WEAR
CONTAMINATION
FLUID CONDITION

NORMAL NORMAL



MACK 181
Component
Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (--- GAL)

Test								
Sample Date	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Cate Client Info On Mark 242		Sample Number		Client Info		PCA0074617		
Cil Age	Hesample at the next service interval to monitor.	Sample Date		Client Info		07 Mar 2024		
Filter Age		Machine Age	hrs	Client Info		19500		
Colic Changed Cilent Info N/A		Oil Age	hrs	Client Info		350		
Filter Changed Client Info N/A		•	hrs	Client Info		350		
Normal N		Oil Changed		Client Info		N/A		
Iron		Filter Changed		Client Info		N/A		
All component wear rates are normal. Chromium ppm ASTM 058555 50 0 Titanium ppm ASTM 05855 50 0 Titanium ppm ASTM 05855 50 0 Silver ppm ASTM 05855 50 0 Aluminum ppm ASTM 05855 50 0 ASTM 05855 0 0 AS		Sample Status				NORMAL		
All component wear rates are normal. Chromium ppm ASTM 058555 50 0 Titanium ppm ASTM 05855 50 0 Titanium ppm ASTM 05855 50 0 Silver ppm ASTM 05855 50 0 Aluminum ppm ASTM 05855 50 0 ASTM 05855 0 0 AS	WEAR	Iron	nnm	ΔSTM D5185m	\120	7		
Nickel ppm ASTM D5185n >5 0	WEAR							
Titanium ppm ASTM D5185m >2 79	All component wear rates are normal.							
Silver ppm ASTM D5165m 20 6								
Aluminum ppm ASTM D5185m >20 6								
Lead ppm ASTM D5185m 3-40 <1								
Copper								
Tin								
Vanadium Vanadium Vanite Metal Scalar Visual NONE NONE NONE Vanite Metal Scalar Visual NONE NONE Vanite Metal Valual NONE NONE Vanite None Vanite None No								
White Metal Scalar "Visual NONE NO			• •					
CONTAMINATION		White Metal	scalar	*Visual	NONE	NONE		
Potassium ppm ASTM D5185m >20 8		Yellow Metal	scalar	*Visual	NONE	NONE		
Potassium ppm ASTM D5185m >20 8								
Fuel WC Method >3.0 <1.0	CONTAMINATION	Silicon	ppm					
Valer Wc Method S.3.0 NEG NEG NEG NEG NEG NEG NEG NEG NEg	There is no indication of any contamination in the oil		ppm			-		
Glycol Scot % % 'ASTM D7844 >4 0.2 Nitration Abs/mm 'ASTM D7844 >4 0.2 Sulfation Abs/mm 'ASTM D7845 >30 18.7 Sulfation Abs/mm 'ASTM D7845 >30 18.7 Sulfation Abs/mm 'ASTM D7845 >30 18.7 Silt Scalar 'Visual NONE NONE NONE NONE Debris Scalar 'Visual NONE NONE NONE Appearance Scalar 'Visual NORML	There is no indication of any contamination in the oil.							
Soot %					>0.2			
Nitration Abs/cm *ASTM D7624 >20 8.2		•						
Sulfation Abs/.lmm *ASTM D7415 >30 18.7								
Silt Scalar *Visual NONE NONE NONE Sand/Dirt Scalar *Visual NONE NONE NONE Sand/Dirt Scalar *Visual NONE NONE Sand/Dirt Scalar *Visual NONE NONE Scalar *Visual NORE NORE NORE Scalar *Visual NORE NORE								
Debris Scalar *Visual NONE								
Sand/Dirt Scalar *Visual NONE NORE Appearance Scalar *Visual NORML N								
Appearance Scalar *Visual NORML NORM								
Codor Emulsified Water Scalar *Visual NORML NORML								
Emulsified Water scalar *Visual >0.2 NEG								
Sodium ppm ASTM D5185m >158 3								
Boron ppm ASTM D5185m 250 121 Barium ppm ASTM D5185m 100 0 Molybdenum ppm ASTM D5185m 100 8 Magnesium ppm ASTM D5185m 100 8 Magnesium ppm ASTM D5185m 450 511 Calcium ppm ASTM D5185m 3000 1864 Phosphorus ppm ASTM D5185m 1150 1103 Zinc ppm ASTM D5185m 1350 1324 Sulfur ppm ASTM D5185m 4250 4725 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9			Scalai	VISUAI	>0.2	NEG		
Boron ppm ASTM D5185m 250 121 Barium ppm ASTM D5185m 100 0 Molybdenum ppm ASTM D5185m 100 8 Magnesium ppm ASTM D5185m 100 8 Magnesium ppm ASTM D5185m 450 511 Calcium ppm ASTM D5185m 3000 1864 Phosphorus ppm ASTM D5185m 1150 1103 Zinc ppm ASTM D5185m 1350 1324 Sulfur ppm ASTM D5185m 4250 4725 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9	FLUID CONDITION	Sodium	ppm	ASTM D5185m	>158	3		
oil. The condition of the oil is suitable for further service. Molybdenum ppm ASTM D5185m 100 8 Manganese ppm ASTM D5185m 450 511 Calcium ppm ASTM D5185m 3000 1864 Phosphorus ppm ASTM D5185m 1150 1103 Zinc ppm ASTM D5185m 1350 1324 Sulfur ppm ASTM D5185m 4250 4725 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9		Boron	ppm	ASTM D5185m	250	121		
Molybdenum ppm ASTM D5185m 100 8 Manganese ppm ASTM D5185m <1	· · · · · · · · · · · · · · · · · · ·	Barium	ppm	ASTM D5185m	10	0		
Magnesium ppm ASTM D5185m 450 511 Calcium ppm ASTM D5185m 3000 1864 Phosphorus ppm ASTM D5185m 1150 1103 Zinc ppm ASTM D5185m 1350 1324 Sulfur ppm ASTM D5185m 4250 4725 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9		Molybdenum	ppm	ASTM D5185m	100	8		
Calcium ppm ASTM D5185m 3000 1864 Phosphorus ppm ASTM D5185m 1150 1103 Zinc ppm ASTM D5185m 1350 1324 Sulfur ppm ASTM D5185m 4250 4725 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9		Manganese	ppm	ASTM D5185m		<1		
Phosphorus ppm ASTM D5185m 1150 1103 Zinc ppm ASTM D5185m 1350 1324 Sulfur ppm ASTM D5185m 4250 4725 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9		Magnesium	ppm	ASTM D5185m	450	511		
Zinc ppm ASTM D5185m 1350 1324 Sulfur ppm ASTM D5185m 4250 4725 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9		Calcium	ppm	ASTM D5185m	3000	1864		
Sulfur ppm ASTM D5185m 4250 4725 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9		Phosphorus	ppm	ASTM D5185m	1150	1103		
Oxidation Abs/.1mm *ASTM D7414 >25 14.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9			ppm	ASTM D5185m	1350	1324		
Base Number (BN) mg KOH/g ASTM D2896 8.5 6.9			ppm			4725		
Visc @ 100°C cSt ASTM D445 14.4 13.9			0 0					
		Visc @ 100°C	cSt	ASTM D445	14.4	13.9		





Certificate L2367

Laboratory Sample No.

: PCA0074617 Lab Number : 06188868 Unique Number : 11045620

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 23 May 2024 **Tested** : 24 May 2024 : 24 May 2024 - Wes Davis

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

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)

TRI-STATE DISPOSAL

14050 WOOD ST DIXMOOR, IL US 60426

Contact: Service Manager

T:

F: