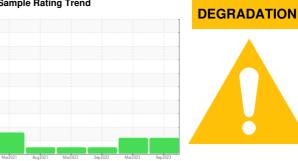


PROBLEM SUMMARY

Sample Rating Trend



Machine Id 9138568 Component **Diesel Engine**

NOT GIVEN (--- GAL)

COMPONENT CONDITION SUMMARY

No relevant graphs to display

RECOMMENDATION

The oil is near the end of it's useful service life, recommend schedule an oil change. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS							
Sample Status				ABNORMAL	ABNORMAL	NORMAL	
Base Number (BN)	mg KOH/g	ASTM D2896		3.2	△ 3.8	4.5	

Customer Id: IDETAMFL Sample No.: IL05967310 Lab Number: 05967310 Test Package: FLEET

To manage this report scan the QR code

To discuss the diagnosis or test data:

Don Baldridge +1 don.b505@comcast.net

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Service/change Fluid			?	The oil is near the end of it's useful service life, recommend schedule an oil

HISTORICAL DIAGNOSIS

15 Mar 2023 Diag: Don Baldridge

DEGRADATION



The oil is near the end of it's useful service life, recommend schedule an oil change. Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN level is low. The condition of the oil is acceptable for the time in service.



17 Sep 2022 Diag: Don Baldridge

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



18 Mar 2022 Diag: Don Baldridge

NORMAL



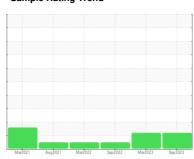
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 9138568 Component

Diesel Engine

NOT GIVEN (--- GAL)

DIAGNOSIS

Recommendation

The oil is near the end of it's useful service life, recommend schedule an oil change. 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.

