



LIEBHERR L586 052323-1334

Rear Differential

LIEBHERR GEAR BASIC 90 LS (60 LTR)

RECOMMENDATION

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

WW	Δ	H.

An increase in the iron level is noted. An increase in the copper level is noted.

CONTAMINATION

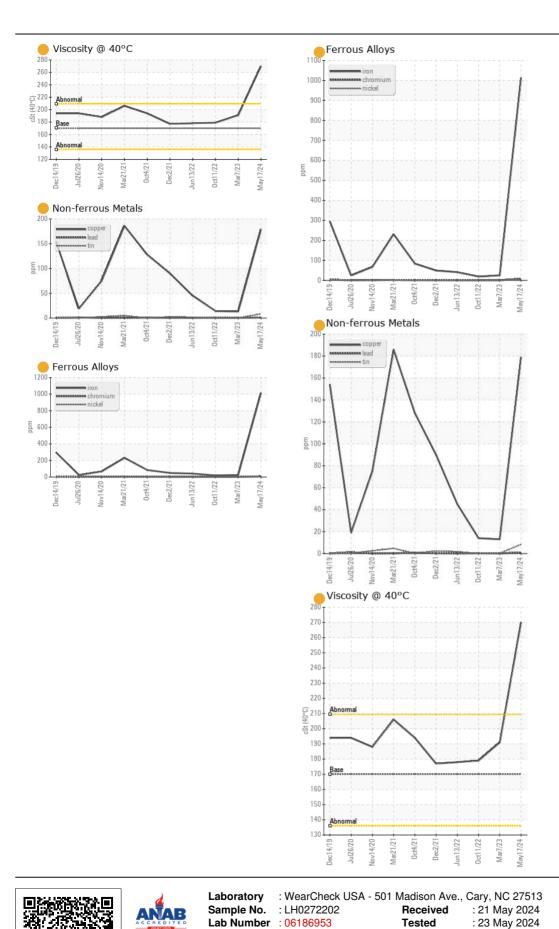
There is no indication of any contamination in the oil.

FLUID CONDITION

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

Sample DateClient InfoIT May 20207 Mar 202311 Oct 202Machine AgehrsClient Info1278298289071Oil AgehrsClient Info10001000982Filter AgehrsClient InfoIChangedChangedChangedFilter ChangedClient InfoIVAN/AN/AN/ASample StatusClient InfoIVAN/AN/AN/ASample StatusClient InfoIVAATTENTIONNORMALNORMALIronppmASTM D5185>100B101425519ChromiumppmASTM D5185>442000NickelppmASTM D5185>402100SilverppmASTM D5185>202100AuminumppmASTM D5185>20017913.314LeadppmASTM D5185>108<1021VanadumppmASTM D5185>108<1021VanadumppmASTM D5185>108<1021VanadumppmASTM D5185>108<1121VanadumppmASTM D5185>20017913.414CopperppmASTM D5185>20017913.414VanadumppmASTM D5185>2001002100SilconppmASTM D5185>20010001							
Sample DateClient InfoI7 May 202407 Mar 202311 Oct 202Machine AgehrsClient InfoI278298289071Oil AgehrsClient InfoI0001000982Filter AgehrsClient InfoIChangedChangedChangedOil ChangedIClient InfoIIAN/AN/AN/ASample StatusIter ChangedIClient InfoIIAN/AN/AN/ASample StatusIter ChangedIter ChangedASTM D5185>1500ID14425519<1ChromiumppmASTM D5185>1008I000NickelppmASTM D5185>108I00SilverppmASTM D5185>20I001LeadppmASTM D5185>108I01CopperppmASTM D5185>108I01VanadiumppmASTM D5185>108I01VanadiumppmASTM D5185>108I0IIVanadiumppmASTM D5185II0IIIIVanadiumppmASTM D5185II0IIIIIIIIIIIIIIIIIIIIIII <td< th=""><th>Test</th><th>UOM</th><th>Method</th><th>Limit/Abn</th><th>Current</th><th>History1</th><th>History2</th></td<>	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine AgehrsClient IntoI278298289071Oil AgehrsClient IntoI0001000982Filter AgehrsClient IntoChangedChangedChangedOil ChangedClient IntoINAN/AN/ASample StatusClient IntoINAN/AN/AIronppmASTM D5185>1500ID11425519ChromiumppmASTM D5185>442000NickelppmASTM D5185>442000NickelppmASTM D5185>42000SilverppmASTM D5185>54-1000AuminumppmASTM D5185>202100AuminumppmASTM D5185>2017913.314CopperppmASTM D5185>108<10	Sample Number		Client Info		LH0272202	LH0229250	LH0229181
Oil AgehrsClient InfoIo00982Filter AgehrsClient InfoChangedChangedChangedChangedFilter ChangedIoClient InfoNAN/AN/ASample StatusStim DiffierATTENTONNORMALNORMALIronppmASTM Diffier-10142519ChromiumppmASTM Diffier-4200NickelppmASTM Diffier-4200NickelppmASTM Diffier-400SilverppmASTM Diffier-5-10140AluminumppmASTM Diffier-5-100AluminumppmASTM Diffier-5-100AluminumppmASTM Diffier-5-100AluminumppmASTM Diffier-5-100AluminumppmASTM Diffier-10-10-10VanadiumppmASTM Diffier-10-10-10VanadiumppmASTM Diffier-5-100-10VanadiumppmASTM Diffier-509-11-10VanadiumppmASTM Diffier-2NORENORENOREValueScala'VisualNORENORENORENORESiliconppmASTM Diffier-2NORENORENORESiliconppmASTM Diffier-2NORENOREN	Sample Date		Client Info		17 May 2024	07 Mar 2023	11 Oct 2022
Filter Age OIhrsClient InfoOOOOOIChangedClient InfoKKAngedChangedChangedChangedChangedChangedChangedChangedChangedN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/AN/A <th>Machine Age</th> <td>hrs</td> <td>Client Info</td> <td></td> <th>12782</th> <td>9828</td> <td>9071</td>	Machine Age	hrs	Client Info		12782	9828	9071
Oli ChangedClient IntoChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChangedChange	Oil Age	hrs	Client Info		1000	1000	982
Filter Changed Sample StatusClient IntoNANANANASample StatusATTENTIONNORMALNORMALNORMALIronppmASTM D5185m>1500101425519ChromiumppmASTM D5185m>108<1	Filter Age	hrs	Client Info		0	0	0
Sample StatusATTENTIONNORMALNORMALIronppmASTM D5185>100101425019ChromiumppmASTM D5185>108<1	Oil Changed		Client Info		Changed	Changed	Changed
IronppmASTM D5185m>1500101425519ChromiumppmASTM D5185m>108<1	Filter Changed		Client Info		N/A	N/A	N/A
Chromium ppm ASTM D5185m >10 8 <1 0 Nickel ppm ASTM D5185m >4 2 0 0 Titanium ppm ASTM D5185m >5 <1	Sample Status				ATTENTION	NORMAL	NORMAL
NickelpmASTM D5185m>44200TitaniumppmASTM D5185m>5<1	Iron	ppm	ASTM D5185m	>1500	1014	25	19
TitaniumppmASTM D5185m>5<100SilverppmASTM D5185m>2020<1	Chromium	ppm	ASTM D5185m	>10	8	<1	0
SilverppmASTM D5185m<100AluminumppmASTM D5185m>20020<1	Nickel	ppm	ASTM D5185m	>4	2	0	0
AluminumppmASTM D5185m>20020<1LeadppmASTM D5185m>20017913314CopperppmASTM D5185m>20017913314TinppmASTM D5185m>108<10	Titanium	ppm	ASTM D5185m	>5	<1	0	0
AluminumppmASTM D5185m>20020<1LeadppmASTM D5185m>20017913314CopperppmASTM D5185m>20017913314TinppmASTM D5185m>108<10	Silver		ASTM D5185m		<1	0	0
Copper ppm ASTM D5185m >200 179 13 14 Tin ppm ASTM D5185m >10 8 <1	Aluminum	ppm	ASTM D5185m	>20	2	0	<1
TinppmASTM D5185m>108<10VanadiumppmASTM D5185m<	Lead	ppm	ASTM D5185m	>5	<1	0	<1
VanadiumppmASTM D5185mImage: Constraint of the constraint o	Copper	ppm	ASTM D5185m	>200	179	13	14
White Metalscalar*VisualNONENONEMODEMODERMODEYellow Metalscalar*VisualNONENONENONENONENONENONESiliconppmASTM D5185m>609<1	Tin	ppm	ASTM D5185m	>10	8	<1	0
Yellow Metalscalar*VisualNONENONENONENONENONENONESiliconppmASTM D5185m>609<1	Vanadium	ppm	ASTM D5185m		<1	0	<1
SiliconppmASTM D5185m>609<12PotassiumppmASTM D5185m>20200WaterWC Method>.2NEGNEGNEGNEGSilitscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEOdorscalar*VisualNORMNORMLNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLNORMLBenulsified Waterscalar*VisualNOR 0 0 0 0 0 0 BoronppmASTM D5185m 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <	White Metal	scalar	*Visual	NONE	NONE	MODER	MODE
PotassiumppmASTM D5185m>20200WaterWC Method>.2NEGNEGNEGSiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLColorscalar*VisualNORMLNORMLNORMLNORMLBoronppmASTM D5185m0000BariumppmASTM D5185m0100ManganeseppmASTM D5185m01110CalciumppmASTM D5185m<1	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
WaterWC Method>.2NEGNEGNEGSiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>.2NEGNEGNEGSodiumppmASTM D5185m00000BariumppmASTM D5185m011111ManganeseppmASTM D5185m011100ManganesiumppmASTM D5185m<1339802434PhosphorusppmASTM D5185m<14300623692434SinfurppmASTM D5185m<143444425056	Silicon	ppm	ASTM D5185m	>60	9	<1	2
Siltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>.2NEGNEGNEGSodiumppmASTM D5185m00000BoronppmASTM D5185m00000ManganeseppmASTM D5185m011<1	Potassium	ppm	ASTM D5185m	>20	2	0	0
Debrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>.2NEGNEGNEGNEGSodiumppmASTM D5185m00000BariumppmASTM D5185m01100MagnesiumppmASTM D5185m01111MagnesiumppmASTM D5185m<1	Water		WC Method	>.2	NEG	NEG	NEG
Sand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>.2NEGNEGNEGNEGSodiumppmASTM D5185m00000BariumppmASTM D5185m00000ManganeseppmASTM D5185m011<1	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
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Odorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>.2NEGNEGNEGSodiumppmASTM D5185m0000BoronppmASTM D5185m0000BariumppmASTM D5185m0000MolybdenumppmASTM D5185m0100ManganeseppmASTM D5185m011<1	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Emulsified Waterscalar*Visual>.2NEGNEGNEGSodiumppmASTM D5185m511BoronppmASTM D5185m0000BariumppmASTM D5185m0000MolybdenumppmASTM D5185m0100ManganeseppmASTM D5185m011<11	Appearance	scalar	*Visual	NORML	NORML	NORML	NORM
Sodium ppm ASTM D5185m 5 1 1 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 11 0 0 Manganese ppm ASTM D5185m 0 11 1 0 Calcium ppm ASTM D5185m <1	Odor	scalar	*Visual	NORML	NORML	NORML	NORM
Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 1 0 0 Manganese ppm ASTM D5185m 0 11 <1	Emulsified Water	scalar	*Visual	>.2	NEG	NEG	NEG
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 1 0 0 Manganese ppm ASTM D5185m 0 11 <1 1 Magnesium ppm ASTM D5185m 0 11 <1 0 Calcium ppm ASTM D5185m <1 39 8 0 Phosphorus ppm ASTM D5185m <1 3006 2369 2434 Zinc ppm ASTM D5185m <1 54 11 5 Sulfur ppm ASTM D5185m 23468 34544 34444 25056	Sodium	ppm	ASTM D5185m		5	1	1
Molybdenum ppm ASTM D5185m 0 1 0 0 Manganese ppm ASTM D5185m 0 11 <1 1 Magnesium ppm ASTM D5185m <1 1 0 0 Calcium ppm ASTM D5185m <1 1 0 0 Phosphorus ppm ASTM D5185m <1 39 8 0 Phosphorus ppm ASTM D5185m <143 3006 2369 2434 Zinc ppm ASTM D5185m <1 54 11 5 Sulfur ppm ASTM D5185m 23468 34544 34444 25056	Boron	ppm	ASTM D5185m	0	0	0	0
Manganese ppm ASTM D5185m 0 11 <1	Barium		ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m <1	Molybdenum	ppm	ASTM D5185m	0	1	0	0
Calcium ppm ASTM D5185m <1	Manganese	ppm	ASTM D5185m	0	11	<1	1
Phosphorus ppm ASTM D5185m 2143 3006 2369 2434 Zinc ppm ASTM D5185m <1 54 11 5 Sulfur ppm ASTM D5185m 23468 34544 34444 25056	Magnesium	ppm	ASTM D5185m	<1	1	1	0
Zinc ppm ASTM D5185m <1 54 11 5 Sulfur ppm ASTM D5185m 23468 34544 34444 25056	Calcium	ppm	ASTM D5185m	<1	39	8	0
Sulfur ppm ASTM D5185m 23468 34544 34444 25056	Phosphorus	ppm	ASTM D5185m	2143	3006	2369	2434
	Zinc	ppm	ASTM D5185m	<1	54	11	5
Visc @ 40°C cSt ASTM D445 170 270 191 179	Sulfur	ppm	ASTM D5185m	23468	34544	34444	25056
	Visc @ 40°C	cSt	ASTM D445	170	270	191	179

Submitted By: LOGAN HUNTER



BENEVENTO SAND & STONE

900 SALEM STREET PO Box 454 WILMINGTON, MA US 01887 Contact: Service Manager

Test Package : CONST Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

Unique Number : 11043705

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

F: (978)658-8928 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Diagnosed

: 23 May 2024 - Don Baldridge

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Submitted By: LOGAN HUNTER Page 2 of 2