

WEAR NORMAL CONTAMINATION NORMAL FLUID CONDITION NORMAL

Machine Id 132164 LIEBHERR LH60 132164

Component Rear Differential

GEAR OIL SAE 80W90 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) GEAR OIL SAE 80W90. Please confirm.

WEAR

All component wear rates are normal.

CONTAMINATION

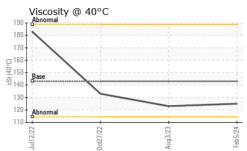
There is no indication of any contamination in the oil.

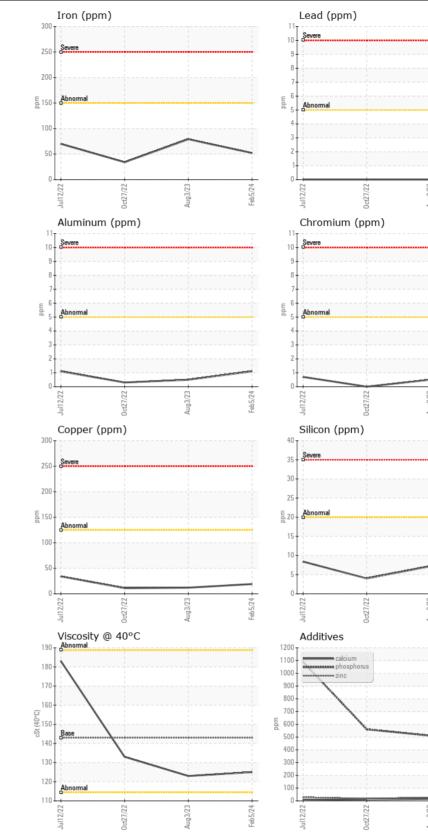
FLUID CONDITION

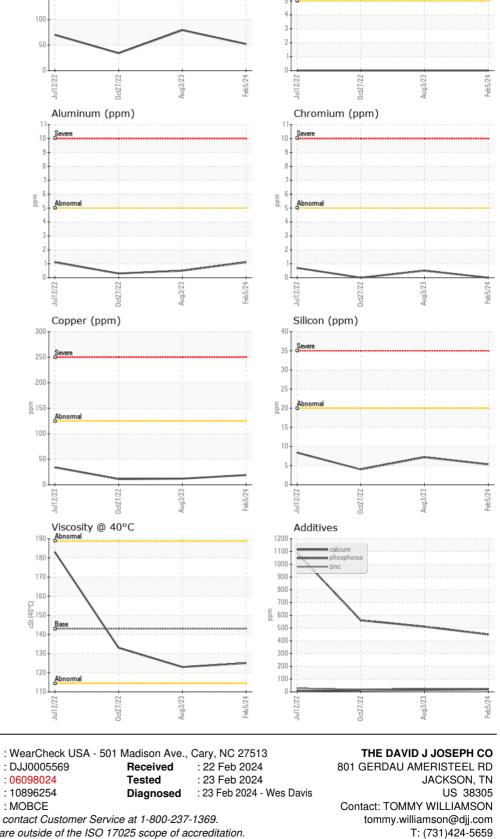
The condition of the oil is acceptable for the time in service.

