

Machine Id LIEBI Component Swing Fluid LIEBH

LIEBHERR LH30 146882-1253

Swing Drive

## LIEBHERR GEAR BASIC 90 LS (--- GAL)

RE	СОМ	MEN	IDATI	ON	

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.

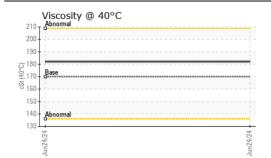
## FLUID CONDITION

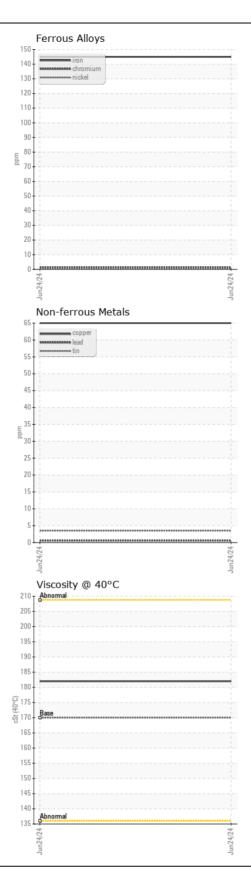
The condition of the oil is acceptable for the time in service.

TestUOMMethodLimit/AbCurrentHistory1History2Sample NumberClient InfoIH0272377Sample DateClient Info1002Machine AgehrsClient Info0Oil AgahrsClient Info0Filter AgehrsClient InfoNot ChangdGil ChangedClient InfoNot ChangdSample StatusNot ChangdIronppmASTM D51857>3<111NickelppmASTM D51857>3<11NickelppmASTM D51857>3<11NickelppmASTM D51857>3<11JuminumppmASTM D51857>43AluminumppmASTM D51857>4<1VanadiumppmASTM D51857>4<1VanadiumppmASTM D51857>4<1VanadiumppmASTM D51857>24VanadiumppmASTM D51857>6VanadiumppmASTM D51857>24VanadiumppmASTM D51857>2AVanadiumppmAST							
Sample DateClient Info24 Jun 2024Machine AgehrsClient Info1002Oil AgehrsClient Info0Filter AgehrsClient InfoNot ChangeOil ChangedClient InfoNot ChangeFilter ChangedClient InfoNot ChangeSample StatusNot ChangeIronppmASTM D5185m>145145IronppmASTM D5185m>11NickelppmASTM D5185m>3<1SilverppmASTM D5185m>43AluminumppmASTM D5185m>43IronppmASTM D5185m>3843AluminumppmASTM D5185m>384Yellow Metalscalar"VisualNONENONEYellow Metalscalar"VisualNONENONESiliconppmASTM D5185m>16Yellow Metalscalar"VisualNONENONESiliconppmASTM D5185m>16SiliconppmASTM D5185m>20A <th>Test</th> <th>UOM</th> <th>Method</th> <th>Limit/Abn</th> <th>Current</th> <th>History1</th> <th>History2</th>	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine AgehrsClient Info1002Oil AgehrsClient Info0Filter AgehrsClient InfoNot ChangdOil ChangedClient InfoNot ChangdFilter ChangedClient InfoNot ChangdSample StatusVVNORMALIronppmASTM D5185m>1450145IronppmASTM D5185m>3<1NickelppmASTM D5185m>3<1SilverppmASTM D5185m>43AluminumppmASTM D5185m>43AluminumppmASTM D5185m>54265YanadiumppmASTM D5185m>54265Yellow MetalscalarYusualNONENONEYellow MetalscalarYusualNONENONESiliconppmASTM D5185m>156Yellow MetalscalarYusualNONENONESiliconppmASTM D5185m>156SiliconppmASTM D5185m>156SiliconppmASTM D5185m>15NONE <t< th=""><th>Sample Number</th><th></th><th>Client Info</th><th></th><th>LH0272377</th><th></th><th></th></t<>	Sample Number		Client Info		LH0272377		
Oil AgehrsClient Info0Filter AgehrsClient InfoNot ChangdOil ChangedClient InfoNot ChangdFilter ChangedQClient InfoNot ChangdSample StatusVClient InfoNot ChangdIronppmASTM D5185m>1450145ChromiumppmASTM D5185m>3<1NickelppmASTM D5185m>3<1AluminumppmASTM D5185m>43AluminumppmASTM D5185m>443AluminumppmASTM D5185m>542655QanadiumppmASTM D5185m>384VanadiumppmASTM D5185m>5156SiliconppmASTM D5185m>204ValtervisualNONENONESiliconppmASTM D5185m>156SiliconppmASTM D5185m>20ASiliconppmASTM D5185m>156SiliconppmASTM D5185m>20ASiliconppmASTM D5185m>20A<	Sample Date		Client Info		24 Jun 2024		
