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# TEST REPORT

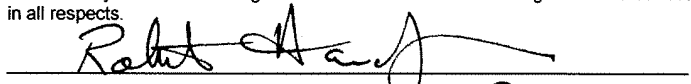
## TEST AND EVALUATION OF THE AQUA CREEK PRODUCTS TITAN 600 LIFT (MODEL F-600TL)

for

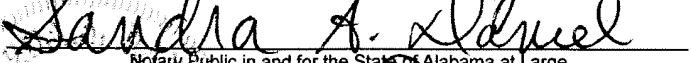
Aqua Creek Products  
 9889 Garry More Lane  
 Missoula, MT 59808

STATE OF ALABAMA }  
 COUNTY OF MADISON }

Robert D. Hardy, Department Manager, being duly sworn, deposes and says: The information contained in this report is the result of complete and carefully conducted testing and is to the best of his knowledge true and correct in all respects.



SUBSCRIBED and sworn to before me this 16 day of Jan 20 11

  
 Notary Public in and for the State of Alabama at Large

My Commission expires June 5, 2011

Wyle shall have no liability for damages of any kind to person or property, including special or consequential damages, resulting from Wyle's providing the services covered by this report.

PREPARED BY: Jimmy Smith 1-5-11  
 Jimmy Smith, Senior Engineering Specialist Date

APPROVED BY: Brian Coppock 1/5/11  
 Brian Coppock, Senior Test Supervisor Date

WYLE Q. A.: Raul F. Terceno 1/5/11  
 For Raul F. Terceno, Q. A. Manager Date

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## **1.0 INTRODUCTION**

### **1.1 Scope**

This report documents conformance of the Aqua Creek Products Titan 600 Lift (Model F-600TL) with the applicable sections of the American with Disabilities Act: 1990 (Amendments Act Of 2008): Accessibility Guidelines 1009.2, ANSI/AAMI ES60601-1:2005, "Medical Electrical Equipment – Part 1: General Requirements for Basic Safety and Essential Performance," and Clause 27 of the "Standard for Polymeric Materials" UL 746C. Testing and evaluation of the Titan 600 Lift were conducted at Aqua Creek Products facility in Missoula, MT. The testing and evaluation were authorized by Mr. Brian Goettlich of Aqua Creek Products and conducted on December 3, 2010.

**Contact:** Mr. Brian Goettlich

**Telephone:** (888) 687-3552

**E-mail:** bgoettlich@aquacreek.com

### **1.2 Product Description**

The Titan 600 Lift is a 24-VDC battery powered, self operable, permanently-mounted pool lift designed to assist physically challenged individuals with access to swimming pools and/or spas. A detailed description of the Titan 600 Lift, hereinafter referred to as the EUT, and its support equipment is provided in Section 2.1.

### **1.3 References**

- Aqua Creek Products Purchase Order Number 5703
- Wyle Laboratories' Quotation No. HSV 545/051882/NB
- American with Disabilities Act: 1990 (Amendments Act Of 2008): Accessibility Guidelines 1009.2
- ANSI/AAMI ES60601-1:2005, "Medical Electrical Equipment – Part 1: General Requirements for Basic Safety and Essential Performance" (IEC 60601-1:2005)
- UL 746C "Standard for Polymeric Materials"
- Wyle Laboratories' Quality Assurance Program Manual, Revision 3
- Wyle Laboratories' Quality Assurance Program, Revision 4
- ANSI/NCSL Z540-1, "Calibration Laboratories and Measuring and Test Equipment, General Requirements"
- ISO 10012-1, "Quality Assurance Requirements for Measuring Equipment"

## 1.4 Compliance Summary

The Aqua Creek Products Model F-600TL Lift complied with the applicable sections of ANSI/AAMI ES60601-1:2005 and ADA Guidelines 1009.2 as indicated in the table below, with no modifications necessary. This evaluation report is valid only for the Model F-600TL Lift. Any safety changes, revisions, or corrections made to the model after this evaluation shall be reevaluated, and a revised report shall be issued.

**Table 1-1 Compliance Summary**

Test Description	Applicable Sections of ANSI/AAMI ES60601-1	Compliant/Non-Compliant
General Tests	Section 4	Compliant
Accessible Parts	Section 5.9	Compliant
Equipment Identification	Section 7	Compliant
Protection Against Mechanical Hazards	Section 8	Compliant
Test Description	Applicable Sections of the ADA Accessibility Guidelines	Compliant/Non-Compliant
ADA Requirements	1009.2	Compliant

## 2.0 SYSTEM TEST CONFIGURATION

### 2.1 Details of Tested System

The EUT and associated components of the test system are identified in Table 2-1.

**Table 2-1 Components List**

Item	Part/Model No.	Serial No.	Quantity
Titan 600 Lift	F-600TL	58088-002 <sub>(1)</sub>	1
Battery Charger	CHJ	NA	1
Battery	BAJ	085280-0047	1
Control Box	CBJ	085281-0043	1
Actuator	LA34	340461-00	1
Handset (Pendant Control)	HB00-U010	NA	1

Note: 1) The serial number was assigned by Wyle Laboratories.

### 2.2 Electrical Ratings

- Battery Charger 100/240-VAC, 50/60 Hz
- Battery 24 VDC, 6.5A

### **2.3 Construction Details**

The Titan 600 Lift frame is constructed of stainless steel coated with a UV resistant powder coat finish. For specific construction details see Attachments G and H. Approximate weight and measurements are as follows:

- Weight: 200 lbs.
- Dimensions (Retracted Mode): 93 7/8" (237 cm) height x 63 3/8" (161 cm) deep x 24" (61 cm) wide

### **2.4 Quality Assurance**

All work performed on this program was in accordance with Wyle Laboratories' Quality Assurance Program and Wyle Laboratories' Quality Program Manual, which conforms to the applicable portions of International Standard Organization (ISO) Guide 17025. The Wyle Laboratories, Huntsville Facility, Quality Management System is registered in compliance with the ISO-9001 International Quality Standard. Registration has been completed by Quality Management Institute (QMI), a Division of Canadian Standards Association (CSA).

### **2.5 Test Equipment and Instrumentation**

All instrumentation, measuring, and test equipment used in the performance of this test program was calibrated in accordance with Wyle Laboratories' Quality Assurance Program which complies with the requirements of ANSI/NCSL Z540-1, ISO 10012-1, and ISO/IEC 17025. Standards used in performing all calibrations are traceable to the National Institute of Standards and Technology (NIST) by report number and date. When no national standards exist, the standards are traceable to international standards or the basis for calibration is otherwise documented.

**ATTACHMENT B**  
**SAFETY CRITICAL COMPONENTS**

**DATA SHEET**



Customer: Aqua Creek  
 Specimen: Titan 600 Pool Lift

Part No. F-600TL      Amb. Temp. N/A      Job. No. T58088  
 Spec. IEC 60601-1      Photo N/A      Report No. T58088-02  
 Para. Various      Test Med. N/A      Start Date 12/3/2010  
 S/N 58088-002      Specimen Temp. N/A

Test Title: Critical Safety Components

Device	MFG	Model	Technical Data, Rating	Marks of Conformity
Control Box	Linak	CBJ	Input: 24 VDC Output: 24VDC, 250 W maximum	UL Recognized File E175209, CE, CSA, N576
Handset (Pendant Control)	Linak	HB00- U010	Four (4) Position Touch Control	UL Recognized File E175209,
Battery	Linak	BAJ	Output: 24 VDC, 10A maximum	UL Recognized File E175209, CE, CSA, N576
Battery Charger	Linak	CHJ	Input: 100-240 VAC, 50.60 Hz, 400 mA maximum, Output: 29.5 VDC, maximum 12 VA, Fuse: T 1.25A, 250V	UL Recognized File E175209, CE, CSA, N576
Actuator	Linak	LA34	24 VDC, 4.5A maximum	UL Recognized File E175209 CE, CSA, N576

Tested By Jim W. Smith      Date 12-3-10  
 Witness N/A      Date NA  
 Sheet No. 1      of 1  
 Approved Rita Appich 12/14/10

Notice of Anomaly N/A

Wyle Form WH614A, Rev. APR '84

**ATTACHMENT C**  
**TEST DATA**

DATA SHEET



Customer: Aqua Creek  
Specimen: Titan 600 Pool Lift  
Part No. F-600TL Amb. Temp. N/A Job. No. T58088  
Spec. ANSI-AAMI ES60601-1 Photo N/A Report No. T58088-02  
Para. 4 Test Med. N/A Start Date 12/3/2010  
S/N 58088-002 Specimen Temp. N/A

Test Title: General Tests

The following sections were evaluated by either actual visual inspection of the EUT and/or inspection of accompanying documentation:

- Paragraph 4.7 Single Fault Condition
  - Paragraph 4.7 is not applicable because the EUT is powered by an internal 24 VDC battery pack and is not susceptible to a single fault risk. The EUT battery charger connects to the AC mains and has been tested and listed by UL (File Number E175209) but is not directly connected to the EUT.
- Paragraph 4.10 Power Supply
  - The EUT is powered by an *Internal Electrical Power Source* and meets the requirements of this paragraph.
- Paragraph 4.11 Power Input
  - Paragraph 4.11 is not applicable because the EUT does not connect direct to the AC mains. The EUT is powered by an internal 24 VDC battery pack which has been tested and listed by UL (File Number E175209).

