#406-TI MEDEVAC II LITTER LOAD TEST PLAN

Prepared by: _____ 12 MAY 16
Mario Vittone, Product Development Manger — Date

Reviewed by: _____ 12 MAY 16
Sam Maness, CEO — Date

Reviewed by: _____ _____
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US Army, Aviation Engineering Directorate

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PURPOSE

The purpose of this plan is to define the procedures & reporting requirements for the load testing of LSC Part #406-TI Medevac II (Titanium) Rescue Litter in accordance with the US Army Aviation Engineering Directorate (AED) load testing request. Successful completion will confirm the #406-TI demonstrates the suitability and safety of the litter for the intended application of helicopter hoist operations, including the deployment and recovery of both equipment and persons (Human External Cargo).

INSPECTION/TESTING

Testing and inspection will be performed at Lifesaving Systems Corporation's (LSC) manufacturing facility located in Apollo Beach, Florida by LSC personnel. All post test inspections will be conducted by LSCs Quality Assurance Manager, Mr. Brian Garrett, and all load testing will be performed by Mario Vittone and Sam Maness. Video evidence of the testing will be provided to the US Army, Aviation Engineering Directorate, following the testing.

One #406-TI Medevac II (Titanium) rescue litter will be submitted for inspection/testing and will undergo the following:

VISUAL EXAMINATION PRIOR TO LOAD TESTING:

- One #406-TI Medevac II Rescue Litter will be pulled from stock and re-inspected in accordance with manufacturing procedures. Its serial number shall be recorded in Attachment (A) of the *LSC #406-TI Load Test Report.*
- Patient restrain straps will be removed prior to load testing.
- A #190 lifting sling will be likewise pre-inspected in accordance with manufacturing procedures and attached to the litter.

LOAD TESTING TO 1,000, 2,000, AND 3,000 LBS. IN SUCCESSION.

- Weights will be pre-weighed, and evenly distributed across the litter a minimum of three times, beginning with 1,000 lbs., then increasing to 2,000 lbs, and finally 3,000 lbs.
    - Attachment (B) of the *LSC #406-TI Load Test Report* will contain a complete listing of the weight material types and weights of the lead shot bags and bars used in the load testing
    - To simulate loading extremes in actual field conditions, as the weight increases the loading of lead will concentrate in the center of the litter, between the fore

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- and aft sling attachment points to strain the folding couplers to the greatest extent practical.

- Each load shall be briefly suspended until stable and then lowered to the deck.

- Each load test shall be filmed to include gauge readings.

UNAIDED AND 10X MAGNIFICATION VISUAL INSPECTION OF CRITICAL AREAS/WELDS

- Following the load testing the litter shall be inspected overall visually and then each weld shall be inspected using 10X magnification. Any deformities shall be noted in Attachment (A) of the *LSC #406-TI Load Test Report.*

TEST EQUIPMENT

The primary testing equipment consists of the following items:

1. Force Application: Physical weights consisting of lead shot in fabric bags and/or lead bars.

2. Force Measurement: 10,000 lb. S-beam load cell (transducer) with one (1) each 0-10,000 lbs. digital gauge. Calibration conducted by Micro Precision Calibration, Inc. - sticker dated 05/02/16, valid thru 05/02/17 (Figure 4). A commercial grade shipping scale will be used to independently verify the weight of the specimens added to the basket for force application.

3. Fixtures: Shackles, pins, and custom fixtures as required to suspend the litter with physical weights.

4. Miscellaneous Measurement Instruments: Rulers, tape measures, calipers, pressure gauges & 10X magnifying glass as required for supplemental measurement information.

PHOTOGRAPHIC / VIDEOGRAPHY DOCUMENTATION

Pictures will be taken as needed before, during, and after the testing to document each stage of the testing and inspection procedures. The images will become part of the *LSC #406-TI Load Test Report.*

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LSC #406-TI LOAD TEST INSPECTION REPORT

Date of Test: Monday, May 16th, 2016

Test Specimen: LSC #406-TI Medevac II Rescue Litter (Titanium) – **Serial Number 1067 –** Shall remain at LSC for further inspection indefinitely.



