

OIL ANALYSIS REPORT

G.LOPES CONSTRUCTION INC./On-Road

Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

A Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

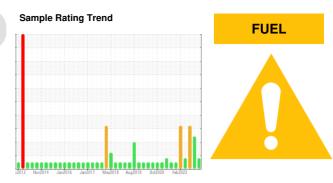
All component wear rates are normal.

Contamination

Light fuel dilution occurring. No other contaminants were detected in the oil.

Fluid Condition

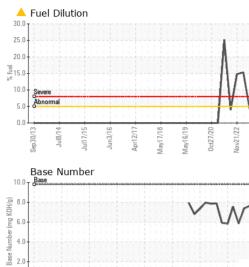
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

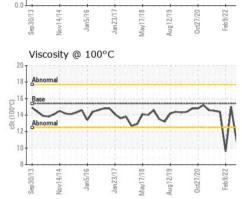


SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0098427	PCA0072078	PCA0083451
Sample Date		Client Info		19 Jul 2023	22 Mar 2023	21 Nov 2022
Machine Age	mls	Client Info		544000	532000	520000
Oil Age	mls	Client Info		472166	472166	484166
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				MARGINAL	SEVERE	SEVERE
CONTAMINATI	ON	method	limit/base	current	history1	history2
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	27	63	1 01
Chromium	ppm	ASTM D5185m	>20	1	3	7
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	4
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	1	3
Tin	ppm	ASTM D5185m	>15	0	<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	0	4	3	2
Barium	ppm	ASTM D5185m	0	2	0	0
Molybdenum	ppm	ASTM D5185m	60	64	52	49
Manganese	ppm	ASTM D5185m	0	<1	<1	1
Magnesium					< 1	1
Calcium	ppm	ASTM D5185m	1010	967	789	761
	ppm ppm					
Phosphorus		ASTM D5185m	1010	967	789	761
	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070	967 1154	789 936	761 879
Phosphorus Zinc Sulfur	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150	967 1154 1063	789 936 842	761 879 774
Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270	967 1154 1063 1278	789 936 842 1063	761 879 774 981
Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base	967 1154 1063 1278 3272	789 936 842 1063 2286	761 879 774 981 2412
Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1010 1070 1150 1270 2060 limit/base	967 1154 1063 1278 3272 current	789 936 842 1063 2286 history1	761 879 774 981 2412 history2
Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm TS ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	1010 1070 1150 1270 2060 limit/base	967 1154 1063 1278 3272 current 6	789 936 842 1063 2286 history1 9	761 879 774 981 2412 history2 17
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm FS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25	967 1154 1063 1278 3272 <u>current</u> 6 0	789 936 842 1063 2286 history1 9 <1	761 879 774 981 2412 history2 17 3
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm FS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25 >20	967 1154 1063 1278 3272 <u>current</u> 6 0 <1	789 936 842 1063 2286 history1 9 <1 2	761 879 774 981 2412 history2 17 3 <1
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm FS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25 >20 >5	967 1154 1063 1278 3272 <u>current</u> 6 0 <1 <▲ 4.2	789 936 842 1063 2286 history1 9 <1 2 2 15.3	761 879 774 981 2412 history2 17 3 <1 € 14.8
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25 >20 >5 limit/base >3	967 1154 1063 1278 3272 current 6 0 <1 ▲ 4.2 current	789 936 842 1063 2286 history1 9 <1 2 2 ● 15.3 history1	761 879 774 981 2412 history2 17 3 <1 € 14.8 history2
Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm TS ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25 >20 >5 limit/base >3	967 1154 1063 1278 3272 current 6 0 <1 ▲ 4.2 current 0.4	789 936 842 1063 2286 history1 9 <1 2 2 15.3 history1 1	761 879 774 981 2412 history2 17 3 <1 14.8 14.8 history2 2.7
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm % % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 method *ASTM D7844	1010 1070 1150 1270 2060 limit/base >25 limit/base >3 >20	967 1154 1063 1278 3272 current 6 0 <1 ▲ 4.2 current 0.4 10.5	789 936 842 1063 2286 history1 9 <1 2 15.3 history1 1 1 14.2	761 879 774 981 2412 history2 17 3 <17 3 <1 14.8 14.8 history2 2.7 19.8
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm % % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7844 *ASTM D7844	1010 1070 1150 22060 limit/base >25 limit/base >3 >20 >3 >20	967 1154 1063 1278 3272 current 6 0 <1 ▲ 4.2 current 0.4 10.5 22.7	789 936 842 1063 2286 history1 9 <1 2 € 15.3 history1 1 14.2 28.0	761 879 774 981 2412 history2 17 3 <17 3 <1 14.8 history2 2.7 19.8 33.7



