

PROBLEM SUMMARY

DS-115 [10023686205]

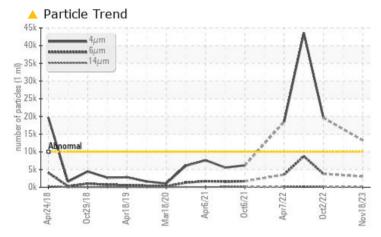
B63523 - VACUUM PUMP BUSCH RA0255 D MARLEN (S/N U053404126)

Component

Pump Fluid

PETRO CANADA PURITY FG SYNTHETIC 100 (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

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

PROBLEMATIC TEST RESULTS							
Sample Status			ATTENTION	ABNORMAL	ATTENTION		
Particles >4µm	ASTM D7647	>10000	<u> </u>		19586		
Particles >6µm	ASTM D7647	>2500	A 3051		A 3789		
Oil Cleanliness	ISO 4406 (c)	>20/18/15	<u> </u>		1 21/19/14		

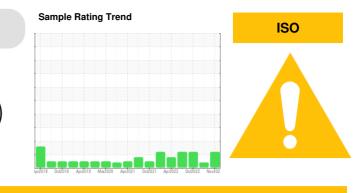
Customer Id: HORAUS Sample No.: WC0856072 Lab Number: 06016347 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Jonathan Hester +1 919-379-4092 x4092 ihester@wearcheckusa.com

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



RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

15 Aug 2023 Diag: Jonathan Hester

VIS DEBRIS



We recommend you service the filters on this component. Resample at the next service interval to monitor. We were unable to perform a particle count due to a high concentration of particles present in this sample.All component wear rates are normal. Moderate concentration of visible dirt/debris present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



02 Oct 2022 Diag: Don Baldridge

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



ISO

10 Jul 2022 Diag: Doug Bogart

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



Report Id: HORAUS [WUSCAR] 06016347 (Generated: 11/28/2023 16:52:06) Rev: 1

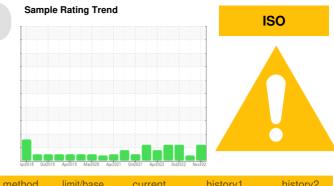


OIL ANALYSIS REPORT

DS-115 [10023686205] B63523 - VACUUM PUMP BUSCH RA0255 D MARLEN (S/N U053404126) Component

Pump

Fluid PETRO CANADA PURITY FG SYNTHETIC 100 (--- GAL)