Filter AgehrsClient Info0Oil ChangedClient InfoNot ChangdFilter ChangedClient InfoNot ChangdSample StatusNor MALLIronppmASTM D5185m>1450145NickelppmASTM D5185m>3<1NickelppmASTM D5185m>3<1NickelppmASTM D5185m<<1AluminumppmASTM D5185m>443AluminumppmASTM D5185m>443AgadiumppmASTM D5185m>54265VanaduumppmASTM D5185m>384Valkescalar'VisualNONESiliconppmASTM D5185m>156SiliconppmASTM D5185m>204Silitscalar'VisualNONENONESilitscalar'VisualNONENONESilitscalar'VisualNONENONESilitscalar'VisualNONENORESilitscalar'VisualNONENOREAstm D5185	Machine Age	hrs	Client Info		1002		
Oil ChangedClient InfoNot ChangdFilter ChangedClient InfoNot ChangdSample StatusNORMALIronppmASTM D5185n>1450145ChromiumppmASTM D5185n>311NickelppmASTM D5185n>3<1NickelppmASTM D5185n>3<1AluminumppmASTM D5185n<43AluminumppmASTM D5185n>443CopperppmASTM D5185n>384VanadiumppmASTM D5185n>384VanadiumppmASTM D5185n>384Yellow Metalscalar'VisualNONESiliconppmASTM D5185n>204Yellow Metalscalar'VisualNONEInInSiliconppmASTM D5185n>204SiliconppmASTM D5185n>204Solitscalar'VisualNONEInInSiliconppmASTM D5185n>204Solitscalar'VisualNONEInInInSoli	Oil Age	hrs	Client Info		0		
Filter Changed Sample Status  Client Info  Not Changd NORMAL      Iron  ppm  ASTM D5185  >1450  145      Chromium  ppm  ASTM D5185  >11  1      Nickel  ppm  ASTM D5185  >3  <1      Titanium  ppm  ASTM D5185  >3  <1      Aluminum  ppm  ASTM D5185  >3  <1      Aluminum  ppm  ASTM D5185  >4  3      Lead  ppm  ASTM D5185  >4  5      Vanadium  ppm  ASTM D5185  >4  1      Vanadium  ppm  ASTM D5185  >38  4      Vanadium  ppm  ASTM D5185  >16       Vanadium  ppm  ASTM D5185  >15  6 </th <th>Filter Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th></th> <th></th>	Filter Age	hrs	Client Info		0		
Sample Status  NORMAL      Iron  ppm  ASTM D5185m  >1450  1453      Chromium  ppm  ASTM D5185m  >31  1      Nickel  ppm  ASTM D5185m  >3  <1      Silver  ppm  ASTM D5185m   <1      Aluminum  ppm  ASTM D5185m  >4  3      Aluminum  ppm  ASTM D5185m  >4  3      Qapper  ppm  ASTM D5185m  >4  5542  655      Vanadium  ppm  ASTM D5185m  >548  4       Vanadium  ppm  ASTM D5185m  >548  4       Vanadium  ppm  ASTM D5185m  >15  6       Yellow Metal  scalar<*Visual	Oil Changed		Client Info		Not Changd		
Iron  ppm  ASTM D5185m  >1450  145      Chromium  ppm  ASTM D5185m  >11  1      Nickel  ppm  ASTM D5185m  >3  <1      Titanium  ppm  ASTM D5185m  <  <1      Silver  ppm  ASTM D5185m  <4  3      Aluminum  ppm  ASTM D5185m  >4  <1      Lead  ppm  ASTM D5185m  >4  <1      Vanadium  ppm  ASTM D5185m  >4  <1      Vanadium  ppm  ASTM D5185m  >582  65      Vanadium  ppm  ASTM D5185m  >542  65      Vanadium  ppm  ASTM D5185m  >15  6      Yellow Metal  scalar<'tvisual	Filter Changed		Client Info		Not Changd		
Chromium  ppm  ASTM D5185m  >10  1      Nickel  ppm  ASTM D5185m  >3  <1      Silver  ppm  ASTM D5185m  <4  3      Aluminum  ppm  ASTM D5185m  >4  3      Lead  ppm  ASTM D5185m  >542  65      Copper  ppm  ASTM D5185m  >542  65      Vanadium  ppm  ASTM D5185m  >8  4      Vanadium  ppm  ASTM D5185m  >15  6      Vanadium  ppm  ASTM D5185m	Sample Status				NORMAL		
