

LIEBHERR LH50M 1203-88008

Component Front Differential

LIEBHERR GEAR BASIC 90 LS (--- GAL)

RECOMMENDATION	NDATION
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Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

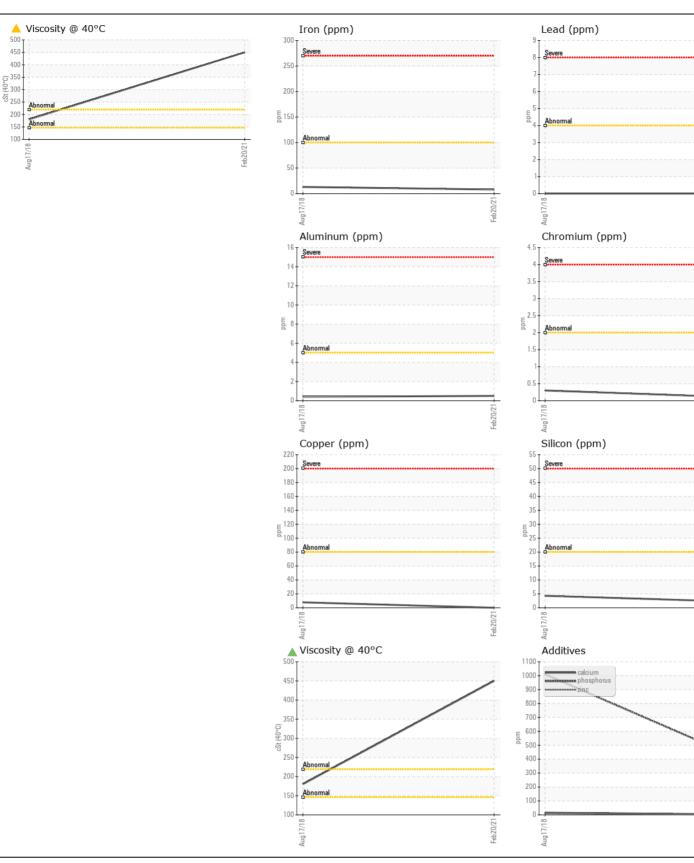
There is no indication of any contamination in the oil.

FLUID CONDITION

The oil viscosity is higher than normal. Confirm oil type.

TestUOMMethodLimit/ACurrentHistory1History2Sample NumberClient InfoLH0157979LH0130743Sample DateClient Info20 Feb 202117 Aug 2018Machine AgehrsClient Info3069980Oil AgehrsClient Info10 90980Filter AgehrsClient InfoNotChangdNotChangdGli ChangedClient InfoNotChangdNotChangdFilter ChangedClient InfoNotChangdNotChangdFilter ChangedClient InfoNotChangdNotChangdGrimerppmASTM D5185>100RatChromiumppmASTM D5185>220NickelppmASTM D5185>220NickelppmASTM D5185>240AluminumppmASTM D5185>40AgeppmASTM D5185>40VanadiumppmASTM D5185>200VandufumppmASTM D5185>200VanadiumppmASTM D5185>200VanadiumppmASTM D5185>200VanadiumppmASTM D5185>200VanadiumppmASTM D5185>200VanadiumppmASTM D	GAL)						
Sample DateClient Info20 Feb 202117 Aug 2018Machine AgehrsClient Info3069980Oil AgehrsClient Info1069980Filter AgehrsClient InfoNot ChangeNot ChangeGli ChangedIClient InfoNot ChangeNot ChangeFilter ChangedIClient InfoNot ChangeNot ChangeSample StatusIInfoNot ChangeNor AndIronppmASTM D5185>100813.3NickelppmASTM D5185>20c1NickelppmASTM D5185>20c1SilverppmASTM D5185>40AluminumppmASTM D5185>40CopperppmASTM D5185>40CopperppmASTM D5185>500VanadiumppmASTM D5185>500VandufumppmASTM D5185>2000VandufumppmASTM D5185>2000VandufumppmASTM D5185>2000SiltorgpainMSTM D5185>2000SiltorgpainASTM D5185>2000SiltorgpainMSTM D518	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine AgehrsClient Info3069980Oil AgehrsClient Info1069980Filter AgehrsClient InfoNot ChangdNot ChangdGli ChangedClient InfoNot ChangdN/AFilter ChangedClient InfoNot ChangdN/ASample StatusClient InfoNot ChangdN/AIronppmASTM D5185m>100R13NickelppmASTM D5185m>2NickelppmASTM D5185m>20SilverppmASTM D5185m>20AluminumppmASTM D5185m>40LeadppmASTM D5185m>40CopperppmASTM D5185m>500YanadiumppmASTM D5185m>500VanadiumppmASTM D5185m>2000Yellow Metalscalar'VisualNONEMODERLIGHTSiliconppmASTM D5185m>2000SiliconppmASTM D5185m>2000SoliconppmASTM D5185m>2000SiliconppmASTM D5185m>2000SoliconppmASTM D5185m <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>LH0157979</th> <th>LHMC130743</th> <th></th>	Sample Number		Client Info		LH0157979	LHMC130743	
Oli Age Filter Age Filter Age Oli ChangedFirse Client InfoIo O0Gli ChangedClient Info Client InfoNot Change NAC ChangeNAFilter ChangedIClient Info Client InfoNot Change NACNASample StatusStill D518smS1008133IronppmASTM D518smS1008133ChromiumppmASTM D518smS2QNickelppmASTM D518smS2QTitaniumppmASTM D518smS4QAluminumppmASTM D518smS4QAluminumppmASTM D518smS4QCopperppmASTM D518smS4QVandatiumppmASTM D518smS4QVandatiumppmASTM D518smS4QValdatiumppmASTM D518smS4QValdatiumppmASTM D518smS4QSiliconppmASTM D518smS4QQSiliconppmASTM D518smS2QQSiliconppmASTM D518smS2NDRENDRESiliconppmASTM D518smS4QQ <t< th=""><th>Sample Date</th><th></th><th>Client Info</th><th></th><th>20 Feb 2021</th><th>17 Aug 2018</th><th></th></t<>	Sample Date		Client Info		20 Feb 2021	17 Aug 2018	
Filter Age Oil ChangedhrsClient InfoNot ChangaNot Ch	Machine Age	hrs	Client Info		3069	980	
Oli ChangedClient InfoNot ChangeNot ChangeNor Change <th>Oil Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>1069</th> <th>980</th> <th></th>	Oil Age	hrs	Client Info		1069	980	
Filter Changed Sample StatusClient IntoNot ChangdN/ASample StatusATTENTIONNORMALIronppmASTM 05185m>100813ChromiumppmASTM 05185m>2<1<1NickelppmASTM 05185m>20<1TitaniumppmASTM 05185m>20<1SilverppmASTM 05185m>40<1AluminumppmASTM 05185m>5<1<1<1LeadppmASTM 05185m>500<CopperppmASTM 05185m>500<VanadiumppmASTM 05185m>500<VanadiumppmASTM 05185m>2000Veltow Metalscalar*UisualNONENONENONESiliconppmASTM 05185m>2024SiliconppmASTM 05185m>2000SiliconppmASTM 05185m>20NONENONESiliconppmASTM 05185m>2000SiliconppmASTM 05185m>20NONENONESoliconppmASTM 05185m>20NONENONESoliconppmASTM 05185m>20NORE<	Filter Age	hrs	Client Info		0	0	
Sample StatusVATENTIONNORMALIronppmASTM D5185>1008133ChromiumppmASTM D5185>2C1<1NickelppmASTM D5185>20<1TitaniumppmASTM D5185>20<1SilverppmASTM D5185>40<1AluminumppmASTM D5185>400LeadppmASTM D5185>400CopperppmASTM D5185>400YanadiumppmASTM D5185>5000VanadiumppmASTM D5185>5000Yellow Metalscalar*VisualNONEMODERLIGHTYellow Metalscalar*VisualNONENONE1SiliconppmASTM D5185>2000SiliconppmASTM D5185>2000SiliconppmASTM D5185>20NONENONESiliconscalar*VisualNONENONENONESolichscalar*VisualNORNORENORESolichscalar*VisualNORNORENORESolichscalar*VisualNORNORENORE	Oil Changed		Client Info		Not Changd	Not Changd	
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ChromiumppmASTM D5185m>2<1	Sample Status				ATTENTION	NORMAL	
ChromiumppmASTM D5185m>2<1				400		40	
NickelpmASTM D5185m>20<1	-						
TitaniumppmASTM D5185m<1							
SilverppmASTM D5185m>440<1				>2	-		
AluminumppmASTM D5185m>5<1				4			
LeadpmASTM D5185m>4400CopperppmASTM D5185m>80088TinppmASTM D5185m>500VanadiumppmASTM D5185m>500White Metalscalar*VisualNONEMODERLIGHTYellow Metalscalar*VisualNONENONENONESiliconppmASTM D5185m>2024.4Yellow Metalscalar*VisualNONENONENONESiliconppmASTM D5185m>2000WaterWC Method>.20NORENONESilitscalar*VisualNONEILGHTDebrisscalar*VisualNONEILGHTSand/Dirtscalar*VisualNORENORMENORMEAppearancescalar*VisualNORMNORMLNORMLSodiumppmASTM D5185mSodiumppmASTM D5185mMolybdenumppmASTM D5185mManganeseppmASTM D5185mMagnesiumppmASTM D5185mMagnesiumppmASTM D5185mMagn							
Copper ppm ASTM D5185m >80 0 8 Tin ppm ASTM D5185m >5 0 0 Vanadium ppm ASTM D5185m >5 0 0 White Metal scalar *Visual NONE MODER LIGHT Yellow Metal scalar *Visual NONE NONE NONE Silicon ppm ASTM D5185m >20 2 4 Potassium ppm ASTM D5185m >20 0 0 Water WC Method >0.2 NEG NONE Silt scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NORM NORML NORML Appearance scalar *Visual NORML NORML NORML Godium ppm ASTM D5185m <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>							
TinppmASTM D5185m>500VanadiumppmASTM D5185mI00White Metalscalar*VisualNONEMODERLIGHTYellow Metalscalar*VisualNONENONENONESiliconppmASTM D5185m>2024PotassiumppmASTM D5185m>2000WaterWC Method>0.2NEGNEGSilitscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLAppearancescalar*VisualNORMLNORMLNORMLSodiumppmASTM D5185mSodiumppmASTM D5185m0325ManganeseppmASTM D5185m0<11ManganeseppmASTM D5185m316ManganesimppmASTM D5185m316PhosphorusppmASTM D5185m011010SoliumppmASTM D5185m011010ManganeseppmASTM D5185m501010					-		
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Yellow Metalscalar*VisualNONENONENONESiliconppmASTM D5185m>2024PotassiumppmASTM D5185m>2000WaterWC Method>0.2NEGNEGSiltscalar*VisualNONENONENONEDebrisscalar*VisualNONELIGHTLIGHTSand/Dirtscalar*VisualNORENORENOREAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLSodiumppmASTM D5185m3BoronppmASTM D5185m0325ManganeseppmASTM D5185m0<11ManganeseppmASTM D5185m316PhosphorusppmASTM D5185m316SincppmASTM D5185m01010SuffurppmASTM D5185m01010				NONE			
SiliconppmASTM D5185m>2024PotassiumppmASTM D5185m>2000WaterWC Method>0.2NEGNEGSiliscalar*VisualNONENONENONEDebrisscalar*VisualNONELIGHTLIGHTSand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLSodiumppmASTM D5185m>0.2NEGBoronppmASTM D5185mMalganeseppmASTM D5185m-0325ManganeseppmASTM D5185m-0<11MagnesiumppmASTM D5185m-316PhosphorusppmASTM D5185m-0101SilicumppmASTM D5185m-316ManganeseppmASTM D5185m-0101PhosphorusppmASTM D5185m-0ManganesippmASTM D5185m-0ManganesippmASTM D5185m-0ManganesippmASTM D5185m-0							
PotassiumppmASTM D5185m>2000WaterWC Method>0.2NEGNEGSiltscalar*VisualNONENONENONEDebrisscalar*VisualNONELIGHTLIGHTSand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185mBoronppmASTM D5185mMolybdenumppmASTM D5185m-0325MagnesiumppmASTM D5185m-0PhosphorusppmASTM D5185m-316PhosphorusppmASTM D5185m-01010ZincppmASTM D5185m-01010SulfurppmASTM D5185m-01010PhosphorusppmASTM D5185m-01010SulfurppmASTM D5185m-01010SulfurppmASTM D5185m-604126327	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
WaterWC Method>0.2NEGNEGSiltscalar*VisualNONENONENONEDebrisscalar*VisualNONELIGHTLIGHTSand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185mBoronppmASTM D5185mMolybdenumppmASTM D5185mMaganeseppmASTM D5185m316PhosphorusppmASTM D5185m316SiturppmASTM D5185mMagnesiumppmASTM D5185mSiturppmASTM D5185mSiturppmASTM D5185mSiturppmASTM D5185mSiturppmASTM D5185mSiturppmASTM D5185m <t< th=""><th>Silicon</th><th>ppm</th><th>ASTM D5185m</th><th>>20</th><th>2</th><th>4</th><th></th></t<>	Silicon	ppm	ASTM D5185m	>20	2	4	
Siltscalar*VisualNONENONENONEIIGHTDebrisscalar*VisualNONELIGHTLIGHTSand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLCodorscalar*VisualNORMNORMLNORMLSodiumscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m3BoronppmASTM D5185m03255MalybdenumppmASTM D5185m0<1ManganeseppmASTM D5185m0<16MagnesiumppmASTM D5185m316PhosphorusppmASTM D5185m31010SulfurppmASTM D5185m01010	Potassium	ppm	ASTM D5185m	>20	0	0	
Debrisscalar*VisualNONELIGHTLIGHTSand/Dirtscalar*VisualNORENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m-32BoronppmASTM D5185mI9332MolybdenumppmASTM D5185mI03255MagnesiumppmASTM D5185mI0<11PhosphorusppmASTM D5185mI0<16PhosphorusppmASTM D5185mI316SincppmASTM D5185mI01010ISuffurppmASTM D5185mI01010IIPhosphorusppmASTM D5185mI01010IISuffurppmASTM D5185mI01010IIIPhosphorusppmASTM D5185mI01010IIISuffurppmASTM D5185mI01010IIIIPhosphorusppmASTM D5185mI01010IIII	Water		WC Method	>0.2	NEG	NEG	
Sand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m<13BoronppmASTM D5185m932BariumppmASTM D5185m0325MolybdenumppmASTM D5185m0<1MaganeseppmASTM D5185m0<1CalciumppmASTM D5185m316PhosphorusppmASTM D5185m01010ZincppmASTM D5185m01010SulfurppmASTM D5185m01010	Silt	scalar	*Visual	NONE	NONE	NONE	
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLIOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m3BoronppmASTM D5185m0325BariumppmASTM D5185m03255MolybdenumppmASTM D5185m0<1ManganeseppmASTM D5185m0<1MagnesiumppmASTM D5185m316PhosphorusppmASTM D5185m01010ZincppmASTM D5185m01010SulfurppmASTM D5185m01010	Debris	scalar	*Visual	NONE	LIGHT	LIGHT	
Odorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m<13BoronppmASTM D5185m932BariumppmASTM D5185m03255MolybdenumppmASTM D5185m0<1<1ManganeseppmASTM D5185m0<1MagnesiumppmASTM D5185m0<1PhosphorusppmASTM D5185m316ZincppmASTM D5185m01010SulfurppmASTM D5185m0100	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Emulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m<13BoronppmASTM D5185m932BariumppmASTM D5185m0325MolybdenumppmASTM D5185m<1<1<1ManganeseppmASTM D5185m0<1MagnesiumppmASTM D5185m0<1CalciumppmASTM D5185m316PhosphorusppmASTM D5185m01010ZincppmASTM D5185m0100SulfurppmASTM D5185m0100	Appearance	scalar	*Visual	NORML	NORML	NORML	
Sodium ppm ASTM D5185m <1	Odor	scalar	*Visual	NORML	NORML	NORML	
Boron ppm ASTM D5185m 93 2 Barium ppm ASTM D5185m 0 3255 Molybdenum ppm ASTM D5185m 0 3255 Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 0 <1 Calcium ppm ASTM D5185m 0 <1 Phosphorus ppm ASTM D5185m 3 16 Zinc ppm ASTM D5185m 0 1010 Sulfur ppm ASTM D5185m 0 100	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Boron ppm ASTM D5185m 93 2 Barium ppm ASTM D5185m 0 3255 Molybdenum ppm ASTM D5185m 0 3255 Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 0 <1 Calcium ppm ASTM D5185m 0 <1 Phosphorus ppm ASTM D5185m 3 16 Zinc ppm ASTM D5185m 0 1010 Sulfur ppm ASTM D5185m 0 100	Sodium	mqq	ASTM D5185m		<1	3	
Barium ppm ASTM D5185m 0 325 Molybdenum ppm ASTM D5185m <1 <1 < Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 0 <1 Calcium ppm ASTM D5185m 3 16 Phosphorus ppm ASTM D5185m 415 1010 Zinc ppm ASTM D5185m 0 10 Sulfur ppm ASTM D5185m 0 1010			ASTM D5185m				
Molybdenum ppm ASTM D5185m <1	Barium		ASTM D5185m		0	325	
Manganese ppm ASTM D5185m 0 <1	Molybdenum		ASTM D5185m		<1	<1	
Magnesium ppm ASTM D5185m 0 <1	-		ASTM D5185m		0	<1	
Calcium ppm ASTM D5185m 3 16 Phosphorus ppm ASTM D5185m 415 1010 Zinc ppm ASTM D5185m 0 10 Sulfur ppm ASTM D5185m 6941 26327	-		ASTM D5185m		0	<1	
Phosphorus ppm ASTM D5185m 415 1010 Zinc ppm ASTM D5185m 0 10 Sulfur ppm ASTM D5185m 6941 26327	-						
Zinc ppm ASTM D5185m 0 10 Sulfur ppm ASTM D5185m 6941 26327			ASTM D5185m				
Sulfur ppm ASTM D5185m 6941 26327			ASTM D5185m		0	10	
	Sulfur		ASTM D5185m			26327	
			ASTM D445			180.4	

Contact/Location: Service Manager - JRVJOH



JR VINAGRO Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : LH0157979 Recieved : 12 Mar 2021 2208 PLAINFIELD PIKE Lab Number : 05202745 JOHNSTON, RI Diagnosed : 15 Mar 2021 Unique Number : 9404154 Diagnostician : Don Baldridge US 02919 Test Package : MOBCE Contact: Service Manager 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)

Feb20/2

h20/

Contact/Location: Service Manager - JRVJOH

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