

OIL ANALYSIS REPORT

Sample Rating Trend





MACK 813005

Component Diesel Engine Fluid

DIESEL ENGINE OIL SAE 40 (--- GAL)

DIAGNOSIS

Recommendation

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

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

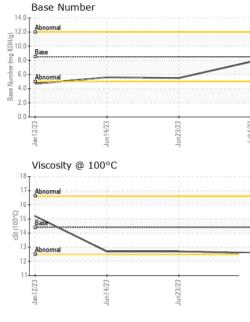
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

			Jul2023			
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086231	GFL0057564	GFL0086244
Sample Date		Client Info		14 Jul 2023	23 Jun 2023	14 Jun 2023
Machine Age	hrs	Client Info		2327	2205	425
Oil Age	hrs	Client Info		2327	2205	2180
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	9	40	38
Chromium	ppm	ASTM D5185m	>20	<1	1	2
Nickel	ppm	ASTM D5185m	>5	2	11	11
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	3	<1	0
Lead	ppm	ASTM D5185m	>40	0	0	2
Copper	ppm	ASTM D5185m	>330	5	28	28
Tin		ASTM D5185m	>15	ر 1	2	3
Vanadium	ppm ppm	ASTM D5185m	>15	0	0	0
Cadmium		ASTM D5185m		0	0	<1
	ppm			0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 26	history1 5	history2 6
	ppm ppm					
Boron		ASTM D5185m	250	26	5	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	26 0	5 14	6 4
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	26 0 70	5 14 71	6 4 67
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	26 0 70 <1	5 14 71 1	6 4 67 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	26 0 70 <1 818	5 14 71 1 875	6 4 67 2 859
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	26 0 70 <1 818 1143	5 14 71 1 875 1187	6 4 67 2 859 1142
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	26 0 70 <1 818 1143 995	5 14 71 1 875 1187 887	6 4 67 2 859 1142 879
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	26 0 70 <1 818 1143 995 1189	5 14 71 1 875 1187 887 1232	6 4 67 2 859 1142 879 1161
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	26 0 70 <1 818 1143 995 1189 3201	5 14 71 1 875 1187 887 1232 2719	6 4 67 2 859 1142 879 1161 2551
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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 limit/base >25	26 0 70 <1 818 1143 995 1189 3201 current	5 14 71 1 875 1187 887 1232 2719 history1	6 4 67 2 859 1142 879 1161 2551 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	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 >216	26 0 70 <1 818 1143 995 1189 3201 current 5	5 14 71 1 875 1187 887 1232 2719 history1 7	6 4 67 2 859 1142 879 1161 2551 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	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 >216	26 0 70 <1 818 1143 995 1189 3201 current 5 0	5 14 71 1 875 1187 887 1232 2719 history1 7 3	6 4 67 2 859 1142 879 1161 2551 history2 9 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20	26 0 70 <1 818 1143 995 1189 3201 current 5 0 1	5 14 71 1 875 1187 887 1232 2719 history1 7 3 2	6 4 67 2 859 1142 879 1161 2551 history2 9 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >216 >216 >20 Imit/base >4	26 0 70 <1 818 1143 995 1189 3201 current 5 0 1 1	5 14 71 1 875 1187 887 1232 2719 history1 7 3 2 2	6 4 67 2 859 1142 879 1161 2551 history2 9 3 2 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 20 imit/base >25 >216 >20 imit/base >20	26 0 70 <1 818 1143 995 1189 3201 current 5 0 1 1 current 0.3	5 14 71 1 875 1187 887 1232 2719 history1 7 3 2 2 history1 1.1	6 4 67 2 859 1142 879 1161 2551 history2 9 3 2 9 3 2 2 history2 1
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	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 20 imit/base >25 >216 >20 imit/base >20	26 0 70 <1 818 1143 995 1189 3201 <i>current</i> 5 0 1 <i>current</i> 0.3 5.8	5 14 71 1 875 1187 887 1232 2719 history1 7 3 2 2 1.1 1.1 1.1 10.4	6 4 67 2 859 1142 879 1161 2551 history2 9 3 2 9 3 2 2 history2 1 10.0
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 TS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 20 i mit/base >25 >216 >20 20 i mit/base >4 >20 >30	26 0 70 <1 818 1143 995 1189 3201 current 5 0 1 1 current 0.3 5.8 17.0	5 14 71 1 875 1187 887 1232 2719 history1 7 3 2 2 history1 1.1 1.0.4 22.4	6 4 67 2 859 1142 879 1161 2551 history2 9 3 2 9 3 2 2 history2 1 1 0.0 22.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 imit/base >25 >216 >20 >20 imit/base >30 imit/base	26 0 70 <1 818 1143 995 1189 3201 Current 5 0 1 Current 0.3 5.8 17.0 Current	5 14 71 1 875 1187 887 1232 2719 history1 7 3 2 7 3 2 <i>history1</i> 1.1 10.4 22.4 <i>history1</i>	6 4 67 2 859 1142 879 1161 2551 history2 9 3 2 9 3 2 history2 1 10.0 22.0 history2



OIL ANALYSIS REPORT

VISUAL



	Laboratory Sample No.	: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0086231 Received : 19 Jul 2023 6905 Roosevelt : 05902747 Diagnosed : 20 Jul 2023 Fairburn : 10564103 Diagnostician : Wes Davis US 3 : FLEET Contact Customer Service at 1-800-237-1369. erjones@gflenv re outside of the ISO 17025 scope of accreditation. T: (678)630- ifications are based on the simple acceptance decision rule (JCGM 106:2012)						
		Abnomal 12 12 11 12 12 12 12 12 12 12 12 12 12		Jun23/23	2.0	Jan 12/23	Jun14/23	Jul 4/23
		12			(0) HOX W 8.0 .0.0 mp er 6.0.0 mp er 888	Abnormal		
		(0-001) ts 14			у ш ы	Base		
		16			(B/HO)	Page		
		17- Abnormal			12.0	Abnormal		
		Viscosity @ 100°C	. 		14.0	Base Number		
		EZZ1 luer Viscosity @ 100°C	-	Jun23/23	Jul14/23			
		100						
		200 tin						
		Non-ferrous Meta	ls					
		Jan12/23		Jun23/23 -	Jul14/23 •			
		20						
		E 40 30		~				
00 00 mil	- C2/C7/UDC	80 70 60						
		GRAPHS Ferrous Alloys						
		Visc @ 100°C	cSt	ASTM D445	14.4	12.6	12.7	12.7
		FLUID PROPE	RTIES	method	limit/base	current	history1	history2
C		Free Water	scalar	*Visual		NEG	NEG	NEG
	3	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
50/56-mil	c2/c2/ln1	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
23 -	_ Sand/Dirt Appearance	scalar scalar	*Visual *Visual	NONE NORML	NONE NORML	NONE NORML	NONE NORML	
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE
		Silt	scalar	*Visual	NONE	NONE	NONE	NONE
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		VISUAL		method	limit/base	current	history1	history2