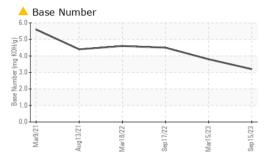
Fluid Condition

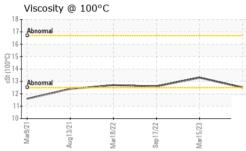
The BN level is low. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION method limit/base current history1 history2			Mar2021	Aug2021 Mar2022	Sep2022 Mar2023	Sep 2023		
Sample Date	SAMPLE INFORM	NOITAN	method	limit/base	current	history1	history2	
Machine Age mls Client Info 202901 168022 136186 Oil Age mls Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A CONTAMINATION method limit/base current history1 history2 Fuel WC Method 55 <1.0	Sample Number		Client Info		IL05967310	IL05802202	IL05657862	
Oil Age mls Client Info N/A	Sample Date		Client Info		15 Sep 2023	15 Mar 2023	17 Sep 2022	
Oil Changed Sample Status Client Info N/A N/A N/A N/A N/A N/A N/A NA NISTORY2 Fuel WC Method WC Method NEG NEG<	Machine Age	mls	Client Info		202901	168022	136186	
Sample Status method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 30 48 41 Chromium ppm ASTM D5185m >20 1 1 2 Nickel ppm ASTM D5185m >4 0 <1 0 Silver ppm ASTM D5185m >3 0 0 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <th>Oil Age</th> <th>mls</th> <th>Client Info</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Oil Age	mls	Client Info		0	0	0	
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 NEG	Oil Changed		Client Info			N/A		
Fuel	Sample Status				ABNORMAL	ABNORMAL	NORMAL	
WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >100 30 48 41 Chromium ppm ASTM D5185m >20 1 1 2 Nickel ppm ASTM D5185m >4 0 <1	CONTAMINATIO	N	method	limit/base	current	history1	history2	
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 30 48 41 Chromium ppm ASTM D5185m >20 1 1 2 Nickel ppm ASTM D5185m >4 0 <1 0 Titanium ppm ASTM D5185m >3 0 0 <1 Aluminum ppm ASTM D5185m >3 0 0 <1 Aluminum ppm ASTM D5185m >20 6 5 9 Lead ppm ASTM D5185m 0 4 1 2 Copper ppm ASTM D5185m 0 4 1 1 <th>Fuel</th> <th></th> <th>WC Method</th> <th>>5</th> <th><1.0</th> <th><1.0</th> <th><1.0</th>	Fuel		WC Method	>5	<1.0	<1.0	<1.0	
Iron	Glycol		WC Method		NEG	NEG	NEG	
Chromium ppm ASTM D5185m >20 1 1 2 Nickel ppm ASTM D5185m >4 0 <1 0 Titanium ppm ASTM D5185m >3 0 0 <1 Silver ppm ASTM D5185m >3 0 0 <1 Aluminum ppm ASTM D5185m >20 6 5 9 Lead ppm ASTM D5185m >20 6 5 9 Lead ppm ASTM D5185m >330 1 1 2 Copper ppm ASTM D5185m >15 <1 <1 2 Tin ppm ASTM D5185m 0 <1 0 0 Cadmium ppm ASTM D5185m 25 30 15 Barium ppm ASTM D5185m 25 30 15 Barium ppm ASTM D5185m 78 63 68 Mangaesium	WEAR METALS		method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>100	30	48	41	
Titanium ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <21 <1 <1 <21 <1 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21 <21	Chromium	ppm	ASTM D5185m	>20	1	1	2	
Silver ppm ASTM D5185m >3 0 0 <1 Aluminum ppm ASTM D5185m >20 6 5 9 Lead ppm ASTM D5185m >40 4 3 4 Copper ppm ASTM D5185m >330 1 1 2 Tin ppm ASTM D5185m >15 <1 <1 2 Vanadium ppm ASTM D5185m 0 <1 0 0 Cadmium ppm ASTM D5185m 0 <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 25 30 15 Barium ppm ASTM D5185m 0 2 0 Molybdenum ppm ASTM D5185m 78 63 68 Magnesium ppm ASTM D5185m 541 698 727 Calcium ppm <th>Nickel</th> <td>ppm</td> <td>ASTM D5185m</td> <td>>4</td> <th>0</th> <td><1</td> <td>0</td>	Nickel	ppm	ASTM D5185m	>4	0	<1	0	
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	<1	
Lead ppm ASTM D5185m >40 4 3 4 Copper ppm ASTM D5185m >330 1 1 2 Tin ppm ASTM D5185m >15 <1	Silver	ppm	ASTM D5185m	>3	0	0	<1	
Copper ppm ASTM D5185m >330 1 1 2 Tin ppm ASTM D5185m >15 <1 <1 2 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 25 30 15 Barium ppm ASTM D5185m 0 2 0 Molybdenum ppm ASTM D5185m 78 63 68 Manganese ppm ASTM D5185m 541 698 727 Calcium ppm ASTM D5185m 1266 1239 1196 Phosphorus ppm ASTM D5185m 862 761 699 Zinc ppm ASTM D5185m 2869 2441 2616 CONTAMINANTS method limit/base current	Aluminum	ppm	ASTM D5185m	>20	6	5	9	
Tin ppm ASTM D5185m >15 <1	Lead	ppm	ASTM D5185m	>40	4	3	4	
Vanadium ppm ASTM D5185m 0 <1	Copper	ppm	ASTM D5185m	>330	1	1	2	
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 25 30 15 Barium ppm ASTM D5185m 0 2 0 Molybdenum ppm ASTM D5185m 78 63 68 Manganese ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	Tin	ppm	ASTM D5185m	>15	<1	<1	2	
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 25 30 15 Barium ppm ASTM D5185m 0 2 0 Molybdenum ppm ASTM D5185m 78 63 68 Manganese ppm ASTM D5185m <1 <1 <1 <1 Magnesium ppm ASTM D5185m 541 698 727 Calcium ppm ASTM D5185m 1266 1239 1196 Phosphorus ppm ASTM D5185m 862 761 699 Zinc ppm ASTM D5185m 1072 947 844 Sulfur ppm ASTM D5185m 2869 2441 2616 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 7 Sodium ppm ASTM D5185m	Vanadium	ppm	ASTM D5185m		0	<1	0	
Boron	Cadmium	ppm	ASTM D5185m		0	0	0	
Barium ppm ASTM D5185m 0 2 0 Molybdenum ppm ASTM D5185m 78 63 68 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 541 698 727 Calcium ppm ASTM D5185m 1266 1239 1196 Phosphorus ppm ASTM D5185m 862 761 699 Zinc ppm ASTM D5185m 2869 2441 2616 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 25 7 7 7 Sodium ppm ASTM D5185m 1 4 3 Potassium ppm ASTM D5185m 20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 </th <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum ppm ASTM D5185m 78 63 68 Manganese ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m		25	30	15	
Manganese ppm ASTM D5185m <1	<th>Barium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>2</th> <th>0</th>	Barium	ppm	ASTM D5185m		0	2	0
Magnesium ppm ASTM D5185m 541 698 727 Calcium ppm ASTM D5185m 1266 1239 1196 Phosphorus ppm ASTM D5185m 862 761 699 Zinc ppm ASTM D5185m 1072 947 844 Sulfur ppm ASTM D5185m 2869 2441 2616 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 7 Sodium ppm ASTM D5185m >20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm "ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm "ASTM D7415 >30 27.9 26.9 27.9 FLUI	Molybdenum	ppm	ASTM D5185m			63	68	
Calcium ppm ASTM D5185m 1266 1239 1196 Phosphorus ppm ASTM D5185m 862 761 699 Zinc ppm ASTM D5185m 1072 947 844 Sulfur ppm ASTM D5185m 2869 2441 2616 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 7 Sodium ppm ASTM D5185m >20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1	Manganese	ppm	ASTM D5185m		<1	<1	<1	
Phosphorus ppm ASTM D5185m 862 761 699 Zinc ppm ASTM D5185m 1072 947 844 Sulfur ppm ASTM D5185m 2869 2441 2616 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 7 Sodium ppm ASTM D5185m >20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 </th <th></th> <th>ppm</th> <th></th> <th></th> <th>541</th> <th>698</th> <th>727</th>		ppm			541	698	727	
Zinc ppm ASTM D5185m 1072 947 844 Sulfur ppm ASTM D5185m 2869 2441 2616 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 7 Sodium ppm ASTM D5185m >20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0	Calcium	ppm	ASTM D5185m		1266	1239	1196	
Sulfur ppm ASTM D5185m 2869 2441 2616 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 7 Sodium ppm ASTM D5185m 20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0	Phosphorus	ppm				761	699	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 7 Sodium ppm ASTM D5185m >20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0	Zinc	ppm	ASTM D5185m		1072	947	844	
Silicon ppm ASTM D5185m >25 7 7 7 Sodium ppm ASTM D5185m 1 4 3 Potassium ppm ASTM D5185m >20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0	Sulfur	ppm	ASTM D5185m		2869	2441	2616	
Sodium ppm ASTM D5185m 1 4 3 Potassium ppm ASTM D5185m >20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0	CONTAMINANTS	;	method	limit/base	current	history1	history2	
Potassium ppm ASTM D5185m >20 8 8 21 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0		ppm	ASTM D5185m	>25	7	7	7	
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0								
Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0	Sodium	ppm	ASTM D5185m		1	4	3	
Nitration Abs/cm *ASTM D7624 >20 11.3 13.0 14.4 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0				>20				
Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.9 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0	Potassium		ASTM D5185m		8	8	21	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.9 28.8 29.0	Potassium INFRA-RED	ppm	ASTM D5185m method	limit/base	8 current	8 history1	21 history2	
Oxidation	Potassium INFRA-RED Soot %	ppm %	ASTM D5185m method *ASTM D7844	limit/base	8 current 0.4	8 history1 0.4	21 history2 0.4	
	Potassium INFRA-RED Soot % Nitration	ppm % Abs/cm	ASTM D5185m method *ASTM D7844 *ASTM D7624	limit/base >3 >20	0.4 11.3	8 history1 0.4 13.0	21 history2 0.4 14.4	
Base Number (BN) mg KOH/g ASTM D2896	Potassium INFRA-RED Soot % Nitration Sulfation	% Abs/cm Abs/.1mm	ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415	limit/base	8 current 0.4 11.3 27.9	8 history1 0.4 13.0 26.9	21 history2 0.4 14.4 27.9	
	Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	% Abs/cm Abs/.1mm	ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	limit/base >3 >20 >30 limit/base	8	8 history1 0.4 13.0 26.9 history1	21 history2 0.4 14.4 27.9 history2	



