

## Machine Id LIEBHERR 31249 Component Diesel Engine Fluid LIEBHERR MOTOROIL 10W-40 LOW ASH (--- QTS)

Test         U/U         Method         Land         Current         Halong         Halong           Sample Date         Sample Date         Client Holo         9789/202         39.40/202         3		 T+		N / a + la l	1.5	0	L Batavi vi	L Bata a O
No corrective action is recommended at this time. Resample at the service interval to monitor.         Sample Date Machine Age Inservice inter	RECOMMENDATION		UOM		Limit/Abn		,	
Machine Age         hrs         Client Info         3866         207.5         2402           Oil Ohanged         Filter Age         hrs         Client Info         1500         500         500           Oil Ohanged         Client Info         1500         500         500         500           Oil Ohanged         Client Info         Changed         Changed <t< th=""><th>No corrective action is recommended at this time. Resample at the</th><th>•</th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	No corrective action is recommended at this time. Resample at the	•						
OI Aga         hrs         Cleant Info         1500         800         800           Filter Agage         hrs         Cleant Info         1500         600         500           Oi Changed         Cleant Info         1500         600         500         500           Sample Status         Cleant Info         1500         600         500         500           VEAR         Iron         ppm         AST/L05185n         >100         19         13         23           All component wear rates are normal.         Iron         ppm         AST/L05185n         >40         0         0         0         1           Nicke         ppm         AST/L05185n         >40         0         0         0         1	next service interval to monitor.		bro				0	
Filter Age         hrs         Client Info         1500         500         500           Oil Changed         Client Info         Changed         Chan		Ū						
OI Changed Fitter Changed Sample Status         Client Info Netmade Sample Status         Changed Sampe Netmade Netma		-						
Filter Changed Sample Status         Client Into         Changed NTENTION         Changed NORMAL			1115					
Sample Status         VTENTON         IOPIMAL         NORMAL           WEAR         Iron         pm         ASTU 0585         -100         19         9         23           All component wear rates are normal.         Nokel         pm         ASTU 0585         -20         -21         -21         -21           Nickel         pm         ASTU 0585         -20         -2         -21         -21         -21           Nickel         pm         ASTU 0585         -20         2         -21						Ű	-	
WEAR         Iron         ppm         ASIND516m         >100         19         19         23           All component wear rates are normal.         Chromium         ppm         ASIND516m         >20         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         10         01         0		-					0	-
All component wear rates are normal.         Chromium         ppm         ASTM 05185m         >20								
All component wear rates are normal.         Nickel         ppm         ASTM D5356         p4         0         0         0           Titanium         ppm         ASTM D5156         -30         0         0         0           Silver         ppm         ASTM D5156         -30         0         0         0           Aluminum         ppm         ASTM D5156         -30         0         0         0           Lead         ppm         ASTM D5156         -30         0         0         0         0           Vanadium         ppm         ASTM D5156         -30         0		Iron	ppm	ASTM D5185m	>100	19	19	23
Nicket         ppm         ASIM Distant         p4         0         0         0           Silver         ppm         ASIM Distant		Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver         ppm         ASTM D185m         -30         0         0         0           Auminum         ppm         ASTM D185m         -30         2         4         3           Lead         ppm         ASTM D185m         -30         0         1         -1           Copper         ppm         ASTM D185m         -15         -1         -1         -1           Vanadium         ppm         ASTM D185m         -15         -1         -1         -1         -1           Vanadium         ppm         ASTM D185m         -15         -1         -1         -1         -1           Vanadium         ppm         ASTM D185m         -15         -2         6         -7         6           Vanadium         ppm         ASTM D185m         -25         6         7         6           Valid         NONE         NONE         NONE         NONE         NONE         NONE           Tests indicate that there is no fuel present in the oil. There is no indication of any contamination in the oil.         7         6         7         6           Glycol         Water         MSTM D185m         -20         4         3         1.1         3		Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum         ppm         ASTM D5185m         >20         2         4         3           Lead         ppm         ASTM D5185m         >300         1         <1           Copper         ppm         ASTM D5185m         >310         5         9         5           Tin         ppm         ASTM D5185m         >15         <1         <1         <1           White Metal         scalar         "Visual         NONE         N		Titanium	ppm	ASTM D5185m		<1	<1	<1
Lead         ppm         ASTM D518m         >40         0         1         <1		Silver	ppm	ASTM D5185m	>3	0	0	0
Copper Tin         ppm         ASTM D516sn         >330         5         9         5           Tin         ppm         ASTM D516sn         >15         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         1         <1         <1		Aluminum	ppm	ASTM D5185m	>20	2	4	3
Tin         ppm         ASTM D5185m         >15         <1		Lead	ppm	ASTM D5185m	>40	0	1	<1
Vanadium         ppm         ASTM D5165m         0         0         0         0           White Metal         scalar         'Visual         NONE		Copper	ppm	ASTM D5185m	>330	5	9	5
White Metal Yellow Metal         scalar         'Visual         NONE		Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Yellow Metal         scalar         *Visual         NONE         NONE         NONE         NONE         NONE           CONTAMINATION         Silicon         ppm         ASTM D5185m         >20         <1         3         <1           Tests indicate that there is no fuel present in the oil. There is no indication of any contamination in the oil.         There is not contamination in the oil.         None         None         None         None         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0		Vanadium	ppm	ASTM D5185m		0	0	0
CONTAMINATION         Silicon         ppm         ASTM 05185m         >25         6         7         6           Tests indicate that there is no fuel present in the oil.         The oil.         Potassium         ppm         ASTM 05185m         >20         <1         3         <1           Fuel         %         ASTM 03524         >5         0.3         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         1.0         <1.0<		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Potassium         ppm         ASTM DS185m         >20         <1		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Potassium         ppm         ASTM DS185m         >20         <1								
Fuel       %       ASTM D3524 >5       0.3       <1.0       <1.0         indication of any contamination in the oil.       Water       WC Method       >0.2       NEG       NEG       NEG         Glycol       WC Method       >0.2       NEG       NEG       NEG       NEG         Soot %       %       %STM D7844       >30       0.1       0.1       0.1         Nitration       Abs/cm       %STM D7844       >20       10.0       9.9       11.4         Sulfation       Abs/tm       YSTM D7844       >30       22.0       21.7       23.5         Sulfation       Abs/tm       YStual       NONE       NORE       NORE <t< th=""><th>CONTAMINATION</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	CONTAMINATION							
indication of any contamination in the oil.       indication of any contamination of any contaminating any contamination of any contamination of any conta								
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         WC Method         NEG         NEG         NEG         NEG           Soot %         %         WSTM D764/         >30         0.1         0.1         0.1           Nitration         Abs/cm         'ASTM D762/         >20         10.0         9.9         11.4           Sulfation         Abs/cm         'Visual         NONE         NONE         NONE         NONE         NONE           Sand/Dir         scalar         'Visual         NORM			%					
Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         10.0         9.9         11.4           Sulfation         Abs/cm         *ASTM D7624         >20         10.0         9.9         11.4           Sulfation         Abs/cm         *ASTM D7415         >30         22.0         21.7         23.5           Sitt         scalar         *Visual         NONE         NORE	,				>0.2			
Nitration         Abs/cm         *ASTM D7624         >20         10.0         9.9         11.4           Sulfation         Abs/tm         *ASTM D7615         >30         22.0         21.7         23.5           Silt         scalar         *Visual         NONE         NONE         NONE         NONE         NONE         NONE         LIGHT           Sand/Dirt         scalar         *Visual         NONE         NORE								
SulfationAbs/Inm'ASTM D74153-3022.021.723.5Siltscalar'VisualNONENONENONENONENONENONEDebrisscalar'VisualNONENONENONENONENONENONENONESand/Dirtscalar'VisualNONENONENONENONENONENONENONEAppearancescalar'VisualNORMNORMLNORMLNORMLNORMLNORMLNORMLNORMLDroscalar'VisualNORMNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLDroscalar'VisualNORScalar'VisualNORNORMLNORMLNORMLNORMLDroScalar'VisualNORNORMLNORMLNORMLNORMLNORMLNORMLNORMLDroScalar'VisualNORScalar'VisualNORScalar'SitalNORNORNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNOR<								
Siltscalar'VisualNONENONENONENONENONEDebrisscalar'VisualNONENONENONELIGHTSand/Dirtscalar'VisualNONENONENONENONENONEAppearancescalar'VisualNORUNORMLNORMLNORMLNORMLNORMLOdorscalar'VisualNORUNORMLNORMLNORMLNORMLNORMLDebrisscalar'VisualNORNORNORMLNORMLNORMLNORMLAppearancescalar'VisualNORNORNORMLNORMLNORMLOdorscalar'VisualNORNORNORMLNORMLNORMLDebrisscalar'VisualNORNORMLNORMLNORMLNORMLAppearancescalar'VisualNORNORMLNORMLNORMLNORMLDebrisscalar'VisualNORNORNORNORMLNORMLNORMLDebrisscalar'VisualNORNORNORNORNORNORNORThe oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.SodiumppmASTM D5185169573751BariumppmASTM D5185169S11211<111121111MaganeseppmASTM D518571S2T61761388								
Debrisscalar*VisualNONENONENONELIGHTSand/Dirtscalar*VisualNONENONENONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visualscalar*VisualscalarNORNORMLNORMLNORMLFLUID CONDITIONSodiumppmASTM D5185m16957375151BoronppmASTM D5185m16957375151BariumppmASTM D5185m16910000MolybdenumppmASTM D5185m2101111ManganeseppmASTM D5185m123139714582236187PhosphorusppmASTM D5185m167878171667331172197QidationASTASTM D5185m768888823383931172197NoridationAbs/Irm'ASTM D5185m2859340531172197OxidationAbs/Irm'ASTM D5185m2859340531172197OxidationAbs/Irm'ASTM D5185m2859340531172197						-		
Sand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Watescalar*VisualvisualsolatNORMLNORMLNORMLNORMLFLUID CONDITIONSodiumppmASTM D5185mf4S51BoronppmASTM D5185m169573751BariumppmASTM D5185m10000MolybdenumppmASTM D5185m121011MagnesiumppmASTM D5185m121011MagnesiumppmASTM D5185m123145822361CalciumppmASTM D5185m123145822361673PhosphorusppmASTM D5185m748888823839SulfurppmASTM D5185m7458688823839SulfurppmASTM D5185m745340531172197OxidationAbs:/mmASTM D5185m2517.517.422.6								
Appearancescalar*VisualNORMLFLUID CONDITIONSolderppmASTM D518516957373751373751The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.ppmASTM D51852111111111111111								
Odorscalar*VisualNORMNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGFLUID CONDITIONSodiumppmASTM D5185m169573751BoronppmASTM D5185m169573751BariumppmASTM D5185m0000MolybdenumppmASTM D5185m210<1ManganeseppmASTM D5185m21<1<1MagnesiumppmASTM D5185m724770743187CalciumppmASTM D5185m1323139714582236PhosphorusppmASTM D5185m776888823839SulfurppmASTM D5185m2859340531172197OxidationAbs/Itm*ASTM D7414>2517.422.6								
Emulsified Waterscalar*Visual>0.2NEGNEGFLUID CONDITIONThe oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.SodiumppmASTM D5185m169573751BariumppmASTM D5185m00000MolybdenumppmASTM D5185m210<1ManganeseppmASTM D5185m724770743187CalciumppmASTM D5185m724770743187CalciumppmASTM D5185m678781716673ZincppmASTM D5185m776888823839SulfurppmASTM D5185m78531172197OxidationAbs/:1mm*ASTM D741>2517.517.422.6								
FLUID CONDITIONSodiumppmASTM D5185m451The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.BoronppmASTM D5185m169573751BariumppmASTM D5185m000000MolybdenumppmASTM D5185m210<11<								
BoronppmASTM D5185m169573751BariumppmASTM D5185m00000MolybdenumppmASTM D5185m210<111<		Emuisined water	scalar	visual	>0.2	NEG	NEG	NEG
BoronppmASTM D5185m169573751BariumppmASTM D5185m0000MolybdenumppmASTM D5185m210<1ManganeseppmASTM D5185m72477007433187CalciumppmASTM D5185m1323139714582236PhosphorusppmASTM D5185m574781716673ZincppmASTM D5185m7768888233839SulfurppmASTM D5185m2859340531172197OxidationAbs/1m*ASTM D7414>2517.517.422.6	FLUID CONDITION	Sodium	ppm	ASTM D5185m		4	5	1
BariumppmASTM D5185m0000MolybdenumppmASTM D5185m210<1ManganeseppmASTM D5185m72410<1<1MagnesiumppmASTM D5185m7247700743187CalciumppmASTM D5185m724100<236PhosphorusppmASTM D5185m724770014582236PhosphorusppmASTM D5185m776888823839SulfurppmASTM D5185m776888823839SulfurppmASTM D5185m2859340531172197OxidationAbs/:mm*ASTM D7414>2517.517.422.6					169		07	
MolybdenumppmASTM D5185m210<1	,							
Manganesse       ppm       ASTM D5185m       <1								
Magnesium       ppm       ASTM D5185m       724       770       743       187         Calcium       ppm       ASTM D5185m       1323       1397       1458       2236         Phosphorus       ppm       ASTM D5185m       678       781       716       673         Zinc       ppm       ASTM D5185m       776       888       823       839         Sulfur       ppm       ASTM D5185m       2859       3405       3117       2197         Oxidation       Abs/.1mm       *ASTM D7414       >25       17.4       22.6								
Calcium       ppm       ASTM D5185m       1323       1397       1458       2236         Phosphorus       ppm       ASTM D5185m       678       781       716       673         Zinc       ppm       ASTM D5185m       776       888       823       839         Sulfur       ppm       ASTM D5185m       2859       3405       3117       2197         Oxidation       Abs/.1mm       *ASTM D7414       >25       17.4       17.4       22.6		-					743	187
Phosphorus         ppm         ASTM D5185m         678         781         716         673           Zinc         ppm         ASTM D5185m         776         888         823         839           Sulfur         ppm         ASTM D5185m         2859         3405         3117         2197           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.4         22.6		•						
Zinc       ppm       ASTM D5185m       776       888       823       839         Sulfur       ppm       ASTM D5185m       2859       3405       3117       2197         Oxidation       Abs/.tmm       *ASTM D7414       >25       17.4       22.6								
Sulfur         ppm         ASTM D5185m         2859         3405         3117         2197           Oxidation         Abs/.tmm         *ASTM D7414         >25         17.4         22.6								
Oxidation Abs/.1mm *ASTM D7414 >25 17.4 22.6		Sulfur						
		Base Number (BN)	mg KOH/g					

