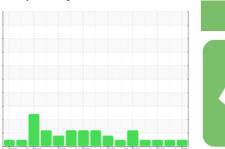


## **OIL ANALYSIS REPORT**

# Sample Rating Trend









Area (GJL4700)
425060
Component
Diesel Engine

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

# DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. ( Customer Sample Comment: Engine oil sample )

#### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

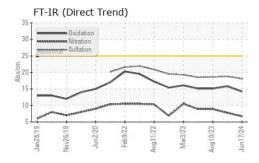
### **Fluid Condition**

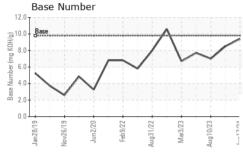
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

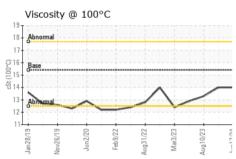
Cample Date	N 3HP 13W40 (-	GAL)					
Compage   Client Info   17 Jun 2024   27 Nov 2023   10 Aug 2023   10 Aug 2023   385655   385289   380124   385655   383289   380124   385655   383289   380124   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   383289   21181   385655   385655   383289   21181   3856555   385655   38565555   385655555   38565555   38565555   385655555   385655555   3856555555   3856555555   38565555555   3856555555555555   385655555555555555555555555555555555555	SAMPLE INFOF	RMATION	method	limit/base	current	history1	history2
Machine Age   mls   Client Info   385655   383289   380124	Sample Number		Client Info		GFL0125233	GFL0100469	GFL0083488
Dil Changed	Sample Date		Client Info		17 Jun 2024	27 Nov 2023	10 Aug 2023
Contained   Client Info   Changed   Changed   Changed   NORMAL   NORMAL   NORMAL   NORMAL	Machine Age	mls	Client Info		385655	383289	380124
CONTAMINATION   method   militibase   current   history1   history2	Oil Age	mls	Client Info		385655	383289	21181
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol         WC Method WC Method         >0.2         NEG NEG         NEG NEG         NEG NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         8         4         6           Chromium         ppm         ASTM D5185m         >20         0         <1	CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185m	>120	8	4	6
Silver	Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	<1
December   December	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	4	2	<1
Tin	_ead	ppm	ASTM D5185m	>40	0	0	0
Vanadium         ppm         ASTM D5185m         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         6         12         0           Barium         ppm         ASTM D5185m         0         0         2         0           Molybdenum         ppm         ASTM D5185m         0         59         50         59           Manganese         ppm         ASTM D5185m         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         1010         955         687         980           Calcium         ppm         ASTM D5185m         1070         1091         1212         1095           Phosphorus         ppm         ASTM D5185m         1270         1257         982         1225           Sulfur         ppm         ASTM D5185m         2060         3762         3956         3558           CONTAMINANTS         method         limit/base         current         hi	Copper	ppm	ASTM D5185m	>330	28	1	2
ADDITIVES	Γin	ppm	ASTM D5185m	>15	<1	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         59         50         59           Manganese         ppm         ASTM D5185m         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         1010         955         687         980           Calcium         ppm         ASTM D5185m         1070         1091         1212         1095           Phosphorus         ppm         ASTM D5185m         1150         1090         811         1009           Zinc         ppm         ASTM D5185m         1270         1257         982         1225           Sulfur         ppm         ASTM D5185m         2060         3762         3956         3558           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         3         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7844         >4	Boron	ppm	ASTM D5185m	0	6	12	0
Manganese         ppm         ASTM D5185m         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         1010         955         687         980           Calcium         ppm         ASTM D5185m         1070         1091         1212         1095           Phosphorus         ppm         ASTM D5185m         1150         1090         811         1009           Zinc         ppm         ASTM D5185m         1270         1257         982         1225           Sulfur         ppm         ASTM D5185m         2060         3762         3956         3558           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         3         1         <1	Barium	ppm	ASTM D5185m	0	0	2	0
Magnesium         ppm         ASTM D5185m         1010         955         687         980           Calcium         ppm         ASTM D5185m         1070         1091         1212         1095           Phosphorus         ppm         ASTM D5185m         1150         1090         811         1009           Zinc         ppm         ASTM D5185m         1270         1257         982         1225           Sulfur         ppm         ASTM D5185m         2060         3762         3956         3558           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         3         1         <1	Molybdenum	ppm	ASTM D5185m	60	59	50	59
Calcium         ppm         ASTM D5185m         1070         1091         1212         1095           Phosphorus         ppm         ASTM D5185m         1150         1090         811         1009           Zinc         ppm         ASTM D5185m         1270         1257         982         1225           Sulfur         ppm         ASTM D5185m         2060         3762         3956         3558           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         3         1         <1		ppm	ASTM D5185m	0	<1	0	<1