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
$\Lambda \Lambda$	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
/16 /17 /18 /19 /20	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jun3/16 Apr12/17 May17/18 May16/19 0ct27/20 Nov21/22	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual	20.Z	NEG	NEG	NEG
VIN	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.5	▲ 11.1	10.8
	GRAPHS						
	Iron (ppm)				Lead (ppm)		
	250 Severe			100	Severe		Transferra
Jan23/17 May17/18 Aug12/19 Oct27/20 Feb9/22	200 4		da contratora	80		to before hores	1000100010000
Jar May Oct	E 150 - Abnormal			E 60			
°C				Λ +0	4000 (2000) U		
	50	~	~~~	20	-		
	13 10 11 11 11 11 11 11 11 11 11 11 11 11 1	18	720	0	13 - 14 - 13 - 14 - 14 - 14 - 14 - 14 -	18	22
	Sep30/13 Nov14/14 Jan5/16 Jan23/17	May17/18 -	Aug12/19 . Oct27/20 .		Sep30/13 Nov14/14 Jan5/16	Jan 23/17 May 17/18	Aug12/19 . 0ct27/20 . Feb9/22 .
2001	S 2	M	A O		S 2		A D
	Aluminum (ppm)			50	Chromium (p		
V I	40 - Severe			40	Severe		
	_ 30-			_ 30			
Jan23/17 May17/18 Aug12/19 0ct27/20 Feb9/22	anormal			ع ³⁰ 20	Abnormal	· · · · · · · · · · · · · · · · · · ·	, , , , , , , , , , , , , , , , , , ,
Jan 23/17 May 17/18 Aug 12/19 Oct 27/20 Feb 9/22	10-11			10			
			$- \sim$	\sim .			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
	Sep30/13 Vov14/14 Jan5/16 Jan23/17	May17/18 -	Aug12/19 . Oct27/20 .	4	Sep30/13 Nov14/14 Jan5/16	Jan 23/17 May 17/18	Aug12/19 0ct27/20 Feb9/22
	Sep3 Nov1 Jan2	Mayl	Aug1 Oct2		Sep3 Nov1 Jar	Jan.	Aug ¹ Oct2 Fet
	Copper (ppm)				Silicon (ppm)		
	400 Severe			80	Severe		
	300			60			
	<u>ق</u> 200 -			<u></u>			
					Abnormal		
	100 -			20			
	17 18	0	20	0	14	17	22
	Sep30/13 Nov14/14 Jan5/16 Jan23/17	May17/18	Aug12/19 . Oct27/20 .		Sep30/13 Nov14/14 Jan5/16	Jan 23/17 May 17/18	Aug12/19 0ct27/20 Feb9/22
	Viscosity @ 100°C	×	A D		∞ 2 D U I		e D
	20 T						
	18 Abnormal			(0)HOX Buy buy buy buy buy buy buy buy buy buy b			VIAC
	(5,016 14 37 12 Abnormal	~~	~~~	6.0			· VV
	Abnormal	\sim ·		4.0			
	10			2.0			
			20-02		13	17	20
	Sep30/13 Nov14/14 Jan5/16 Jan23/17	May17/18	Aug12/19 . Oct27/20 .		Sep30/13 Nov14/14 Jan5/16	Jan 23/17 May 17/18	Aug12/19 Oct27/20 Feb9/22
	Se No	Ma	Au 0		No	P Ma	Au P
Laboratory	: WearCheck USA - 5	01 Madi	son Ave., Ca	ry, NC 27513	3	G LOPES C	ONSTRUCTION
Sample No.							
Lab Number : 05904521 Diagnosed : 24 Jul 2023							TAUNTON, MA
Unique Numbe		Diagnosi		s Davis		O ante etc. Di	US 02780
Certificate L2367 Test Package To discuss this sample report,				2			JTCH MCGRATH
* - Denotes test methods that						billegi	ath@glopes.com T:
Statements of conformity to spe					JCGM 106:2012)	F:
		s simple					