

[W67861] Machine Id HITACHI 250LC 1FFDC270THF444068 (S/N 1FFDC270THF440068)

Right Final Drive

JOHN DEERE GL-5 80W90 (2)

RECOMMENDATION

We advise that you check all areas where dirt can enter the system. We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. (Customer Sample Comment: W67861)

WEAR

Gear wear is indicated.

CONTAMINATION

Elemental levels of silicon (Si) and aluminum (Al) indicate aluminasilicate (coarse dirt) ingress.

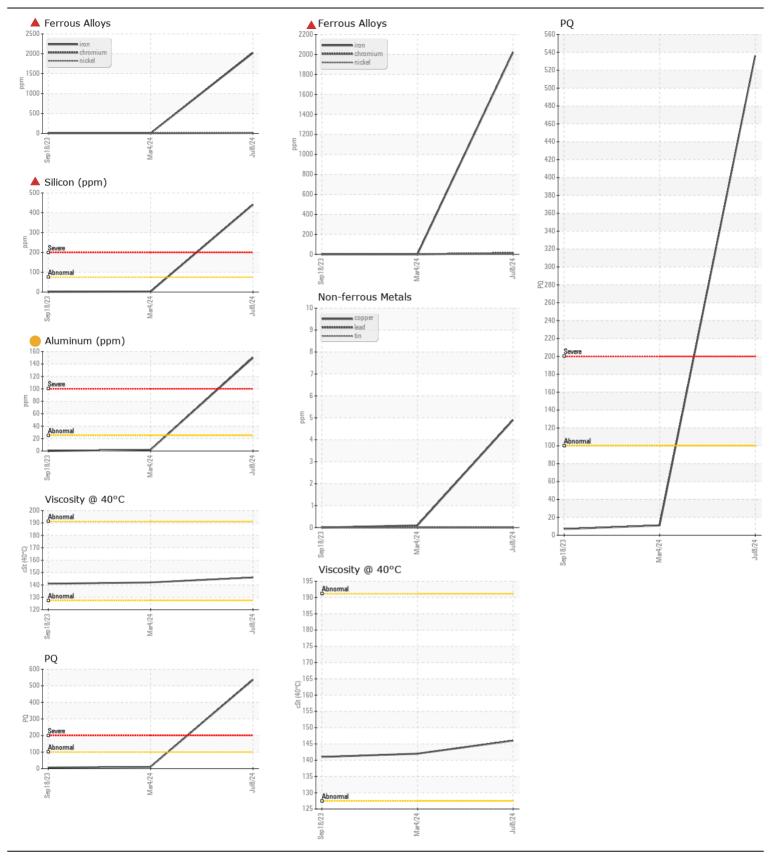
FLUID CONDITION

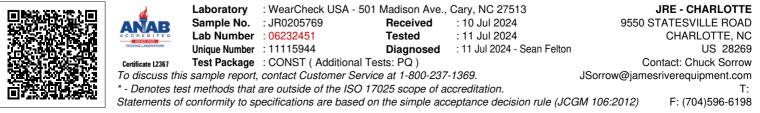
The oil is no longer serviceable due to the presence of contaminants.

