RESEARCH LABORATORIES

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

DATE: 17 April 1989

LAB NO: 28439

SUBJECT: Twelve (12) Boat Cleats

APPLIED

ASTM A-370, Standard Tensile Testing of Steel METHOD: Products . 1 1 1 1 P

## 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).
- This Test Program was authorized through the Work 1.2 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 stainsteel units. The units were unique in that the rope attachment section dropped into the boat deck when not in use.

3.0 TEST METHODS

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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 sidewave (v) 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 <b>lbs)</b>	REMARKS
2 of 6	11,400	Crossbar on back broke.
4 of 6	11,360	Crossbar on back broke.
<b>5∙of</b> 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	<b>13,550</b>		Two bolts failed.
6 of 6	13,250		Two bolts failed.

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1.3	The following results we samples of the 8 inch o	ere recorded when testing three leats on the (x) axis.
SAMPLE	NO <u>TENSILE</u> (in lbs)	• <u>REMARKS</u>
L of <b>6</b> 5 of 6 5 of 6	10,520 - 12,500 11,720	Two bolts failed. Two bolts failed, Two bolts failed.
1.4	The following results we samples of the 8 inch of	vere recorded when testing three cleats on the (y) axis.
SAMPLE	NO " <u>TENSILE</u> (in lbs)	• <u>REMARKS</u>
2 of 6 3 of 6 4 of 6	<b>7,660</b> 8,800 11,400	Two bolts failed. One bolt failed. Two bolts failed.
	The results pertain only not be indicative of on	y to the samples tested and may -going production.
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