         <1           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m		0	0	0	
Manganese         ppm         ASTM D5185m         0         <1         0           Magnesium         ppm         ASTM D5185m         <1	Barium	ppm	ASTM D5185m		0	0	0	
Magnesium         ppm         ASTM D5185m         <         <1         4         0           Calcium         ppm         ASTM D5185m         48         44         41         48           Phosphorus         ppm         ASTM D5185m         340         350         362         364           Zinc         ppm         ASTM D5185m         430         455         441         483           Sulfur         ppm         ASTM D5185m         1060         737         887           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         <1	Molybdenum	ppm	ASTM D5185m		<1	<1	<1	
Calcium         ppm         ASTM D5185m         48         44         41         48           Phosphorus         ppm         ASTM D5185m         340         350         362         364           Zinc         ppm         ASTM D5185m         430         455         441         483           Sulfur         ppm         ASTM D5185m         430         455         441         483           Sulfur         ppm         ASTM D5185m         1060         737         887           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         <1	Manganese	ppm	ASTM D5185m		0			
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Silicon         ppm         ASTM D5185m         >15         <1         0         0           Sodium         ppm         ASTM D5185m         >1         <1					1060	/3/		
Sodium         ppm         ASTM D5185m         1         <1         0           Potassium         ppm         ASTM D5185m         >20         <1	CONTAMINANTS	3	method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         <1         0         <1           Fuel         %         ASTM D3524         0.7         0.8            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         ▲ 31241         ▲ 37321         ▲ 47474           Particles >6µm         ASTM D7647         >1300         ▲ 3131         ▲ 3457         ▲ 7613           Particles >14µm         ASTM D7647         >160         95         57         ▲ 323           Particles >21µm         ASTM D7647         >40         28         12         ▲ 84           Particles >38µm         ASTM D7647         >10         3         2         4           Particles >71µm         ASTM D7647         >3         0         0         0	Silicon	ppm		>15				
Fuel         %         ASTM D3524         0.7         0.8            FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         ▲ 31241         ▲ 37321         ▲ 47474           Particles >6µm         ASTM D7647         >1300         ▲ 3131         ▲ 3457         ▲ 7613           Particles >14µm         ASTM D7647         >160         95         57         ▲ 323           Particles >14µm         ASTM D7647         >40         28         12         ▲ 84           Particles >38µm         ASTM D7647         >10         3         2         4           Particles >71µm         ASTM D7647         >3         0         0         0		ppm						
FLUID CLEANLINESS       method       limit/base       current       history1       history2         Particles >4µm       ASTM D7647       >5000       ▲ 31241       ▲ 37321       ▲ 47474         Particles >6µm       ASTM D7647       >1300       ▲ 3131       ▲ 3457       ▲ 7613         Particles >14µm       ASTM D7647       >160       95       57       ▲ 323         Particles >21µm       ASTM D7647       >40       28       12       ▲ 84         Particles >38µm       ASTM D7647       >10       3       2       4         Particles >71µm       ASTM D7647       >3       0       0       0				>20				
Particles >4μm       ASTM D7647       >5000       ▲ 31241       ▲ 37321       ▲ 47474         Particles >6μm       ASTM D7647       >1300       ▲ 3131       ▲ 3457       ▲ 7613         Particles >14μm       ASTM D7647       >160       95       57       ▲ 323         Particles >14μm       ASTM D7647       >40       28       12       ▲ 84         Particles >38μm       ASTM D7647       >10       3       2       4         Particles >71μm       ASTM D7647       >3       0       0       0	Fuel	%	ASTM D3524		0.7	0.8		
Particles >6μm         ASTM D7647         >1300         ▲ 3131         ▲ 3457         ▲ 7613           Particles >14μm         ASTM D7647         >160         95         57         ▲ 323           Particles >21μm         ASTM D7647         >40         28         12         ▲ 84           Particles >38μm         ASTM D7647         >10         3         2         4           Particles >71μm         ASTM D7647         >3         0         0         0	FLUID CLEANLIN	NESS	method	limit/base	current	history1	history2	
Particles >14μm         ASTM D7647         >160         95         57         ▲ 323           Particles >21μm         ASTM D7647         >40         28         12         ▲ 84           Particles >38μm         ASTM D7647         >10         3         2         4           Particles >71μm         ASTM D7647         >3         0         0         0	Particles >4µm		ASTM D7647	>5000	<b>A</b> 31241	▲ 37321	▲ 47474	
Particles >21μm         ASTM D7647         >40         28         12         84           Particles >38μm         ASTM D7647         >10         3         2         4           Particles >71μm         ASTM D7647         >3         0         0         0	Particles >6µm		ASTM D7647	>1300	<u> </u>	▲ 3457	<b>A</b> 7613	
Particles >38μm         ASTM D7647         >10         3         2         4           Particles >71μm         ASTM D7647         >3         0         0         0								
Particles >71μm         ASTM D7647         >3         0         0         0	•							
Uil Cleanliness ISU 4406 (c) >19/1 //14 ▲ 22/19/14 ▲ 22/19/13 ▲ 23/20/16					-			
	OII Cleanliness		150 4406 (C)	>19/1//14	<u> </u>	22/19/13	<u> </u>	