Sample Date Client Info 08 Jul 2024 04 Mar 2024 18 Sep 2023 Machine Age hrs Client Info 9440 9004 8457 Oil Age hrs Client Info 9440 9004 8457 Filter Age hrs Client Info 0 0 0 0 Oil Changed Client Info N/A Not Changd Not Changd Filter Changed Client Info N/A Not Changd Not Changd Sample Status Client Info N/A N/A Not Changd PQ ASTM D5185m >500 A 2022 1 1 Chromium ppm ASTM D5185m >10 4 13 <1					\sim		
Sample DateClient Info08 Jul 202404 Mar 202418 Sep 2023Machine AgehrsClient Info944090048457Oil AgehrsClient Info944090048457Filter AgehrsClient Info000Oil ChangedClient InfoN/ANot ChangdNot ChangdFilter ChangedClient InfoN/ANACNot ChangdSample StatusClient InfoN/ANACNot ChangdPQASTM D8184536117IronppmASTM D8185>10A20221ChromiumppmASTM D5185>10100NickelppmASTM D5185>10100SilverppmASTM D5185>10100AluminumppmASTM D5185>25000AluminumppmASTM D5185>505<10VanadiumppmASTM D5185>505<10VanadiumppmASTM D5185>505<10VanadiumppmASTM D5185>2500<1White Metalscalar"VisualNONENONENONENONESiliconppmASTM D5185>7644112<1PotassiumppmASTM D5185>76A4112<1PotassiumppmASTM D5185>2013 <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 Age hrs Client Info 9440 9004 8457 Oil Age hrs Client Info 0 0 0 Filter Age hrs Client Info N/A Not Changed Not Changed Filter Changed Client Info N/A Not Changed Not Changed Sample Status Client Info N/A N/A Not Changed Filter Changed Client Info N/A N/A Not Changed Sample Status SEVER NORMAL NORMAL NORMAL PQ ASTM D5185m 500 4 2022 1 1 Chromium ppm ASTM D5185m 10 1 0 0 Nickel ppm ASTM D5185m 25 0 0 0 Alumium ppm ASTM D5185m 55 5 <1 0 Capper ppm ASTM D5185m 50 5 <1<0 0 Vanium ppm ASTM D5185m 50	Sample Number		Client Info		JR0205769	JR0206627	JR0178064
Oil Age hrs Client Info 9440 9004 8457 Filter Age hrs Client Info 0 0 0 Gil Changed Client Info N/A N/A Not Changd Filter Changed Client Info N/A N/A Not Changd Sample Status SEVERE NORMAL NORMAL PQ ASTM D8184 536 11 7 Iron ppm ASTM D5185 >10 A 13 <1 0 Nickel ppm ASTM D5185 >10 1 0 0 0 Silver ppm ASTM D5185 >10 1 0 0 0 Copper ppm ASTM D5185 >10 0 0 0 0 Vanadium ppm ASTM D5185 >10 0 0 <1 0 Vanadium ppm ASTM D5185 >10 0 <1 0 0 <1 Va	Sample Date		Client Info		08 Jul 2024	04 Mar 2024	18 Sep 2023
Filter Age hrs Client Info 0 0 0 Oil Changed Client Info N/A Not Changd Not Changd Filter Changed Client Info N/A N/A Not Changd Sample Status SEVERE NORMAL NORMAL PQ ASTM D8184 536 11 7 Iron ppm ASTM D5185 >00 2022 1 1 Chromium ppm ASTM D5185 >10 1 0 0 Nickel ppm ASTM D5185 >10 1 0 0 Silver ppm ASTM D5185 >25 0 0 0 Aluminum ppm ASTM D5185 >50 5 <10 0 Copper ppm ASTM D5185 >50 0 0 <11 White Metal scalar *Visual NONE NONE NONE NONE Yellow Metal scalar *Visual NONE N	Machine Age	hrs	Client Info		9440	9004	8457
Oil Changed Filter ChangedClient InfoN/AN/ANot Changed NAFilter Changed Sample StatusClient InfoN/AN/ANot Changed NORMALPQASTM D8184S36117IronppmASTM D8185>500202211ChromiumppmASTM D5185>101300NickelppmASTM D5185>101300NickelppmASTM D5185>12<10SilverppmASTM D5185>25000AluminumppmASTM D5185>25000CopperppmASTM D5185>505<10VanadiumppmASTM D5185>505<10VanadiumppmASTM D5185>5000<1White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185>754 4412<1PotassiumppmASTM D5185>201320WaterWC Method>.2NEGNONENONENONESodiumppmASTM D5185>201320QuartWC Method>.2NEGNONENONESodiumppmASTM D5185>201320Guart	Oil Age	hrs	Client Info		9440	9004	8457
Filter Changed Sample Status Client Info N/A N/A N/A Not Changed NORMAL NORMAL PQ ASTM D8184 S36 11 7 Iron ppm ASTM D5185m >10 A 2022 1 1 Chromium ppm ASTM D5185m >10 A 3 <1 0 Nickel ppm ASTM D5185m >10 1 0 0 Nickel ppm ASTM D5185m >10 1 0 0 Aluminum ppm ASTM D5185m >25 0 0 0 0 Auminum ppm ASTM D5185m >25 0 0 0 0 Copper ppm ASTM D5185m >10 0 0 0 0 Vanadium ppm ASTM D5185m >10 0 0 0 0 Vanadium ppm ASTM D5185m >20 13 2 0 Vanadium ppm	Filter Age	hrs	Client Info		0	0	0
Sample Status Severe NORMAL NORMAL PQ ASTM D8184 536 111 7 Iron ppm ASTM D5185m >10 A 2022 1 1 Chromium ppm ASTM D5185m >10 A 13 <1 0 Nickel ppm ASTM D5185m >10 1 0 0 Titanium ppm ASTM D5185m >10 0 0 0 Aluminum ppm ASTM D5185m >25 0 0 0 Copper ppm ASTM D5185m >25 0 0 0 Vanadium ppm ASTM D5185m >50 5 <1 0 Vanadium ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m >75 4 441 2 <1 Vellow Acta scalar	Oil Changed		Client Info		N/A	Not Changd	Not Changd
PQ ASTM D8184 536 11 7 Iron ppm ASTM D5185 >500 A 2022 1 1 Chromium ppm ASTM D5185 >10 A 13 <1 0 Nickel ppm ASTM D5185 >10 1 0 0 Titanium ppm ASTM D5185 >10 12 <1 0 Silver ppm ASTM D5185 >2 0 0 0 Auminum ppm ASTM D5185 >25 0 0 0 0 Copper ppm ASTM D5185 >50 5 <1 0 0 Vanadium ppm ASTM D5185 >10 0 0 <1 0 Vanadium ppm ASTM D5185 >50 5 <1 0 0 <1 Vanadium ppm ASTM D5185 >75 A 441 2 <1 0 Yellow Metal scalar<*Visual	Filter Changed		Client Info		N/A	N/A	Not Changd
Iron ppm ASTM D5185m >500 A 2022 1 1 Chromium ppm ASTM D5185m >10 A 13 <1 0 Nickel ppm ASTM D5185m >10 1 0 0 Titanium ppm ASTM D5185m 2 <1 0 Silver ppm ASTM D5185m >25 0 0 0 Aluminum ppm ASTM D5185m >25 0 0 0 Lead ppm ASTM D5185m >25 0 0 0 0 Vanadium ppm ASTM D5185m >10 0 0 0 <1 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE Silicon ppm ASTM D5185m<>20 13 2 0 Water WC Method >0.2 N	Sample Status				SEVERE	NORMAL	NORMAL
Production Product	PQ		ASTM D8184		536	11	7
Nickel ppm ASTM D5185m >10 1 0 0 Titanium ppm ASTM D5185m 12 <1 0 Silver ppm ASTM D5185m 0 0 0 Astm D5185m >25 • 150 2 <1 Lead ppm ASTM D5185m >25 0 0 0 Copper ppm ASTM D5185m >50 5 <1 0 Vanadium ppm ASTM D5185m >10 0 0 <1 White Metal scalar *Visual NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE Silicon ppm ASTM D5185m >20 13 2 0 Water WC Method >0.2 NEG NORE NONE NONE Debris scalar *Visual NORE NONE NONE NORE	Iron	ppm	ASTM D5185m	>500	A 2022	1	1
Titanium ppm ASTM D5185m 12 <1	Chromium	ppm	ASTM D5185m	>10	1 3	<1	0
Silver ppm ASTM D5185m Image: Constraint of the second	Nickel	ppm	ASTM D5185m	>10	1	0	0
Silver ppm ASTM D5185m 0 0 0 0 Aluminum ppm ASTM D5185m<>25 ● 150 2 <1 Lead ppm ASTM D5185m<>25 0 0 0 Copper ppm ASTM D5185m<>50 5 <1 0 Tin ppm ASTM D5185m<>10 0 0 0 <1 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Silicon ppm ASTM D5185m<>75 ▲ 441 2 <1 2 Vater WC Method >0.2 NEG NEG NORE Sadd/Dirt scalar *Visual NONE NONE NONE NONE Sadd/Dirt scalar *Visual NORE NORE NORE NORE Appearance scalar *Visual NORM	Titanium		ASTM D5185m		12	<1	0
