



LIEBHERR L580 1414-56018

Front Differential

LIEBHERR GEAR BASIC 90 LS (--- GAL)

RECOMMENDATION

No corrective action is recommended at this time. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

V	V	F	Δ	F	2
	•	-			•

The copper level is abnormal. All other component wear rates are normal.

CONTAMINATION

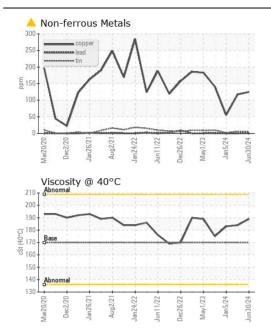
There is no indication of any contamination in the oil.

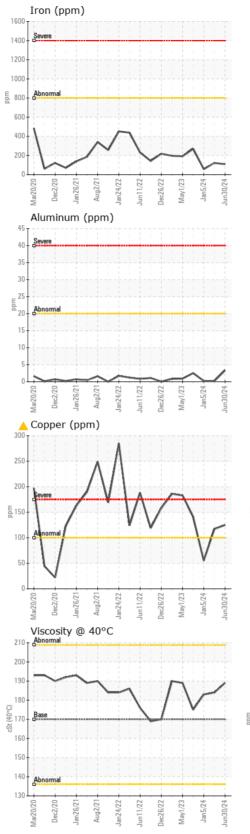
FLUID CONDITION

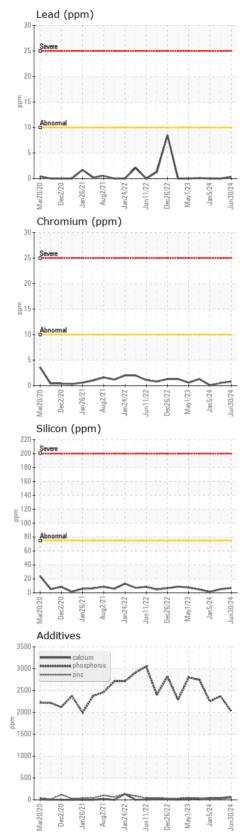
The condition of the oil is acceptable for the time in service.

