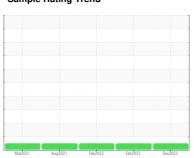


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id **4599M** Component **Diesel Engine**

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

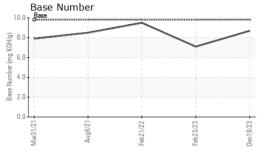
Fluid Condition

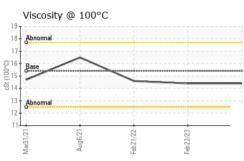
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method minibase current history1 history2	ON SHP 15W40 (- GAL)	Mar2021	Aug2021	Feb2022 Feb2023	Dec2023	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Oil Age hrs Client Info 18457 16431 15164 Oil Changed Client Info Not Changed Changed <t< th=""><th>Sample Date</th><th></th><th>Client Info</th><th></th><th>18 Dec 2023</th><th>23 Feb 2023</th><th>21 Feb 2022</th></t<>	Sample Date		Client Info		18 Dec 2023	23 Feb 2023	21 Feb 2022
Oil Changed Sample Status Client Info MoRMAL Not Changed NORMAL Change NoE Change NoRMA Change NoB NoRMA Change NoB NoRMA							
Sample Status WC Method Imilibase current history1 history2	J .	1115					
Fuel	-						
Water Glycol WC Method Glycol NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 4 87 22 Chromium ppm ASTM D5185m >20 <1 3 1 Nickel ppm ASTM D5185m >2 <1 <1 <1 Silver ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 <1 <1 Copper ppm ASTM D5185m >20 2 5 2 2 Lead ppm ASTM D5185m >330 12 3 <1 1 1 Copper	CONTAMINAT	ION	method	limit/base	current	history1	history2
Second S	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 4 87 22 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 3 1 Nickel ppm ASTM D5185m >2 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	-	ppm	ASTM D5185m	>90			
Titanium							
Silver		• • • • • • • • • • • • • • • • • • • •					
Aluminum ppm ASTM D5185m >20 2 5 2 Lead ppm ASTM D5185m >40 0 1 2 Copper ppm ASTM D5185m >330 12 3 <1							
Lead							
Copper ppm ASTM D5185m >330 12 3 <1 Tin ppm ASTM D5185m >15 0 <1							
Tin ppm ASTM D5185m >15 0 <1 <1 Antimony ppm ASTM D5185m < <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 18 2 12 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 1 <1 Manganese ppm ASTM D5185m 0 0 1 <1 Magnesium ppm ASTM D5185m 1010 878 942 1026 Calcium ppm ASTM D5185m 1070 984 1198 1261 Phosphorus ppm ASTM D5185m 1270 1113		• • • • • • • • • • • • • • • • • • • •					
Antimony ppm ASTM D5185m -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 <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
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 18 2 12 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 1 <1 Manganese ppm ASTM D5185m 1010 878 942 1026 Calcium ppm ASTM D5185m 1070 984 1198 1261 Phosphorus ppm ASTM D5185m 1070 984 1198 1261 Phosphorus ppm ASTM D5185m 1070 984 1198 1261 Phosphorus ppm ASTM D5185m 1270 1113 1307 1304 Sulfur ppm ASTM D5185m 2060 2885 <t< td=""><td></td><td></td><td></td><td>>15</td><th></th><td></td><td></td></t<>				>15			
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Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 61 65 59 Manganese ppm ASTM D5185m 0 0 1 <1							
Molybdenum ppm ASTM D5185m 60 61 65 59 Manganese ppm ASTM D5185m 0 0 1 <1		• • • • • • • • • • • • • • • • • • • •					
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Magnesium ppm ASTM D5185m 1010 878 942 1026 Calcium ppm ASTM D5185m 1070 984 1198 1261 Phosphorus ppm ASTM D5185m 1150 846 1021 1080 Zinc ppm ASTM D5185m 1270 1113 1307 1304 Sulfur ppm ASTM D5185m 2060 2885 2885 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 10 5 Sodium ppm ASTM D5185m >20 1 1 2 Potassium ppm ASTM D5185m >20 1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *AS		• • • • • • • • • • • • • • • • • • • •					
