

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend



### Area Plymouth & Brockton 11417 Component Diesel Engine Fluid NOT GIVEN (39 QTS)

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

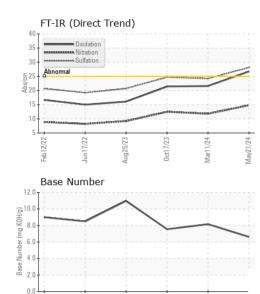
#### Fluid Condition

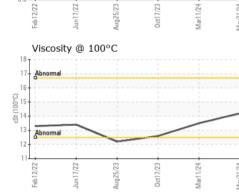
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0104614	PCA0104434	PCA0090719
Sample Date		Client Info		21 May 2024	11 Mar 2024	17 Oct 2023
Machine Age	mls	Client Info		418127	407064	384040
Oil Age	mls	Client Info		24000	12000	12000
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	ABNORMAL
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	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	75	47	60
Chromium	ppm	ASTM D5185m	>20	3	2	3
Nickel	ppm	ASTM D5185m	>20	0	0	0
Titanium	ppm	ASTM D5185m	~	۰ <1	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	1	1	2
Lead	ppm	ASTM D5185m	>40	22	10	17
Copper	ppm	ASTM D5185m		24	24	87
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium						
Gaumum	DDITI			0	0	0
	ppm	ASTM D5185m method	limit/base	0 current	0 history1	0 history2
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1 6	history2 6
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current 7 0	history1 6 0	history2 6 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 7 0 67	history1 6 0 58	history2 6 0 64
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 7 0 67 1	history1 6 0 58 <1	history2 6 0 64 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 7 0 67 1 1039	history1 6 0 58 <1 931	history2 6 0 64 <1 944
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base	current 7 0 67 1 1039 1251	history1 6 0 58 <1 931 1065	history2 6 0 64 <1 944 1066
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current           7           0           67           1           1039           1251           1080	history1 6 0 58 <1 931 1065 898	history2 6 0 64 <1 944 1066 940
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base	current 7 0 67 1 1039 1251	history1 6 0 58 <1 931 1065	history2 6 0 64 <1 944 1066
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current           7           0           67           1           1039           1251           1080           1307	history1 6 0 58 <1 931 1065 898 1150	history2           6           0           64           <1           944           1066           940           1248
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		Current 7 0 67 1 1039 1251 1080 1307 2941	history1 6 0 58 <1 931 1065 898 1150 2801	history2           6           0           64           <1           944           1066           940           1248           2405
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current           7           0           67           1           1039           1251           1080           1307           2941           current	history1 6 0 58 <1 931 1065 898 1150 2801 history1	history2         6         0         64         <1         944         1066         940         1248         2405         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base	current           7           0           67           1           1039           1251           1080           1307           2941           current           15	history1           6           0           58           <1           931           1065           898           1150           2801           history1           12	history2 6 0 64 <1 944 1066 940 1248 2405 history2 ▲ 36
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base	current           7           0           67           1           1039           1251           1080           1307           2941           current           15           7	history1           6           0           58           <1           931           1065           898           1150           2801           history1           12           5	history2 6 0 64 <1 944 1066 940 1248 2405 history2 ▲ 36 7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base >25 >20	current           7           0           67           1           1039           1251           1080           1307           2941           current           15           7           1	history1         6         0         58         <1         931         1065         898         1150         2801         history1         12         5         0	history2 6 0 64 <1 944 1066 940 1248 2405 history2 ▲ 36 7 0
ADDITIVES 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 <b>TS</b>	method           ASTM D5185m	limit/base >25 >20 limit/base	current           7           0           67           1           1039           1251           1080           1307           2941           current           15           7           1           current           15           7           1           current	history1         6         0         58         <1         931         1065         898         1150         2801         history1         12         5         0         history1	history2 6 0 64 <1 944 1066 940 1248 2405 history2 36 7 0 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	method           ASTM D5185m	limit/base >25 >20 limit/base >3	current           7           0           67           1           1039           1251           1080           1307           2941           current           15           7           1           current           15           7           1           current           1.7	history1         6         0         58         <1         931         1065         898         1150         2801         history1         12         5         0         history1         12         5         0         history1         1.2	history2 6 0 64 <1 944 1066 940 1248 2405 history2 ▲ 36 7 0 0 history2
ADDITIVES 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 ppm ppm	method           ASTM D5185m           ASTM D5185m	limit/base >25 >20 limit/base >3 >20	current           7           0           67           1           1039           1251           1080           1307           2941           current           15           7           1           current           15           7           1           current           1.7           14.8	history1         6         0         58         <1         931         1065         898         1150         2801         history1         12         5         0         history1         12         5         0         history1         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.3	<ul> <li>history2</li> <li>6</li> <li>0</li> <li>64</li> <li>&lt;1</li> <li>944</li> <li>1066</li> <li>940</li> <li>1248</li> <li>2405</li> <li>history2</li> <li>▲ 36</li> <li>7</li> <li>0</li> <li>history2</li> <li>1.3</li> <li>12.5</li> </ul>
ADDITIVES 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 ppm ppm	method           ASTM D5185m           ASTM D5185m	limit/base >25 >20 limit/base >3 >20 >30	current           7           0           67           1           1039           1251           1080           1307           2941           current           15           7           1           current           1.5           7           1           current           1.7           14.8           28.1	history1         6         0         58         <1         931         1065         898         1150         2801         history1         12         5         0         history1         12         5         0         history1         1.2         1.1.8         24.2	history2         6         0         64         <1         944         1066         940         1248         2405         history2         36         7         0         history2         1.3         12.5         24.7



