

OIL ANALYSIS REPORT

LONGHORN C LONGHORN C (S/N 1645612) Component

Natural Gas Engine

PETRO CANADA SENTRON LD 3000 (190 GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor. (Customer Sample Comment: Top Up Amount: 5 GAL)

Wear

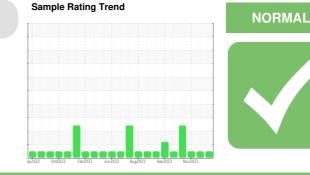
All component wear rates are normal.

Contamination

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

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

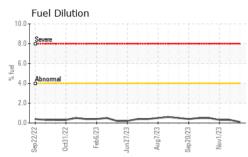


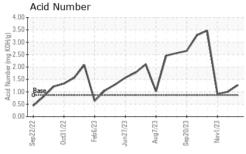
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0096597	PCA0080860	PCA0080859
Sample Date		Client Info		28 Nov 2023	17 Nov 2023	01 Nov 2023
Machine Age	hrs	Client Info		6766	6525	6150
Oil Age	hrs	Client Info		923	682	307
Oil Changed		Client Info		Oil Added	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	3	4	0
Chromium	ppm	ASTM D5185m	>4	0	0	0
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	<1	2	<1
Lead	ppm	ASTM D5185m	>30	0	<1	0
Copper	ppm	ASTM D5185m	>35	1	1	0
Tin	ppm	ASTM D5185m	>4	0	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	5	0	0	5
Barium	ppm	ASTM D5185m	1	0	0	0
Molybdenum	ppm	ASTM D5185m	2	1	2	<1
Manganese	ppm	ASTM D5185m	1	0	<1	0
Magnesium	ppm	ASTM D5185m	5	28	8	8
Calcium	ppm	ASTM D5185m	1220	1303	1320	1295
Phosphorus	ppm	ASTM D5185m	298	293	238	269
Zinc	ppm	ASTM D5185m	350	363	340	335
Sulfur	ppm	ASTM D5185m	1995	2151	2401	2946
CONTAMINAN	TS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+100	2	2	1
Sodium	ppm	ASTM D5185m		3	0	2
Potassium	ppm	ASTM D5185m	>20	<1	2	1
Fuel	%	ASTM D3524	>4.0	0.1	0.3	0.3
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0	0	0
Nitration	Abs/cm	*ASTM D7624	>20	7.7	6.5	6.1

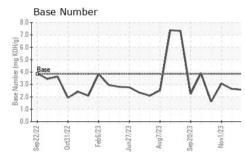
Nitration	Abs/cm	*ASTM D7624	>20	7.7	6.5	6.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.4	15.0	14.3
FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.0	11.2	10.2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.86	1.273	1.00	0.90
Base Number (BN)	mg KOH/g	ASTM D2896	3.85	2.58	2.64	3.07

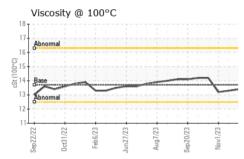


OIL ANALYSIS REPORT









	VISUAL		method				1 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
				NONE	NONE	NONE	NONE
	Debris	scalar	*Visual		-		
~ ~ ~	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Sep 20/23 Nov 1/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
N Sei	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
1	FLUID PROPE	RTIES	method	limit/base	current	history	1 history2
-	Visc @ 100°C	cSt	ASTM D445	13.7	13.4	13.3	13.2
	GRAPHS						
	Iron (ppm)				Lead (ppm)		
	100 T						
ep20/23	80 - Severe			50			
Sep 20/23 Nov1/23	g ⁶⁰ Abnormal			40			
	Abnormal			튭.3(
	20 -			20			
			-				
	iep22/22 Jct31/22 Feb6/23	Jun27/23 Aug7/23	Sep20/23	2	3ep22/22 0ct31/22	Feb6/23 un27/23	Aug 1/23 Sep 20/23 Nov 1/23
	Sep22/22 0ct31/22 Feb6/23	Jun2 Aug	Sep2	-	Sep 22/22 0ct31/22	Feb6/23 Jun27/23	Aug Sep 2
1	Aluminum (ppm)				Chromium ((mag	
NA	²⁰ T				⁸ T :		
V	15 Severe				Severe		
ep20/23 -	E 10 - Abnormal			E d	4 - Abnormal		
Sep 20/23 Nov1/23	5				2		
			~~~	$\sim$			
		1/23	0/23			Feb6/23 - un27/23	)/23 - 1/23 -
	Sep 22/22 0ct31/22 Feb 6/23	Jun27/23 Aug7/23	Sep20/23	2	Sep22/22 0ct31/22	Feb6/23 Jun27/23	Aug 7/23 Sep 20/23 Nov 1/23
	Copper (ppm)	2			Silicon (ppm		
	80 -			200		·/	
	60 -			150			
	E 40 - Abnormal			톱 100	0 - Abnormal		
	20 -			50	0		
Sep20/23 Nov1/23						_	
Sep 2	2/22 2/22	//23 -	)/23	2	1/22	3/23	//23
	Sep 22/22 0ct31/22 Feb 6/23	Jun27/23 Aug7/23	Sep20/23	2	Sep 22/22 0ct31/22	Feb6/23 Jun27/23	Aug 7/23 Sep 20/23 Nov 1/23
	Viscosity @ 100°C		.,		Base Numbe	or ,	
	¹⁸ T.			8.0	0		
	16 Abnormal			0,6,0 1,6,0 1,0 1,0 1,0 1,0 1,0 1,0 1,0 1,0 1,0 1	n l		$\square$
	0-C)			g Buy			/ \
	and the second s	-			Base	$\wedge$	111
	23 12-			No 2.0		$\sim$	
	10				n		
		1/23 -	tep20/23	2		Feb6/23 - un27/23 -	)/23 - )/23 -
	Sep22/22 0ct31/22 Feb6/23	Jun27/23 Aug7/23	Sep 20/23	2	Sep 22/22 0ct31/22	Feb6/23 Jun27/23	Aug //23 Sep 20/23 Nov 1/23
		-			anton BURK	100	40000.
Laboratory	: WearCheck USA - 50				DIVER		Y - CURWENSVILLE
Sample No.	: PCA0096597	Rece		7 Dec 2023			5 WALNUT ST FL2
Lab Number		Teste		Dec 2023	lle e e l le et	CU	RWENSVILLE, PA
Unique Number				Dec 2023 - Jonat	inan Hester	0	US 16833
Iest Package	: MOB 2 (Additional Te	ests: ⊢uel	Dilution, Per	cent⊢uel) ว			t: ZACH MCGARY
	contact Customer Servi					zr	ncgary@dgoc.com די

To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

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