Chromium  ppm  ASTM D5185m  >10  1      Nickel  ppm  ASTM D5185m  >3  <1      Silver  ppm  ASTM D5185m  <4  3      Aluminum  ppm  ASTM D5185m  >4  3      Lead  ppm  ASTM D5185m  >542  65      Copper  ppm  ASTM D5185m  >542  65      Vanadium  ppm  ASTM D5185m  >8  4      Vanadium  ppm  ASTM D5185m  >15  6      Vanadium  ppm  ASTM D5185m				4 4 5 0			
Nickel  ppm  ASTM D5185m  >3  <1	-				-		
Titanium  ppm  ASTM D5185m  <1					-		
Silver  ppm  ASTM D5185m  <1				>3			
Aluminum  ppm  ASTM D5185m  >4  3     Lead  ppm  ASTM D5185m  >4  <1     Copper  ppm  ASTM D5185m  >542  65     Tin  ppm  ASTM D5185m  >38  4     Vanadium  ppm  ASTM D5185m  >38  4     White Metal  scalar  *Visual  NONE  NONE     Yellow Metal  scalar  *Visual  NONE  NONE     Silicon  ppm  ASTM D5185m  >15  6      Yellow Metal  scalar  *Visual  NONE  NONE      Silicon  ppm  ASTM D5185m  >20  4      Water  WC Method  >0.2  NEG      Debris  scalar  *Visual  NORM  NORML      Appearance  scal							
Lead  ppm  ASTM D5185m  >4  <1							
Copper  ppm  ASTM D5185m  >542  65      Tin  ppm  ASTM D5185m  >38  4      Vanadium  ppm  ASTM D5185m   <1      White Metal  scalar  *Visual  NONE  NONE      Yellow Metal  scalar  *Visual  NONE  NONE      Silicon  ppm  ASTM D5185m  >15  6      Potassium  ppm  ASTM D5185m  >20  4      Water  WC Method  >0.2  NEG      Sand/Dirt  scalar  *Visual  NONE  NORE      Appearance  scalar  *Visual  NORML  NORML      Godr  scalar  *Visual  NORML  NORML      Appearance  scalar  *Visua							
TinppmASTM D5185m>384VanadiumppmASTM D5185m<1White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONESiliconppmASTM D5185m>156PotassiumppmASTM D5185m>204WaterWC Method>0.2NEGSiltscalar*VisualNONENONEDebrisscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLAppearancescalar*VisualNORMLNORMLGodrscalar*VisualNORMNORMLSodiumppmASTM D5185m08BoronppmASTM D5185m02MalganeseppmASTM D5185m02ManganeseppmASTM D5185m<11PhosphorusppmASTM D5185m<132SulfurppmASTM D5185m<132Manganesiu							
Vanadium  ppm  ASTM D5185m   <1							
White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONESiliconppmASTM D5185m>156PotassiumppmASTM D5185m>204WaterWC Method>0.2NEGSiltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLSodiumppmASTM D5185m08BoronppmASTM D5185m03MolybdenumppmASTM D5185m02ManganeseppmASTM D5185m02MagnesiumppmASTM D5185m<11PhosphorusppmASTM D5185m<132ImagnesiumppmASTM D5185m<132PhosphorusppmASTM D5185m<132ImagnesiumppmASTM D5185m<132Phospho				>38	-		
Yellow Metalscalar*VisualNONENONESiliconppmASTM D5185m>156PotassiumppmASTM D5185m>204WaterWC Method>0.2NEGSiltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLSodiumppmASTM D5185m08BoronppmASTM D5185m03MolybdenumppmASTM D5185m021ManganeseppmASTM D5185m11MagnesiumppmASTM D5185m<11PhosphorusppmASTM D5185m<132ZincppmASTM D5185m21431902SulfurppmASTM D5185m2346823338SulfurppmASTM D5185m2346823338							
SiliconppmASTM D5185m>156PotassiumppmASTM D5185m>204WaterWC Method>0.2NEGSiltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLSodiumppmASTM D5185m08BoronppmASTM D5185m03MalganeseppmASTM D5185m02ManganeseppmASTM D5185m<11PhosphorusppmASTM D5185m<11SuffurppmASTM D5185m<132ManganeseppmASTM D5185m<11PhosphorusppmASTM D5185m<132SuffurppmASTM D5185m<132ManganeseppmASTM D5185m<132PhosphorusppmASTM D5185m<132Suffurppm <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>							
PotassiumppmASTM D5185m>204WaterWC Method>0.2NEGSiltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLCodorscalar*VisualNORMLNORMLSodiumppmASTM D5185m08BoronppmASTM D5185m03MolybdenumppmASTM D5185m021ManganeseppmASTM D5185m02MagnesiumppmASTM D5185m<11PhosphorusppmASTM D5185m<132ZincppmASTM D5185m21431902SulfurppmASTM D5185m2346823338	Yellow Metal	scalar	*Visual	NONE	NONE		
WaterWC Method>0.2NEGSiltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLCodorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGSodiumppmASTM D5185m08BoronppmASTM D5185m03MolybdenumppmASTM D5185m02ManganeseppmASTM D5185m02MagnesiumppmASTM D5185m<11PhosphorusppmASTM D5185m<15ZincppmASTM D5185m<132SulfurppmASTM D5185m<132SulfurppmASTM D5185m<132SulfurppmASTM D5185m<132SulfurppmASTM D5185m<132Sulfurppm	Silicon	ppm	ASTM D5185m	>15	6		
Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLSodiumppmASTM D5185mBoronppmASTM D5185m08BariumppmASTM D5185m03MolybdenumppmASTM D5185m02ManganeseppmASTM D5185m11PhosphorusppmASTM D5185m15ZincppmASTM D5185m21431902SulfurppmASTM D5185m32338	Potassium	ppm	ASTM D5185m	>20	4		
Debrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENOREAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLDdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGSodiumppmASTM D5185m08BoronppmASTM D5185m03BariumppmASTM D5185m03MolybdenumppmASTM D5185m02MagnesiumppmASTM D5185m02MagnesiumppmASTM D5185m11PhosphorusppmASTM D5185m21431902ZincppmASTM D5185m<132SulfurppmASTM D5185m234823338	Water		WC Method	>0.2	NEG		
Sand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGSodiumppmASTM D5185m08BoronppmASTM D5185m03BariumppmASTM D5185m03MolybdenumppmASTM D5185m02MagnesiumppmASTM D5185m02MagnesiumppmASTM D5185m<11PhosphorusppmASTM D5185m21431902ZincppmASTM D5185m<132SulfurppmASTM D5185m2346823338	Silt	scalar	*Visual	NONE	NONE		
Appearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGSodiumppmASTM D5185mBoronppmASTM D5185m08BariumppmASTM D5185m03MolybdenumppmASTM D5185m0ManganeseppmASTM D5185m02MagnesiumppmASTM D5185m11PhosphorusppmASTM D5185m21431902ZincppmASTM D5185m32SulfurppmASTM D5185m32338	Debris	scalar	*Visual	NONE	NONE		
Odorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGSodiumppmASTM D5185m<1BoronppmASTM D5185m08BariumppmASTM D5185m03MolybdenumppmASTM D5185m0<1ManganeseppmASTM D5185m02MagnesiumppmASTM D5185m<11CalciumppmASTM D5185m<15PhosphorusppmASTM D5185m<15ZincppmASTM D5185m<132SulfurppmASTM D5185m<132	Sand/Dirt	scalar	*Visual	NONE	NONE		
