

G089-7


LubeWatch®

Lubricant Analysis Report

North America: +1-866-341-0487

0	1	2	3	4
NORMAL	ABNORMAL	ABNORMAL	ABNORMAL	CRITICAL

Overall report severity based on comments.

Account Information		Component Information		Sample Information	
Account Number:	LUB307-0037-0000	Component ID:	8952 E	Tracking Number:	24190V03942
Company Name:	PIDHERNEY'S	Secondary ID:	1T0331FKCMF390863	Lab Number:	E-016207
Contact:	CARLA MERKLIN	Component Type:	DIESEL ENGINE	Lab Location:	Edmonton
Address:	RANGE RD 70 PO BOX 940 ROCKY MOUNTAIN HOUSE, AB T4T 1A7 CA	Manufacturer:	YANMAR	Data Analyst:	KDN
Phone Number:	403-845-3072	Model:	4TNV94-FHT	Sampled:	23-Jun-2025
		Application:	CONSTRUCTION	Submitted:	25-Jun-2025
		Sump Capacity:		Received:	26-Jun-2025
				Completed:	27-Jun-2025
Filter Information		Miscellaneous Information		Product Information	
Filter Type:	Information Requested	Wildcard 1:	Your Rep.: Cary Maxwell	Product Manufacturer:	CHEVRON
Micron Rating:	0	Wildcard 2:	Ph:(403) 861-9957	Product Name:	DELO 400 XSP
		Wildcard 3:	_	Viscosity Grade:	SAE 5W40
Comments	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Molybdenum is slightly high for this lubricant.				

