

# **OIL ANALYSIS REPORT**

SAMPLE INFORMATION method

Sample Rating Trend



Machine Id

#### MACK R-7 Component Diesel Engine Fluid 10W30 DURON SEMI (--- QTS)

#### DIAGNOSIS

### 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.

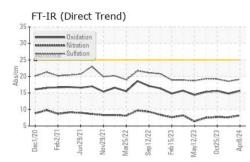
## Fluid Condition

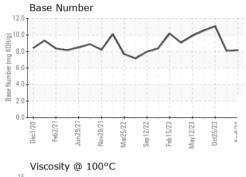
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

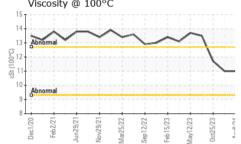
		method	iimit/base	current	riistory i	nistoryz
Sample Number		Client Info		LP0001220	LP0001335	LP0001107
Sample Date		Client Info		08 Apr 2024	01 Feb 2024	25 Oct 2023
Machine Age	hrs	Client Info		19179	18688	18188
Oil Age	hrs	Client Info		489	450	400
Oil Changed	1113	Client Info		Changed	Changed	Changed
Ũ		Client Inio		NORMAL	Ū	0
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	۷	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 METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	8	8	10
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m		1	<1	1
Lead		ASTM D5185m	>40	<1	<1	1
	ppm	ASTM D5185m		<1		1
Copper Tin	ppm				<1	<1
	ppm		>15	0	<1	
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 5	history1 19	history2 1
	ppm ppm		limit/base		· · · · · ·	
Boron		ASTM D5185m	limit/base	5	19	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	5 0	19 0	1
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	5 0 59 0	19 0 60	1 4 60
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	5 0 59 0 876	19 0 60 <1 902	1 4 60 0 909
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	5 0 59 0 876 1207	19 0 60 <1 902 992	1 4 60 0 909 1019
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	5 0 59 0 876 1207 1128	19 0 60 <1 902 992 1034	1 4 60 0 909 1019 1007
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	5 0 59 0 876 1207 1128 1275	19 0 60 <1 902 992 1034 1228	1 4 60 0 909 1019 1007 1223
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		5 0 59 0 876 1207 1128 1275 3212	19 0 60 <1 902 992 1034 1228 3028	1 4 60 0 909 1019 1007 1223 3137
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	limit/base	5 0 59 0 876 1207 1128 1275 3212 current	19 0 60 <1 902 992 1034 1228 3028 history1	1 4 60 0 909 1019 1007 1223 3137 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	5 0 59 0 876 1207 1128 1275 3212 current 3	19 0 60 <1 902 992 1034 1228 3028 history1 3	1 4 60 0 909 1019 1007 1223 3137 history2 3
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	limit/base	5 0 59 0 876 1207 1128 1275 3212 current	19 0 60 <1 902 992 1034 1228 3028 history1	1 4 60 0 909 1019 1007 1223 3137 history2 3 3 3
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	5 0 59 0 876 1207 1128 1275 3212 current 3	19 0 60 <1 902 992 1034 1228 3028 history1 3	1 4 60 0 909 1019 1007 1223 3137 history2 3
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	limit/base	5 0 59 0 876 1207 1128 1275 3212 current 3 5	19 0 60 <1 902 992 1034 1228 3028 history1 3 4	1 4 60 0 909 1019 1007 1223 3137 history2 3 3 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	5 0 59 0 876 1207 1128 1275 3212 current 3 5 2	19 0 60 <1 902 992 1034 1228 3028 history1 3 4 0	1 4 60 0 909 1019 1007 1223 3137 history2 3 3 3 3 3 3
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	5 0 59 0 876 1207 1128 1275 3212 current 3 5 2 2 current 0.2	19 0 60 <1 902 992 1034 1228 3028 history1 3 4 0 history1 0.2	1 4 60 0 909 1019 1007 1223 3137 history2 3 3 3 3 3 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	limit/base >25 >20 limit/base >3	5 0 59 0 876 1207 1128 1275 3212 current 3 5 2 2	19 0 60 <1 902 992 1034 1228 3028 history1 3 4 0 bistory1	1 4 60 0 909 1019 1007 1223 3137 history2 3 3 3 3 3 history2 0.3
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	Imit/base >25 >20 Imit/base >3 >20 >3 >20 >30	5 0 59 0 876 1207 1128 1275 3212 current 3 5 2 2 current 0.2 8.2 19.1	19 0 60 <1 902 992 1034 1228 3028 history1 3 4 0 <u>history1</u> 0.2 7.6 18.5	1 4 60 0 909 1019 1007 1223 3137 history2 3 3 3 3 3 <b>history2</b> 0.3 7.7 19.2
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	limit/base >25 >20 limit/base >3 >20 >30 >30	5 0 59 0 876 1207 1128 1275 3212 current 3 5 2 2 current 0.2 8.2 19.1	19 0 60 <1 902 992 1034 1228 3028 history1 3 4 0 0 history1 0.2 7.6 18.5 history1	1 4 60 0 909 1019 1007 1223 3137 history2 3 3 3 history2 0.3 7.7 19.2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	Imit/base >25 >20 Imit/base >3 >20 >3 >20 >30	5 0 59 0 876 1207 1128 1275 3212 current 3 5 2 current 0.2 8.2 19.1 current 15.6	19 0 60 <1 902 992 1034 1228 3028 history1 3 4 0 history1 0.2 7.6 18.5 history1 14.8	1 4 60 0 909 1019 1007 1223 3137 history2 3 3 3 0 history2 0.3 7.7 19.2 history2 15.6
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	limit/base >25 >20 limit/base >3 >20 >30 >30	5 0 59 0 876 1207 1128 1275 3212 current 3 5 2 2 current 0.2 8.2 19.1	19 0 60 <1 902 992 1034 1228 3028 history1 3 4 0 0 history1 0.2 7.6 18.5 history1	1 4 60 0 909 1019 1007 1223 3137 history2 3 3 3 3 3 history2 0.3 7.7 19.2 history2