Lead ppm ASTM D5185m >25 0 0 0 Copper ppm ASTM D5185m >50 5 <1 0 Tin ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m >10 0 0 <1 White Metal scalar *Visual NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE Silicon ppm ASTM D5185m >75 4411 2 <1 Potassium ppm ASTM D5185m >75 4411 2 <1 Silicon ppm ASTM D5185m >20 13 2 0 Water WC Method >0.2 NEG NEG NORE NONE Debris scalar *Visual NONE NONE NONE NORML NORML Appearance scalar *Visual </th <th>Silver</th> <th></th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Silver		ASTM D5185m		0	0	0
Copper ppm ASTM D5185m >50 5 <1	Aluminum	ppm	ASTM D5185m	>25	150	2	<1
Tin ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m 0 0 <1 0 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Silicon ppm ASTM D5185m >75 ▲ 441 2 <1 Potassium ppm ASTM D5185m >75 ▲ 441 2 <1 Potassium ppm ASTM D5185m >20 13 2 0 Water WC Method >0.2 NEG NEG NONE NONE Debris scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORM NORML NORML NORML Odor scalar *Visual NORM NORML NORML NORML Boron	Lead	ppm	ASTM D5185m	>25	0	0	0
VanadiumppmASTM D5185m00<1	Copper	ppm	ASTM D5185m	>50	5	<1	0
White Metalscalar*VisualNONENONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONENONESiliconppmASTM D5185m>754 4412<1PotassiumppmASTM D5185m>201320WaterWC Method>0.2NEGNEGNEGSilitscalar*VisualNONEMODERNONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNORENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORLNORMLNORMLNORMLOdorscalar*VisualNORLNORMLNORMLNORMLBoronppmASTM D5185m260<1BariumppmASTM D5185m28<19BariumppmASTM D5185m<1400ManganeseppmASTM D5185m1400MagnesiumppmASTM D5185m4466288375ZincppmASTM D5185m4454SulfurppmASTM D5185m454SulfurppmASTM D5185m4205371919922259	Tin	ppm	ASTM D5185m	>10	0	0	0
Yellow Metalscalar*VisualNONENONENONENONESiliconppmASTM D5185m>7544112<1PotassiumppmASTM D5185m>201320WaterWC Method>0.2NEGNEGNEGSilitscalar*VisualNONEMODERNONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLOdorscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m260<10BoronppmASTM D5185m<1000MolybdenumppmASTM D5185m<14000MagnesiumppmASTM D5185m14000MagnesiumppmASTM D5185m411131814PhosphorusppmASTM D5185m4466288375ZincppmASTM D5185m4544SulfurppmASTM D5185m454SulfurppmASTM D5185m4205371919922259	Vanadium	ppm	ASTM D5185m		0	0	<1
SiliconppmASTM D5185m<>75▲ 4412<1	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
PotassiumppmASTM D5185m>201320WaterWC Method>0.2NEGNEGNEGSiltscalar*VisualNONEMODERNONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNORMLNORMLNORMLBoronppmASTM D5185m260<1BariumppmASTM D5185m<100MolybdenumppmASTM D5185m<1400MagnesiumppmASTM D5185m4111318PhosphorusppmASTM D5185m4454SulfurppmASTM D5185m4154	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
WaterWC Method>0.2NEGNEGNEGSiltscalar*VisualNONEMODERNONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m28<191BariumppmASTM D5185m<14000MagnesiumppmASTM D5185m140011CalciumppmASTM D5185m443754375PhosphorusppmASTM D5185m4288375375ZincppmASTM D5185m4205371919922259	Silicon	ppm	ASTM D5185m	>75	4 41	2	<1
