

WEAR CONTAMINATION FLUID CONDITION

NORMAL NORMAL



Mackine Id
MACK RO-28
Component
Diesel Engine

GIBRALTAR 15W/40 SUPER S-3 LX (--- GAL)

Test	GIDITALI ATT 10W/40 COT ETT 0		/					
Resample at the next service interval to monitor.	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age hrs Citer Info 12483		Sample Number		Client Info		WC0875507		
Oil Age hrs Client Info 600		Sample Date		Client Info		04 Jun 2024		
Filter Age		Machine Age	hrs	Client Info		12483		
Oil Changed Filter Changed Sample Status		Oil Age	hrs	Client Info		600		
Filter Changed Sample Status		•	hrs	Client Info		600		
Metal levels are typical for a new component breaking in. Iron ppm ASTM DSIBS >20 <1								
Iron				Client Info		_		
Chromium ppm ASTM D6186m S20 <1		Sample Status				NORMAL		
Chromium ppm ASTM D6186m S20 <1	WEAR	Iron	nnm	ASTM D5185m	>120	11		
Metal levels are typical for a new component breaking in. Nickel ppm ASTM D6188m >2 <1								
Titanium ppm ASTM D5185m >2 <1								
Silver ppm ASTM D5185m >20 1								
Aluminum ppm ASTM D5185m >20 1								
Lead								
Copper								
Tin								
Vanadium Vanadium								
White Metal Scalar *Visual NONE NO		Vanadium		ASTM D5185m		<1		
Silicon ppm ASTM D5185m >25 4		White Metal	scalar	*Visual	NONE	NONE		
Potassium ppm ASTM D5185m >2.0 1		Yellow Metal	scalar	*Visual	NONE	NONE		
Potassium ppm ASTM D5185m >2.0 1								
There is no indication of any contamination in the oil. Fuel WC Method >0.2 NEG Method Soot WC Method >0.2 NEG Method Soot WC Method >0.2 NEG Nitration Abs/cm *ASTM D7644 >4 0.4 Sulfation Abs/cm *ASTM D7644 >20 8.4 Sulfation Abs/lmm *ASTM D7645 >20 19.6 Sulfation Abs/lmm *ASTM D7645 >20 19.6 Sulfation Abs/lmm *ASTM D7645 >20 19.6 Sand/Dirt Soalar *Visual NONE NONE NONE Appearance Scalar *Visual NORML NORM	CONTAMINATION							
Water	There is no indication of any contamination in the oil.		ppm					
Glycol Scot % % 'ASTM D7844 A								
Soot %					>0.2			
Nitration Abs/cm *ASTM D7624 >20 8.4		-	0/		4			
Sulfation Abs/.lmm *ASTM D7415 >30 19.6 Silt scalar *Visual NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORML NO								
Silt scalar *Visual NONE NONE NONE Debris scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NORML N								
Debris Scalar *Visual NONE NONE Sand/Dirt Scalar *Visual NONE NONE Sand/Dirt Scalar *Visual NONE NONE Sand/Dirt Scalar *Visual NORML NORML Sand NORML NORML Scalar *Visual NORML Scalar *Visual NORML								
Sand/Dirt Scalar *Visual NONE NONE NONE Appearance Scalar *Visual NORML NORM								
Appearance								
Calcium Calc								
Emulsified Water scalar *Visual >0.2 NEG								
Sodium ppm ASTM D5185m 5								
Boron ppm ASTM D5185m 0								
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service. Barium ppm ASTM D5185m 66 71 Manganese ppm ASTM D5185m 1000 985 Calcium ppm ASTM D5185m 1050 1393 Phosphorus ppm ASTM D5185m 1150 1119 Zinc ppm ASTM D5185m 1270 1426 Sulfur ppm ASTM D5185m 1270 1426 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3	FLUID CONDITION	Sodium	ppm	ASTM D5185m		5		
oil. The condition of the oil is suitable for further service. Molybdenum ppm ASTM D5185m 66 71 Manganese ppm ASTM D5185m 1000 985 Calcium ppm ASTM D5185m 1050 1393 Calcium ppm ASTM D5185m 1150 1119 Zinc ppm ASTM D5185m 1270 1426 Sulfur ppm ASTM D5185m 3850 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3	The DN regult indicates that there is quitable alkalinity remaining in the	Boron	ppm	ASTM D5185m		4		
Molybdenum ppm ASTM D5185m 66 71 Magnesium ppm ASTM D5185m 1000 985 Calcium ppm ASTM D5185m 1050 1393 Phosphorus ppm ASTM D5185m 1150 1119 Zinc ppm ASTM D5185m 1270 1426 Sulfur ppm ASTM D5185m 3850 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3	, ,							
Magnesium ppm ASTM D5185m 1 000 985 Calcium ppm ASTM D5185m 1050 1393 Phosphorus ppm ASTM D5185m 1150 1119 Zinc ppm ASTM D5185m 1270 1426 Sulfur ppm ASTM D5185m 3850 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3		•			66			
Calcium ppm ASTM D5185m 1050 1393 Phosphorus ppm ASTM D5185m 1150 1119 Zinc ppm ASTM D5185m 1270 1426 Sulfur ppm ASTM D5185m 3850 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3								
Phosphorus ppm ASTM D5185m 1150 1119 Zinc ppm ASTM D5185m 1270 1426 Sulfur ppm ASTM D5185m 3850 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3		•						
Zinc ppm ASTM D5185m 1270 1426 Sulfur ppm ASTM D5185m 3850 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3								
Sulfur ppm ASTM D5185m 3850 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3		•						
Oxidation Abs/.1mm *ASTM D7414 >25 15.1 Base Number (BN) mg KOH/g ASTM D2896 10.1 7.3					1270			
Base Number (BN) mg KOH/g					0.5			
Visc @ 100°C cSt ASIM D445 15.5 13.6								
		Visc @ 100°C	cSt	ASTM D445	15.5	13.6		





Certificate L2367

Laboratory Sample No.

: WC0875507 Lab Number : 06223186

Unique Number : 11101383

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 28 Jun 2024 **Tested**

Diagnosed Test Package : MOB 1 (Additional Tests: TBN)

: 28 Jun 2024 : 28 Jun 2024 - Wes Davis

OAKRIDGE WASTE 307 WHITE ST DANBURY, CT US 06810 Contact: CHRIS CONTI

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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)

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