



mga research corporation

**NATIONAL TRANSPORTATION SAFETY BOARD
BLACK & WHITE THREAD
TENSILE STRENGTH & ELONGATION TESTING**



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TEST REPORT

MGA REPORT NO.: C13A9-071.2

TEST(S) PERFORMED ON: March 31 & April 8, 2013

TEST DESCRIPTION: Tensile Strength & Elongation

ITEM(S) DESCRIPTION*: Black & White Thread

PROCEDURE NUMBER: MGATP_SC_UTMT.0
Last Revision Date: 9/30/11

TEST REFERENCE NUMBER: M12052 (A-J)

TEST LABORATORY: MGA Research Corporation
820 Suburban Park Drive
Greer, South Carolina 29651

SUBMITTED TO: Courtney Liedler
National Transportation Safety Board
4760 Oakland Street Suite 500
Denver, CO 80239

REPORT DATE: April 8, 2013

MGA PERSONNEL: 
Jennifer Young
Project Leader

* The results presented in this report relate only to the specified test items.

** This report shall not be reproduced except in full, without the written approval of the laboratory.

Objective

This report documents the results of thread tensile strength & elongation testing conducted by MGA Research Corporation (MGA) for National Transportation Safety Board (NTSB) on March 31 and April 8, 2013.

Customer-Specified Requirements

The purpose of this testing was to determine the tensile strength and elongation of the test specimens provided by NTSB. Test was performed in accordance with information provided by NTSB. According to the NTSB provided requirements, the samples shall have a minimum breaking strength of 11.8 lbs and a minimum of 26% elongation.

Equipment

Calibration information can be found in the table below and calibration certificates are available upon request. All equipment and data has been calibrated by a source traceable to the National Institute of Standards and Technology (NIST).

Description	Serial Number	Cal Date	Date Due
Universal Testing Machine	SC00316	11/12/12	11/12/13
Tape Measure	TPM001	5/2/12	5/2/13

Test Procedure/Preparation

The thread grips were positioned 254 mm apart. The specimens were secured in the thread grips and pulled apart at a rate of 305 mm/minute. The tensile strength and elongation were calculated.

Test Results

MGA Test Number	Thread	Maximum Force (N)	Maximum Force (lb)	Elongation at Maximum Force (%)	Req't Met?
M13052-A	Black	67.1	15.1	59.0	Yes
M13052-B		56.4	12.7	53.2	Yes
M13052-C		67.8	15.2	73.2	Yes
M13052-D		64.7	14.5	68.1	Yes
M13052-E		67.6	15.2	74.0	Yes
Average		64.7	14.5	65.5	Yes
M13052-F	White	72.5	16.3	48.8	Yes
M13052-G		73.2	16.5	52.5	Yes
M13052-H		75.4	17.0	64.6	Yes
M13052-I		74.7	16.8	63.0	Yes
M13052-J		75.2	16.9	64.6	Yes
Average		74.2	16.7	58.7	Yes

Additional test documentation can be found in the following appendices:

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Appendix A
Test Data & Graphs

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