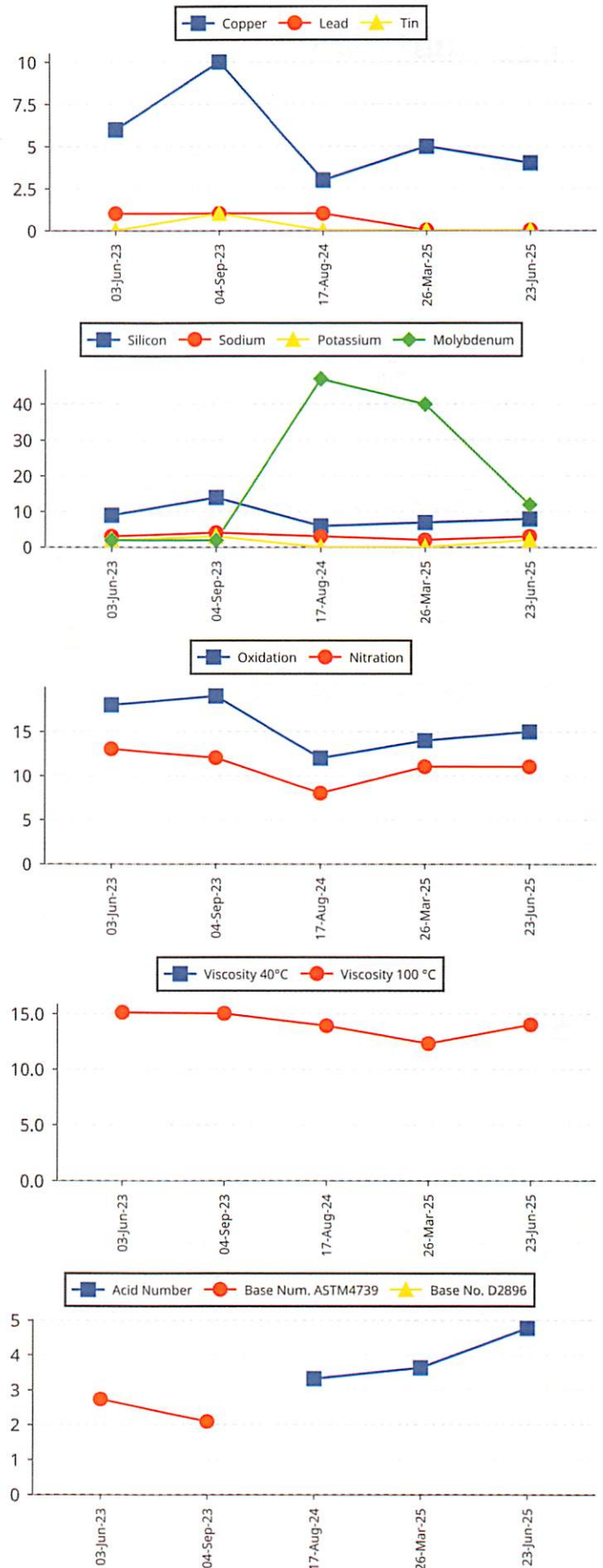
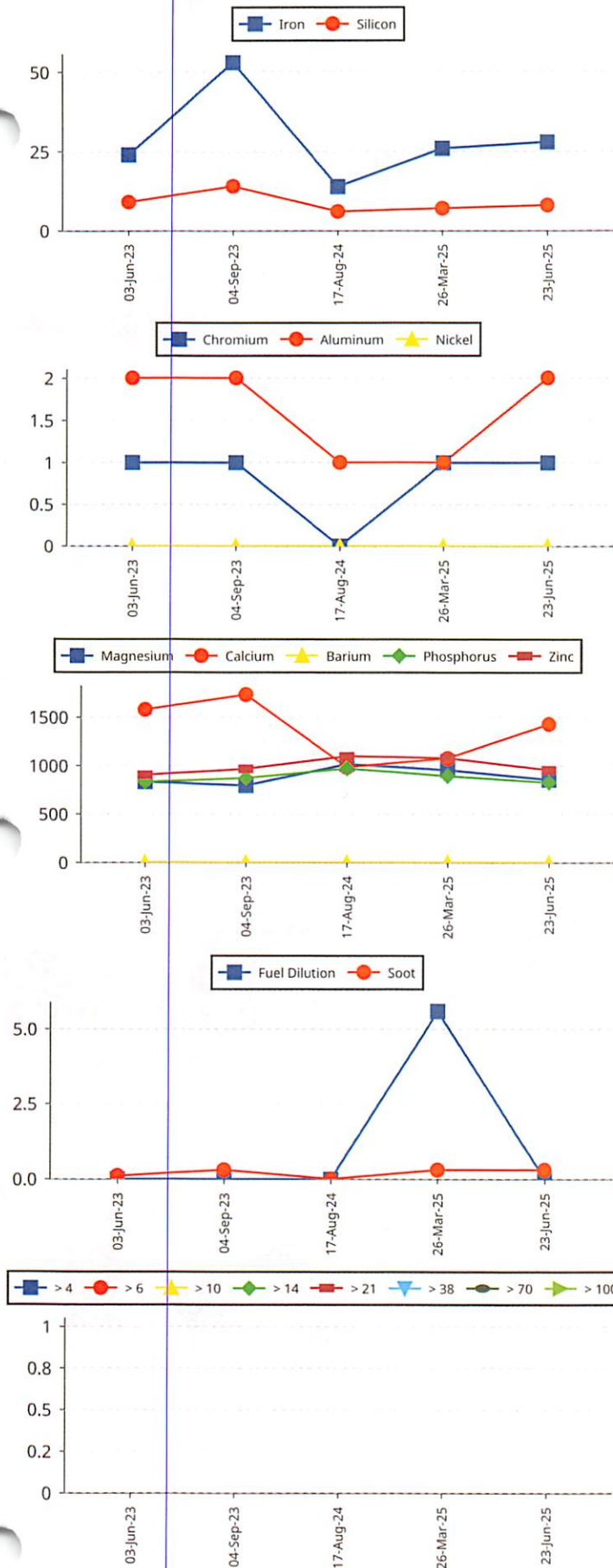
	Wear Metals (ppm)										Contaminant Metals (ppm)			Multi-Source Metals (ppm)						Additive Metals (ppm)				
Sample #	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
BL	3	0	0	1	0	1	0	0	0	0	6	3	3	1	0	0	0	1	98	775	1323	0	768	869
5	24	1	0	2	6	1	0	0	0	0	9	3	2	1	2	0	0	1	64	835	1577	0	834	902
6	53	1	0	2	10	1	1	0	0	0	14	4	3	1	2	0	1	1	53	797	1731	0	874	965
7	14	0	0	1	3	1	0	0	0	0	6	3	0	0	47	0	0	0	61	1016	983	0	972	1096
8	26	1	0	1	5	0	0	0	0	0	7	2	0	0	40	0	0	0	44	956	1075	0	895	1077
9	28	1	0	2	4	0	0	0	0	0	8	3	2	1	12	0	0	0	57	857	1429	0	829	954

			Sample Information					Contaminants			Fluid Properties					
Sample #	Date Sampled	Date Received	Lube Time	Unit Time	Lube Change	Lube Added	Filter Change	Fuel Dilution	Soot	Water	Viscosity 40°C	Viscosity 100 °C	Acid Number	Base Num. ASTM4739	Oxidation	Nitration
			h	h		L		%	%	%	cSt	cSt	mg KOH / g	mg KOH / g	abs / cm	abs / 0.1mm
BL	01-Jan-2023	18-Sep-2023	0	0	Unk	0	Unk			<.1 - FTIR		15.3		6.21	10	7
5	03-Jun-2023	15-Jun-2023	0	1229	No	0	No	<2 - Estimate	0.1 - E2412	<.1 - FTIR		15.1		2.72	18	13
6	04-Sep-2023	07-Sep-2023	470	1441	Yes	0	Yes	<2 - Estimate	0.3 - E2412	<.1 - FTIR		15.0		2.08	19	12
7	17-Aug-2024	22-Aug-2024	289	1730	No	0	No	<2 - Estimate	<.1	<.1 - FTIR		13.9	3.32		12	8
8	26-Mar-2025	10-Apr-2025	474	1915	Yes	0	Yes	5.6 - GC	0.3 - E2412	<.1 - FTIR		12.3	3.63		14	11
9	23-Jun-2025	26-Jun-2025	253	2168	No	0	No	<2 - Estimate	0.3 - E2412	<.1 - FTIR		14.0	4.77		15	11