Sample DateClient Info05 Feb 202403 Aug 202327 Oct 2022Machine AgehrsClient Info774557152761Oil AgehrsClient Info000Filter AgehrsClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/ASample StatusClient InfoN/AN/AN/AIronppmASTM D5185m>150527934ChromiumppmASTM D5185m>10000NickelppmASTM D5185m>10000SilverppmASTM D5185m>51<1<1LeadppmASTM D5185m>51<1<1TinppmASTM D5185m>51000VanadiumppmASTM D5185m>51000VanadiumppmASTM D5185m>51000VanadiumppmASTM D5185m>5<1000VanadiumppmASTM D5185m>5<1000VanadiumppmASTM D5185m>5<1000VanadiumppmASTM D5185m>201000VanadiumppmASTM D5185m>201<100Vanadium							
Sample DateClient Info05 Feb 202403 Aug 202327 Oct 2022Machine AgehrsClient Info774557152761Oil AgehrsClient Info000Filter AgehrsClient InfoN/AN/AN/AGli ChangedClient InfoN/AN/AN/AN/AFilter ChangedClient InfoN/AN/AN/AN/ASample StatusClient InfoN/AN/AN/AN/AIronppASTM D5185m>150527934IronppASTM D5185m>10000NickelppASTM D5185m>10000SilverppASTM D5185m>51<1<1LeadppASTM D5185m>51<1<1TinppASTM D5185m>51000VanadiumppASTM D5185m>51000VanadiumppASTM D5185m>51000VanadiumppASTM D5185m>201<100VanadiumppASTM D5185m>51000VanadiumppASTM D5185m>201<100VanadiumppASTM D5185m>201<100VanadiumppASTM D5185m>201<100 <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 Into774557152761Oil AgehrsClient Info000Filter AgehrsClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/ASample StatusClient InfoN/AN/AN/AIronppmASTM D5185m>150527934IronppmASTM D5185m>500-10NickelppmASTM D5185m>50000SilverppmASTM D5185m>5000CopperppmASTM D5185m>51-1-1LeadppmASTM D5185m>5100VanadiumppmASTM D5185m>5-100VanadiumppmASTM D5185m>201-10White Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185m>201-10WaterWC Method0.2NEGNONENONESiliconppmASTM D5185m>201-10WaterWC Method0.2NEGNONENONESiliconppmASTM D5185m201-10WaterVi	Sample Number		Client Info		DJJ0005569	DJJ0021037	DJJ0017452
Oil AgehrsClient Info000Filter AgehrsClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/ASample StatusClient InfoN/AN/AN/AIronppmASTM D5185m>150527934ChromiumppmASTM D5185m>500<10NickelppmASTM D5185m500<10SilverppmASTM D5185m551<1<1LeadppmASTM D5185m>5000AduminumppmASTM D5185m>5000VanadiumppmASTM D5185m>51<1111TinppmASTM D5185m>5<100VanadiumppmASTM D5185m>5<100White Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185m>201<10VaterWC Method>.20S74PotassiumppmASTM D5185m>201<10SiliconppmASTM D5185m>20NONENONENONESiliconppmASTM D5185m>201<10Qatar*VisualNONENONENONENONENONE <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>05 Feb 2024</th> <th>03 Aug 2023</th> <th>27 Oct 2022</th>	Sample Date		Client Info		05 Feb 2024	03 Aug 2023	27 Oct 2022
Filter Age Oli ChangedNoClient InfoN/AN/AN/AFilter ChangedClient InfoN/AN/AN/AN/ASample StatusClient InfoN/AN/AN/AN/AIronppmASTM D5185m>150527934ChromiumppmASTM D5185m>500<10NickelppmASTM D5185m>10000SilverppmASTM D5185m>51<1<1LeadppmASTM D5185m>51<1<1LeadppmASTM D5185m>5000CopperppmASTM D5185m>51<1<1TinppmASTM D5185m>51000VanadiumppmASTM D5185m>5<100White Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185m>201<10WaterWC Method>.0.2NEGNEGNORESilitonscalar*VisualNONENONENONENONEDebrisscalar*VisualNORENONENONENORESilitonppmASTM D5185m>100038GhorinppmASTM D5185m>201<10WaterwC Method>.0.2NEGNORENORESilitonppm<	Machine Age	hrs	Client Info		7745	5715	2761
Oil Changed Filter ChangedClient InfoN/AN/AN/AN/AFilter Changed Sample StatusClient InfoN/AN/AN/AN/AIronppmASTM D5185m>150527934ChromiumppmASTM D5185m>500<10	Oil Age	hrs	Client Info		0	0	0
Filter Changed Client Info N/A N/A N/A N/A Sample Status Client Info NORMAL NORMAL NORMAL NORMAL Iron ppm ASTM D5185m >150 52 79 34 Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >10 0 0 0 Silver ppm ASTM D5185m >5 0 0 0 Auminum ppm ASTM D5185m >5 0 0 0 Auminum ppm ASTM D5185m >5 0 0 0 Vanadium ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >20 <1 0 0 Vanadium ppm ASTM D5185m >20 <1 0 0 Vanadium ppm ASTM D5185m >20 <1 <1 <	Filter Age	hrs	Client Info		0	0	0