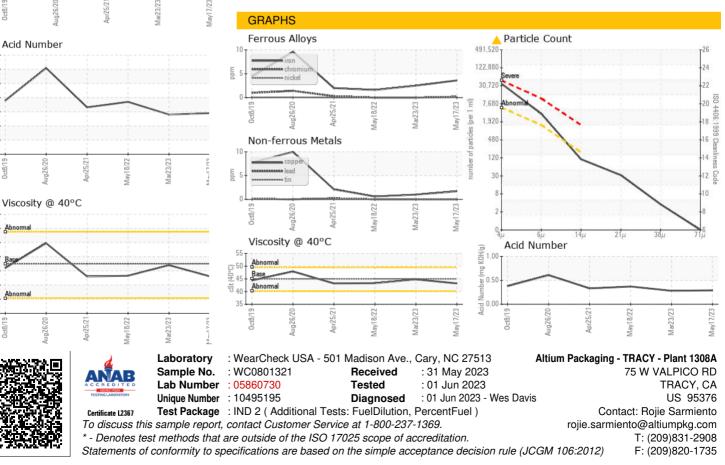
# **OIL ANALYSIS REPORT**

FLUID DEGRADA		mathad	limit/bass	ourroat	biotoput	hist
FLUID DEGRADA	HON	method	limit/base	current	history1	his
Acid Number (AN)	mg KOH/g	ASTM D8045		0.29	0.28	0.37
VISUAL		method	limit/base	current	history1	his
White Metal	scalar	*Visual	NONE	NONE	NONE	NON
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NON
Precipitate	scalar	*Visual	NONE	NONE	NONE	NON
Silt	scalar	*Visual	NONE	NONE	NONE	NON
Debris	scalar	*Visual	NONE	LIGHT	LIGHT	LIGH
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NON
Appearance	scalar	*Visual	NORML	NORML	NORML	NOF
Odor	scalar	*Visual	NORML	NORML	NORML	NOF
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	his
Visc @ 40°C	cSt	ASTM D445	45.0	43.2	44.8	43.3
SAMPLE IMAGES		method	limit/base	current	history1	his
SAMPLE IMAGES		method	limit/base	current	history1	

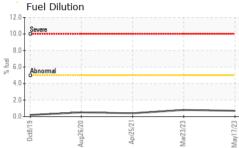
Color

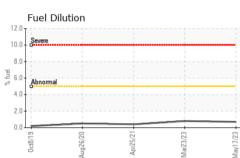


Bottom



🔺 Particle Trend 100 Ē 80 of particles 60 40 20 0 Mav18/22 Det8/





0.70

0.60 (B/HO) (B/H

Ê 0.40

-e 0.30

Acid 1 0.10

0.20

0.00

52

50

48

()-41 ()-41 ()-44 ()-44

42

38

0ct8/19

Abnorma 40

Dct8/1

Submitted By: Rojie Sarmiento

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