

OIL ANALYSIS REPORT

Sample Rating Trend





DT743 Component **Diesel Engine**

PETRO CANADA DURO

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

Valve wear is indicated.

Contamination

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 condition of the oil is acceptable for the time in service.

Sample Date Client Info 26 Dec 2023 19 Jul 2023 13 Feb 202: Machine Age mls Client Info 226077 201002 175711 175711 2010 20 20 20 20 20 20	Sample Date Client Info 26 Dec 2023 19 Jul 2023 13 Feb 2023 175711 10 Feb 2023 13 Feb 2023 175711 10 Feb 2023 13 Feb 2023 13 Feb 2023 14 Feb 20	SAMPLE INFO	RMATION	method	limit/base	current	history1	history2
Machine Age Dil Age mls Oli Age Client Info Dil Age 226077 Dil Qolo Qolo Qolo Dil Age 175711 226077 Dil Qolo Qolo Qolo Qolo Dil Age 175711 Dil Qolo Qolo Qolo Qolo Dil Qolo Qolo Dil Qolo Qolo Qolo Dil Qolo Qolo Qolo Dil Qolo Qolo Qolo Qolo Qolo Qolo Qolo Qo	Alachine Age mls	Sample Number		Client Info		PCA0114734	PCA0100040	PCA009031
Dil Age	Dil Age	Sample Date		Client Info		26 Dec 2023	19 Jul 2023	13 Feb 2023
Clickanged Client Info Changed ABNORMAL NORMAL NORMAL NORMAL	Client Info	Machine Age	mls	Client Info		226077	201002	175711
ABNORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history3 viet WC Method >0.2 NEG	ABNORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history3 view WC Method >0.2 NEG NEG	Oil Age	mls	Client Info		226077	201002	0
CONTAMINATION	CONTAMINATION	Oil Changed		Client Info		Changed	Changed	N/A
Valer	Vicinity Vicinity	Sample Status				ABNORMAL	NORMAL	NORMAL
Wear	Wear	CONTAMINA	TION	method	limit/base	current	history1	history2
WEAR METALS	WEAR METALS	uel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 con ppm ASTM D5185m >120 19 25 27 chromium ppm ASTM D5185m >20 1 1 1 dickel ppm ASTM D5185m >2 <1	WEAR METALS method limit/base current history1 history2 con ppm ASTM D5185m >120 19 25 27 chromium ppm ASTM D5185m >20 1 1 1 clickel ppm ASTM D5185m >20 1 0 0 clitker ppm ASTM D5185m >2 <1	Vater		WC Method	>0.2	NEG	NEG	NEG
Proper Property	Part	Slycol		WC Method		NEG	NEG	NEG
Description	Strict	WEAR META	LS	method	limit/base	current	history1	history2
Dicket		on	ppm	ASTM D5185m	>120	19	25	27
Side	Silver	Chromium	ppm	ASTM D5185m	>20	1	1	1
Silver	Silver	lickel	ppm	ASTM D5185m	>5	<u>^</u> 9	3	5
Silver	Silver	itanium		ASTM D5185m	>2	<1	0	0
Astmorphism	Augustian Augu	Silver		ASTM D5185m	>2	0	0	0
Part	Part	luminum		ASTM D5185m	>20	2	4	4
Description	Sopper Depth ASTM D5185m >330 3 8 4	ead		ASTM D5185m	>40	1	0	<1
Sin	Sin	Copper		ASTM D5185m	>330	3		4
Anadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history2 Boron ppm ASTM D5185m 2 5 2 2 Boron ppm ASTM D5185m 0 0 <1 1 Molybdenum ppm ASTM D5185m 0 63 68 65 Manganese ppm ASTM D5185m 0 1 <1 <1 <1 Magnesium ppm ASTM D5185m 950 918 1004 885 Palcium ppm ASTM D5185m 950 918 1004 885 Palcium ppm ASTM D5185m 950 918 1004 885 Palcium ppm ASTM D5185m 995 857 1060 939 Palcium ppm ASTM D5185m 2600 2667 3248 2681<	Astanadium	• •				-		<1
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 5 2 2 Barium ppm ASTM D5185m 0 0 <1	ADDITIVES	/anadium		ASTM D5185m		0	0	
Soron ppm ASTM D5185m 2 5 2 2 2 3 3 3 4 5 5 4 5 5 5 5 5 5	Soron ppm ASTM D5185m 2 5 2 2 2 3 3 4 4 2 5 5 2 2 2 3 3 4 5 5 5 5 5 5 5 5 5	Cadmium				<1	0	0
Description	Part	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 63 68 65 Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 950 918 1004 885 Calcium ppm ASTM D5185m 1050 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 Vinc ppm ASTM D5185m 1180 1228 1351 1188 Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 <t< td=""><td>Molybdenum ppm ASTM D5185m 50 63 68 65 Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 950 918 1004 885 Calcium ppm ASTM D5185m 950 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 Zinc ppm ASTM D5185m 995 857 1060 939 Zinc ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % *ASTM D7624 >20 10.</td><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>2</td><td>5</td><td>2</td><td>2</td></t<>	Molybdenum ppm ASTM D5185m 50 63 68 65 Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 950 918 1004 885 Calcium ppm ASTM D5185m 950 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 Zinc ppm ASTM D5185m 995 857 1060 939 Zinc ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % *ASTM D7624 >20 10.	Boron	ppm	ASTM D5185m	2	5	2	2
Manganese ppm ASTM D5185m 0 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 950 918 1004 885 Magnesium ppm ASTM D5185m 1050 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 Inc ppm ASTM D5185m 1180 1228 1351 1188 Julfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Milicon ppm ASTM D5185m >25 9 6 8 Modium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Modium % *ASTM D7844 >4 0.9 0.9 0.7 Modium Abs/cm *ASTM D7624	arium	ppm	ASTM D5185m	0	0	<1	1
Magnesium ppm ASTM D5185m 950 918 1004 885 Salcium ppm ASTM D5185m 1050 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 Sinc ppm ASTM D5185m 1180 1228 1351 1188 Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 0.9 0.9 0.7 Ilitration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6	Magnesium ppm ASTM D5185m 950 918 1004 885 Salcium ppm ASTM D5185m 1050 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 sinc ppm ASTM D5185m 1180 1228 1351 1188 sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 silicon ppm ASTM D5185m >25 9 6 8 sodium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 soot % *ASTM D7844 >4 0.9 0.9 0.7 litration Abs/cm *ASTM D7415 >30 22.2 22.0 21.4	lolybdenum	ppm	ASTM D5185m	50	63	68	65
Calcium ppm ASTM D5185m 1050 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 Princ ppm ASTM D5185m 1180 1228 1351 1188 Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Bodium ppm ASTM D5185m 0 2 2 2 Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Boot % *ASTM D7844 >4 0.9 0.9 0.7 Biltration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6	Ralcium ppm ASTM D5185m 1050 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 Rinc ppm ASTM D5185m 1180 1228 1351 1188 Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % "ASTM D7844 >4 0.9 0.9 0.7 Sulfation Abs/cm "ASTM D7415 >30 22.2 22.0 21.4	Manganese	ppm	ASTM D5185m	0	1	<1	<1
Calcium ppm ASTM D5185m 1050 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 Princ ppm ASTM D5185m 1180 1228 1351 1188 Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Bodium ppm ASTM D5185m 0 2 2 2 Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Boot % *ASTM D7844 >4 0.9 0.9 0.7 Biltration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6	Ralcium ppm ASTM D5185m 1050 1112 1248 1112 Phosphorus ppm ASTM D5185m 995 857 1060 939 Rinc ppm ASTM D5185m 1180 1228 1351 1188 Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % "ASTM D7844 >4 0.9 0.9 0.7 Sulfation Abs/cm "ASTM D7415 >30 22.2 22.0 21.4	Magnesium	ppm	ASTM D5185m	950	918	1004	885
Phosphorus ppm ASTM D5185m 995 857 1060 939 Linc ppm ASTM D5185m 1180 1228 1351 1188 Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m 0 2 2 2 Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 0.9 0.9 0.7 Abs/cm *ASTM D7624 >20 10.3 10.1 10.6	Phosphorus ppm ASTM D5185m 995 857 1060 939 Sinc ppm ASTM D5185m 1180 1228 1351 1188 Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % *ASTM D7844 >4 0.9 0.9 0.7 Ilitration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.0 21.4			ASTM D5185m	1050	1112	1248	1112
Linc ppm ASTM D5185m 1180 1228 1351 1188 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m 0 2 2 Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >4 0.9 0.9 0.7 Silitration Abs/cm "ASTM D7624 >20 10.3 10.1 10.6	Sinc ppm ASTM D5185m 1180 1228 1351 1188 Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m 0 2 2 2 Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % "ASTM D7844 >4 0.9 0.9 0.7 Sulfration Abs/cm "ASTM D7624 >20 10.3 10.1 10.6 Sulfation Abs/.1mm "ASTM D7415 >30 22.2 22.0 21.4	hosphorus		ASTM D5185m	995	857	1060	939
CONTAMINANTS method limit/base current history1 history2 Glicon ppm ASTM D5185m >25 9 6 8 Godium ppm ASTM D5185m 0 2 2 Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % "ASTM D7844 >4 0.9 0.9 0.7 Giltration Abs/cm "ASTM D7624 >20 10.3 10.1 10.6	Sulfur ppm ASTM D5185m 2600 2667 3248 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 8 Sodium ppm ASTM D5185m 0 2 2 2 Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % "ASTM D7844 >4 0.9 0.9 0.7 Sulfration Abs/cm "ASTM D7624 >20 10.3 10.1 10.6 Sulfation Abs/.1mm "ASTM D7415 >30 22.2 22.0 21.4			ASTM D5185m	1180	1228	1351	1188
Soliticon ppm ASTM D5185m >25 9 6 8	Silicon ppm ASTM D5185m >25 9 6 8	Sulfur		ASTM D5185m	2600	2667	3248	2681
Sodium ppm ASTM D5185m 0 2 2 Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % % *ASTM D7844 >4 0.9 0.9 0.7 ditration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6	Sodium ppm ASTM D5185m 0 2 2 Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % "ASTM D7844 >4 0.9 0.9 0.7 Ilitration Abs/cm "ASTM D7624 >20 10.3 10.1 10.6 Gulfation Abs/.1mm "ASTM D7415 >30 22.2 22.0 21.4	CONTAMINA	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Boot % *ASTM D7844 >4 0.9 0.9 0.7 Bitration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6	Potassium ppm ASTM D5185m >20 4 2 5 INFRA-RED method limit/base current history1 history2 Goot % *ASTM D7844 >4 0.9 0.9 0.7 Ilitration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6 Gulfation Abs/.1mm *ASTM D7415 >30 22.2 22.0 21.4	Silicon	ppm	ASTM D5185m	>25	9	6	8
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.9 0.9 0.7 ditration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6	INFRA-RED	odium	ppm	ASTM D5185m		0	2	2
Soot % % *ASTM D7844 >4 0.9 0.9 0.7 Ultration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6	Soot % % *ASTM D7844 >4 0.9 0.9 0.7 Ultration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.0 21.4	otassium	ppm	ASTM D5185m	>20	4	2	5
litration Abs/cm *ASTM D7624 >20 10.3 10.1 10.6	Abs/cm *ASTM D7624 >20 10.3 10.1 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.0 21.4	INFRA-RED		method	limit/base	current	history1	history2
100	Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.0 21.4	oot %	%	*ASTM D7844	>4	0.9	0.9	0.7
	Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.0 21.4	litration	Abs/cm	*ASTM D7624	>20	10.3	10.1	10.6
		Sulfation						
TEOD DEGITADATION Memod minimbase current mistory? Mistory		FLUID DEGRA	ADATION	method	limit/base	current	history1	history2