Sample #	ISO Code	Particle Count (particles/mL)								Test Method	Additional Testing
		> 4	> 6	> 10	> 14	> 21	> 38	> 70	> 100		
BL	/ /										
5	/ /										
6	/ /										
7	/ /										
8	/ /										
9	/ /										

Comments are advisory only and are based on the sample information provided by the customer being valid. Results related only to the items tested. Missing fluid or component information limits the evaluation. No warranty is expressed or implied. Measurement uncertainty available upon request.

Historical Comments	5	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Base Number is MODERATELY LOW. As Base Number depletes, the ability to neutralize acids is diminished. LUBRICANT TIME was not provided for this sample. Please provide this units sump capacity with next sample.
	6	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Base Number is MODERATELY LOW. As Base Number depletes, the ability to neutralize acids is diminished. Iron is at a MINOR LEVEL. IRON SOURCES in engines can be cylinder liners, iron pistons, hardened steel camshafts, crankshafts, gears, hardened rocker arms, valve bridges, alloyed steel cam follower rollers, etc. Please provide this units sump capacity with next sample. Lubricant and filter change acknowledged.
	7	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Flagged additive levels are higher than expected for the identified lubricant. This may have been topped off with a different lubricant, the fluid may be misidentified, or a different lubricant or formulation may have been in use prior to a recent change.
	8	Check for source of FUEL LEAK. Fuel is at a SIGNIFICANT LEVEL. Fuel dilution may be caused by component faults related to injectors, ignition/timing or excessive blow-by. Additional causes include heavy throttle application, engine lugging, frequent short trips, and excessive idling. Iron is at a MINOR LEVEL. IRON SOURCES in engines can be cylinder liners, iron pistons, hardened steel camshafts, crankshafts, gears, hardened rocker arms, valve bridges, alloyed steel cam follower rollers, etc. FUEL DILUTION has caused viscosity to decrease slightly below grade; FUEL DILUTION reduces the viscosity of the lubricant which decreases FILM STRENGTH and LUBRICITY and may lead to increased wear. Flagged additive levels are different than what should be present for the identified lubricant. This may have been topped off with a different lubricant, the fluid may be misidentified, or a different lubricant or formulation may have been in use prior to a recent change. Lubricant and filter change acknowledged. Resample at half interval.





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0	1	2	3	4
NORMAL		ABNORMAL	CRITICAL	

Overall report severity based on comments.

Account Information		Component Information		Sample Information	
Account Number: LUB307-0037-0000 Company Name: PIDHERNEY'S Contact: CARLA MERKLIN Address: RANGE RD 70 PO BOX 940 ROCKY MOUNTAIN HOUSE, AB T4T 1A7 CA Phone Number: 403-845-3072		Component ID: 8952 H Secondary ID: 1T0331FKCMF390863 Component Type: HYDRAULIC Manufacturer: JOHN DEERE Model: 331G Application: CONSTRUCTION Sump Capacity:		Tracking Number: 24256T68961 Lab Number: E-003069 Lab Location: Edmonton Data Analyst: MAC Sampled: 26-Mar-2025 Submitted: 09-Apr-2025 Received: 10-Apr-2025 Completed: 11-Apr-2025	
Filter Information		Miscellaneous Information		Product Information	
Filter Type: Information Requested Micron Rating: 0		Wildcard 1: Your Rep.: Cary Maxwell Wildcard 2: Ph:(403) 861-9957		Product Manufacturer: CHEVRON Product Name: RANDO HDZ Viscosity Grade: ISO 46	
Comments	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Acid Number is MODERATELY HIGH, which may be due to oxidation, contamination with an acidic product, extended drain interval, or lubricant mixing. Iron is at a MINOR LEVEL. IRON in hydraulic systems could possibly be pistons/rods (if piston pump), gears or bearings (if gear pump), or fluid conductors such as piping, tubing or steel fittings; Infrared results indicate beginning lube oxidation; Viscosity is SLIGHTLY LOW. Causes include contamination, incorrectly identified viscosity grade, or adding a different viscosity grade to the component. Flagged additive levels are different than what should be present for the identified lubricant. This may have been topped off with a different lubricant, the fluid may be misidentified, or a different lubricant or formulation may have been in use prior to a recent change. LUBRICANT TIME was not provided for this sample.				