OIL ANALYSIS REPORT

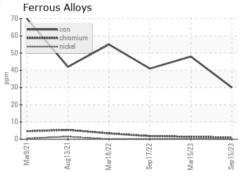


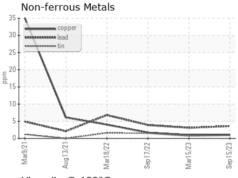


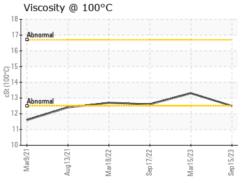
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

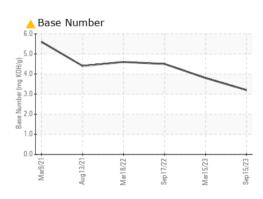
FLUID PROPER	11E3	method	iiiiii/base	current	riistory i	riistoryz
Visc @ 100°C	cSt	ASTM D445		12.5	13.3	12.6

GRAPHS













Laboratory Sample No. Lab Number

Unique Number : 10673861

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : IL05967310 : 05967310

Received : 03 Oct 2023

Diagnosed : 04 Oct 2023 Diagnostician : Don Baldridge

Test Package : FLEET Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - 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) TAMPA IDEALEASE 5951 ORIENT ROAD

TAMPA, FL US 33610-9565 Contact: Russ Cook russcook@idealease.com

T: (813)626-9285

F: (844)270-1356

Contact/Location: Russ Cook - IDETAMFL