Oxidation

Abs/.1mm *ASTM D7414 >25

Base Number (BN) mg KOH/g ASTM D2896

17.5

6.0

16.2

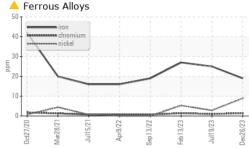
5.8

17.4

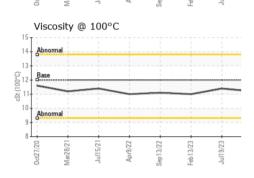
5.9



OIL ANALYSIS REPORT



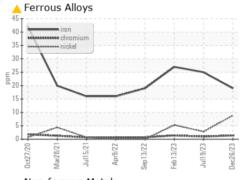
	0ct27/20	Mar28/21-	Jul15/21.	Apr9/22	Sep13/22	Feb13/23 -	Jul19/23	00.00
5	Bas	se Num	ber					
			1					
Base Number (mg KOH/g)	1.0			_				
~ 윤	5.0				-			
B.	5.0							
) Jei	1.0							
E :	3.0							
Se N	0							
Ba	1.0							
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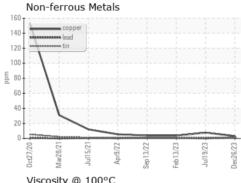


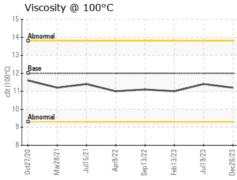
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

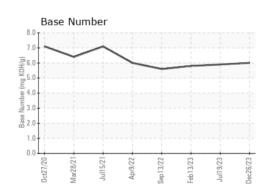
FLUID PROP	ERITES	method	limit/base	current	history1	history
Visc @ 100°C	cSt	ASTM D445	12.00	11.2	11.4	11.0

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

Unique Number : 10821207

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0114734 : 06055258

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Recieved Diagnosed

: 09 Jan 2024 : 10 Jan 2024 Diagnostician : Jonathan Hester NW WHITE & CO - COLUMBIA DIVISION 100 INDEPENDENCE BLVD

COLUMBIA, SC US 29210

Contact: GEORGE EDWARDS

gedwards@nwwhite.com T:

* - 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)

F: