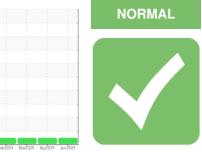


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 1902

Diesel Engine Fluid DIESEL ENGINE OIL SAE 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.

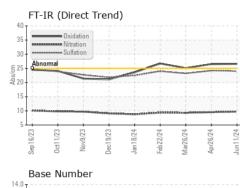
Fluid Condition

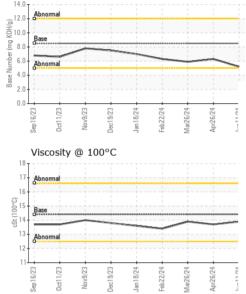
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0897816	WC0897920	WC0893951
Sample Date		Client Info		11 Jun 2024	26 Apr 2024	26 Mar 2024
Machine Age	mls	Client Info		0	0	0
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	5	6	5
Chromium	ppm	ASTM D5185m	>20	0	<1	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	2	<1
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	<1	2	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	method ASTM D5185m	limit/base 250	current	history1 0	history2 <1
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	250	<1	0	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	<1 0	0 2	<1 <1 56 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	<1 0 58	0 2 59 <1 862	<1 <1 56
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	<1 0 58 <1 956 1045	0 2 59 <1 862 1086	<1 <1 56 0 936 1127
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	<1 0 58 <1 956 1045 972	0 2 59 <1 862 1086 1012	<1 <1 56 0 936 1127 1032
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	250 10 100 450 3000 1150 1350	<1 0 58 <1 956 1045 972 1253	0 2 59 <1 862 1086 1012 1141	<1 <1 56 0 936 1127 1032 1299
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	<1 0 58 <1 956 1045 972	0 2 59 <1 862 1086 1012	<1 <1 56 0 936 1127 1032
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	<1 0 58 <1 956 1045 972 1253	0 2 59 <1 862 1086 1012 1141 3058 history1	<1 <1 56 0 936 1127 1032 1299
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	<1 0 58 <1 956 1045 972 1253 3490 current 9	0 2 59 <1 862 1086 1012 1141 3058 history1 13	<1 <1 56 0 936 1127 1032 1299 3710 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	<1 0 58 <1 956 1045 972 1253 3490 current 9 2	0 2 59 <1 862 1086 1012 1141 3058 history1 13 0	<1 <1 56 0 936 1127 1032 1299 3710 history2 7 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	<1 0 58 <1 956 1045 972 1253 3490 current 9	0 2 59 <1 862 1086 1012 1141 3058 history1 13	<1 <1 56 0 936 1127 1032 1299 3710 history2 7
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	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >158 >20 Imit/base	<1 0 58 <1 956 1045 972 1253 3490 current 9 2 2 2 2	0 2 59 <1 862 1086 1012 1141 3058 history1 13 0 3 History1	<1 <1 56 0 936 1127 1032 1299 3710 history2 7 2 <1 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 ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >6	<1 0 58 <1 956 1045 972 1253 3490 <u>current</u> 9 2 2 2 2 <u>current</u> 0.3	0 2 59 <1 862 1086 1012 1141 3058 history1 13 0 3 history1 0.3	<1 <1 56 0 936 1127 1032 1299 3710 history2 7 2 <1 history2 0.3
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	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >6 >20	<1 0 58 <1 956 1045 972 1253 3490 <u>current</u> 9 2 2 2 2 <u>current</u> 0.3 9.7	0 2 59 <1 862 1086 1012 1141 3058 history1 13 0 3 history1 0.3 9.5	<1 <1 56 0 936 1127 1032 1299 3710 history2 7 2 <1 history2 0.3 9.3
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 ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >6	<1 0 58 <1 956 1045 972 1253 3490 <u>current</u> 9 2 2 2 2 <u>current</u> 0.3	0 2 59 <1 862 1086 1012 1141 3058 history1 13 0 3 history1 0.3	<1 <1 56 0 936 1127 1032 1299 3710 history2 7 2 <1 history2 0.3
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	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >6 >20	<1 0 58 <1 956 1045 972 1253 3490 <u>current</u> 9 2 2 2 2 <u>current</u> 0.3 9.7	0 2 59 <1 862 1086 1012 1141 3058 history1 13 0 3 history1 0.3 9.5	<1 <1 56 0 936 1127 1032 1299 3710 history2 7 2 <1 history2 0.3 9.3
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	250 10 100 450 3000 1150 1350 4250 imit/base >25 >158 >20 imit/base >6 >20	<1 0 58 <1 956 1045 972 1253 3490 <u>current</u> 9 2 2 2 2 <u>current</u> 0.3 9.7 24.0	0 2 59 <1 862 1086 1012 1141 3058 history1 13 0 3 history1 0.3 9.5 24.2	<1 <1 56 0 936 1127 1032 1299 3710 history2 7 2 <1 history2 0.3 9.3 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 D7624 *ASTM D7415	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >6 >20 >30	<1 0 58 <1 956 1045 972 1253 3490 Current 9 2 2 2 Current 0.3 9.7 24.0	0 2 59 <1 862 1086 1012 1141 3058 history1 13 0 3 history1 0.3 9.5 24.2 history1	<1 <p><1</p> 56 0 936 1127 1032 1299 3710 history2 7 2 <1 history2 0.3 9.3 23.2 history2