# **OIL ANALYSIS REPORT**







	VISUAL		method				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
of Concession of Concession, Survey, S	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
0ct25/23 Apr8/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
	FLUID PROPER	_		limit/base			
$\sim$			method ASTM D445		current 11.0	history1	history2 11.7
	Visc @ 100°C GRAPHS	cSt	ASTM D445		11.0	11.0	11.7
	Iron (ppm)				Lead (ppm)		
	<sup>250</sup> T			100			
lct25/23	200 - Severe			80	Severe		
0ct25/23	E 150-			E 60			
	Abnormal			8 40	Abnormal		
	50-			20	•		
	Dec1/20 Feb2/21 Jun29/21 Nov29/21	Mar25/22 Sep12/22	Feb 15/23 May 12/23	Apr8/24	Dec1/20 Feb2/21 Jun29/21	Nov29/21 Mar25/22 Sep12/22	Feb 15/23 May 12/23 0ct 25/23
		Sep	May Na	n A	~		May May
	Aluminum (ppm)				Chromium (	opm)	
	50 40 Severe			50	Severe		
				40			
23 -	20 - Abnormal			<sup>30</sup>	Abnormal		
0ct25/23							
				10			
		5/22	5/23 -			9/21- 5/22 - 2/22 -	eb15/23 - ay12/23 - )ct25/23 -
	Dec1/20 Feb2/21 Jun29/21 Nov29/21	Mar25/22 Sep12/22	Feb15/23 May12/23	April	Dec1/20 Feb2/21 Jun29/21	Nov29/21 Mar25/22 Sep12/22	Feb 15/23 May 12/23 0ct 25/23
	Copper (ppm)				Silicon (ppm	)	_
	400 Severe			80 Severe	,		
	300 -			60	• • • • • • • • • • • • • • • • • • • •		
	틆 200-			۾ 40			
					Abnormal		
	100-			20			
	/21 /21	722	723	24	20 21 121	121	23
	Dec1/20 Feb2/21 Jun29/21 Nov29/21	Mar25/22 Sep12/22	Feb 15/23 May 12/23	ucuzo/23	Dec1/20 Feb2/21 Jun29/21	Nov29/21 Mar25/22 Sep12/22	Heb 15/23 May 12/23 Oct 25/23
	Viscosity @ 100°	2		12.0	Base Numbe	r	
				B 10.0			~
	Q 14 Abnormal	~	~~	) 28.0	$\sim$	$\sim$	~ \_
	(), 001 112 75			(b)H10.0 B(b)H0.0 B(b)H0.0 B(b)H0.0 B(b)H0.0 B(b)H0.0 B(b)H0.0 B(b)H0.0 B(b)H0.0 B(b)H0.0 B(b)H0.0 C(b			
	<sup>310</sup> - Abnormal			4.0 2			
	8			++ 0.0	)		
	Dec1/20 Feb2/21 Jun29/21 Nov29/21	Mar25/22 - Sep 12/22 -	Feb 15/23 - //ay12/23 -		Dec1/20 Feb2/21	Nov29/21	Heb15/23 - //ay12/23 - 0ct25/23 -
	Dec Jun2 Nov2	Mar25/22 Sep12/22	Feb15/23 May12/23	Api	Dec Fet Jun2	Novi Mar2 Sep1	Heb 15/23 May12/23 Oct25/23
			_				
		1 Madico	on Ave., Car	y, NC 27513		:	SELECT DEM
poratory	: WearCheck USA - 50	/ maulsu					
mple No.	: WearCheck USA - 50 : LP0001220	Recei	ived :1	6 Apr 2024		4	
mple No. Number		Recei Teste	ived :1 ed :1				40 LOWELL RI SALEM, NI US 0307

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

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Contact/Location: STAN DOGIL - SELSALNH

T: (603)401-0147

F: (603)458-7389