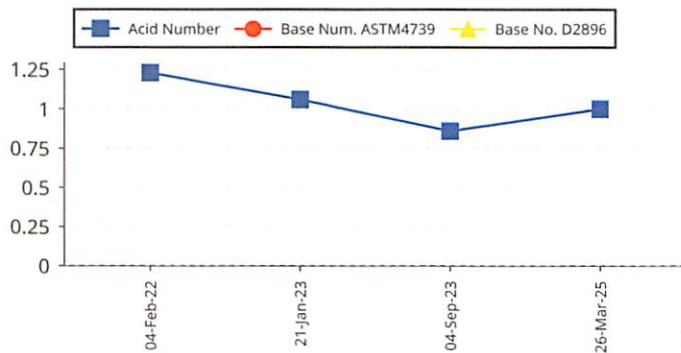
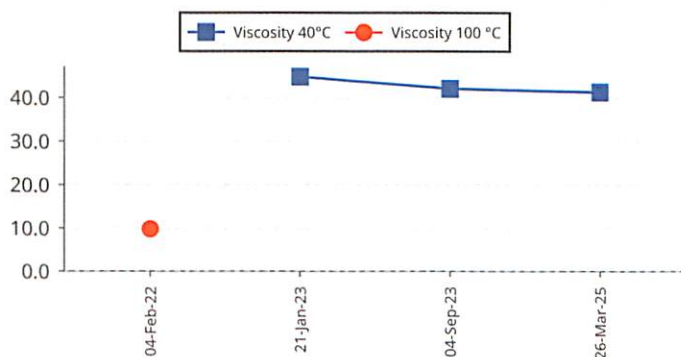
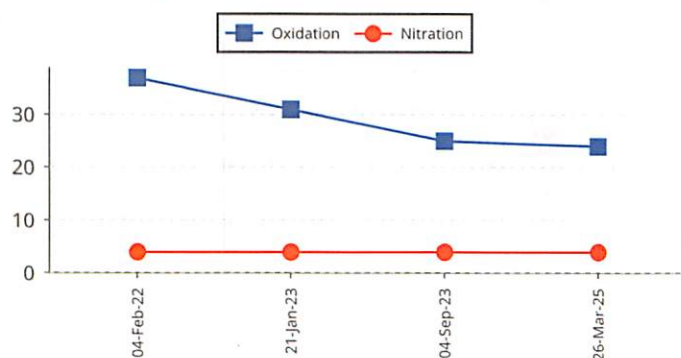
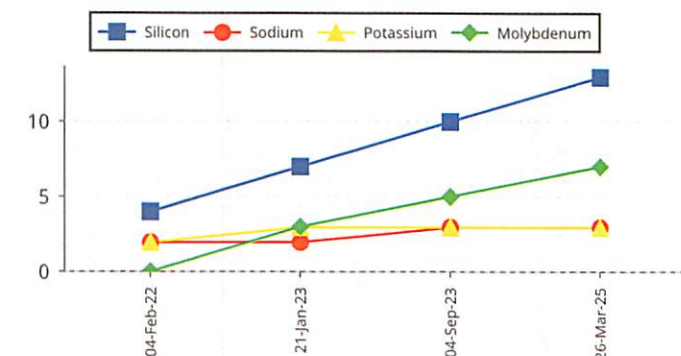
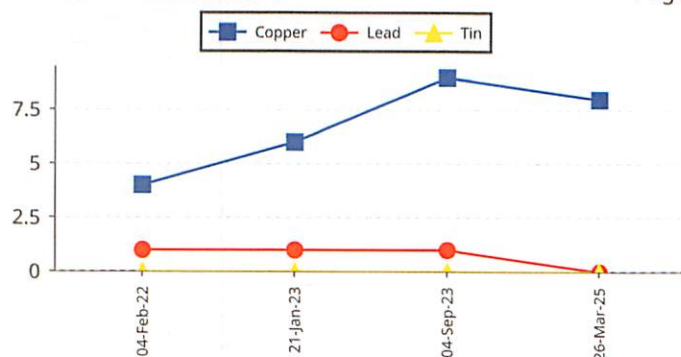
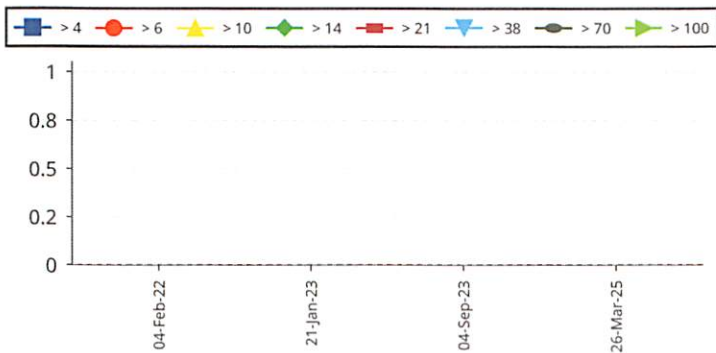
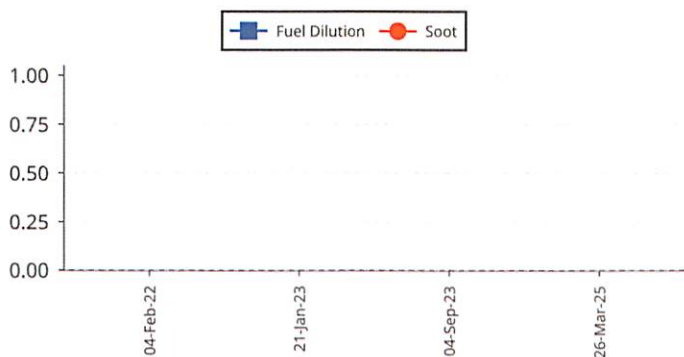
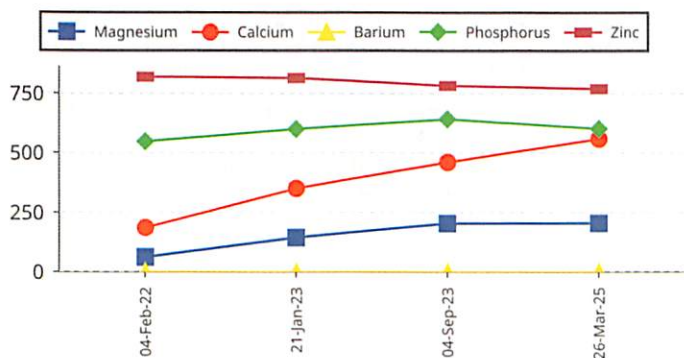
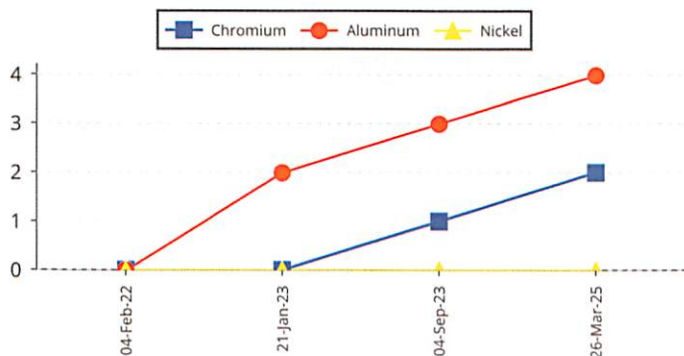
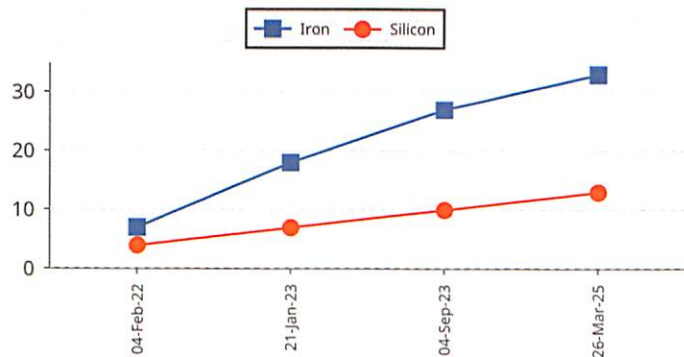
Wear Metals (ppm)											Contaminant Metals (ppm)			Multi-Source Metals (ppm)						Additive Metals (ppm)				
Sample #	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
BL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	56	0	399	505
1	7	0	0	0	4	1	0	0	0	0	4	2	2	0	0	0	0	0	9	62	187	0	548	821
2	18	0	0	2	6	1	0	0	0	0	7	2	3	0	3	0	1	0	25	144	351	0	600	816
3	27	1	0	3	9	1	0	0	0	0	10	3	3	0	5	0	1	0	36	204	461	0	642	784
4	33	2	0	4	8	0	0	0	0	0	13	3	3	0	7	0	1	0	36	205	559	0	602	771