Tested By *James Weidman* Date 12-3-10  
Witness N/A Date NA  
Sheet No. 1 of 1  
Approved *Bruce Appach* 12/14/10

Notice of Anomaly None

Wyle Form WH614A, Rev. APR '84

DATA SHEET



Customer: Aqua Creek  
Specimen: Titan 600 Pool Lift

Part No.	<u>F-600TL</u>	Amb. Temp.	<u>N/A</u>	Job. No.	<u>T58088</u>
Spec.	<u>ANSI-AAMI ES60601-1</u>	Photo	<u>N/A</u>	Report No.	<u>T58088-02</u>
Para.	<u>5.7</u>	Test Med.	<u>N/A</u>	Start Date	<u>12/3/2010</u>
S/N	<u>58088-002</u>	Specimen Temp.	<u>N/A</u>		

Test Title: Humidity Preconditioning

Humidity Preconditioning is not applicable. Test requirements of Paragraphs 8.7.4 and 8.8.3 are not applicable because the EUT does not connect directly to the AC mains.

The EUT battery charger connects to the AC mains and has been tested and listed by UL (File Number E175209) but is not directly connected to the EUT.

Tested By Jay W Smith Date 12-3-10  
Witness N/A Date NA  
Sheet No. 1 of 1

Approved [Signature] 12/14/10

Notice of Anomaly None

Wyle Form WH614A, Rev. APR '84

DATA SHEET



Customer: Aqua Creek  
Specimen: Titan 600 Pool Lift  
Part No. F-600TL      Amb. Temp. N/A      Job. No. T58088  
Spec. ANSI-AAMI ES60601-1      Photo Yes      Report No. T58088-02  
Para. 7      Test Med. N/A      Start Date 12/3/2010  
S/N 58088-002      Specimen Temp. N/A

Test Title: Equipment Identification, Markings and Documents

1. Paragraph 7.1.2 Legibility of Markings
  - All warning statements, instructive statements and safety markings and drawings display on the exterior of the Equipment Under Test (EUT) are legible and readable from the intended position of the operator.
2. Paragraph 7.2.4 Accessories
  - All accessories are clearly marked with the manufacturers name and trademark and applicable electrical ratings.
3. Paragraph 7.9.2 Instructions
  - An Operators Instruction Manual is included with the EUT detailing set-up and operational functions as well as safety warnings.

Tested By *Ang Smith*      Date 12-3-10  
Witness N/A      Date NA  
Sheet No. 1      of 1  
Approved *Brad Cooper*      12/4/10

Notice of Anomaly None

Wyle Form WH614A, Rev. APR '84

DATA SHEET



Customer: Aqua Creek  
Specimen: Titan 600 Pool Lift  
Part No. F-600TL      Amb. Temp. N/A      Job. No. T58088  
Spec. ANSI-AAMI ES60601-1      Photo N/A      Report No. T58088-02  
Para. 8.8.3      Test Med. N/A      Start Date 12/3/2010  
S/N 58088-002      Specimen Temp. N/A

Test Title: Dielectric Strength

This test was waived because the battery charger is the only accessory that is connected to the AC mains and has been tested and listed by UL (File Number E175209). The charger is not directly connected to the EUT.

Tested By Jim W. Smith      Date 12-3-10  
Witness N/A      Date NA  
Sheet No. 1      of 1  
Approved Brian Cappadona 12/14/10

Notice of Anomaly None

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**DATA SHEET**



Customer: Aqua Creek  
 Specimen: Titan 600 Pool Lift

Part No. F-600TL      Amb. Temp. N/A      Job. No. T58088  
 Spec. ANSI-AAMI ES60601-1      Photo N/A      Report No. T58088-02  
 Para. 9      Test Med. N/A      Start Date 12/3/2010  
 S/N 58088-002      Specimen Temp. N/A

Test Title: Protection Against Mechanical Hazards

The following sections were inspected to determine compliance with any mechanical hazards:

Mechanical Hazard	Section 9, Sub-clause	Compliant/Non-compliant
Hazards Associated with Moving Parts	9.2	Compliant
Hazards Associated with Surfaces, Corners, and Edges	9.3	Compliant
Instability Hazards	9.4	Compliant
Expelled Parts Hazard	9.5	Compliant

Tested By Jim W Smith      Date 12-3-10  
 Witness N/A      Date NA  
 Sheet No. 1      of 1  
 Approved Brian Appach      12/14/10

Notice of Anomaly None  
 Wyle Form WH614A, Rev. APR '84

**DATA SHEET**



Customer: Aqua Creek  
 Specimen: Titan 600 Pool Lift  
 Part Number F-600TL Amb. Temp. N/A Job. No. T58088  
 Specification ADA 1990 (2008) Guidelines  
Section 1009.2 Photo Yes Report No. T58088-02  
 Para. Various (see table below) Test Med. N/A Start Date 12/3/2010  
 S/N 58088-002 Specimen Temp. N/A

Test Title: Compliance with American with Disabilities Act (Guidelines for Pool Lifts Section 1009.2)

ADA Guidelines for Pool Lifts Section & Description	Requirement	Compliance		Comments
		Yes	No	
1009.2.2 Seat Location	In the raised position, the centerline of the seat shall be located over the deck and 16 inches (405 mm) minimum from the edge of the pool. The deck surface between the centerline of the seat and the pool edge shall have a slope not steeper than 1:48.	See Comments		Instructions for installation of the lift in accordance with ADA Guidelines are included in the Aqua Creek Products® "Installation, Assembly and Operating Instructions" Revised October, 2010
1009.2.3 Clear Deck Space	On the side of the seat opposite the water, a clear deck space shall be provided parallel with the seat. The space shall be 36 inches (915 mm) wide minimum and shall extend forward 48 inches (1220 mm) minimum from a line located 12 inches (305 mm) behind the rear edge of the seat. The clear deck space shall have a slope not steeper than 1:48.	See Comments		Instructions for installation of lift in compliance with ADA Guidelines are included in the Aqua Creek Products® "Installation, Assembly and Operating Instructions" Revised October, 2010
1009.2.4 Seat Height	The height of the lift seat shall be designed to allow a stop at 16 inches (405 mm) minimum to 19 inches (485 mm) maximum measured from the deck to the top of the seat surface when in the raised (load) position.	X		The Seat Height was verified to be compliant with the requirements of the ADA Guidelines.
1009.2.4 Seat Height	The seat shall be 16 inches (405 mm) wide minimum.	X		The Seat Width was verified (18 inches) to be compliant with the requirements of the ADA Guidelines.
1009.2.6 Footrests and Armrests	Footrests shall be provided and shall move with the seat. If provided, the armrest positioned opposite the water shall be removable or shall fold clear of the seat when the seat is in the raised (load) position.	X		Removable footrests are provided on the lift. Armrests are provided and can be folded clear for access and egress on either side of the seat.

**DATA SHEET**



Test Title: Compliance with American with Disabilities Act (Guidelines for Pool Lifts Section 1009.2)  
 (continued)

ADA Guidelines for Pool Lifts Section & Description	Requirement	Compliance		Comments
		Yes	No	
1009.2.7 Operation	The lift shall be capable of unassisted operation from both the deck and water levels. Controls and operating mechanisms shall be unobstructed when the lift is in use.	X		The Handset Control allows the user to adjust the lift on a vertical plane (up/down) and horizontal plane (right/left) without any obstructions. The user can rotate the lift 360°.
1009.2.8 Submerged Depth	The lift shall be designed so that the seat will submerge to a water depth of 18 inches (455 mm) minimum below the stationary water level.	X		The seat will submerge as required and is adjustable for up & down travel which meets the minimum requirements of the ADA Guidelines
1009.2.9 Lifting Capacity	Single person pool lifts shall have a weight capacity of 300 pounds, (136 kg) minimum and be capable of sustaining a static load of at least one and a half times the rated load.	X		The Load Capacity of the lift was verified up to 600 pounds (272 kg) and Static Load Capacity was verified up to 900 pounds (408 kg) which exceeds the minimum ADA Guidelines.

Tested By *[Signature]* Date 12-3-10  
 Witness \_\_\_\_\_ Date \_\_\_\_\_  
 Sheet No. 2 of 2  
 Approved *[Signature]* 12/14/10

Notice of Anomaly None

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