

MACK 713012

Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY



▲ Viscosity @ 100°C

Sample Rating Trend



DIRT

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS									
Sample Status				ABNORMAL	ABNORMAL				
Silicon	ppm	ASTM D5185m	>25	🔺 58	5 4				
Visc @ 100°C	cSt	ASTM D445	15.4	4 9.9	1 0.0				

Customer Id: GFL009 Sample No.: GFL0086232 Lab Number: 05902746 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Don Baldridge +1 <u>don.b505@comcast.net</u>

To change component or sample information: Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u>

Jun28

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

28 Jun 2023 Diag: Don Baldridge

DIRT



No corrective action is recommended at this time. Resample at the next service interval to monitor. Metal levels are typical for a new component breaking in. Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.





OIL ANALYSIS REPORT

Sample Rating Trend

MACK 713012

Component Diesel Engine

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

DIAGNOSIS

A Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material.

Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

			Jun2023	Jul2023		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086232	GFL0057567	
Sample Date		Client Info		14 Jul 2023	28 Jun 2023	
Machine Age	hrs	Client Info		593	473	
Oil Age	hrs	Client Info		593	473	
Oil Changed		Client Info		N/A	N/A	
Sample Status				ABNORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	0.4	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	25	21	
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>4	5	5	
Titanium	ppm	ASTM D5185m		0	<1	
Silver	ppm	ASTM D5185m	>3	1	<1	
Aluminum	ppm	ASTM D5185m	>20	8	3	
Lead	ppm	ASTM D5185m	>40	<1	0	
Copper	ppm	ASTM D5185m	>330	89	56	
Tin	ppm	ASTM D5185m	>15	2	2	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	228	238	
Barium	ppm	ASTM D5185m	0	0	15	
Molvbdenum						
.,	ppm	ASTM D5185m	60	116	114	
Manganese	ppm ppm	ASTM D5185m ASTM D5185m	60 0	116 4	114 4	
Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	116 4 627	114 4 704	
Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	116 4 627 1371	114 4 704 1431	
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	116 4 627 1371 704	114 4 704 1431 727	
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270	116 4 627 1371 704 861	114 4 704 1431 727 920	
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060	116 4 627 1371 704 861 2349	114 4 704 1431 727 920 2925	
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method	60 0 1010 1070 1150 1270 2060 limit/base	116 4 627 1371 704 861 2349 current	114 4 704 1431 727 920 2925 history1	 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	116 4 627 1371 704 861 2349 current ▲ 58	114 4 704 1431 727 920 2925 history1 ▲ 54	 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	116 4 627 1371 704 861 2349 current 58 <1	114 4 704 1431 727 920 2925 history1 ▲ 54 3	 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20	116 4 627 1371 704 861 2349 current 58 <1 22	114 4 704 1431 727 920 2925 history1 ▲ 54 3 16	 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	116 4 627 1371 704 861 2349 current 58 <1 22 current	114 4 704 1431 727 920 2925 history1 ▲ 54 3 16 history1	 history2 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	116 4 627 1371 704 861 2349 current \$ \$8 <1 22 22 current 0.2	114 4 704 1431 727 920 2925 history1 ▲ 54 3 16 history1 0.2	history2 history2 history2
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 *ASTM D7844	60 0 1010 1070 1150 2060 limit/base >25 >20 limit/base >3 >20	116 4 627 1371 704 861 2349 current 58 <1 22 current 22 current 0.2 8.9	114 4 704 1431 727 920 2925 history1 ▲ 54 3 16 history1 0.2 8.4	history2 history2 history2 history2 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30	116 4 627 1371 704 861 2349 current 58 <1 22 current 0.2 8.9 23.7	114 4 704 1431 727 920 2925 history1 ▲ 54 3 16 history1 0.2 8.4 24.7	history2 history2 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm % Abs/cm Abs/1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	60 0 1010 1070 1150 2060 limit/base >25 >20 limit/base >3 >20 >30 limit/base	116 4 627 1371 704 861 2349 current 58 <1 22 current 0.2 8.9 23.7 current	114 4 704 1431 727 920 2925 history1 ▲ 54 3 16 history1 0.2 8.4 24.7 history1	history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm % Abs/cm Abs/1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7415	60 0 1010 1070 1150 1270 2060 limit/base >25 limit/base >3 >20 >30 limit/base >25	116 4 627 1371 704 861 2349 current 58 <1 22 current 0.2 8.9 23.7 current 21.4	114 4 704 1431 727 920 2925 history1 ▲ 54 3 16 history1 0.2 8.4 24.7 history1 21.7	history2 history2 history2 history2 history2 history2 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAL Oxidation Base Number (BN)	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 ASTM D7415	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30 limit/base >25 9.8	116 4 627 1371 704 861 2349 current 58 <1 22 current 0.2 8.9 23.7 current 21.4 8.0	114 4 704 1431 727 920 2925 history1 ▲ 54 3 16 history1 0.2 8.4 24.7 history1 21.7 8.5	 history2 history2 history2 history2

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OIL ANALYSIS REPORT





	VISUAL		method	limit/base	e curi	rent history i	nistory2
W	hite Metal	scalar	*Visual	NONE	NON	NONE	
Ye	ellow Metal	scalar	*Visual	NONE	NON	NONE	
Pr	recipitate	scalar	*Visual	NONE	NON	E NONE	
Si	lt	scalar	*Visual	NONE	NON	NONF	
Di	ehris	scalar	*Visual	NONE	NON		
S	and/Dirt	scalar	*Visual	NONE	NON	NONE	
 2 Δr		scalar	*Visual	NORMI	NORI		
	dor	coalar	*\/icual		NOR		
	aulaified Water	scalar	*Visual		NEC		
E		Scalar	VISUAI	>0.2	NEG	NEG	
F	ee water	scalar	visual		NEG	NEG	
	FLUID PROPE	RTIES	method	limit/base	e curi	rent history1	history2
Vi	sc @ 100°C	cSt	ASTM D445	15.4	9 .9	▲ 10.0	
	GRAPHS						
	Ferrous Alloys						
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st Package : F	LEET					Co	ntact: Eric Jone



* - 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)

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