

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. Please note that this is a corrected copy for diagnostic comment updates regarding serviceability. (Customer Sample Comment: Top Up Amount: 10 GAL)

Wear

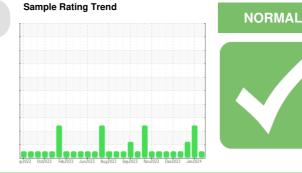
All component wear rates are normal.

Contamination

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

Fluid Condition

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

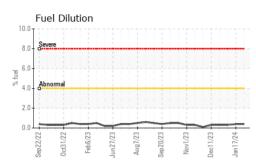


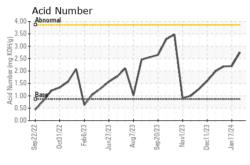
SAMPLE INFORM	/ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0096590	PCA0096589	PCA0096595
Sample Date		Client Info		05 Feb 2024	17 Jan 2024	09 Jan 2024
Machine Age	hrs	Client Info	8261		7812	7633
Oil Age	hrs	Client Info	2418		1969	1790
Oil Changed		Client Info	Oil Added		Oil Added	Oil Added
Sample Status			NORMAL		ABNORMAL	ABNORMAL
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	8	5	4
Chromium	ppm	ASTM D5185m	>4	0	<1	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	<1	1	1
Lead	ppm	ASTM D5185m	>30	<1	0	<1
Copper	ppm	ASTM D5185m	>35	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
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	5	0	0	0
Barium	ppm	ASTM D5185m	1	0	0	0
Molybdenum	ppm	ASTM D5185m	2	<1	0	0
Manganese	ppm	ASTM D5185m	1	0	0	<1
Magnesium	ppm	ASTM D5185m	5	5	20	7
Calcium	ppm	ASTM D5185m	1220	1297	1186	1292
Phosphorus	ppm	ASTM D5185m	298	289	286	304
Zinc	ppm	ASTM D5185m	350	361	350	358
Sulfur	ppm	ASTM D5185m	1995	2033	1992	2114
CONTAMINAN	TS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+100	7	2	4
Sodium	ppm	ASTM D5185m		2	2	1
Potassium	ppm	ASTM D5185m	>20	0	0	0
Fuel	%	ASTM D3524	>4.0	0.4	0.4	0.3
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0	0	0
	A la a / a ma		. 00		11.0	10.0
Nitration	Abs/cm	*ASTM D7624	>20	12.0	11.0	10.8

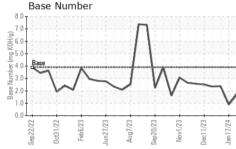
Canadon	/ 100/	/10/11/07/110	200	20.7	10.0	10.0
FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	20.9	18.4	18.2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.86	2.75	2 .20	2 .18
Base Number (BN)	mg KOH/g	ASTM D2896	3.9	1.73	▲ 0.9	2.38