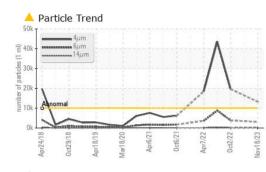


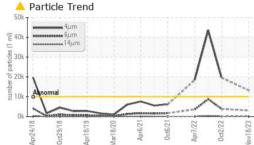
No corrective action is recommended at its inter- Resample at the next service interval to monitor. Simple Date Client Info 16 Nov 2023 15 Aug 2023 02 Oct 202 Machino Age All component wear rates are normal. Contamination 0 <th>DIAGNOSIS</th> <th>SAMPLE INFOR</th> <th>MATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	DIAGNOSIS	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
esample at the next service interval to monitor. <i>Vari</i> is component wear rates are normal. Contamination here is an odderate amount of slit (particulates 4 micronis in size) present in the oil. Unit Age is suitable for further service. Water Ppm Astruces Sa	Recommendation	Sample Number		Client Info		WC0856072	WC0838658	WC0733894
Component wear rates are normal. Contanyation Contanyation <thcontanyation< th=""> <thcontanyation< th=""></thcontanyation<></thcontanyation<>	o corrective action is recommended at this time.	Sample Date		Client Info		18 Nov 2023	15 Aug 2023	02 Oct 2022
component wear rates are normal. Contamination Client Info NA NA NA Contamination Ref is an oddrate amount of silt (particulates in size) present in the oil. Antention method imatbase current History history a AN level is acceptable for further service. Water WCM Mindo 1 NCG NCG NCG NCG Nickel ppm AfTM Diffien S-0 0 <1	esample at the next service interval to monitor.	Machine Age	hrs	Client Info		0	0	0
Contamination Sample Status ATTENTION ABNORMAL ATTENTION pere is a moderate amount of silt (particulates present in the oil.) CONTAMINATION method limit/base current history1 history1 AN level is asoltable for further service. MER MERIAL method scinetal history1 history1 history1 Note is asoltable for further service. MER MERIAL MERIAL scinetal history1 history1 Note is asoltable for further service. NEG NEG NEG NEG NEG Note is asoltable for further service. NEG Ppm ASIM Disiss >5 -1 0 0 Nickel ppm ASIM Disiss >5 -1 0 0 0 Silver ppm ASIM Disiss >5 -2 -1 -1 -1 Lead ppm ASIM Disiss >5 0 0 0 0 0 0 Vandardum ppm ASIM Disiss >5 0 0 0 0 0 0 0 0 0	ear	Oil Age	hrs	Client Info		0	0	0
constrained amount of sill (particulates < microns in size) present in the oil. CONTAMINATION method imit/base current history1 history1 a Al level is acceptable for this fluid. The didion of the oil is suitable for further service. Water WC Method >.1 NEG NEG NEG Water WC Method >.1 NEG NEG NEG NEG Water WC Method >.1 NEG NEG NEG NEG Water WC Method >.1 NEG NEG NEG 0	component wear rates are normal.	Oil Changed		Client Info		N/A	N/A	N/A
micros in size) present in the oil. DOINT Addition minute of minute of <thminute of<="" th=""></thminute>	Contamination	Sample Status				ATTENTION	ABNORMAL	ATTENTION
water WC Method >.1 NEG NEG NEG A N level is acceptable for this fluid. The oil is suitable for further service. im ppm AS1M 05186n >.90 0 <1		CONTAMINATIC	N	method	limit/base	current	history1	history2
M level is acceptable for this fluid. The dition of the oil is suitable for further service. Iron ppm ASTM 25155n >90 0 <1 2 Chromium ppm ASTM 25155n >50 0 0 0 0 Nickel ppm ASTM 25155n >5 0 0 0 0 Nickel ppm ASTM 25155n >3 0 0 0 0 Aluminum ppm ASTM 25155n >3 0		Water		WC Method	>.1	NEG	NEG	NEG
Iron ppm ASTM 05185m >>0 0 0 Nicked ppm ASTM 05185m >>5 0 0 0 Titanium ppm ASTM 05185m >3 0 0 0 Silver ppm ASTM 05185m >3 0 0 0 0 Aluminum ppm ASTM 05185m >7 2	AN level is acceptable for this fluid. The	WEAR METALS		method	limit/base	current	history1	history2
Chromium ppm ASTM D5155m >5 <1 0 0 Nickel ppm ASTM D5155m >5 0 0 0 Silver ppm ASTM D5155m >3 0 0 0 Silver ppm ASTM D5155m >3 0 0 0 Aluminum ppm ASTM D5155m >12 0 0 0 Copper ppm ASTM D5155m >12 0 0 0 Vanadium ppm ASTM D5155m 0 0 0 0 Cadmium ppm ASTM D5155m 0 0 0 0 ADDITIVES method Imitbase current history1 history1 Barium ppm ASTM D5155m 0 0 0 0 Galcium ppm ASTM D5155m 0 0 0 0 Marganese ppm ASTM D5155m 0 0 0 0 <td>idition of the oil is suitable for further service.</td> <td>Iron</td> <td>maa</td> <td>ASTM D5185m</td> <td>>90</td> <th>0</th> <td><1</td> <td>2</td>	idition of the oil is suitable for further service.	Iron	maa	ASTM D5185m	>90	0	<1	2
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Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >12 0 0 <1								
Aluminum ppm ASTM D5185m >7 2 <1 <1 Lead ppm ASTM D5185m >12 0 0 <1								
Lead ppm ASTM D5185m >12 0 0 <1 Copper ppm ASTM D5185m >30 <1								
Copper ppm ASTM D5165m >30 <1 0 <1 Tin ppm ASTM D5165m >9 0 0 0 Vanadium ppm ASTM D5165m >9 0 0 0 Cadmium ppm ASTM D5165m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5165m 0 0 0 0 Barium ppm ASTM D5165m 0 0 0 0 Magnesium ppm ASTM D5165m 0 0 0 0 Magnesium ppm ASTM D5165m 0 0 0 0 Suffur ppm ASTM D5165m 0 0 0 0 0 Suffur ppm ASTM D5165m 0 0 1 175 Zinc ppm ASTM D5165m 0 5 7								
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Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 1 1 Sodium ppm ASTM D5185m >60 5 7 8 Sodium ppm ASTM D5185m >20 <1								
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Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 <1		e e						
Phosphorus ppm ASTM D5185m 0 <1 175 Zinc ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 602 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >60 5 7 8 Sodium ppm ASTM D5185m >60 5 7 8 Sodium ppm ASTM D5185m >60 5 7 8 Sodium ppm ASTM D5185m >20 <1 0 0 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 A 13245 A 3789 Particles >6µm ASTM D7647 >2500 A 3051 A 3789 Particles >21µm ASTM D7647 >20 3 A 3789 Particles >21µm ASTM D7647 >20 3 A 319		0						
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SodiumppmASTM D5185m0<11PotassiumppmASTM D5185m>20<1		CONTAMINANTS	S			current	history1	history2
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FLUID CLEANLINESSmethodlimit/basecurrenthistory1history1Particles >4µmASTM D7647>10000▲13245▲19586Particles >6µmASTM D7647>2500▲3051▲3789Particles >14µmASTM D7647>320215138Particles >21µmASTM D7647>806231Particles >38µmASTM D7647>2031Particles >71µmASTM D7647>400Oil CleanlinessISO 4406 (c)>20/18/1521/19/1521/19/15FLUID DEGRADATIONmethodlimit/basecurrenthistory1history1		Sodium	ppm	ASTM D5185m		0	<1	1
Particles >4μm ASTM D7647 >10000 ▲ 13245 ▲ 19586 Particles >6μm ASTM D7647 >2500 ▲ 3051 ▲ 3789 Particles >14μm ASTM D7647 >320 215 138 Particles >14μm ASTM D7647 >80 62 31 Particles >21μm ASTM D7647 >20 3 1 Particles >38μm ASTM D7647 >20 3 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 21/19/15 21/19/17		Potassium	ppm	ASTM D5185m	>20	<1	0	0
Particles >6μm ASTM D7647 >2500 ▲ 3051 ▲ 3789 Particles >14μm ASTM D7647 >320 215 138 Particles >21μm ASTM D7647 >80 62 31 Particles >38μm ASTM D7647 >20 3 1 Particles >38μm ASTM D7647 >20 3 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 21/19/15 21/19/15		FLUID CLEANLI	NESS	method	limit/base		history1	history2
Particles >14μm ASTM D7647 >320 215 138 Particles >21μm ASTM D7647 >80 62 31 Particles >38μm ASTM D7647 >20 3 1 Particles >37µm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 21/19/15 ▲ 21/19/17		Particles >4µm						19586
Particles >21μm ASTM D7647 >80 62 31 Particles >38μm ASTM D7647 >20 3 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 21/19/15 ▲ 21/19/17 FLUID DEGRADATION method limit/base current history1 history1		Particles >6µm		ASTM D7647	>2500	<u> </u>		A 3789
Particles >38μm ASTM D7647 >20 3 1 Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 21/19/15 21/19/17 FLUID DEGRADATION method limit/base current history1 history1		Particles >14µm		ASTM D7647	>320	215		138
Particles >71μm ASTM D7647 >4 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 21/19/15 Δ 21/19/15 FLUID DEGRADATION method limit/base current history1 history1		Particles >21µm		ASTM D7647	>80	62		31
Oil Cleanliness ISO 4406 (c) >20/18/15 21/19/15 21/19/17 FLUID DEGRADATION method limit/base current history1 history1		Particles >38µm				3		1
FLUID DEGRADATION method limit/base current history1 history		Particles >71µm		ASTM D7647	>4	0		0
		Oil Cleanliness		ISO 4406 (c)	>20/18/15	A 21/19/15		▲ 21/19/14
		FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 0.5 0.086 0.067 0.079		Acid Number (AN)	mg KOH/g	ASTM D8045	0.5	0.086	0.067	0.079