Sample Status NORMAL NORMAL NORMAL NORMAL Iron ppm ASTM D5185m >150 52 79 34 Chromium ppm ASTM D5185m >50 0 <1 0 Nickel ppm ASTM D5185m >10 0 0 0 Silver ppm ASTM D5185m >0 0 0 0 Aluminum ppm ASTM D5185m >5 0 0 0 Auminum ppm ASTM D5185m >5 0 0 0 Copper ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >20 1 <1 0 Vanadium ppm ASTM D5185m >20 1 <1 0	Oil Changed		Client Info		N/A	N/A	N/A
Iron ppm ASTM D5185m >150 52 79 34 Chromium ppm ASTM D5185m >50 0 <1 0 Nickel ppm ASTM D5185m >10 0 0 0 Titanium ppm ASTM D5185m 0 <1 0 0 Aluminum ppm ASTM D5185m >5 1 <1 <1 Lead ppm ASTM D5185m >5 0 0 0 Copper ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >20 <5 <1 0 0 Vanadium ppm ASTM D5185m >20 1 <1 0 0 0 0 0 0 0 0	Filter Changed		Client Info		N/A	N/A	N/A
Import ASTM D5185m >50 O <10	Sample Status				NORMAL	NORMAL	NORMAL
Import ASTM D5185m >50 O <10			40TH DE105				
Nickel ppm ASTM D5185m >10 0 0 0 Titanium ppm ASTM D5185m 0 <1 0 Silver ppm ASTM D5185m 5 1 <1 <1 Lead ppm ASTM D5185m >5 0 0 0 Copper ppm ASTM D5185m >5 1 <1 <1 Tin ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >20 NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE Silicon ppm ASTM D5185m >20 1 <1 0 Water wC Method >0.2 NEG NONE NONE							
Titanium ppm ASTM D5185m 0 <1					-		-
Silver ppm ASTM D5185m O O O Aluminum ppm ASTM D5185m >5 1 <1 <1 Lead ppm ASTM D5185m >5 O O O Copper ppm ASTM D5185m >125 19 12 11 Tin ppm ASTM D5185m >5 <1 O O Vanadium ppm ASTM D5185m >5 <1 O O White Metal scalar *Visual NONE NONE MODER MODER Yellow Metal scalar *Visual NONE NONE NONE NONE Silicon ppm ASTM D5185m<>20 5 7 4 Potassium ppm ASTM D5185m<>20 1 <1 0 Water wC Method >0.2 NEG NEG NEG Sand/Dirt scalar *Visual NORE NONE NORE Appearance <th></th> <th></th> <th></th> <th>>10</th> <th>-</th> <th></th> <th>÷</th>				>10	-		÷
Aluminum ppm ASTM D5185m >5 1 <1					-		-
Lead ppm ASTM D5185m >5 0 0 0 Copper ppm ASTM D5185m >125 19 12 11 Tin ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >5 <1 0 0 White Metal scalar *Visual NONE MODE MODER MODER Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Silicon ppm ASTM D5185m >20 5 7 4 Potassium ppm ASTM D5185m >20 1 <1 0 Water WC Method >0.2 NEG NEG NORE Debris scalar *Visual NONE NONE NONE NORE Appearance scalar *Visual NORH NORML NORML NORML NORML Modybdenum ppm AST				-	-		-
Copper ppm ASTM D5185m >125 19 12 11 Tin ppm ASTM D5185m >5 <1 0 0 Vanadium ppm ASTM D5185m >5 <1 0 0 White Metal scalar *Visual NONE MODER MODER MODER Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Silicon ppm ASTM D5185m >20 5 7 4 Potassium ppm ASTM D5185m >20 1 <1 0 Water WC Method >0.2 NEG NEG NORE Debris scalar *Visual NONE NONE NONE NORE Appearance scalar *Visual NORM NORML NORML NORML NORML Odor scalar *Visual NORM NORML NORML NORML NORML Codor					-		
Tin ppm ASTM D5185m >5 <1					-		÷
Vanadium ppm ASTM D5185m 0 <1		ppm			-		
White Metalscalar*VisualNONENONEMODERMODERYellow Metalscalar*VisualNONENONENONENONENONESiliconppmASTM D5185m>20574PotassiumppmASTM D5185m>201<10WaterWC Method>0.2NEGNEGNEGSilitscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNORENONENONENONEAppearancescalar*VisualNORLNORMLNORMLNORMLOdorscalar*VisualNORLNORMLNORMLNORMLOdorscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m\$170022BoronppmASTM D5185m2000038MolybdenumppmASTM D5185m12<1<10ManganeseppmASTM D5185m12240CalciumppmASTM D5185m150191612PhosphorusppmASTM D5185m150242718SulfurppmASTM D5185m125242718SulfurppmASTM D5185m125242319929154				>5		-	÷
Yellow Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185m>20574PotassiumppmASTM D5185m>201<10WaterWC Method>0.2NEGNEGNEGSiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2REGNEGSodiumppmASTM D5185m>170022BoronppmASTM D5185m2000038MolybdenumppmASTM D5185m12<1<1<1MagnesiumppmASTM D5185m12240CalciumppmASTM D5185m150191612PhosphorusppmASTM D5185m125242718SulfurppmASTM D5185m125242319929154							-
SiliconppmASTM D5185m>20574PotassiumppmASTM D5185m>201<1				-			
Potassium ppm ASTM D5185m >20 1 <1	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