# **OIL ANALYSIS REPORT**





VISUAL		method						
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE		
Yellow Metal		*Visual	NONE	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	NORM	ЛL	
Odor	scalar	*Visual	NORML	NORML	NORML	NORM	ΛL	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG		
Free Water	scalar	*Visual		NEG	NEG	NEG		
FLUID PROPE	RTIES	method	limit/base	current	history1	histo	ory2	
Visc @ 100°C	cSt	ASTM D445		14.2	13.5	12.6		
GRAPHS								
Iron (ppm)			10	Lead (ppm)				
200 Severe			8	Severe				
150 100 - Abnormal								
Abnormal			4	Abaranal				
50			2	D			_	
Feb12/22 Jun17/22 Aug25/23	0ct17/23	Mar11/24	May21/24	Feb12/22 Jun17/22	Aug25/23 Oct17/23	Mar11/24		
	0	Ma	Mar		4	Ma		
Aluminum (ppm)			51	Chromium (p	pm)			
40 Severe			4	Severe				
and a second sec			udd 2					
10-								
0							_	
Feb12/22 Jun17/22 Aug25/23	0ct17/23	Mar11/24	May21/24	Feb12/22	Aug25/23 0ct17/23	Mar11/24		
	0	Ma	Mar	-	4	Ma		
Copper (ppm)			8	Silicon (ppm)				
300 -			6					
톱 200 -			4 d	Abnormal				
100-	-		2			~		
		4	*			57:		
Feb 1 2/2 2 Jun 1 7/2 2 Aug 2 5/2 3	0ct17/23	Mar11/24	May21/24	Feb12/22 Jun17/22	Aug25/23 0ct17/23	Mar11/24		
, 4		M	Ma	-		Mä	Mar11/24	
Viscosity @ 100°C			12.	Base Number				
Abnormal			(b)HOX HOX Buy say HOX Buy say HOX Buy say AL Buy say AL BU AL BU SA AL BU SA AL BU SA AL BU AL BU SA AL BU AL BU SA AL BU AL AL BU AL BU AL BU AL BU AL BU AL AL BU AL BU AL AL BU AL BU AL AL AL AL AL AL AL AL AL AL AL AL AL		$\frown$			
16 5-00114 33			B 8.	0	$\sim$		-	
to Abnormal			aquin 4.					
12-			N as 2.	0				
		*	0.	0				
Feb12/22 Jun17/22 Aug25/23	0ct17/23	Mar11/24	May21/24	Feb12/22 Jun17/22	Aug25/23 0ct17/23	Mar11/24		
Jur Fel	0	Ma	Mar	Fel	Auf	Ma		
: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0104614 <b>Received</b> : 19 Jun 2024 : 06214933 <b>Tested</b> : 20 Jun 2024 : 11087797 <b>Diagnosed</b> : 21 Jun 2024 - Sean Felton					H & BROCH TRIAL PAR PLYMOUTH US (	K I H, I		



Test Package : MOB 2 Certificate L2367 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)

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