Sample Information								Contaminants			Fluid Properties					
Sample #	Date Sampled	Date Received	Lube Time	Unit Time	Lube Change	Lube Added	Filter Change	Fuel Dilution	Soot	Water	Viscosity 40°C	Viscosity 100 °C	Acid Number	Base Num. ASTM4739	Oxidation	Nitration
			h	h		L		%	%	%	cSt	cSt	mg KOH / g	mg KOH / g	abs / cm	abs / 0.1mm
BL	10-May-2023	15-May-2023	0	0	Unk	0	Unk			<.1 - FTIR	47.8		0.52		16	2
1	04-Feb-2022	25-Feb-2022	440	440	No	0	No			<.1 - FTIR		9.9	1.23		37	4
2	21-Jan-2023	10-Feb-2023	971	971	No	0	No			<.1 - FTIR	44.8		1.06		31	4
3	04-Sep-2023	07-Sep-2023	1441	1441	No	0	No			<.1 - FTIR	42.1		0.86		25	4
4	26-Mar-2025	10-Apr-2025	0	1915	No	0	Yes			<.1 - FTIR	41.3		1.00		24	4

Sample #	ISO Code	Particle Count (particles/mL)								Test Method	Additional Testing
		> 4	> 6	> 10	> 14	> 21	> 38	> 70	> 100		
BL	/ /										
1	/ /										
2	/ /										
3	/ /										
4	/ /										

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Historical Comments	1	Maintenance action indicated at time of submission (fluid/filter change , filtration, etc.) will have corrected the issue this system is exhibiting. No further maintenance action is recommended at this time. Infrared results indicate OXIDATION is SEVERELY HIGH; Viscosity is SIGNIFICANTLY LOW. Causes include contamination, incorrectly identified viscosity grade, or adding a different viscosity grade to the component. Increased component wear possible. If grade is misidentified, it can be updated in HORIZON. Flagged additive levels are different than what should be present for the identified lubricant. This may have been topped off with a different lubricant, the fluid may be misidentified, or a different lubricant or formulation may have been in use prior to a recent change. Is the FLUID MANUFACTURER, PRODUCT NAME and/or VISCOSITY GRADE correctly identified? Please provide this units sump capacity with next sample.
	2	Suggest sweetening sump by adding fresh lubricant. Please contact your lubricant supplier for recommendations. Infrared results indicate OXIDATION is SEVERELY HIGH; Acid Number is MODERATELY HIGH, which may be due to oxidation, contamination with an acidic product, extended drain interval, or lubricant mixing. Flagged additives do not match current baseline reference for the specified product (this does not imply the lubricant does not meet proper API, SAE, or ISO classifications). Resample at half interval.
	3	Suggest sweetening sump by adding fresh lubricant. Please contact your lubricant supplier for recommendations. Infrared results indicate OXIDATION is SEVERELY HIGH; Acid Number is SLIGHTLY HIGH, which may be due to oxidation, contamination with an acidic product, extended drain interval, or lubricant mixing. Flagged additives do not match current baseline reference for the specified product (this does not imply the lubricant does not meet proper API, SAE, or ISO classifications). Please provide this units sump capacity with next sample. Resample at half interval.



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0	1	2	3	4
NORMAL		ABNORMAL		CRITICAL

Overall report severity based on comments.

Account Information		Component Information		Sample Information	
Account Number: LUB307-0037-0000 Company Name: PIDHERNEY'S Contact: CARLA MERKLIN Address: RANGE RD 70 PO BOX 940 ROCKY MOUNTAIN HOUSE, AB T4T 1A7 CA Phone Number: 403-845-3072		Component ID: 8952 LFD Secondary ID: 1T0331FKCMF390863 Component Type: FINAL DRIVE Manufacturer: JOHN DEERE Model: 331G Application: CONSTRUCTION Sump Capacity:		Tracking Number: 23045U94300 Lab Number: E-912891 Lab Location: Edmonton Data Analyst: ARF Sampled: 04-Sep-2023 Submitted: 05-Sep-2023 Received: 07-Sep-2023 Completed: 07-Sep-2023	
Filter Information		Miscellaneous Information		Product Information	
Filter Type: Information Requested Micron Rating: 0		Wildcard 1: Your Rep.: Cary Maxwell Wildcard 2: Ph:(403) 861-9957		Product Manufacturer: CHEVRON Product Name: MULTIGEAR EP-5 Viscosity Grade: SAE 80W90	
Comments	Data indicates no abnormal findings. Resample at normal interval. Please provide this units sump capacity with next sample. Lubricant change acknowledged.				