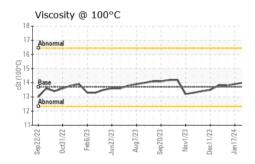


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White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Free Water FLUID PROPEI Visc @ 100°C GRAPHS Iron (ppm)	scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual method ASTM D445	NONE NONE NONE NONE NORML NORML >0.1 Imit/base 13.7	NONE NONE NONE NONE NORML NORML NORML NEG NEG Lurrent 14.0	NONE NONE NONE NONE NONE NORML NORML NEG NEG history1 13.9	NONE NONE NONE NONE NORML NORML NEG NEG history2
Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Iron (ppm)	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NORML >0.1	NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NORML NORML NEG NEG history1	NONE NONE NONE NORML NORML NEG NEG history2
Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Iron (ppm)	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NORML >0.1	NONE NONE NORML NORML NEG NEG	NONE NONE NONE NORML NORML NEG NEG history1	NONE NONE NONE NORML NORML NEG NEG history2
Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPEI Visc @ 100°C GRAPHS Iron (ppm)	scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual method	NONE NONE NORML NORML >0.1	NONE NONE NORML NORML NEG NEG	NONE NONE NORML NORML NEG NEG history1	NONE NONE NORML NORML NEG NEG history2
Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPEI Visc @ 100°C GRAPHS Iron (ppm)	scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual method	NONE NORML NORML >0.1	NONE NORML NORML NEG NEG Current	NONE NORML NORML NEG NEG history1	NONE NORML NORML NEG NEG history2
Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPEI Visc @ 100°C GRAPHS Iron (ppm)	scalar scalar scalar scalar scalar RTIES	*Visual *Visual *Visual *Visual *Visual method	NONE NORML NORML >0.1	NONE NORML NORML NEG NEG current	NONE NORML NORML NEG NEG history1	NONE NORML NORML NEG NEG history2
Appearance Odor Emulsified Water Free Water FLUID PROPEI Visc @ 100°C GRAPHS Iron (ppm)	scalar scalar scalar scalar RTIES	*Visual *Visual *Visual *Visual method	NORML NORML >0.1 limit/base	NORML NORML NEG NEG current	NORML NORML NEG NEG history1	NORML NORML NEG NEG history2
Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Iron (ppm)	scalar scalar scalar RTIES	*Visual *Visual *Visual method	NORML >0.1 limit/base	NORML NEG NEG current	NORML NEG NEG history1	NORML NEG NEG history2
Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Iron (ppm)	scalar scalar RTIES	*Visual *Visual method	>0.1 limit/base	NEG NEG current	NEG NEG history1	NEG NEG history2
Free Water FLUID PROPEI Visc @ 100°C GRAPHS Iron (ppm)	scalar RTIES	*Visual method	limit/base	NEG current	NEG history1	NEG history2
FLUID PROPEI Visc @ 100°C GRAPHS Iron (ppm)	RTIES	method		current	history1	history2
Visc @ 100°C GRAPHS Iron (ppm)						
GRAPHS Iron (ppm)	CSI	ASTM D445	13.7	14.0	13.9	
Iron (ppm)						13.8
100 80 Severe						
80 - Severe				Lead (ppm)		
60				i0 -		
				10 -		
ê 40			udd	0 - Abnormal		
		1		-		
	/23	/23	724		/23 /23	/23 /23
Sep22 Oct31 Feb6	Aug7 Sep20	Nov1 Dec11	Jan 17	Sep 22 Oct31 Feb 6	lun27 Aug7 Sep20	Nov1/23 Dec11/23 Jan17/24
	0,		,			
²⁰ T						
Severe				Severe		
a 10 - Abnormal			dd	4- 0		
5				2		
		m		0		
(1/22 6/23	7/23	1/23	7/24	:2/22 1/22 6/23	1/23	Nov1/23 Dec11/23 Jan17/24
Sep2 Oct3 Jun2 Jun2	Aug Sep2	Nov Dec1	Jan1	Sep2 Oct3 Feb	Jun2 Aug Sep2	Nov Dec1 Jan1
Copper (ppm)				Silicon (ppm)		
⁸⁰ Severe			20	0 Severe		
60			15	0		
5 40 - Abnormal			E 10	Abnormal		
E E E E E E E						
20				0		
122/2; 131/2; 166/23 27/23	1/2: 20/23	ov1/2:	17/2	122/2: 11/22 b6/23	127/2: 197/2: 120/23	Nov1/23 Dec11/23 Jan17/24
	Au Sep	Nc Dec	Jan		Jur Au Sep	Nr. Dec Jan
Viscosity @ 100°C				Base Number		
			(B)}		n	
16+			N KO	.0	11	
0 14 Base		_	ш ы 4	Base		
			vlumb.	J~	~ N	~
12			e z			
	3 33	n n	0	0	3 3	4
p22/2 :t31/2 eb6/2	ug7/2	ov1/2 c11/2	n17/2	p22/2 :±31/2 eb6/2	n27/2 ug7/2 o20/2	Nov1/23 Dec11/23 Jan17/24
Ju P	Se	De N	Ja	Se Do	A Se	De Ja
: PCA0096590 : 06083124 : 10870569	Recei Teste Diagr	ved : 07 d : 08 losed : 23	7 Feb 2024 3 Feb 2024 3 Feb 2024 - De		325 W CURW	CURWENSVILL ALNUT ST FL /ENSVILLE, P. US 1683 ACH MCGAR
	Aluminum (ppm) Aluminum (ppm) Copper (ppm)	Aluminum (ppm) Aluminum (ppm) Aluminum (ppm) Aluminum (ppm) Copper (Aluminum (ppm)	d d d d d d d d d d d d d d	Aluminum (ppm) Aluminum (ppm) Copper (ppm)	Aluminum (ppm) Aluminum (ppm)

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

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