APPLIED RESEARCH LABORATORIES
5371 N.W. 161st. STREET • MIAMI FLORIDA 33014
PHONE: (305) 624-4800 • TELEX: 293659 ARLFUR

CLIENT: Accon, Inc.
14350 North 60th Street
Clearwater, FL 34620
Attn: Mr. John Czipri

DATE: 17 April 1989

LAB NO: 28439

SUBJECT: Twelve (12) Boat Cleats

METHOD: ASTM A-370, Standard Tensile Testing of Steel Products

REPORT OF TEST

1.0 INTRODUCTION

1.1 Applied Research Laboratories was retained by Accon, Inc., to determine the tensile properties of several boat cleats. The test specimens were to be tested in both of two directions (axis).

1.2 This Test Program was authorized through the Work Authorization Form signed by Mr. John Czipri, President, on January 31, 1989.

2.0 TEST SAMPLES

2.1 The client submitted a total of twelve (12) boat cleat samples for the test program. Six (6) samples measured six (6) inches in length while the other six (6) samples were eight (8) inches in length.

Each sample was marked with a Sample Number 1, 2, 3, 4, 5 or 6 of 6 for the 6 inch or 3 inch samples for identification purposes during testing.

The samples submitted for testing were polished stain-steel units. The units were unique in that the rope attachment section dropped into the boat deck when not in use.

3.0 TEST METHODS

3.1 Testing was conducted in accordance with the procedures outlined in ASTM A-370, "Standard Tensile Testing of Steel Products."

ARL was instructed to test the samples as follows:

Three (3) 6-inch cleats forward (x) axis
Three (3) 6-inch cleats sideways (y) axis
Three (3) 8-inch cleats forward (x) axis
Three (3) 8-inch cleats sideways (y) axis

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3.2 Three samples from each unit (6 inch or 8 inch) would be tested on the (x) axis and three on the (y) axis. Each test sample was individually attached to a heavy steel ARL test fixture using four (4) 1/4-20 bolts with nuts provided by the client. The test was conducted with the cleat in an extended position. A heavy duty cable was attached to the cleat for the pulling reaction.

A calibrated Rhiele test instrument with a capacity of 60,000 pounds was used to perform the tensile pulls.

3.3 The test was to continue until a failure occurred to either a) the cross bar under the cleat; or b) some of the bolts failed in the testing.

4.0 RESULTS

4.1 The following results were recorded when testing three samples of the 6 inch cleats on the (x) axis.

SAMPLE NO	TENSILE (in lbs)	REMARKS
2 of 6	11,400	Crossbar on back broke.
4 of 6	11,360	Crossbar on back broke.
5 of 6	12,200	Crossbar on back broke.

4.2 The following results were recorded when testing three samples of the 6 inch cleats on the (y) axis.

SAMPLE NO	TENSILE (in lbs)	REMARKS
1 of 6	13,500	Two bolts failed.
3 of 6	13,550	Two bolts failed.
6 of 6	13,250	Two bolts failed.

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4.3 The following results were recorded when testing three samples of the 8 inch cleats on the (x) axis.

SAMPLE NO	TENSILE (in lbs)	REMARKS
1 of 6	10,520	Two bolts failed.
5 of 6	12,500	Two bolts failed,
6 of 6	11,720	Two bolts failed.

4.4 The following results were recorded when testing three samples of the 8 inch cleats on the (y) axis.

SAMPLE NO	TENSILE (in lbs)	REMARKS
2 of 6	7,660	Two bolts failed.
3 of 6	8,800	One bolt failed.
4 of 6	11,400	Two bolts failed.

4.5 The results pertain only to the samples tested and may not be indicative of on-going production.

END OF REPORT

Reviewed by:

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Director of Engineering

Report by:

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