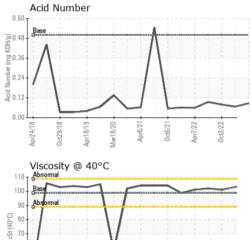
Contact/Location: RYAN LOWE - HORAUS



OIL ANALYSIS REPORT







Vpr6/21

60

50

40

Apr24/18

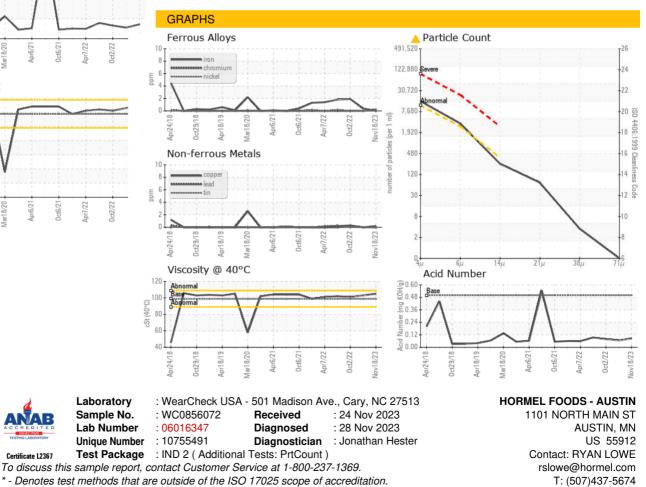
Apr18/19

Mar18/20

0ct29/18

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	VLITE
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	🔺 MODER	VLITE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	LAYRD	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>.1	NEG	0.2%	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	98.7	105	103	101
SAMPLE IMAGES	S	method	limit/base	current	history1	history2
Color						

Bottom



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

Contact/Location: RYAN LOWE - HORAUS

F: (507)437-9805