Sample DateClient InfoImage of the second of the sec	· · · · · · · · · · · · · · · · · · ·				()		
Sample DateClient InfoIso 014020014 202005 Jan 2020Machine AgehrsClient InfoI170001597015250Oil AgehrsClient InfoII000Filter AgehrsClient InfoIChangedChangedN/AFilter ChangedIClient InfoIIAN/AN/ASample StatusClient InfoIN/AN/AN/ASample StatusSample StatusSample StatusSample StatusSample StatusSample StatusIronppmASTM D5185Sample StatusSample StatusSample StatusSample StatusIronppmASTM D5185Sample StatusSample StatusSample StatusSample StatusSilverppmASTM D5185Sample StatusSample StatusSample StatusSample StatusSilverppmASTM D5185Sample StatusSample StatusSample StatusSample StatusGoperppmASTM D5185Sample StatusSample StatusSample StatusSample StatusSiliconppmASTM D5185Sample StatusSample StatusSample Status	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine AgehrsClient Info170001597015250Oil AgehrsClient Info000Filter AgehrsClient InfoChangedChangedN/AGlient AngedClient InfoN/AN/AN/AN/ASample StatusClient InfoN/AABNORMALABNORMALNORMALIronppmASTM D5185>80010912157ChromiumppmASTM D5185>44c1<1<1NickelppmASTM D5185>44c100TitaniumppmASTM D5185>10c100SilverppmASTM D5185>10c100AuminumppmASTM D5185>10c100CopperppmASTM D5185>10c100VanadiumppmASTM D5185>10c100VanadiumppmASTM D5185>10c100VanadiumppmASTM D5185>10c100VanadiumppmASTM D5185>10c100VanadiumppmASTM D5185>10c100VanadiumppmASTM D5185>10c100VanadiumppmASTM D5185>20210SilconppmASTM D5185>20210SilconppmASTM D5	Sample Number		Client Info		LH06225400	LH06112338	LH06062220
Oil AgehrsClient InfoIo000Filter AgehrsClient InfoAAAN/AFilter ChangedIoClient InfoN/AN/AN/ASample StatusClient InfoN/AN/AN/AN/AIronppmASTM 558sS40010912157ChromiumppmASTM 558sS400I<1<1NickelppmASTM 558sS400I<1<1NickelppmASTM 558sS40I<1<1NickelppmASTM 558sS40I<1<1NickelppmASTM 558sS40II<1AIuminumppmASTM 558sS10II0AluminumppmASTM 558sS10IIIICopperppmASTM 558sS10IIIIVanadiumppmASTM 558sS10IIIIVanadiumppmASTM 558sIIIIIValueScal'VisualNOREIIIIValuescal'VisualNOREIIIIValueScal'VisualNOREIIIIValueScal'VisualNOREIIIIValueScal'VisualNOREIIII<	Sample Date		Client Info		30 Jun 2024	06 Mar 2024	05 Jan 2024
Nice OliClient InfoOOOOil ChangedCient InfoChangedChangedN/AFilter ChangedCient InfoN/AN/AN/ASample StatusStim Distas>80010912157ChromiumppmASTM Distas>80010912157ChromiumppmASTM Distas>800-1<1<1NickelppmASTM Distas>40-1<1<1NickelppmASTM Distas>40-1<0<1<1SilverppmASTM Distas503<1<1<1<1LadadppmASTM Distas503<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<1<1<1<1<1<1<1<1<1 <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>17000</th> <th>15997</th> <th>15250</th>	Machine Age	hrs	Client Info		17000	15997	15250
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IronppmASTM D5185m>80010912157ChromiumppmASTM D5185m>10<1<1<1<1NickelppmASTM D5185m>4<1<10TitaniumppmASTM D5185m>8<100SilverppmASTM D5185m>203<10AluminumppmASTM D5185m>10<100LeadppmASTM D5185m>10<100CopperppmASTM D5185m>10<1100ChanadiumppmASTM D5185m>10<1100White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185m>20210WaterWCNCMNONENONENONENONESiliconppmASTM D5185m>20210WaterWCNCMNONENONENONENONESoliconppmASTM D5185m>20210WaterWCNCMNORENONENONENONESoliconppmASTM D5185m>20210WaterVCNCMNORENORENORENORESoliconscalar*VisualNORNORENORENORE <tr< th=""><th>Filter Changed</th><th></th><th>Client Info</th><th></th><th>N/A</th><th>N/A</th><th>N/A</th></tr<>	Filter Changed		Client Info		N/A	N/A	N/A
ChromiumppmASTM D5185m>10<1	Sample Status				ABNORMAL	ABNORMAL	NORMAL
ChromiumppmASTM D5185m>10<1	Iron	nom	ASTM D5185m	>800	109	121	57
NickelppmASTM D518sm>44<1							
TitaniumppmASTM D518sm>A<1							
SilverppmASTM D5185m<							
AluminumppmASTM D5185m>203<1							
LeadppmASTM D5185m>100<1	Aluminum			>20			<1
CopperppmASTM D5185m>100▲ 125▲ 11755TinppmASTM D5185m>5662VanadiumppmASTM D5185mI00White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185m>75751PotassiumppmASTM D5185m>20210WaterWC Method>.2NEGNONENONESilitscalar*VisualNONEMODERNONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENORMIAppearancescalar*VisualNORMINORMINORMINORMIGodrscalar*VisualNORMINORMINORMINORMIGodrscalar*VisualNORMINORMINORMINORMIAppearancescalar*VisualNORMINORMINORMINORMIGodrscalar*VisualNORMINORMINORMINORMIGodrscalar*VisualNORMINORMINORMINORMIGodrscalar*VisualNORMINORMINORMINORMIGodrscalar*VisualNORMINORMINORMINORMIGodr<					-		
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VanadiumppmASTM D5185mI<1							
White Metal Yellow Metalscalar*VisualNONENONENONENONENONENONESiliconppmASTM D5185m>75751PotassiumppmASTM D5185m>20210WaterWC Method>.2NEGNONENONESilitscalar*VisualNONEMODENONENONESiltscalar*VisualNONEMODENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLOdorscalar*VisualNORENORENORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLBoronppmASTM D5185m0600BariumppmASTM D5185m0100ManganeseppmASTM D5185m0121MagnesiumppmASTM D5185m<1122CalciumppmASTM D5185m<11002PhosphorusppmASTM D5185m<1203023692250ZincppmASTM D5185m<142216SuffurppmASTM D5185m<142216SuffurppmASTM D5185m<1423394933935	Vanadium		ASTM D5185m		<1	0	0
SiliconppmASTM D5185m>75751PotassiumppmASTM D5185m>20210WaterWC Method>.2NEGNEGNEGSilitscalar*VisualNONEMODERNONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLGodrscalar*VisualNORMNORMLNORMLNORMLBurlsified Waterscalar*Visual>.2NEGNEGSodiumppmASTM D5185m0100BariumppmASTM D5185m0100ManganeseppmASTM D5185m0121MagnesiumppmASTM D5185m<1122CalciumppmASTM D5185m<11002PhosphorusppmASTM D5185m<114223692250ZincppmASTM D5185m<14221633949	White Metal		*Visual	NONE	NONE	NONE	NONE
PotassiumppmASTM D5185m>20210WaterWC Method>.2NEGNEGNEGSiltscalar*VisualNONEMODERNONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*VisualNORNORMLNORMLNORMLSodiumppmASTM D5185m0600BariumppmASTM D5185m0100MagnesiumppmASTM D5185m0121MagnesiumppmASTM D5185m<1122CalciumppmASTM D5185m<1122PhosphorusppmASTM D5185m<14203023692250ZincppmASTM D5185m<1422216SulfurppmASTM D5185m<1423394933935	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
PotassiumppmASTM D5185m>20210WaterWC Method>.2NEGNEGNEGSiltscalar*VisualNONEMODERNONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*VisualNORNORMLNORMLNORMLSodiumppmASTM D5185m0600BariumppmASTM D5185m0100MagnesiumppmASTM D5185m0121MagnesiumppmASTM D5185m<1122CalciumppmASTM D5185m<1122PhosphorusppmASTM D5185m<14203023692250ZincppmASTM D5185m<1422216SulfurppmASTM D5185m<1423394933935	Silicon		ASTM D5185m	>75	7	5	1
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Emulsified Waterscalar*Visual>.2NEGNEGNEGSodiumppmASTM D5185m020BoronppmASTM D5185m0600BariumppmASTM D5185m0100MolybdenumppmASTM D5185m0100ManganeseppmASTM D5185m0121MagnesiumppmASTM D5185m<1122CalciumppmASTM D5185m<170411433PhosphorusppmASTM D5185m2143203023692250ZincppmASTM D5185m<1422216SulfurppmASTM D5185m23468257443394933935	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Sodium ppm ASTM D5185m 0 2 0 Boron ppm ASTM D5185m 0 6 0 0 0 Barium ppm ASTM D5185m 0 1 0 0 0 Molybdenum ppm ASTM D5185m 0 1 0 0 0 Manganese ppm ASTM D5185m 0 1 2 1 Magnesium ppm ASTM D5185m 0 1 2 2 Calcium ppm ASTM D5185m <1 1 2 2 Phosphorus ppm ASTM D5185m <1 1 2 2 Zinc ppm ASTM D5185m <1 10 2 2 Sulfur ppm ASTM D5185m <1 10 2 2 2 Sulfur ppm ASTM D5185m <14 23 2 16	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Boron ppm ASTM D5185m 0 6 0 0 Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 0 1 0 0 Manganese ppm ASTM D5185m 0 1 2 1 Magnesium ppm ASTM D5185m 0 1 2 2 Calcium ppm ASTM D5185m <1 1 2 2 Phosphorus ppm ASTM D5185m <1 1 2 2 Zinc ppm ASTM D5185m <1 1 2 2 Kith D5185m <1 70 411 43 Phosphorus ppm ASTM D5185m 2143 2030 2369 2250 Zinc ppm ASTM D5185m <1 42 22 16 Sulfur ppm ASTM D5185m 23468 25744 33949 33935 <th>Emulsified Water</th> <th>scalar</th> <th>*Visual</th> <th>>.2</th> <th>NEG</th> <th>NEG</th> <th>NEG</th>	Emulsified Water	scalar	*Visual	>.2	NEG	NEG	NEG
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Manganese ppm ASTM D5185m 0 1 2 1 Magnesium ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m		6	0	0
Calcium ppm ASTM D5185m <1	Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	0	6 1	0 0	0 0
Phosphorus ppm ASTM D5185m 2143 2030 2369 2250 Zinc ppm ASTM D5185m <1	Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	6 1 1	0 0 0	0 0 0
Phosphorus ppm ASTM D5185m 2143 2030 2369 2250 Zinc ppm ASTM D5185m <1	Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	6 1 1 1	0 0 0 2	0 0 0 1
Sulfur ppm ASTM D5185m 23468 25744 33949 33935	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 <1	6 1 1 1 1	0 0 2 2	0 0 1 2
	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 <1 <1	6 1 1 1 1 1 70	0 0 2 2 41	0 0 1 2 43
Visc @ 40°C cSt ASTM D445 170 189 184 183	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 <1 <1 2143	6 1 1 1 1 1 70 2030	0 0 2 2 41 2369	0 0 1 2 43 2250
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 <1 <1 2143 <1	6 1 1 1 1 70 2030 42	0 0 2 2 41 2369 22	0 0 1 2 43 2250 16

Submitted By: ?









 Sample No.
 : LH06225400
 Received
 : 01 Jul 2024

 Lab Number
 : 06225400
 Tested
 : 02 Jul 2024

 Unique Number
 : 11103597
 Diagnosed
 : 03 Jul 2024 - Don Baldridge

 Certificate L2367
 Test Package
 : MOB 1

 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.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

W6791 US HWY 2

Contact: ERIC LARSON

eric.larson@versoco.com

QUINNESEC, MI

US 49876

Т:

VERSO CORP - QUINNESEC MILL

Laboratory