Calcium         ppm         ASTM D5185m         1 070         1091         1212         1095           Phosphorus         ppm         ASTM D5185m         1 150         1090         811         1009           Zinc         ppm         ASTM D5185m         1270         1257         982         1225           Sulfur         ppm         ASTM D5185m         2060         3762         3956         3558           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         3         1         <1	Magnesium	ppm	ASTM D5185m	1010	955	687	980
Zinc   ppm   ASTM D5185m   1270   1257   982   1225     Sulfur   ppm   ASTM D5185m   2060   3762   3956   3558     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >25   4   3   5     Sodium   ppm   ASTM D5185m   4   <1   4     Potassium   ppm   ASTM D5185m   >20   3   1   <1     INFRA-RED   method   limit/base   current   history1   history2     Soot %   *ASTM D7844   >4   0.2   0.2   0.4     Nitration   Abs/cm   *ASTM D7624   >20   6.7   7.8   8.9     Sulfation   Abs/.1mm   *ASTM D7415   >30   18.1   18.8   18.6     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   14.2   15.8   15.1	Calcium	ppm	ASTM D5185m	1070	1091	1212	1095
Zinc         ppm         ASTM D5185m         1270         1257         982         1225           Sulfur         ppm         ASTM D5185m         2060         3762         3956         3558           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         20         3         1         <1           Potassium         ppm         ASTM D5185m         >20         3         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.2         0.4           Nitration         Abs/cm         *ASTM D7624         >20         6.7         7.8         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.1         18.8         18.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm	Phosphorus	ppm	ASTM D5185m	1150	1090	811	1009
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         4         <1	Zinc	ppm	ASTM D5185m	1270	1257	982	1225
Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         4         <1         4           Potassium         ppm         ASTM D5185m         >20         3         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.2         0.4           Nitration         Abs/cm         *ASTM D7624         >20         6.7         7.8         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.1         18.8         18.6           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.2         15.8         15.1	Sulfur	ppm	ASTM D5185m	2060	3762	3956	3558
Sodium         ppm         ASTM D5185m         4         <1         4           Potassium         ppm         ASTM D5185m         >20         3         1         <1	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         3         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.2         0.4           Nitration         Abs/cm         *ASTM D7624         >20         6.7         7.8         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.1         18.8         18.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.2         15.8         15.1	Silicon	ppm	ASTM D5185m	>25	4	3	5
INFRA-RED	Sodium	ppm	ASTM D5185m		4	<1	4
Soot %         %         *ASTM D7844 >4         0.2         0.2         0.4           Nitration         Abs/cm         *ASTM D7624 >20         6.7         7.8         8.9           Sulfation         Abs/.1mm         *ASTM D7415 >30         18.1         18.8         18.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         14.2         15.8         15.1	Potassium	ppm	ASTM D5185m	>20	3	1	<1
Nitration         Abs/cm         *ASTM D7624         >20         6.7         7.8         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.1         18.8         18.6           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.2         15.8         15.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.1         18.8         18.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.2         15.8         15.1	Soot %	%	*ASTM D7844	>4	0.2	0.2	0.4
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.1         18.8         18.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.2         15.8         15.1	Vitration	Abs/cm	*ASTM D7624	>20	6.7	7.8	8.9
Oxidation							18.6
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	 Oxidation	Abs/.1mm	*ASTM D7414	>25	14.2	15.8	15.1
	Base Number (BN)	mg KOH/g			9.4	8.5	7.0



## **OIL ANALYSIS REPORT**



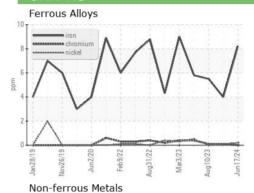


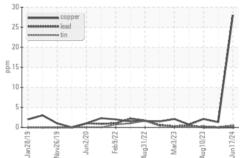


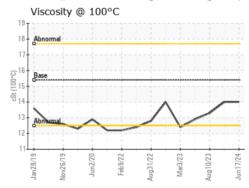
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

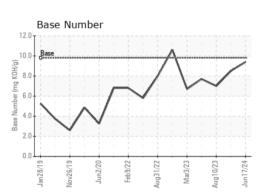
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	14.0	13.3

## **GRAPHS**













Certificate 12367

Laboratory Sample No. Unique Number : 11090373 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0125233 Lab Number : 06217509

Received

**Tested** Diagnosed

: 21 Jun 2024 : 25 Jun 2024

: 25 Jun 2024 - Sean Felton

GFL Environmental - 865 - East Mount Hauling 7213 East Mount Houston Road Houston, TX

US 77050 Contact: Saul Castillo saul.castillo@gflenv.com

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)

T:

F: