

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **712040** Component **Diesel Engine** Fluid

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

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.

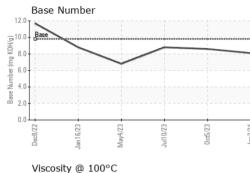
Fluid Condition

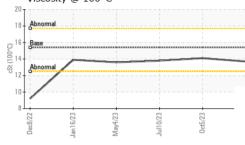
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
|---|--|---|--|---|---|---|
| Sample Number | | Client Info | | GFL0100889 | GFL0086861 | GFL0072522 |
| Sample Date | | Client Info | | 02 Jan 2024 | 05 Oct 2023 | 10 Jul 2023 |
| Machine Age | mls | Client Info | | 63300 | 57620 | 3623 |
| Oil Age | mls | Client Info | | 0 | 57620 | 600 |
| 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 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METAL | c | method | limit/base | current | history1 | history2 |
| Iron | | ASTM D5185m | >80 | | 3 | 17 |
| - | ppm | | | 12 | | |
| Chromium | ppm | ASTM D5185m | | <1 | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | . 0 | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 0 3 | 0 | 0 |
| | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Lead | ppm | ASTM D5185m | >30 | - | | |
| Copper Tin | ppm | ASTM D5185m ASTM D5185m | | <1 | <1 0 | <1 |
| Vanadium | ppm | ASTM D5185m | >5 | <1 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Caumum | ppm | ASTIVI DOTODITI | | U | 0 | 0 |
| | | | | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185m | 0 | 5 | 5 | 6 |
| Boron Barium | ppm ppm | | 0 | | 5 <1 | 6 0 |
| Boron Barium Molybdenum | | ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 | 5 0 60 | 5 <1 62 | 6 0 67 |
| Boron Barium Molybdenum Manganese | ppm | ASTM D5185m ASTM D5185m | 0 0 60 0 | 5 0 | 5 <1 62 0 | 6 0 67 <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 | 5 0 60 <1 905 | 5 <1 62 0 868 | 6 0 67 <1 1084 |
| Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 1070 | 5 0 60 <1 905 1040 | 5 <1 62 0 868 1024 | 6 0 67 <1 1084 1248 |
| 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 | 5 0 60 <1 905 1040 998 | 5 <1 62 0 868 1024 999 | 6 0 67 <1 1084 1248 1196 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | 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 | 5 0 60 <1 905 1040 998 1235 | 5 <1 62 0 868 1024 999 1183 | 6 0 67 <1 1084 1248 1196 1456 |
| 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 | 0 0 60 0 1010 1070 1150 | 5 0 60 <1 905 1040 998 | 5 <1 62 0 868 1024 999 | 6 0 67 <1 1084 1248 1196 1456 4154 |
| 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 | 5 0 60 <1 905 1040 998 1235 | 5 <1 62 0 868 1024 999 1183 | 6 0 67 <1 1084 1248 1196 1456 |
| 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 0 1010 1070 1150 1270 2060 | 5 0 60 <1 905 1040 998 1235 2849 | 5 <1 62 0 868 1024 999 1183 3252 history1 2 | 6 0 67 <1 1084 1248 1196 1456 4154 |
| 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 method ASTM D5185m | 0 0 60 1010 1070 1150 1270 2060 | 5 0 60 <1 905 1040 998 1235 2849 current 2 4 | 5 <1 62 0 868 1024 999 1183 3252 history1 2 0 | 6 0 67 <1 1084 1248 1196 1456 4154 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 ASTM D5185m | 0 0 60 1010 1070 1150 1270 2060 | 5 0 60 <1 905 1040 998 1235 2849 current 2 | 5 <1 62 0 868 1024 999 1183 3252 history1 2 | 6 0 67 <1 1084 1248 1196 1456 4154 history2 3 |
| 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 method ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 2060 limit/base | 5 0 60 <1 905 1040 998 1235 2849 current 2 4 | 5 <1 62 0 868 1024 999 1183 3252 history1 2 0 | 6 0 67 <1 1084 1248 1196 1456 4154 history2 3 4 |
| 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 60 0 1010 1070 1150 1270 2060 imit/base >20 | 5 0 60 <1 905 1040 998 1235 2849 current 2 4 3 | 5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 | 6 0 67 <1 1084 1248 1196 1456 4154 history2 3 4 4 |
| 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 220 220 | 5 0 60 <1 905 1040 998 1235 2849 current 2 4 3 3 | 5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 2 history1 | 6 0 67 <1 1084 1248 1196 1456 4154 history2 3 4 4 4 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 Imit/base >20 20 Imit/base >20 | 5 0 60 <1 905 1040 998 1235 2849 current 2 4 3 current 0.4 | 5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 history1 0.1 | 6 0 67 <1 1084 1248 1196 1456 4154 history2 3 4 4 4 history2 0.5 |
| 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 TS ppm ppm ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200 | 5 0 60 <1 905 1040 998 1235 2849 <u>current</u> 2 4 3 <u>current</u> 0.4 8.2 | 5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 bistory1 0.1 4.7 | 6 0 67 <1 1084 1248 1196 1456 4154 history2 3 4 4 4 4 history2 0.5 8.7 |
| 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 TS ppm ppm ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 220 20 20 320 320 33 220 330 | 5 0 60 <1 905 1040 998 1235 2849 <u>current</u> 2 4 3 <u>current</u> 0.4 8.2 19.3 | 5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 history1 0.1 4.7 16.8 | 6 0 67 <1 1084 1248 1196 1456 4154 history2 3 4 4 4 history2 0.5 8.7 20.1 |
| 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 TS ppm ppm ppm ppm | ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844 | 0 0 0 1010 1070 1150 1270 2060 2060 200 220 220 220 220 330 30 10000000000 | 5 0 60 <1 905 1040 998 1235 2849 Current 2 4 3 Current 0.4 8.2 19.3 Current | 5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 history1 0.1 4.7 16.8 history1 | 6 0 67 <1 1084 1248 1196 1456 4154 history2 3 4 4 4 history2 0.5 8.7 20.1 history2 |



OIL ANALYSIS REPORT





| Silt scalar *Visual NONE NONE NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML Emulsified Water scalar *Visual NORML NORML NORML NORML NORML Emulsified Water scalar *Visual NORM NORML NORML NORML NORML NORML Emulsified Water scalar *Visual NORM NORML NORML NORML NORML NORML NORML Scalar *Visual NORML NORML NORML NORML NORML NORML NORML Emulsified Water scalar *Visual NORM NE NEG NEG NEG NEG Free Water scalar *Visual NORM NEG NEG NEG NEG Free Water scalar *Visual NORM NEG NEG NEG NEG Free Water scalar *Visual *15.4 13.7 14.1 13.8 GRAPHS Ferrous Alloys Viscosity @ 100°C Viscosity @ 100°C | VISUAL | | method | limit/base | current | history1 | history2 |
|--|-------------------|--------|----------------|-------------------------------|---------|--------------|----------|
| Precipitate scalar Visual NONE NONE NONE NONE NONE NONE Stit scalar Visual NONE NONE NONE NONE NONE NONE Debris scalar Visual NONE NONE NONE NONE NONE ADPearance scalar Visual NORML NORM | White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silt scalar Visual NONE NONE NONE NONE NONE NONE NONE Scalar Visual NONE NONE NONE NONE NONE Scalar Visual NONE NONE NONE NONE NONE Scalar Visual NORML NORM | Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris scalar Visual NONE NONE NONE NONE NONE NONE Appearance scalar Visual NONE NONE NONE NONE NONE Appearance scalar Visual NORML NORML NORML NORML NORML Emulsified Water scalar Visual >0.2 NEG NEG NEG NEG Tere Water scalar Visual >0.2 NEG NEG NEG NEG Scalar Visual Scalar Visual Scalar Normer Normer Scalar Visual Scalar Visual NORML NORML NORML NORML NORML NORML NORML NORML Scalar Visual Scalar Visual Scalar Visual NORML | Precipitate | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirit scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML N | Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance scalar *Visual NORML NORM | Debris | scalar | *Visual | | | | |
| Odor scalar *Visual NORML NORMU Conon Conon | Sand/Dirt | scalar | *Visual | | NONE | | |
| Emulsified Water scalar *Visual >0.2 NEG NEG NEG Free Water scalar *Visual NEG NEG NEG NEG FLUID PROPERTIES method limit/base current history1 history1 Visc @ 100°C cSt ASTM D445 15.4 13.7 14.1 13.8 GRAPHS Ferrous Alloys On-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C | | | | | | | |
| Free Water scalar "Visual NEG NEG NEG NEG FLUID PROPERTIES method limit/base ourrent history1 history2 Visc @ 100°C cSt ASTM D445 15.4 13.7 14.1 13.8 GRAPHS Ferrous Alloys | | | | | | | |
| FLUID PROPERTIES method limit/base current history1 history1 Visc @ 100°C cSt ASTM D445 15.4 13.7 14.1 13.8 GRAPHS Ferrous Alloys Onn-ferrous Metals Image: Second Seco | | | | >0.2 | | | |
| Visc @ 100°C cSt ASTM D445 15.4 13.7 14.1 13.8 GRAPHS Ferrous Alloys On ferrous Metals Viscosity @ 100°C Commission On ferrous Metals Commission Commissio | Free Water | scalar | *Visual | | NEG | NEG | NEG |
| GRAPHS Ferrous Alloys | FLUID PROPE | RTIES | method | limit/base | current | history1 | history2 |
| Ferrous Alloys | Visc @ 100°C | cSt | ASTM D445 | 15.4 | 13.7 | 14.1 | 13.8 |
| Non-ferrous Metals Viscosity @ 100°C | GRAPHS | | | | | | |
| Non-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C | | | | | | | |
| Anomal and a set of the set of th | | | I I | | | | |
| Non-ferrous Metals Viscosity @ 100°C Description Descr | chromium | | | | | | |
| Non-ferrous Metals Viscosity @ 100°C | | | | | | | |
| Non-ferrous Metals Viscosity @ 100°C | 5 | | | | | | |
| Non-ferrous Metals Viscosity @ 100°C | • | | | | | | |
| Provide the second seco | | | | | | | |
| Non-ferrous Metals | | | | | | | |
| E29pend Non-ferrous Metals F27pend Viscosity @ 100°C | | | | | | | |
| Non-ferrous Metals | | 0/23 - | 5/23 | 2/24 | | | |
| Copper tin Copper tin Copper tin Copper tin Copper Co | Dec6 Jan16 | Jul10 | Octf | Jan 2 | | | |
| Copper tin Copper tin Copper tin Copper tin Copper Co | Non-ferrous Meta | ls | | | | | |
| bhommal bho | ⁰ T: | | | | | | |
| Viscosity @ 100°C Base Number 120 100 100 100 100 100 100 100 | head another load | | | | | | |
| Viscosity @ 100°C bhommal bh | • ••••••• tin | | | | | | |
| Viscosity @ 100°C Abnormal Abnorma | 6 | | | | | | |
| Viscosity @ 100°C Abnormal Abnorma | | | | | | | |
| Viscosity @ 100°C Abnormal Abnorma | | | | | | | |
| Viscosity @ 100°C Abnormal Abnorma | 2 | | | | | | |
| Viscosity @ 100°C base Number base Number base Number 0,00,00,00,00 0,00,00,00,00 0,00,00,00 0,00,00,00 0,00,00,00 0, | | | | | | | |
| Viscosity @ 100°C Abnomal Base Abnomal Base Base Base Number 12.0 10.0 | | 2 93 | 200 C | 57: | | | |
| Viscosity @ 100°C Abnomal Base Abnomal Base Base Base Number 12.0 10.0 | ec8/2 n16/2 | ay 1/2 |)ct5/2 | an 2/2 | | | |
| Abnomal Abnomal Abnomal Abnomal | - | | 0 | 7 | | | |
| Abnormal Base Abnormal Abnormal Abnormal Abnormal 2 Abnormal 2 Abnormal 2 2 2 2 2 2 2 2 2 2 2 2 2 | | 2 | | | | r | |
| Base (0,0,0) Base (0,0,0) <td></td> <td></td> <td></td> <td>12.0</td> <td></td> <td></td> <td></td> | | | | 12.0 | | | |
| 2.0 | 8 Abnormal | | k | | Base | | |
| 2.0 | 6 - Base | | | (B/H0 | | | |
| 2.0 | 0 | ****** | ************** | 77 8.0 B | | \checkmark | |
| 2.0 | | | | | | | |
| 2.0 | Abnormal # | | | | | | |
| | Abnormal 2 | | | | | | |
| | | | | 6.0 f. (L Numper 8ase N | | | |
| | | | | 4.0 2.0 | | | |



 Unique Number
 : 10817296
 Diagnostician
 : Don Baldridge

 Certificate L2367
 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)

May4/23

Jul10/23

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

Recieved

Diagnosed

0ct5/23 -

Jan2/24 -

: 04 Jan 2024

: 05 Jan 2024

Dec8/22 -

Jan 16/23 -

May4/23 -

Dec8/22 -

: GFL0100889

: 06051347

Laboratory Sample No.

Lab Number

Jan 16/23 -

Jul10/23

Oct5/23 -

lan2/24 -

GFL Environmental - 419 - Metro Saginaw 6950 N Michigan Saginaw, MI US 48604 Contact: Jeremy Hines jhines@gflenv.com T: (800)684-1277 06:2012) F: