

# **OIL ANALYSIS REPORT**



### DIAGNOSIS

#### Recommendation

We advise that you check for the source of water entry. We advise that you follow the water drain-off procedure for this component. Resample at the next service interval to monitor.

## Wear

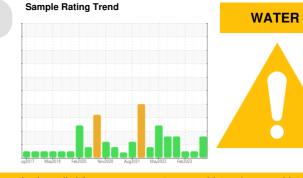
All component wear rates are normal.

### Contamination

Free water present.

#### Fluid Condition

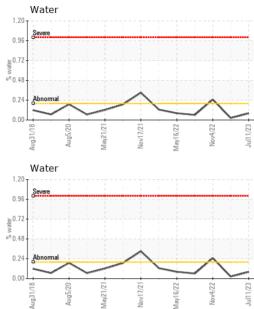
The AN level is acceptable for this fluid.

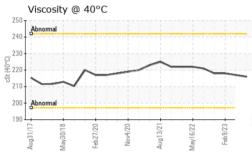


SAMPLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		HPL0003599	HPL0002779	HPL0001857
Sample Date		Client Info		11 Jul 2023	05 May 2023	09 Feb 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		7020	5400	3780
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				ABNORMAL	NORMAL	NORMAL
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	107	101	92
Chromium	ppm	ASTM D5185m	>10	<1	<1	<1
Nickel	ppm	ASTM D5185m	>10	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	1	<1	0
Lead	ppm	ASTM D5185m	>50	0	0	0
Copper	ppm	ASTM D5185m	>200	<1	<1	<1
Tin	ppm	ASTM D5185m	>10	0	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	<mark>history1</mark> 0	<mark>history2</mark> 0
	ppm ppm		limit/base			0
Boron		ASTM D5185m	limit/base	0	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	0 0	0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 0	0 0 <1	0 0 0 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 0 2	0 0 <1 1	0 0 0 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 0 2 2	0 0 <1 1 <1	0 0 0 1 <1
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 0 2 2 23	0 0 <1 1 <1 22	0 0 1 <1 15
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 0 2 2 23 145	0 0 <1 1 <1 22 130	0 0 1 <1 15 129
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 2 2 23 145 0	0 0 <1 1 <1 22 130 2	0 0 1 <1 15 129 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 0 2 2 23 145 0 22587	0 0 <1 1 <1 22 130 2 18256 history1 2	0 0 1 <1 15 129 0 19446
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 0 2 2 23 145 0 22587 current	0 0 <1 1 <1 22 130 2 18256 history1	0 0 1 <1 15 129 0 19446 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 0 2 2 23 145 0 22587 current	0 0 <1 1 <1 22 130 2 18256 history1 2	0 0 0 1 <1 15 129 0 19446 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >50	0 0 2 2 23 145 0 22587 22587 current 1 0	0 0 <1 1 <1 22 130 2 18256 history1 2 0	0 0 0 1 <1 15 129 0 19446 history2 2 <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 >0.2	0 0 2 2 23 145 0 22587 22587 current 1 0 22587	0 0 <1 1 <1 22 130 2 18256 history1 2 0 <1	0 0 0 1 <1 5 129 0 19446 history2 2 <1 0
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 0 2 2 23 145 0 22587 current 1 0 <1 0.080	0 0 <1 1 <1 22 130 2 18256 history1 2 0 <1 	0 0 0 1 <1 15 129 0 19446 history2 2 <1 0 0 0.025



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		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
		Silt	scalar	*Visual	NONE	NONE	NONE	NONE
$\wedge$	$\wedge$	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
$\sim$	$\sim$ $\sim$	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
May11/21 Nov17/21 May16/22	Nov4/22 Jul11/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Nov	Nov	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	0.2%	NEG	0.2%
		Free Water	scalar	*Visual		<u> </u>	NEG	NEG
		FLUID PROPERT	IES	method	limit/base	current	history1	history2
		Visc @ 40°C	cSt	ASTM D445		216	217	218
		SAMPLE IMAGES	6	method	limit/base	current	history1	history2
12/12/12/12/12/12/12/12/12/12/12/12/12/1	22/how	Color				no image		no image
C		Bottom				no image		no image
	<u> </u>	GRAPHS				Load (ppm)		
		Iron (ppm)			200	Lead (ppm)		
		E 400 - Severe 200 - Abnormal			톱 100	Severe		
Nov4/20 -	ay 1 6/2 2	B 200 - Abnormal				Abnormal		
Nov4/20 Aug13/21	May16/22 Feb9/23	Aug31/17	Nov4/20 -	May16/22 -	(	Aug31/17	Nov4/20 Aug13/21	May16/22
		<sup>8</sup> 분 문 Aluminum (ppm)	Nc	May		Chromium (p		May Fe
		100-			30		риц <b>у</b>	
		50 Abnormal						
		Abnormal			ع <sup>20</sup> 10	) - Abnormal		
		20	20- 21-	22			20-	22
		Aug31/17 May30/18 Feb27/20	Nov4/20 Aug13/21	May16/22 Feb9/23		Aug31/17 May30/18 Feb27/20	Nov4/20 Aug13/21	May16/22 Feb9/23
		4 2 1	Au	M			A, h	N I
		Copper (ppm)			150	Silicon (ppm)		
	1	E 400 Severe			E 100	)-		
		B <sub>200</sub> Abnormal			<sup>₽</sup> 50	Abnormal		
		20 18 20 20 20 20 20 20 20 20 20 20 20 20 20	21	22		11-1-1	20	22
		Aug31/17 May30/18 Feb27/20	Nov4/20 Aug13/21	May16/22 Feh9/23		Aug31/17 May30/18 Feb27/20	Nov4/20 Aug13/21	May16/22 Feb9/23
		∝ ≊ ٿ Viscosity @ 40°C	A.	×			A T	×
		300			40,100 Acid Number Acid Number	Acid Number		
		G 200 - Abnormal Abnormal Abnormal			 ພ 0.50			
	1140-				a 0.50		$\sim$	
			20-	22	2 0.00	717	20-	22 -
		Aug31/17 May30/18 Feb27/20	Nov4/20 Aug13/21	May16/22	4	Aug31/17 May30/18 - Feb27/20 -	Nov4/20 Aug13/21	May16/22 Feb9/23
* - Denotes test	methods that a	: WearCheck USA - 5 : HPL0003599 F : 05900126 C : 10561482 C : MOB 2 ( Additional T contact Customer Servit are outside of the ISO 17	son Ave., Ca d : 17 , ed : 19 , ician : Dor <sup>:</sup> ) <i>00-237-136</i> 5	Jul 2023 Jul 2023 n Baldridge 9.				

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