

# **OIL ANALYSIS REPORT**

Sample Rating Trend

............

NORMAL

## 97 Machine Id [97] A97 Fan 901

**Center Gearbox** 

### HIGH PERFORMANCE LUBRICANTS GEAR LIFE 150 (5 GAL)

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#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

The water content is negligible. There is no indication of any contamination in the oil.

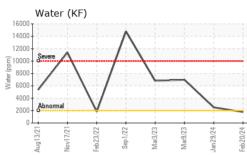
#### Fluid Condition

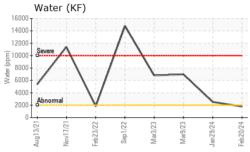
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

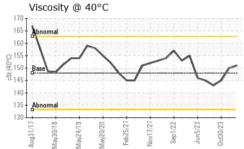
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		HPL0003922	HPL0002402	HPL0003597
Sample Date		Client Info		20 Feb 2024	29 Jan 2024	30 Oct 2023
Machine Age	hrs	Client Info		6320	6120	3960
Oil Age	hrs	Client Info		200	6120	3960
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	MARGINAL	NORMAL
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	1	168	101
Chromium	ppm	ASTM D5185m	>10	<1	<1	0
Nickel	ppm	ASTM D5185m	>10	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m		<1	0	0
Aluminum	ppm	ASTM D5185m	>25	7	2	<1
Lead	ppm	ASTM D5185m	>50	<1	5	2
Copper	ppm	ASTM D5185m	>200	<1	<1	0
Tin	ppm	ASTM D5185m	>10	1	<1	0
Vanadium	ppm	ASTM D5185m		1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 0	history2 0
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	0	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	0 4	0 2	0 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 4 <1	0 2 0	0 0 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 4 <1 <1	0 2 0 3	0 0 0 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 4 <1 <1 <1	0 2 0 3 10	0 0 0 2 4
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 4 <1 <1 <1 3	0 2 0 3 10 33	0 0 2 4 19
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 4 <1 <1 <1 3 0	0 2 0 3 10 33 193	0 0 2 4 19 152
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	limit/base	0 4 <1 <1 <1 3 0 12	0 2 0 3 10 33 193 32	0 0 2 4 19 152 28
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 4 <1 <1 3 0 12 335	0 2 0 3 10 33 193 32 21121 history1 8	0 0 2 4 19 152 28 19190
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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	limit/base	0 4 <1 <1 3 0 12 335 current	0 2 0 3 10 33 193 32 21121 history1	0 0 2 4 19 152 28 19190 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base	0 4 <1 <1 3 0 12 335 current 2	0 2 0 3 10 33 193 32 21121 history1 8	0 0 2 4 19 152 28 19190 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base	0 4 <1 <1 3 0 12 335 current 2 2 27	0 2 0 3 10 33 193 32 21121 history1 8 3	0 0 2 4 19 152 28 19190 history2 3 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >50 >20	0 4 <1 <1 3 0 12 335 <u>current</u> 2 27 6	0 2 0 3 10 33 193 32 21121 history1 8 3 6	0 0 2 4 19 152 28 19190 history2 3 <1 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >50 >20 >0.2	0 4 <1 <1 3 0 12 335 <u>current</u> 2 27 6 0.178	0 2 0 3 10 33 193 32 21121 history1 8 3 6 6 0.253	0 0 2 4 19 152 28 19190 history2 3 <1 4 