Calcium ppm ASTM D5185m 1070 984 1198 1261 Phosphorus ppm ASTM D5185m 1150 846 1021 1080 Zinc ppm ASTM D5185m 1270 1113 1307 1304 Sulfur ppm ASTM D5185m 2060 2885 2885 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 10 5 Sodium ppm ASTM D5185m >20 1 1 2 Potassium ppm ASTM D5185m >20 1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION met	-				-		
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Zinc ppm ASTM D5185m 1270 1113 1307 1304 Sulfur ppm ASTM D5185m 2060 2885 2885 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 10 5 Sodium ppm ASTM D5185m >20 1 1 2 Potassium ppm ASTM D5185m >20 1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 2.3 0.4 Nitration Abs/.mm *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm							
Sulfur ppm ASTM D5185m 2060 2885 2885 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 10 5 Sodium ppm ASTM D5185m >20 1 1 2 Potassium ppm ASTM D5185m >20 1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 2.3 0.4 Nitration Abs/cm *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8							
Silicon ppm ASTM D5185m >25 9 10 5 Sodium ppm ASTM D5185m 0 10 2 Potassium ppm ASTM D5185m >20 1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 2.3 0.4 Nitration Abs/cm *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8							
Sodium ppm ASTM D5185m 0 10 2 Potassium ppm ASTM D5185m >20 1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 2.3 0.4 Nitration Abs/cm *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8	CONTAMINAN	TS	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 0 10 2 Potassium ppm ASTM D5185m >20 1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 2.3 0.4 Nitration Abs/cm *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8	Silicon	ppm	ASTM D5185m	>25	9	10	5
Potassium ppm ASTM D5185m >20 1 1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 2.3 0.4 Nitration Abs/cm *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8		• • • • • • • • • • • • • • • • • • • •					
Soot % % *ASTM D7844 >6 0.1 2.3 0.4 Nitration Abs/cm *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8	Potassium		ASTM D5185m	>20	1		2
Nitration Abs/cm *ASTM D7624 >20 4.5 12.4 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.8 25.9 23.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8	Soot %	%	*ASTM D7844	>6	0.1	2.3	0.4
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8	Nitration	Abs/cm	*ASTM D7624	>20	4.5	12.4	10.2
Oxidation Abs/.1mm *ASTM D7414 >25 13.2 21.0 20.8	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.8	25.9	23.3
	FLUID DEGRADATION method limit/base current history1 history2						
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.7 7.1 9.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.2	21.0	20.8
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.7	7.1	9.5



OIL ANALYSIS REPORT

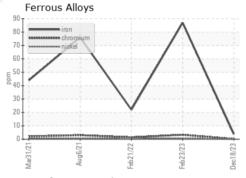


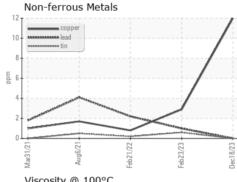


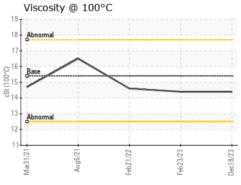
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

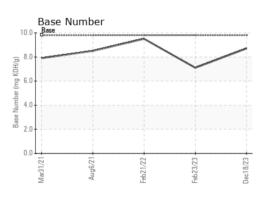
FLUID PROPE	RHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.4	14.6

GRAPHS













Laboratory Sample No. Lab Number **Unique Number**

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 06040224

: GFL0105706 : 10795453

Recieved : 20 Dec 2023 Diagnosed

: 21 Dec 2023 Diagnostician : Sean Felton

Test Package : FLEET (Additional Tests: FT-IR(Diff))

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.

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

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