Figure 1: Marking Plate - #406-TI S/N 1067

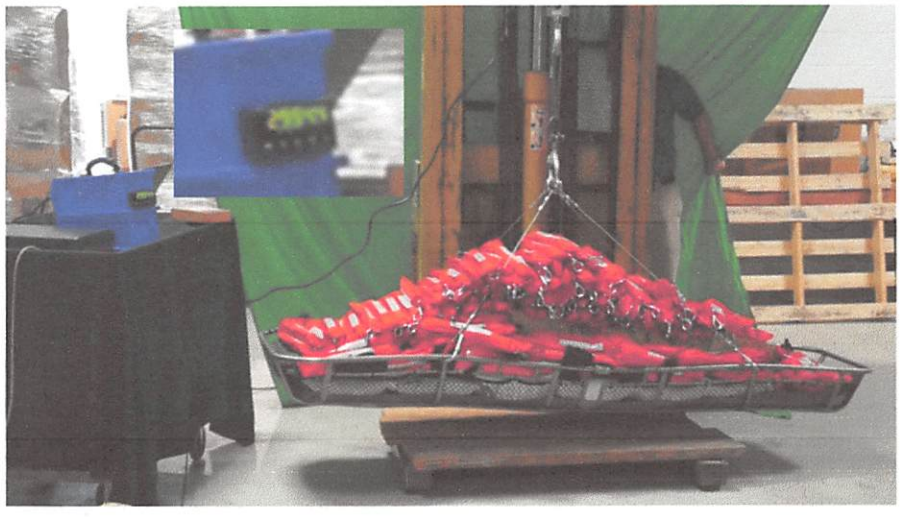


Figure 2: 406 Litter with 3,000 lb. load – suspended

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Load Test Results	Sample Pass / Fail	Notes & Observations
LSC Load Test Expectations	**Pass**	**No damage to weldments or deformation that affects proper operation or use of device**
1. 1,000 lb. Test	PASS	Light bending during lift, no perceptible damage during lift.
2. 2,000 lb. Test	PASS	Light bending during lift, no perceptible damage during lift.
3. 3,000 lb. Test	PASS	Moderate bending during lift, no perceptible damage during lift.

Individual weight verification table is included as Attachment 1.

I affirm that the pass/fail criteria and notes and observation above are accurate and load testing was witnessed by myself on Monday, May 16th, 2016. My Signature and LSC Quality Assurance Stamp are affixed below.

Brian Garrett, Quality Assurance Manager

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VISUAL INSPECTION/EXAMINATION:

Following the load testing in accordance with the *#406-TI Medevac II Litter Load Test Plan*, an unaided and 10X magnification visual inspection/examination was performed. Results are recorded below.

Inspection Criteria	Sample Pass / Fail	Notes & Observations
LSC Post Load Expectations	**Pass**	**No damage to weldments or deformation that affects proper operation or use of device**
1. No defects, bends, or distortions that affect the operation of the litter, render the litter unusable that effect normal function of the litter.		No indication of any damage of any kind.
2. No components missing, fractured or otherwise damaged beyond use.		No indication of any damage of any kind.
3. No components loose or otherwise not securely retained		No indication of any damage of any kind.
4. Litter functions normally with no binding or restriction during coupling and/or uncoupling of litter sections.		Couplers function as new with ease when de-coupling and coupling litter halves.

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5. Faulty workmanship that would materially reduce performance, reliability, or durability	PASS	None noted.
6. Inspection of all weldments with 10X magnifying glass reveals no cracks in any weld.	PASS	No defects in the weldments noted.
Record any deviations from newly manufactured condition.	N/A	No perceptible deformations or deviations.

I affirm that the pass/fail criteria and notes and observation above are accurate and all inspections were performed by me on Monday, May 23rd, 2016. My Signature and LSC Quality Assurance Stamp are affixed below.

Brian Garrett, Quality Assurance Manager

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IMAGES FROM TEST AND INSPECTION



Figure 3: Image of #406-TI Post Testing



Figure 4: Proof of calibration on load cell.

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VIDEO OF TESTING

Raw video of all phases of the 406 (series) load testing is available at https://vimeo.com/167792664

Password: **ArmyAED16**

TEST RESULTS

Based on the results of the inspection and test as defined in this plan, Lifesaving Systems Corp. Part #406-TI Medevac II (Titanium) Break-Apart Rescue Litter has successfully completed the load test requirement as requested by the US Army Aviation Engineering Directorate.

Brain Garret, Quality Assurance Manager
Lifesaving Systems Corp.

24 May 16
Date

Mario Vittone, Product Development Manager
Lifesaving Systems Corp.

24 May 16
Date

Sam Maness, CEO
Lifesaving Systems Corp.

24 May 16
Date

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