

OIL ANALYSIS REPORT

CRANE - T LANGE Component

Main Engine

CHEVRON DELO 400 LE 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

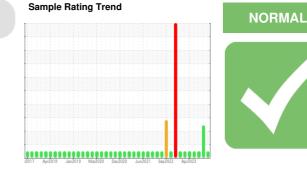
All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

Fluid Condition

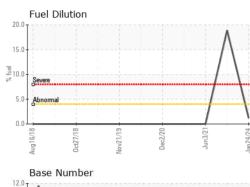
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

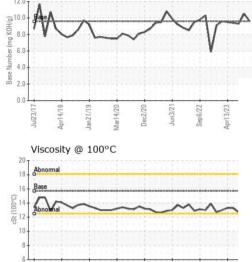


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SAMPLE INFORM	/IA HON	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0892614	WC0785584	WC0785579
Sample Date		Client Info		24 Jan 2024	26 Oct 2023	26 Sep 2023
Machine Age	hrs	Client Info		35127	500	33512
Oil Age	hrs	Client Info		421	500	500
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	SEVERE	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	1	7	13
Chromium	ppm	ASTM D5185m	>8	0	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m		4	4	2
Lead	ppm	ASTM D5185m	>18	2	5	7
Copper	ppm	ASTM D5185m	>80	<1	4	12
Tin	ppm	ASTM D5185m	>14	<1	2	4
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	la internet	history2
					nisiorvi	
			mmubase		history1	
Boron	ppm	ASTM D5185m	IIIII/Dase	376	233	134
Boron Barium	ppm	ASTM D5185m ASTM D5185m	IIIII/Dase	376 0	233 0	134 3
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		376 0 117	233 0 100	134 3 86
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		376 0 117 <1	233 0 100 <1	134 3 86 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		376 0 117 <1 650	233 0 100 <1 580	134 3 86 <1 851
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		376 0 117 <1 650 1455	233 0 100 <1 580 1322	134 3 86 <1 851 1365
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 ASTM D5185m	1200	376 0 117 <1 650 1455 681	233 0 100 <1 580 1322 651	134 3 86 <1 851 1365 997
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1200 1300	376 0 117 <1 650 1455 681 830	233 0 100 <1 580 1322 651 765	134 3 86 <1 851 1365 997 1233
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1200 1300 3200	376 0 117 <1 650 1455 681 830 2458	233 0 100 <1 580 1322 651 765 2201	134 3 86 <1 851 1365 997 1233 3183
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base	376 0 117 <1 650 1455 681 830 2458 current	233 0 100 <1 580 1322 651 765 2201 history1	134 3 86 <1 851 1365 997 1233 3183 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1200 1300 3200 limit/base >20	376 0 117 <1 650 1455 681 830 2458 current 5	233 0 100 <1 580 1322 651 765 2201 history1 9	134 3 86 <1 851 1365 997 1233 3183 history2 18
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1200 1300 3200 limit/base >20 >75	376 0 117 <1 650 1455 681 830 2458 current 5 1	233 0 100 <1 580 1322 651 765 2201 history1 9 24	134 3 86 <1 851 1365 997 1233 3183 history2 18 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20	376 0 117 <1 650 1455 681 830 2458 <u>current</u> 5 1 2	233 0 100 <1 580 1322 651 765 2201 history1 9 24 0	134 3 86 <1 851 1365 997 1233 3183 history2 18 3 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20	376 0 117 <1 650 1455 681 830 2458 current 5 1	233 0 100 <1 580 1322 651 765 2201 history1 9 24	134 3 86 <1 851 1365 997 1233 3183 history2 18 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20	376 0 117 <1 650 1455 681 830 2458 <u>current</u> 5 1 2	233 0 100 <1 580 1322 651 765 2201 history1 9 24 0	134 3 86 <1 851 1365 997 1233 3183 history2 18 3 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20 >4.0	376 0 117 <1 650 1455 681 830 2458 <u>current</u> 5 1 2 2 1.2	233 0 100 <1 580 1322 651 765 2201 history1 9 24 0 0 18.9	134 3 86 <1 851 1365 997 1233 3183 history2 18 3 0 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20 >75 >20 >4.0 limit/base	376 0 117 <1 650 1455 681 830 2458 <u>current</u> 5 1 2 2 1.2 <u>current</u>	233 0 100 <1 580 1322 651 765 2201 history1 9 24 0 0 € 18.9 history1	134 3 86 <1 851 1365 997 1233 3183 history2 18 3 0 <1.0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20 >4.0 limit/base	376 0 117 <1 650 1455 681 830 2458 <i>current</i> 5 1 2 2 1.2 <i>current</i> 0.1	233 0 100 <1 580 1322 651 765 2201 history1 9 24 0 24 0 (18.9 history1	134 3 86 <1 851 1365 997 1233 3183 history2 18 3 0 <1.0 history2 0.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 method *ASTM D7844 *ASTM D7844	1200 1300 3200 limit/base >20 >75 >20 >4.0 limit/base	376 0 117 <1 650 1455 681 830 2458 <u>current</u> 5 1 2 1.2 1.2 <u>current</u> 0.1 5.6	233 0 100 <1 580 1322 651 765 2201 history1 9 24 0 18.9 history1 0.3 7.1	134 3 86 <1 851 1365 997 1233 3183 history2 18 3 0 <1.0 history2 0.6 7.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20 >4.0 limit/base >20 >30 limit/base	376 0 117 <1 650 1455 681 830 2458 current 5 1 2 2 1.2 current 0.1 5.6 22.4	233 0 100 <10 580 1322 651 765 2201 bistory1 9 24 0 9 24 0 18.9 bistory1 0.3 7.1 20.0	134 3 86 <1 851 1365 997 1233 3183 history2 18 3 0 <1.0 history2 0.6 7.2 21.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20 >4.0 limit/base >20 >30 limit/base >20	376 0 117 <1 650 1455 681 830 2458 Current 5 1 2 1.2 2 1.2 0.1 5.6 22.4	233 0 100 ≤1 580 1322 651 765 2201 0 224 0 24 0 18.9 18.9 18.9 18.9 18.9 18.9	134 3 86 <1 851 1365 997 1233 3183 history2 18 3 0 <1.0 history2 0.6 7.2 21.1 history2



OIL ANALYSIS REPORT





Apr14/18

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Jan21/19

				VISUAL		method	limit/base	current	history1	history2
			٨	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
			(Λ)	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
				Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
			/ \	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
			$ \rangle$	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
		1	N N	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
1/19	Dec2/20	Jun3/21-	4/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Nov21/19	Dec	ղոր	Jan 24/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
				Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
0.050.000				Free Water	scalar	*Visual		NEG	NEG	NEG
		A	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	FLUID PROPERT	IES	method	limit/base	current	history1	history2
~	/	-		Visc @ 100°C	cSt	ASTM D445		13.1	▲ 8	12.7
				GRAPHS						
				Ferrous Alloys		1300000000000				
/20 -	120	(22	/23	350 - iron						
Mar14/20	Dec2/20 Jun3/21	Sep 6/22	Apr13/23	300 - nickel						
				250-		·····				
°C			Wan	§ 200 -						
				150-						
				100-						
-	\sim	m	10	50-						
				119	20	/21 22 23				
				Jul23/17 Apr14/18 Jan21/19 Mar14/20	Dec2/20	Jun3/21 Sep6/22 Anr13/23				
				Non-ferrous Metals	5					
4/20	Dec2/20	Sep6/22	3/23	120 T		110000000000000000000000000000000000000				
Mar14/20	Dec	Sep	Apr13/23	100 - copper						
				80+						
			,							
				<u>.</u> 60-						
				40						
				20-						
				0		ANL	A			
				Page 100 100 100 100 100 100 100 100 100 10	Dec2/20 -	Jun3/21- Sep6/22 -				
				Jul23/17 Apr14/18 Jan21/19 Mar14/20	Dec	Jun3/21 Sep6/22 Anr13/23				
				Viscosity @ 100°C				Base Numbe	ar.	
				20			12.0		51 11007200005153130	
				18 - Abnormal			10.0-	An	^	1 1
				16 - Base			(B/HC	MA		TIT
			Ţ	Q 14 A		~ ^	(0,100 K0H0) 6.0- 9.0.9 k0H0 888 Mmupe		\sim	V
			3	(2) 14 Abnormal	~	J.MV	1			
				10-			4.0			
				8-			2.0-			
							1111			
				3/17 /18 /19	/20 -	3/21-		- 17 - - 81/; - 19 -	1/20 - 1/21 -	6/22 -
				Jul23/17 Apr14/18 Jan21/19 Mar14/20	Dec2/20	Jun3/21 Sep6/22 Aor13/23		Jul23/17 Apr14/18 Jan21/19	Mar14/20 Dec2/20 Jun3/21	Sep6/22 Apr13/23
				, 2					17001	
	4		oratory	: WearCheck USA - 5 WC0892614				ASSC	CIATED TERMIN	IALS - CRANE
	LAB.	Sam	oratory ple No. Number	: WC0892614 F	01 Madi: Recieved Diagnos	d : 30 .	ry, NC 27513 Jan 2024 Feb 2024	ASSC		
		Sam Lab I	ple No.	: WC0892614 F : 06074474 F	Recieved	d : 30 . ed : 02	Jan 2024	ASSC		CONVENT, LA US 70723
	cate L2367	Sam Lab I Uniqu Test	ple No. Number Ie Number Package	: WC0892614 F : 06074474 E : 10856565 E : FLEET (Additional T	Recieved Diagnos Diagnost Fests: Pe	d : 30 c ed : 02 l tician : Jon ercentFuel)	Jan 2024 Feb 2024 athan Hester		Contact:	CONVENT, LA US 70723 GREG JOSEY
To di	iscuss th	Sam Lab I Uniqu Test	ple No. Number le Number Package le report, d	: WC0892614 F : 06074474 F : 10856565 F : FLEET (Additional T contact Customer Servit	Recieved Diagnos Diagnos Diagnos Fests: Pe ce at 1-8	d : 30 d ed : 02 l tician : Jon ercentFuel) 800-237-1369	Jan 2024 Feb 2024 athan Hester 9.			CONVENT, LA US 70723 GREG JOSEY dterminals.com
To di * - De	iscuss th enotes te	Sam Lab I Uniqu Test his samp est meth	ple No. Number le Number Package ble report, c nods that a	: WC0892614 F : 06074474 E : 10856565 E : FLEET (Additional T	Recieved Diagnos Diagnos Fests: Pe ce at 1-8 7025 scc	d : 30 d ed : 02 l tician : Jon ercentFuel) 300-237-1369 ope of accrea	Jan 2024 Feb 2024 athan Hester 9. <i>litation.</i>	g	Contact: josey@associated	CONVENT, LA US 70723 GREG JOSEY

Contact/Location: GREG JOSEY - STJCONKL