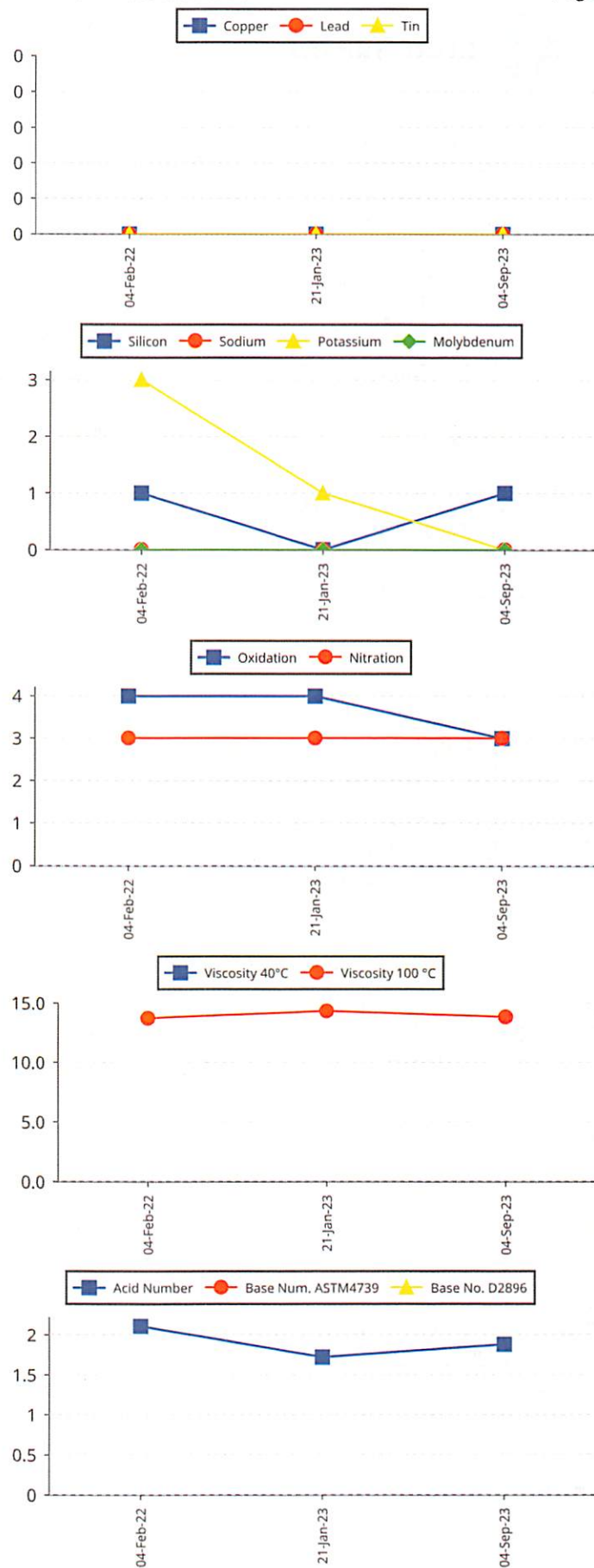
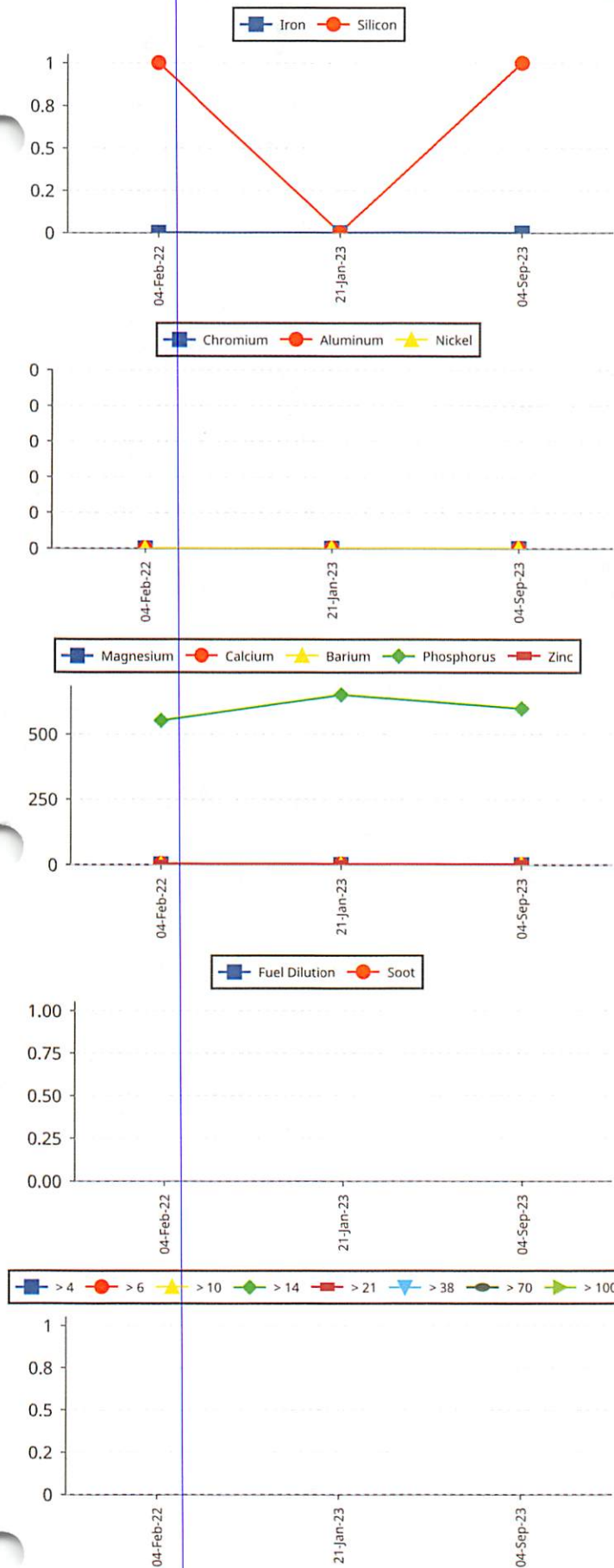
Sample #	Wear Metals (ppm)										Contaminant Metals (ppm)			Multi-Source Metals (ppm)						Additive Metals (ppm)				
	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
BL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	1	2	0	775	3
1	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	3	1	2	0	553	0
2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	653	0
3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	600	1

Sample #	Date Sampled		Sample Information						Contaminants			Fluid Properties					
			Date Received	Lube Time	Unit Time	Lube Change	Lube Added	Filter Change	Fuel Dilution	Soot	Water	Viscosity 40°C	Viscosity 100 °C	Acid Number	Base Num. ASTM4739	Oxidation	Nitration
				h	h		L		%	%	%	cSt	cSt	mg KOH / g	mg KOH / g	abs / cm	abs / 0.1mm
BL	N/A	18-Sep-2017	0	0	Unk	0	Unk			<.1 - FTIR		14.1	1.59		3	2	
1	04-Feb-2022	25-Feb-2022	440	440	Yes	0	No			<.1 - FTIR		13.7	2.11		4	3	
2	21-Jan-2023	10-Feb-2023	1	971	Yes	0	No			<.1 - FTIR		14.3	1.72		4	3	
3	04-Sep-2023	07-Sep-2023	470	1441	Yes	0	No			<.1 - FTIR		13.8	1.88		3	3	

Particle Count (particles/mL)										Additional Testing	
Sample #	ISO Code	> 4	> 6	> 10	> 14	> 21	> 38	> 70	> 100	Test Method	
	Based On 4/6/14	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL		
BL	/ /										
1	/ /										
2	/ /										
3	/ /										

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Historical Comments	1	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Acid Number is SLIGHTLY HIGH, which may be due to oxidation, contamination with an acidic product, extended drain interval, or lubricant mixing. Boron is slightly low for this lubricant. Boron levels may naturally decline with use so this is not a cause for concern. Lubricant change acknowledged.
	2	Data indicates no abnormal findings. Resample at normal interval. Lubricant change acknowledged.





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0	1	2	3	4
NORMAL	ABNORMAL	CRITICAL		

Overall report severity based on comments.

Account Information		Component Information		Sample Information	
Account Number: LUB307-0037-0000 Company Name: PIDHERNEY'S Contact: CARLA MERKLIN Address: RANGE RD 70 PO BOX 940 ROCKY MOUNTAIN HOUSE, AB T4T 1A7 CA Phone Number: 403-845-3072		Component ID: 8952 RFD Secondary ID: 1T0331FKCMF390863 Component Type: FINAL DRIVE Manufacturer: JOHN DEERE Model: 331G Application: CONSTRUCTION Sump Capacity:		Tracking Number: 23045U94301 Lab Number: E-912892 Lab Location: Edmonton Data Analyst: ARF Sampled: 04-Sep-2023 Submitted: 05-Sep-2023 Received: 07-Sep-2023 Completed: 07-Sep-2023	
Filter Information		Miscellaneous Information		Product Information	
Filter Type: Information Requested Micron Rating: 0		Wildcard 1: Your Rep.: Cary Maxwell Wildcard 2: Ph:(403) 861-9957		Product Manufacturer: CHEVRON Product Name: MULTIGEAR EP-5 Viscosity Grade: SAE 80W90	
Comments	Data indicates no abnormal findings. Resample at normal interval. Please provide this units sump capacity with next sample. Lubricant change acknowledged.				

Sample #	Wear Metals (ppm)										Contaminant Metals (ppm)			Multi-Source Metals (ppm)						Additive Metals (ppm)				
	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
BL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	1	2	0	775	3
1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	3	0	12	0	557	3
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	627	3
3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	602	0

Sample #	Sample Information								Contaminants			Fluid Properties						
	Date Sampled	Date Received	Lube Time	Unit Time	Lube Change	Lube Added	Filter Change	Fuel Dilution	Soot	Water	Viscosity 40°C	Viscosity 100 °C	Acid Number	Base Num. ASTM4739	Oxidation	Nitration		
BL	N/A	18-Sep-2017	0	0	Unk	0	Unk			<.1 - FTIR		14.1	1.59		3	2		
1	20-Feb-2022	25-Feb-2022	440	440	Yes	0	No			<.1 - FTIR		13.7	2.06		4	3		
2	21-Jan-2023	10-Feb-2023	1	971	Yes	0	No			<.1 - FTIR		14.2	1.71		4	3		
3	04-Sep-2023	07-Sep-2023	470	1441	Yes	0	No			<.1 - FTIR		13.9	1.40		3	3		

Particle Count (particles/mL)										Additional Testing	
Sample #	ISO Code	> 4	> 6	> 10	> 14	> 21	> 38	> 70	> 100	Test Method	
	Based On 4/6/14	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL		
BL	//										
1	//										
2	//										
3	//										

Comments are advisory only and are based on the sample information provided by the customer being valid. Results related only to the items tested. Missing fluid or component information limits the evaluation. No warranty is expressed or implied. Measurement uncertainty available upon request.

Historical Comments		
	1	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Acid Number is SLIGHTLY HIGH, which may be due to oxidation, contamination with an acidic product, extended drain interval, or lubricant mixing. Flagged additive levels are different than what should be present for the identified lubricant. This may have been topped off with a different lubricant, the fluid may be misidentified, or a different lubricant or formulation may have been in use prior to a recent change.
	2	Data indicates no abnormal findings. Resample at normal interval. Lubricant change acknowledged.