Emulsified Water  scalar  *Visual  >0.2  NEG      Sodium  ppm  ASTM D5185m  <1      Boron  ppm  ASTM D5185m  0  8      Barium  ppm  ASTM D5185m  0  3      Molybdenum  ppm  ASTM D5185m  0  <1      Manganese  ppm  ASTM D5185m  0  <1      Magnesium  ppm  ASTM D5185m  0  2      Phosphorus  ppm  ASTM D5185m  <1  1      Phosphorus  ppm  ASTM D5185m  <1  5      Zinc  ppm  ASTM D5185m  2143  1902      Sulfur  ppm  ASTM D5185m  <1  32	Appearance	scalar	*Visual	NORML	NORML		
Sodium  ppm  ASTM D5185m  <1	Odor	scalar	*Visual	NORML	NORML		
Boron  ppm  ASTM D5185m  0  8      Barium  ppm  ASTM D5185m  0  3      Molybdenum  ppm  ASTM D5185m  0      Manganese  ppm  ASTM D5185m  0      Magnesium  ppm  ASTM D5185m  1      Calcium  ppm  ASTM D5185m      Phosphorus  ppm  ASTM D5185m      Zinc  ppm  ASTM D5185m  2143  1902      Sulfur  ppm  ASTM D5185m  32	Emulsified Water	scalar	*Visual	>0.2	NEG		
Boron  ppm  ASTM D5185m  0  8      Barium  ppm  ASTM D5185m  0  3      Molybdenum  ppm  ASTM D5185m  0      Manganese  ppm  ASTM D5185m  0      Magnesium  ppm  ASTM D5185m  0  2      Magnesium  ppm  ASTM D5185m  1  1      Calcium  ppm  ASTM D5185m  5      Phosphorus  ppm  ASTM D5185m  2143  1902      Zinc  ppm  ASTM D5185m  1  32      Sulfur  ppm  ASTM D5185m  23468  23338	Sodium	ppm	ASTM D5185m		<1		
Barium  ppm  ASTM D5185m  0  3      Molybdenum  ppm  ASTM D5185m  0  <1      Manganese  ppm  ASTM D5185m  0  2      Magnesium  ppm  ASTM D5185m  0  2      Calcium  ppm  ASTM D5185m  <1  1      Phosphorus  ppm  ASTM D5185m  <1  5      Zinc  ppm  ASTM D5185m  2143  1902      Sulfur  ppm  ASTM D5185m  23468  23338			ASTM D5185m	0			
Manganese  ppm  ASTM D5185m  0  2      Magnesium  ppm  ASTM D5185m  <1	Barium		ASTM D5185m	0	3		
Manganese  ppm  ASTM D5185m  0  2      Magnesium  ppm  ASTM D5185m  <1	Molybdenum		ASTM D5185m	0	<1		
Magnesium  ppm  ASTM D5185m  <1	-		ASTM D5185m	0	2		
Phosphorus  ppm  ASTM D5185m  2143  1902      Zinc  ppm  ASTM D5185m  <1	Magnesium	ppm	ASTM D5185m	<1	1		
Zinc  ppm  ASTM D5185m  <1	Calcium	ppm	ASTM D5185m	<1	5		
Sulfur  ppm  ASTM D5185m  23468  23338	Phosphorus			2143	1902		
	Zinc	ppm	ASTM D5185m	<1	32		
	Sulfur	ppm	ASTM D5185m	23468	23338		
	Visc @ 40°C		ASTM D445		182		

Report Id: LEC0082 [WUSCAR] 06225428 (Generated: 07/03/2024 20:13:52) Rev: 1

Contact/Location: TRACEY EDGERTON - LEC0082





**RECO EQUIPMENT INC** 8075 PRODUCTION DRIVE FLORENCE, KY

T:

Unique Number : 11103625 Diagnosed : 02 Jul 2024 - Wes Davis US 41042 Test Package : CONST Contact: TRACEY EDGERTON Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. tedgerton@recoequip.com \* - 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) F: (859)727-7974

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

Received

Tested

: 01 Jul 2024

: 02 Jul 2024

Laboratory

Sample No.

Lab Number : 06225428

: LH0272377

Contact/Location: TRACEY EDGERTON - LEC0082 Page 2 of 2