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
Mar26/24 - Apr26/24 -	Jun11/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Mar2 Apr2	Junl	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPERT		TIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	14.4	13.9	13.7	13.9
	<u> </u>	GRAPHS						
		Iron (ppm)			100	Lead (ppm)		
4 4	V	250 Severe			100	Severe		
Mar26/24 Apr26/24	ACI 111	200	1		80			
Mi. Ap	1	150 -			40	Abnormal		
					40		· · · · ·	
		50			20			
		Sep 16/23	8/24	2/24 - 6/24 - 6/24 -		8ep16/23	9/23 - 8/24 -	6/24 -
		Sep16/23 Oct11/23 Nov9/23 Dec19/23	Jan 18/24	Feb22/24 Mar26/24 Apr26/24	Jun11/24	Sep16/23 0ct11/23 Nov9/23	Dec19/23 Jan18/24 Feb22/24	Mar26/24 Apr26/24 Jun11/24
		Aluminum (ppm)	1			Chromium (p	opm)	
		50 Severe			50	Severe		
		40 - Severe	1		40			
24	V	a 20 - Abnormal			e ³⁰	Abnormal		
Mar26/24 Apr26/24	10.11	1. 1. 1. 1			20			
A A	-	10-			10			
		3/23 +	3/24 -	2/24 - 5/24 - 5/24 -	1/24		3/23 -	5/24
		Sep16/23 Oct11/23 Nov9/23 Dec19/23	Jan 18/24	Feb22/24 Mar26/24 Apr26/24	Jun11/24	Sep16/23 Oct11/23 Nov9/23	Dec19/23 Jan18/24 Feb22/24	Mar26/24 Apr26/24 Jun11/24
		Copper (ppm)				Silicon (ppm))	
		400 Severe	100		80	Severe	1 1 1	
		300			60)		
		톱 200 -			틆 40			
		100-			20	Abnormal		
		0						
		Sep16/23 - Oct11/23 - Nov9/23 -	Jan 18/24 -	Feb22/24 - Mar26/24 - Apr26/24 -		Sep16/23 - Oct11/23 - Nov9/23 -	Dec19/23 - Jan18/24 - Feb22/24 -	Mar26/24 - Apr26/24 - Jun11/24 -
		Sep1 Oct1 Nov	Jan1	Feb2 Mar2 Apr2	Jun1	Sep1 Oct1 Nov	Dec1 Jan1 Feb2	Mar2 Apr2 Jun1
		Viscosity @ 100°	С			Base Numbe	r	
		Abnormal	1		15.0 P	Abnormal		I I I
		16			910.0	Page		
		Base Base Abnormal			per (ir	Base		
		경 12 Abnormal			Base Number (mg KOH(g)	Abnormal		
		10			0.0			
		Sep16/23 - 0ct11/23 - Nov9/23 -	8/24 -	2/24 - 6/24 - 6/24 -			9/23 - 8/24 - 2/24 -	6/24 -
		Sep16/23 Oct11/23 Nov9/23 Dec19/23	Jan 18/24	Feb22/24 Mar26/24 Apr26/24	Jun11/24	Sep16/23 Oct11/23 Nov9/23	Dec19/23 Jan18/24 Feb22/24	Mar26/24 Apr26/24 Jun11/24
Laborat	ory	: WearCheck USA - 5	01 Madiso	on Ave., Car	y, NC 27513		GO DL	JRHAM - RAPT
Sample	No.	: WC0897816	Rece	ived :1	2 Jun 2024		1903 FAY	ETTEVILLE ST
Lab Nur		: 06208338		ested : 14 Jun 2024 iagnosed : 14 Jun 2024 - Don Baldridge				DURHAM, NC
Unique Nu Test Pac		: 11075799 : MOB 1 (Additional T					Contact: E	US 27701 Robert losiniecki
		contact Customer Ser			9.			ki@ratpdev.com
·		and autoide of the 100	17005					· –

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)

Certificate L2367

Contact/Location: Robert Iosiniecki - GODDUR Page 2 of 2

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