Siltscalar*VisualNONEMODERNONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m28<19BariumppmASTM D5185m<100MolybdenumppmASTM D5185m<100ManganeseppmASTM D5185m1400MagnesiumppmASTM D5185m411318PhosphorusppmASTM D5185m4454SulfurppmASTM D5185m205371919922259	Potassium	ppm	ASTM D5185m	>20	13	2	0
Debrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGNEGSodiumppmASTM D5185m260<111111BoronppmASTM D5185m14000011 <th>Water</th> <th></th> <th>WC Method</th> <th>>0.2</th> <th>NEG</th> <th>NEG</th> <th>NEG</th>	Water		WC Method	>0.2	NEG	NEG	NEG
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m260<19BoronppmASTM D5185m28<199BariumppmASTM D5185m<11000MolybdenumppmASTM D5185m<14000MagnesiumppmASTM D5185m144000MagnesiumppmASTM D5185m4466288375375ZincppmASTM D5185m44544SulfurppmASTM D5185m205371919922259	Silt	scalar	*Visual	NONE	MODER	NONE	NONE
Appearancescalar*VisualNORML<	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Odorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m260<1BoronppmASTM D5185m28<19BariumppmASTM D5185m<100MolybdenumppmASTM D5185m<1<13ManganeseppmASTM D5185m1400MagnesiumppmASTM D5185m19411CalciumppmASTM D5185m416288375PhosphorusppmASTM D5185m454SulfurppmASTM D5185m19922259	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Emulsified Water scalar *Visual >0.2 NEG NEG NEG Sodium ppm ASTM D5185m 26 0 <1 Boron ppm ASTM D5185m 28 <1 9 Barium ppm ASTM D5185m 21 0 0 Molybdenum ppm ASTM D5185m <1 3 3 Manganese ppm ASTM D5185m 14 0 0 Magnesium ppm ASTM D5185m 14 13 18 Phosphorus ppm ASTM D5185m 4 288 375 Zinc ppm ASTM D5185m 4 5 4 Sulfur ppm ASTM D5185m 4 5 4	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Sodium ppm ASTM D5185m 26 0 <1	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Boron ppm ASTM D5185m 28 <1	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Barium ppm ASTM D5185m <1	Sodium	ppm	ASTM D5185m		26	0	<1
Molybdenum ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m		28	<1	9
Manganese ppm ASTM D5185m 14 0 0 Magnesium ppm ASTM D5185m 19 4 11 Calcium ppm ASTM D5185m 41 13 18 Phosphorus ppm ASTM D5185m 466 288 375 Zinc ppm ASTM D5185m 4 5 4 Sulfur ppm ASTM D5185m 20537 19199 22259	Barium	ppm	ASTM D5185m		<1	0	0
Magnesium ppm ASTM D5185m 19 4 11 Calcium ppm ASTM D5185m 41 13 18 Phosphorus ppm ASTM D5185m 466 288 375 Zinc ppm ASTM D5185m 4 5 4 Sulfur ppm ASTM D5185m 20537 19199 22259	Molybdenum	ppm	ASTM D5185m		<1	<1	3
Calcium ppm ASTM D5185m 41 13 18 Phosphorus ppm ASTM D5185m 466 288 375 Zinc ppm ASTM D5185m 4 5 4 Sulfur ppm ASTM D5185m 20537 19199 22259	Manganese	ppm	ASTM D5185m		14	0	0
Phosphorus ppm ASTM D5185m 466 288 375 Zinc ppm ASTM D5185m 4 5 4 Sulfur ppm ASTM D5185m 20537 19199 22259	Magnesium	ppm	ASTM D5185m		19	4	11
Zinc ppm ASTM D5185m 4 5 4 Sulfur ppm ASTM D5185m 20537 19199 22259	Calcium	ppm	ASTM D5185m		41	13	18
Sulfur ppm ASTM D5185m 20537 19199 22259	Phosphorus	ppm	ASTM D5185m		466	288	375
	Zinc	ppm	ASTM D5185m		4	5	4
Visc @ 40°C cSt ASTM D445 [146] 142 141	Sulfur	ppm	ASTM D5185m		20537	19199	22259
Submitted By: Mike Young - CHABLOTTE SHOP	Visc @ 40°C	cSt					

Report Id: JAMCHA [WUSCAR] 06232451 (Generated: 07/12/2024 10:59:31) Rev: 1

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