WaterWC Method>0.2NEGNEGNEGSiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>170022BoronppmASTM D5185m2000038MolybdenumppmASTM D5185m12<11<1<1MagnesiumppmASTM D5185m12240CalciumppmASTM D5185m150191612PhosphorusppmASTM D5185m125242718SulfurppmASTM D5185m12524219929154	Silicon	ppm	ASTM D5185m	>20	5	7	4
Siltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>1700222BoronppmASTM D5185m200003838MolybdenumppmASTM D5185m12<1<10ManganeseppmASTM D5185m12240CalciumppmASTM D5185m150191612PhosphorusppmASTM D5185m125242718SulfurppmASTM D5185m125242718	Potassium	ppm	ASTM D5185m	>20	1	<1	0
Debrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>170022BoronppmASTM D5185m2000038MolybdenumppmASTM D5185m12<1<10ManganeseppmASTM D5185m12240CalciumppmASTM D5185m150191612PhosphorusppmASTM D5185m125242718SulfurppmASTM D5185m125242118SulfurppmASTM D5185m2500178492319929154	Water		WC Method	>0.2	NEG	NEG	NEG
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGNEGSodiumppmASTM D5185m>1700222BoronppmASTM D5185m2000038MolybdenumppmASTM D5185m2000038MolybdenumppmASTM D5185m12<1<10ManganeseppmASTM D5185m12240CalciumppmASTM D5185m150191612PhosphorusppmASTM D5185m125242718SulfurppmASTM D5185m125242319929154	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORMLNORML<	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Odor scalar *Visual NORML	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Emulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>170022BoronppmASTM D5185m4002717BariumppmASTM D5185m2000038MolybdenumppmASTM D5185m12<1<10ManganeseppmASTM D5185m12<11<1MagnesiumppmASTM D5185m12240CalciumppmASTM D5185m150191612PhosphorusppmASTM D5185m125242718SulfurppmASTM D5185m22500178492319929154	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Sodium ppm ASTM D5185m >170 0 2 2 Boron ppm ASTM D5185m 400 2 7 17 Barium ppm ASTM D5185m 200 0 0 38 Molybdenum ppm ASTM D5185m 12 <1 <1 0 Manganese ppm ASTM D5185m 12 <1 1 <1 Magnesium ppm ASTM D5185m 12 2 4 0 Calcium ppm ASTM D5185m 150 19 16 12 Phosphorus ppm ASTM D5185m 150 450 511 561 Zinc ppm ASTM D5185m 125 24 27 18 Sulfur ppm ASTM D5185m 125 24 23199 29154	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Boron ppm ASTM D5185m 400 2 7 17 Barium ppm ASTM D5185m 200 0 0 38 Molybdenum ppm ASTM D5185m 12 <1	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Barium ppm ASTM D5185m 200 0 0 38 Molybdenum ppm ASTM D5185m 12 <1	Sodium	ppm	ASTM D5185m	>170	0	2	2
Molybdenum ppm ASTM D5185m 12 <1	Boron	ppm	ASTM D5185m	400	2	7	17
Manganese ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m	200	0	0	38
Magnesium ppm ASTM D5185m 12 2 4 0 Calcium ppm ASTM D5185m 150 19 16 12 Phosphorus ppm ASTM D5185m 1650 450 511 561 Zinc ppm ASTM D5185m 125 24 27 18 Sulfur ppm ASTM D5185m 22500 17849 23199 29154	Molybdenum	ppm	ASTM D5185m	12	<1	<1	0
Calcium ppm ASTM D5185m 150 19 16 12 Phosphorus ppm ASTM D5185m 1650 450 511 561 Zinc ppm ASTM D5185m 125 24 27 18 Sulfur ppm ASTM D5185m 22500 17849 23199 29154	Manganese	ppm	ASTM D5185m		<1	1	<1
Calcium ppm ASTM D5185m 150 19 16 12 Phosphorus ppm ASTM D5185m 1650 450 511 561 Zinc ppm ASTM D5185m 125 24 27 18 Sulfur ppm ASTM D5185m 22500 17849 23199 29154	Magnesium	ppm	ASTM D5185m	12	2	4	0
Zinc ppm ASTM D5185m 125 24 27 18 Sulfur ppm ASTM D5185m 22500 17849 23199 29154	Calcium		ASTM D5185m	150	19	16	12
Zinc ppm ASTM D5185m 125 24 27 18 Sulfur ppm ASTM D5185m 22500 17849 23199 29154	Phosphorus	ppm	ASTM D5185m	1650	450	511	561
	Zinc	ppm	ASTM D5185m	125	24	27	18
	Sulfur	ppm	ASTM D5185m	22500	17849	23199	29154
	Visc @ 40°C		ASTM D445	143	125	123	133

Contact/Location: TOMMY WILLIAMSON - DAVJACTN







* - 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)

Received

Diagnosed

Tested

Certificate L2367

Laboratory

Sample No.

Lab Number : 06098024

Unique Number : 10896254

Test Package : MOBCE

: DJJ0005569

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Contact/Location: TOMMY WILLIAMSON - DAVJACTN

F: (731)424-5026