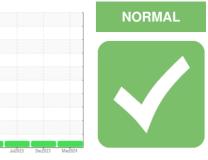


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **162121** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 40 (--- GAL)**

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

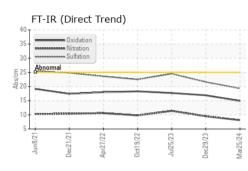
Fluid Condition

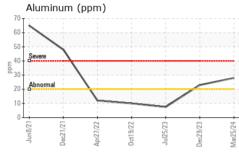
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

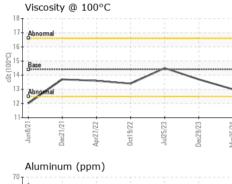
SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		IL06139628	IL06068900	IL05917271
Sample Date		Client Info		25 Mar 2024	29 Dec 2023	25 Jul 2023
Machine Age	hrs	Client Info		7426	0	249836
Oil Age	hrs	Client Info		0	40000	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	N	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	20.2	NEG	NEG	NEG
-			11	-		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	14	17	25
Chromium	ppm	ASTM D5185m	>20	3	3	2
Nickel	ppm	ASTM D5185m	>4	1	0	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m		28	23	8
Lead	ppm	ASTM D5185m	>40	1	<1	<1
Copper	ppm	ASTM D5185m		<1	2	3
Tin	ppm	ASTM D5185m	>15	<1	0	<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	ASTM D5185m	limit/base 250	current 4	history1 3	history2 0
	ppm ppm					
Boron		ASTM D5185m	250	4	3	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	4 0	3 0	0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	4 0 62 <1 913	3 0 66 <1 1026	0 0 64 <1 892
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	4 0 62 <1 913 1095	3 0 66 <1	0 0 64 <1 892 1172
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	4 0 62 <1 913	3 0 66 <1 1026	0 0 64 <1 892 1172 988
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	250 10 100 450 3000	4 0 62 <1 913 1095	3 0 66 <1 1026 1245	0 0 64 <1 892 1172 988 1220
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	250 10 100 450 3000 1150	4 0 62 <1 913 1095 1059	3 0 66 <1 1026 1245 1087	0 0 64 <1 892 1172 988
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	250 10 100 450 3000 1150 1350	4 0 62 <1 913 1095 1059 1253	3 0 66 <1 1026 1245 1087 1354	0 0 64 <1 892 1172 988 1220
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	250 10 100 450 3000 1150 1350 4250	4 0 62 <1 913 1095 1059 1253 3747	3 0 66 <1 1026 1245 1087 1354 3341	0 0 64 <1 892 1172 988 1220 2776
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	250 10 100 450 3000 1150 1350 4250	4 0 62 <1 913 1095 1059 1253 3747 current	3 0 66 <1 1026 1245 1087 1354 3341 history1	0 0 64 <1 892 1172 988 1220 2776 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 method	250 10 100 450 3000 1150 1350 4250 limit/base >25	4 0 62 <1 913 1095 1059 1253 3747 current 5	3 0 66 <1 1026 1245 1087 1354 3341 history1 7	0 0 64 <1 892 1172 988 1220 2776 history2 9
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 ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216	4 0 62 <1 913 1095 1059 1253 3747 <u>current</u> 5 2	3 0 66 <1 1026 1245 1087 1354 3341 history1 7 3	0 0 64 <1 892 1172 988 1220 2776 history2 9 0
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 limit/base >25 >216 >20	4 0 62 <1 913 1095 1059 1253 3747 <u>current</u> 5 2 70	3 0 66 <1 1026 1245 1087 1354 3341 history1 7 3 7 2	0 0 64 <1 892 1172 988 1220 2776 history2 9 0 23
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	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >216 >216 >20 limit/base	4 0 62 <1 913 1095 1059 1253 3747 current 5 2 70 current	3 0 66 <1 1026 1245 1087 1354 3341 history1 7 3 7 2 <i>h</i> istory1	0 0 64 <1 892 1172 988 1220 2776 history2 9 0 23 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 limit/base >25 >216 >216 >216 >20 limit/base	4 0 62 <1 913 1095 1059 1253 3747 current 5 2 70 current 0.6	3 0 66 <1 1026 1245 1087 1354 3341 history1 7 3 7 3 72 history1 0.9	0 0 64 <1 892 1172 988 1220 2776 history2 9 0 23 kistory2 1.7
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 >216 >216 >20 iimit/base	4 0 62 <1 913 1095 1059 1253 3747 <u>current</u> 5 2 70 <u>current</u> 0.6 8.1	3 0 66 <1 1026 1245 1087 1354 3341 history1 7 3 3 72 history1 0.9 9.5	0 0 64 <1 892 1172 988 1220 2776 history2 9 0 23 history2 1.7 1.7
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 >216 >20 imit/base >3 >20	4 0 62 <1 913 1095 1059 1253 3747 current 5 2 70 current 0.6 8.1 19.3	3 0 66 <1 1026 1245 1087 1354 3341 history1 7 3 7 2 history1 0.9 9.5 21.6 history1	0 0 64 <1 892 1172 988 1220 2776 history2 9 0 23 history2 1.7 11.4 24.5 history2
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	250 10 100 450 3000 1150 1350 4250 216 >25 >216 >216 >20 limit/base >3 >20 >30	4 0 62 <1 913 1095 1059 1253 3747 current 5 2 70 current 0.6 8.1 19.3 current	3 0 66 <1 1026 1245 1087 1354 3341 history1 7 3 72 history1 0.9 9.5 21.6	0 0 64 <1 892 1172 988 1220 2776 history2 9 0 23 history2 1.7 1.7 11.4 24.5

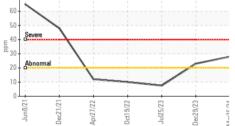


OIL ANALYSIS REPORT



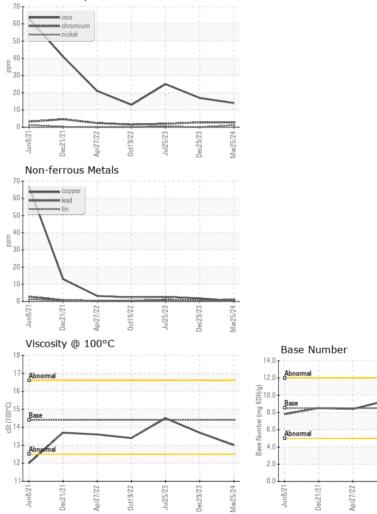


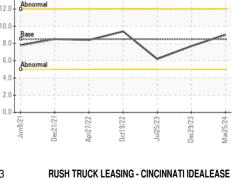




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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 PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.0	13.7	14.5

GRAPHS Ferrous Alloys





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : IL06139628 Received : 05 Apr 2024 11777 HIGHWAY DRIVE Lab Number : 06139628 Tested : 05 Apr 2024 CINCINNATI, OH Unique Number : 10964436 Diagnosed : 05 Apr 2024 - Wes Davis US 45241 Test Package : FLEET Contact: ROBERT BAIER Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. baierr@rushenterprises.com T: (513)657-7901 * - 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) F: (513)733-0537

Report Id: IDECIN [WUSCAR] 06139628 (Generated: 04/05/2024 19:19:49) Rev: 1

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Contact/Location: ROBERT BAIER - IDECIN