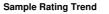


OIL ANALYSIS REPORT





Machine Id 811044

Component Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

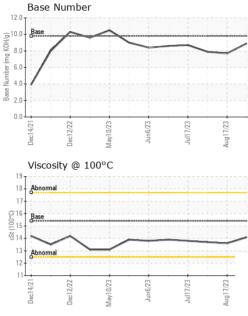
Fluid Condition

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

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0090944	GFL0082633	GFL0074728
Sample Date		Client Info		08 Sep 2023	17 Aug 2023	14 Aug 2023
Machine Age	hrs	Client Info		5188	5033	4987
Oil Age	hrs	Client Info		0	5033	4987
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>100	11	38	34
Chromium	ppm				2	2
Nickel	ppm	ASTM D5185m ASTM D5185m	>20	<1 0	2	2
	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm		>3		0	
Silver	ppm	ASTM D5185m		0	31	<1
Aluminum	ppm	ASTM D5185m		7		28
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m		<1	2	2
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES						history2
ADDITIVES		method	IIIIII/Dase	current	history1	TIIStory2
Boron	ppm	ASTM D5185m	0	2	4	5
	ppm ppm					
Boron		ASTM D5185m	0	2	4	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 <1	4 0	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 <1 64	4 0 81	5 0 79
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 <1 64 <1	4 0 81 <1	5 0 79 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 <1 64 <1 1010	4 0 81 <1 991	5 0 79 1 967
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 <1 64 <1 1010 1095	4 0 81 <1 991 1098	5 0 79 1 967 1092
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	2 <1 64 <1 1010 1095 1105	4 0 81 <1 991 1098 1020	5 0 79 1 967 1092 990
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	2 <1 64 <1 1010 1095 1105 1310	4 0 81 <1 991 1098 1020 1246	5 0 79 1 967 1092 990 1215
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 <1 64 <1 1010 1095 1105 1310 3883	4 0 81 <1 991 1098 1020 1246 3526	5 0 79 1 967 1092 990 1215 3533
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 <1 64 <1 1010 1095 1105 1310 3883 current	4 0 81 <1 991 1098 1020 1246 3526 history1	5 0 79 1 967 1092 990 1215 3533 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 1010 1070 1150 1270 2060	2 <1 64 <1 1010 1095 1105 1310 3883 current 5	4 0 81 <1 991 1098 1020 1246 3526 history1 11	5 0 79 1 967 1092 990 1215 3533 history2 11
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	2 <1 64 <1 1010 1095 1105 1310 3883 current 5 5	4 0 81 <1 991 1098 1020 1246 3526 history1 11 8	5 0 79 1 967 1092 990 1215 3533 history2 11 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	2 <1 64 <1 1010 1095 1105 1310 3883 current 5 5 5 10	4 0 81 <1 991 1098 1020 1246 3526 history1 11 8 57	5 0 79 1 967 1092 990 1215 3533 history2 11 8 55
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 20	2 <1 64 <1 1010 1095 1105 1310 3883 current 5 5 5 10 current 0.3	4 0 81 <1 991 1098 1020 1246 3526 history1 11 8 57 history1 1	5 0 79 1 967 1092 990 1215 3533 history2 11 8 55 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 20	2 <1 64 <1 1010 1095 1105 1310 3883 current 5 5 5 10 current	4 0 81 <1 991 1098 1020 1246 3526 history1 11 8 57 history1	5 0 79 1 967 1092 990 1215 3533 history2 11 8 55 history2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	2 <1 64 <1 1010 1095 1105 1310 3883 <i>current</i> 5 5 5 10 <i>current</i> 0.3 6.0	4 0 81 <1 991 1098 1020 1246 3526 history1 11 8 57 history1 1 8 57	5 0 79 1 967 1092 990 1215 3533 history2 11 8 55 history2 1 8 55 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	2 <1 64 <1 1010 1095 1105 1310 3883 current 5 5 5 10 current 0.3 6.0 16.9	4 0 81 <1 991 1098 1020 1246 3526 history1 11 8 57 history1 1 8 57 history1 1 8.3 19.3	5 0 79 1 967 1092 990 1215 3533 history2 11 8 55 history2 1 8 8 55 history2 1 8 8 55
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 3 3 20 20 3 3 20 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	2 <1 64 <1 1010 1095 1105 1310 3883 <i>current</i> 5 5 5 10 <i>current</i> 0.3 6.0 16.9 <i>current</i>	4 0 81 <1 991 1098 1020 1246 3526 history1 11 8 57 history1 1 8.3 19.3 history1	5 0 79 1 967 1092 990 1215 3533 history2 11 8 55 history2 1 8.1 19.3 history2



OIL ANALYSIS REPORT



	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
\sim	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
/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jul17/23 -	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		14.1	13.6	13.7
	GRAPHS						
	Ferrous Alloys						
	140 T						
Jul17/23 -	120 - chromium						
Jull Aug1	100 - nickel						
-	80						
E C C C C C C C C C C C C C C C C C C C	60						
	40						
	20						
	0 - 1	Jun6/23	/23	27			
	Dec14/21 Dec12/22 May10/23	June	Jul17/23	c7// 1 Bm4			
	Non-ferrous Metal	s					
	¹⁶ T						
	14 - copper lead						
	12 tin						
	10						
	und 8-						
	6						
		\sim	and the strength				
		Jun6/23 -	7/23	67// - Bn+			
	2		Jul17/23	hny			
	Viscosity @ 100°C			12	Base Numb	er	
	18 - Abnormal			10			
	17-			(B/H			
	Base			9 X 2	.0		
	Base 15- 14-			per (.0		
		~		Base Number (mg KOH/g) 6 0 0 0	.0		
	13 Abnormal			Base	.0-		
	12-						
	11	/23	/23	0 3		/23 -	/23
	Dec14/21 Dec12/22 May10/23	Jun6/23	Jul17/23	c7//18n4	Dec14/21 Dec12/22	May10/23	Jul17/23 - Aug17/23 -
Laboratory	: WearCheck USA - 5	01 Madi			3 GFL E	nvironmental - 814 -	
Sample No.		Received	d : 18 :	Sep 2023			005 Hwy 161 N.
Lab Number	: 05954651	Diagnos	ed : 20 \$	Sep 2023			Little Rock, AR
Unique Number	: 10655864	tician : We	s Davis		US 72117 Contact: Brad Manager		



Centificate 12367 **Test Package** : FLEET 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)