



Area  
**(YA130663)**  
Machine Id  
**2633**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (12 GAL)**

**RECOMMENDATION**

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>GFL0123506</b>	GFL0094485	GFL0058817
Sample Date		Client Info		<b>13 Jun 2024</b>	04 Jun 2024	26 May 2023
Machine Age	hrs	Client Info		<b>15527</b>	15514	8775
Oil Age	hrs	Client Info		<b>25</b>	600	8775
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Changed</b>	Changed	N/A
Filter Changed		Client Info		<b>Changed</b>	Changed	N/A
Sample Status				<b>ABNORMAL</b>	ABNORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>165	<b>17</b>	17	12
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	1
Nickel	ppm	ASTM D5185m	>4	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>20	<b>3</b>	4	2
Lead	ppm	ASTM D5185m	>150	<b>2</b>	<1	<1
Copper	ppm	ASTM D5185m	>90	<b>3</b>	2	0
Tin	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>35	<b>▲ 48</b>	▲ 41	8
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	3	3
Fuel		WC Method	>3.0	<b>&lt;1.0</b>	0.5	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>7.5	<b>0.1</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>5.9</b>	4.8	8.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>18.0</b>	16.8	20.2
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sodium	ppm	ASTM D5185m		<b>7</b>	4	4
Boron	ppm	ASTM D5185m	0	<b>6</b>	8	10
Barium	ppm	ASTM D5185m	0	<b>0</b>	2	0
Molybdenum	ppm	ASTM D5185m	60	<b>65</b>	60	59
Manganese	ppm	ASTM D5185m	0	<b>2</b>	1	<1
Magnesium	ppm	ASTM D5185m	1010	<b>994</b>	868	951
Calcium	ppm	ASTM D5185m	1070	<b>1199</b>	1150	1181
Phosphorus	ppm	ASTM D5185m	1150	<b>1027</b>	959	1087
Zinc	ppm	ASTM D5185m	1270	<b>1344</b>	1240	1354
Sulfur	ppm	ASTM D5185m	2060	<b>3741</b>	3331	3510
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>13.8</b>	12.8	17.2
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	<b>9.2</b>	9.3	8.2
Visc @ 100°C	cSt	ASTM D445	15.4	<b>● 11.8</b>	● 11.8	13.9