# **OIL ANALYSIS REPORT**







	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
<u> </u>	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
$\mathbf{X}$	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Mar3/23 - Mar9/23 - ian29/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Mar3/23 Mar9/23 Jan 29/24 Feb 20/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	0.2%	0.2%	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPER	TIES	method	limit/base	current	history1	history2
	Visc @ 40°C	cSt	ASTM D445	148	151	150	145
	SAMPLE IMAGE	S	method	limit/base	current	history1	history2
Mar3/23 + Mar9/23 + Jan29/24 + Feb20/24 +	Color				no image	no image	no image
<u></u>	Bottom				no image	no image	no image
FTF	GRAPHS						
$\sim$	Iron (ppm)			20	Lead (ppm)		
	600 400 Severe		Λ	20	Severe		
Nov17/21	E 400 - Abnormal			튭 10	0 - Abnormal		
Nov17/21 Sep1/22 Jun5/23 Oct30/23					0		
z ** * 0	Aug31/17 May30/18 May24/19 May20/20	Feb25/21 Nov17/21	Sep1/22 Jun5/23	0ct30/23 -	Aug31/17 May30/18 May24/19	May20/20 Feb25/21 Nov17/21	Sep 1/22 Jun5/23 Oct30/23
	Aug Mayi Mayi	Feb Nov	Ser	Oct	Aug May: Mayi	May Feb Nov	Se Jui Octi
	Aluminum (ppm)				Chromium (pp	om)	
	100 Severe			3			
	E 50 Abnormal			<sup>2</sup> 1	0 Abnormal		
			~		0		$\sim$
	31/17 0/18 4/19 0/20	Feb25/21- Nov17/21-	Sep 1/22 - Jun 5/23 -	0ct30/23	81/17 0/18 4/19	/lay20/20 - Feb25/21	Sep 1/22 - Jun 5/23   Oct30/23 -
	Aug31/17 May30/18 May24/19 May20/20	Feb25/21 Nov17/21	Sep	0ct3	Aug31/17 May30/18 May24/19	May20/20 Feb25/21 Nov17/21	Sep 1/22 Jun 5/23 Oct30/23
	Copper (ppm)				Silicon (ppm)		
	600 Severe			15	<sup>0</sup> T Severe		
	Abnormal			E 10	0 - Abnormal		
	200 - <b>G</b>			- 5	0	~	$\sim$
	1/17 0/18 1/20	5/21-	Sep 1/22	0/23	0/18	5/21	Sep 1/22
	Aug31/17 May30/18 May24/19 May20/20	Feb25/21 Nov17/21	Sep 1/22 Jun 5/23	0ct30/23	Aug31/17 May30/18 May24/19	May20/20 Feb25/21 Nov17/21	Sep 1/22 Jun 5/23 0ct30/23
	Viscosity @ 40°C			(B/			
	180 T			Acid Number (mg KOH(g)	Base		
	Base	-		E a 0.5	0-	$\sim$	NI
				Aumb		1	· ·
		5/21-	1/22	Acid 1	81/1 91/1	5/21 - 5/21 -	1/22 - 5/23 -
	Aug31/17 May30/18 May24/19 May20/20	Feb25/21 Nov17/21	Sep 1/22 Jun5/23	0ct30/23 Acid	Aug31/17 May30/18 May24/19	May20/20 Feb25/21 Nov17/21	Sep1/22 Jun5/23 Oct30/23
Unique Numbe icate 12367 Test Package iscuss this sample repor enotes test methods that	r :06097893 r :10896123 e :MOB 2 (Additional T rt, contact Customer Serv t are outside of the ISO	Rece Teste Diagi ests: KF ) vice at 1-8 17025 sco	ived : 22 ed : 23 nosed : 23 ) 800-237-136 ope of accred	2 Feb 2024 3 Feb 2024 9 Feb 2024 - V 9. ditation.	timothy.	Conta hubert@kens	KENSING ENSINGTON RD KANKAKEE, IL US 60901 ct: TIM HUBERT ingsolutions.com F: (815)939-8918
Sample No. Lab Number Unique Number Test Package discuss this sample repor Denotes test methods that	: HPL0003922 r : 06097893 r : 10896123 e : MOB 2 ( Additional T rt, contact Customer Serv tt are outside of the ISO specifications are based	Rece Teste Diagi ests: KF ) vice at 1-8 17025 sco	ived : 22 ed : 23 nosed : 23 ) 800-237-136 ope of accred	2 Feb 2024 3 Feb 2024 9 Feb 2024 - V 9. ditation.	timothy.	Conta hubert@kens	ENSINGTOI KANKAKE US 6 ct: TIM HUE ingsolutions I: (815)939-

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