

# **OIL ANALYSIS REPORT**

Sample Rating Trend



# Machine Id D-236 Component Diesel Engine Fluid PHILLIPS 66 15W40 (--- GAL)

#### 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

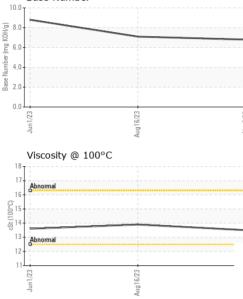
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

			n2023	Aug2023 Nov20		
SAMPLE INFORM	<b>MATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0828483	WC0780362	WC0780369
Sample Date		Client Info		02 Nov 2023	16 Aug 2023	01 Jun 2023
Machine Age	hrs	Client Info		2002	1730	1441
Oil Age	hrs	Client Info		273	289	355
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	11	10	23
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	3	4
Lead	ppm	ASTM D5185m	>40	<1	1	8
Copper	ppm	ASTM D5185m	>330	2	2	5
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 51	history1 57	history2 186
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	51	57	186
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	51 0	57 0	186 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	51 0 98	57 0 108	186 0 244
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	51 0 98 <1	57 0 108 <1	186 0 244 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	51 0 98 <1 39 2237 1025	57 0 108 <1 104	186 0 244 <1 808
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	51 0 98 <1 39 2237	57 0 108 <1 104 2192	186 0 244 <1 808 1551
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	limit/base	51 0 98 <1 39 2237 1025	57 0 108 <1 104 2192 1028	186 0 244 <1 808 1551 847
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	limit/base	51 0 98 <1 39 2237 1025 1315 3879	57 0 108 <1 104 2192 1028 1245	186 0 244 <1 808 1551 847 1049
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		51 0 98 <1 39 2237 1025 1315 3879	57 0 108 <1 104 2192 1028 1245 4391	186 0 244 <1 808 1551 847 1049 3593
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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	limit/base	51 0 98 <1 39 2237 1025 1315 3879 current	57 0 108 <1 104 2192 1028 1245 4391 history1	186 0 244 <1 808 1551 847 1049 3593 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	limit/base	51 0 98 <1 39 2237 1025 1315 3879 current 6	57 0 108 <1 104 2192 1028 1245 4391 history1 4	186 0 244 <1 808 1551 847 1049 3593 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base >25	51 0 98 <1 39 2237 1025 1315 3879 current 6 2 0	57 0 108 <1 104 2192 1028 1245 4391 history1 4 2	186 0 244 <1 808 1551 847 1049 3593 history2 6 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	51 0 98 <1 39 2237 1025 1315 3879 current 6 2 0	57 0 108 <1 104 2192 1028 1245 4391 history1 4 2 2 <1	186 0 244 <1 808 1551 847 1049 3593 history2 6 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	51 0 98 <1 39 2237 1025 1315 3879 <u>current</u> 6 2 0 0	57 0 108 <1 104 2192 1028 1245 4391 history1 4 2 <1 kistory1	186 0 244 <1 808 1551 847 1049 3593 history2 6 3 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	51 0 98 <1 39 2237 1025 1315 3879 <u>current</u> 6 2 0 0 <u>current</u>	57 0 108 <1 104 2192 1028 1245 4391 history1 4 2 <1 4 2 <1 0.4	186 0 244 <1 808 1551 847 1049 3593 history2 6 3 2 history2 0.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	51 0 98 <1 39 2237 1025 1315 3879 <u>current</u> 6 2 0 <u>current</u> 0.4 10.1 18.9	57 0 108 <1 104 2192 1028 1245 4391 history1 4 2 <1 4 2 <1 history1 0.4 9.9	186 0 244 <1 808 1551 847 1049 3593 history2 6 3 3 2 history2 0.5 9.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20 >30	51 0 98 <1 39 2237 1025 1315 3879 <u>current</u> 6 2 0 <u>current</u> 0.4 10.1 18.9	57 0 108 <1 104 2192 1028 1245 4391 history1 4 2 <1 4 2 <1 history1 0.4 9.9 19.2	186 0 244 <1 808 1551 847 1049 3593 history2 6 3 2 6 3 2 2 history2 0.5 9.8 23.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base >25 >20 limit/base >3 >20 >30	51 0 98 <1 39 2237 1025 1315 3879 Current 6 2 0 Current 0.4 10.1 18.9 Current	57 0 108 <1 104 2192 1028 1245 4391 history1 4 2 2 <1 history1 0.4 9.9 19.2 history1	186 0 244 <1 808 1551 847 1049 3593 history2 6 3 2 history2 0.5 9.8 23.2 history2



Base Number

# **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
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		13.5	13.9	13.6
GRAPHS						
Ferrous Alloys						
5 iron						
D - nickel						
DICKEI						
0-						
	<u> </u>					
5-	<u> </u>					
5-	7		///////////////////////////////////////			
5-	Aug16/23		Nov2/23			
Non-ferrous Meta	Aug 16/23		Nov2/23			
Non-ferrous Meta			Nov2/23			
Non-ferrous Meta			Nov2/23			
Non-ferrous Meta			Nov2/23			
Non-ferrous Meta			Nov2223			
Non-ferrous Meta			Nov2233			
Non-ferrous Meta			Nov223			
Non-ferrous Meta			Prov2/23			
Non-ferrous Meta			EZZVON			
Non-ferrous Meta	als		23			
Non-ferrous Meta	als		Nov2/23			
Non-ferrous Meta	alls		Nov2733 B Nov2733	Base Number		
Non-ferrous Meta	alls		E2/2/04/	Base Number		
Non-ferrous Meta	alls		P.0.5 8.0. 8.0.	Base Number		
Non-ferrous Meta	alls		P.0.5 8.0. 8.0.	Base Number		
Non-ferrous Meta	alls		P.0.	Base Number		

1.0

0.0

Jun1/23

Nov2/23 -

: 03 Nov 2023

: 06 Nov 2023

ase 6 2.0



Unique Number : 10726065 Diagnostician : Wes Davis Test Package : CONST (Additional Tests: TBN) Contact: NICK DIXON Certificate L2367 NICK.DIXON@DUKELAZZAM.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)

Aug16/23

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

Received

Diagnosed

11

Laboratory

Sample No.

Lab Number

Jun1/23

Abnorm 12

: WC0828483

: 05997705

Contact/Location: NICK DIXON - DUKRAL

Aug16/23 -

DUKE LAZZARA

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