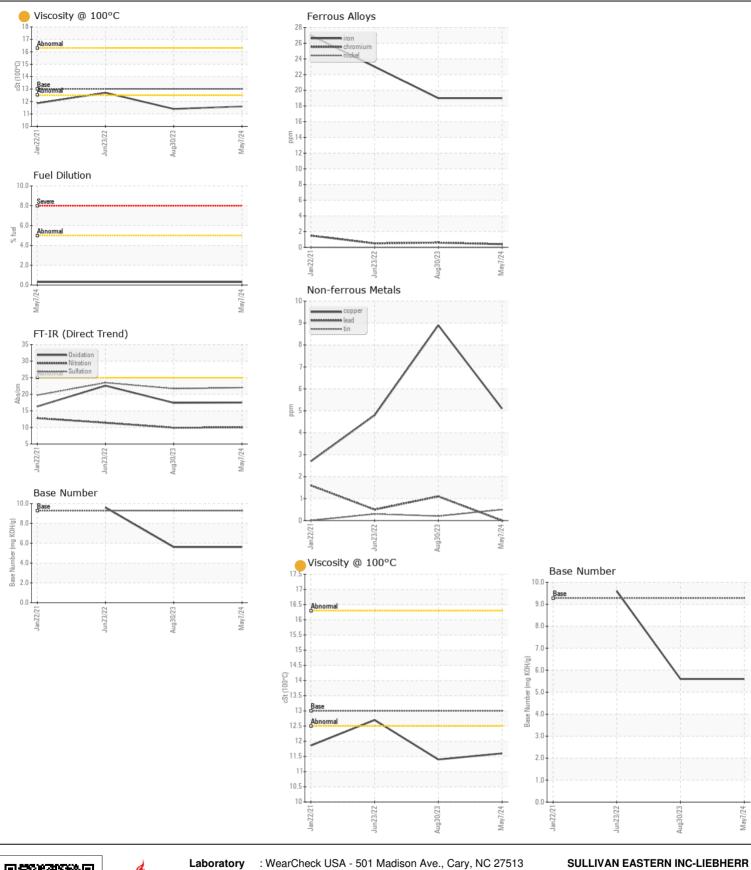
Visc @ 100°C cSt

ASTM D445 13.0

11.4

11.6

12.7



Sample No. : WC0905161 Received 2860 C SLATER RD : 13 May 2024 Lab Number : 06176754 Tested MORRISVILLE, NC : 15 May 2024 Diagnosed Unique Number : 11022807 : 15 May 2024 - Sean Felton US 27560 Test Package : CONST (Additional Tests: FuelDilution, PercentFuel, TBN) Contact: CHRIS CALTON Certificate L2367 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. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (919)484-2136

Contact/Location: CHRIS CALTON - MSCDURLH Page 2 of 2