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BOOHO CHAIR ONE CO., LTD.
Date: August 31, 2015

Report No.:101978787GRR-001A
Page 1 of 25

Test Report For:
Booho Chair One Co., Ltd.
ANSI/BIFMA X5.1-2011
CHAIR TEST STANDARD
S30Swivel Chair



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Lynwood Pearson
Project Manager

Anthony Serge
Reviewer

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DATE RECEIVED: 1/19/2015
DATES TESTED: 1/19/2015 – 6/23/2015

DESCRIPTION OF SAMPLES:

Part Description: S30Swivel Chair
Condition of Test Sample: New

WORK REQUESTED/APPLICABLE DOCUMENTS:

To test the submitted sample per ANSI/BIFMA X5.1-2011 Chair Test Standard for the following test program:

<u>Test No.</u>	<u>Test Description</u>
5	Back Rest Strength-Tilt
7	Base
8	Drop-Dynamic
9	Swivel Cycle
10	Tilt Mechanism
11	Seating Durability
12	Stability
15	Backrest Durability-Tilt
17	Caster/Chair Base Durability

CONCLUSION:

Test	Results	Notation
ANSI/BIFMA 5.1-2011 #5 Back Strength	Compliant	No loss of serviceability.
ANSI/BIFMA 5.1-2011 #7 Base	Compliant	No loss of serviceability.
ANSI/BIFMA 5.1-2011 #8 Drop Test	Compliant	No loss of serviceability.
ANSI/BIFMA 5.1-2011 #9 Swivel	Compliant	No loss of serviceability.
ANSI/BIFMA 5.1-2011 #10 Tilt Mechanism	Compliant	No loss of serviceability.
ANSI/BIFMA 5.1-2011 #11 Seating Durability	Compliant	No loss of serviceability.
ANSI/BIFMA 5.1-2011 #12 Stability	Compliant	No loss of serviceability.
ANSI/BIFMA 5.1-2011 #15 Backrest Durability	Compliant	No loss of serviceability.
ANSI/BIFMA 5.1-2011 #17 Caster Durability	Compliant	No loss of serviceability.

TEST EQUIPMENT:

Asset	Description	Cal Date	Cal Due
138272	LOAD CELL 0-1,000 #	10/16/2014	10/16/2015
138039.1	BAG WEIGHT- (300 lbs.)	12/07/2007	VBU
138039.2	BAG WEIGH- (225 lbs.)	12/07/2007	VBU
138043	BACK DURABILITY 0-300lbs	VBU	VBU
138379	STOPWATCH	09/02/2014	09/02/2016
138170	FRONT STABILITY WEIGHT	04/14/2008	VBU
138012	SCALE / 0-1,000 #	11/24/2014	11/24/2015
138148	DIGITAL PROTRACTOR	09/11/2014	09/11/2015
138279	FORCE GAGE; DIGITAL 100LB	03/04/2015	03/04/2016
138916.2	TIMING BOX	VBU	VBU
138282	STEEL RULE 0-72" x 1/64	06/17/2015	06/17/2016
138112	GRADUATED RULE 36"	10/11/2013	10/11/2018
138325	4 Station Backrest Durability Machine	VBU	VBU
138252	MULTILOAD TESTER	VBU	VBU
138345	3 Station Seat Impact	VBU	VBU
138913.2	LOAD CELL 0-10 K	10/20/2014	10/20/2015
138047	CASTER DURABILITY	VBU	VBU
138906	OBSTACLE PLATE 17"	7/25/2006	VBU
138907	OBSTACLE PLATE 17"	7/25/2006	VBU
138908	OBSTACLE PLATE 17"	7/25/2006	VBU
138041	SWIVELLING CYCLER / 2 STATION	VBU	VBU

5. BACK STRENGTH PROCEDURE - STATIC (Type I - Tilting Seat):

Date Tested: 6/23/2015
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1 2011; Test No. 5
Functional Load: 200 lbf.
Proof Load: 300 lbf.
Number of Samples Tested: One (1)

Acceptance Criteria:

Functional Load: There shall be no loss of serviceability to the chair.

Proof Load: There shall be no sudden and major change in the structural integrity of the product. Loss of serviceability is acceptable.

Results:

Sample ID	Static Load	Description of Results
3	200 lbf.	Pass
	300 lbf.	Pass

The submitted sample meets the acceptance criteria of the test described above.
Refer to the following page for photograph.



Back Strength Test

7. BASE TEST - STATIC:

Date Tested: 1/23/2015
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 7
Time Duration of Test: 1 Minute
Functional Static Load: 2500 lbf.
Proof Static Load: 2500 lbf.
Number of Samples Tested: One (1)

Acceptance Criteria:

There shall be no sudden and major change in the structural integrity of the base. The center column may not touch the test platform during the load application.

Results:

Sample ID	Static Load	Description of Results
3	2500 lbf.	Pass
	2500 lbf.	Pass

The submitted sample meets the acceptance criteria of the test described above. Refer to the following page for photograph.



Base Test – Static

8. DROP TEST – DYNAMIC:

Date Tested: 6/23/2015
Condition of Test Sample: Production

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 8
Functional Load: 225 lbs.
Proof Load: 300 lbs.
Drop Height: 6"
Number of Samples Tested: One (1)

Acceptance Criteria:

Functional Load: No structural breakage or loss of serviceability, including stacking ability if applicable.

Proof Load: No sudden and major change in the structural integrity of the product. Loss of serviceability is acceptable.

Results:

Sample ID	Highest Position	Results
3	Functional Load - 225 lbs.	Pass
	Proof Load - 300 lbs.	Pass

Sample ID	Lowest Position	Results
3	Functional Load - 225 lbs.	Pass
	Proof Load - 300 lbs.	Pass

The submitted sample meets the acceptance criteria of the test described above. Refer to the following page for photograph.



DROP TEST – DYNAMIC

9. SWIVEL TEST - CYCLIC:

Dates Tested: 2/13/2015 – 2/23/2015
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 9

Number of Cycles:

Highest Seat Position: 60,000
Lowest Seat Position: 60,000
Rotation: 360°
Cycles per Minute: 5-15
Load in Seat: 250 lbs.
Number of Samples Tested: One (1)

Acceptance Criteria:

There shall be no loss of serviceability.

Results:

Sample ID	Seat Position	Number of Cycles	Description of Results
1	Highest Setting	60,000	Pass
	Lowest Setting	60,000	Pass

The submitted sample meets the acceptance criteria of the test described above. Refer to the following page for photograph.



Swivel Test – Cyclic

10. TILT MECHANISM TEST-CYCLIC: (Type I & Type II Chairs)

Dates Tested: 2/6/2015 – 2/16/2015
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 10
Tilt Adjustments: Set all adjustments at normal use conditions.
Number of Cycles: 300,000
Cycles per Minute: 10 to 30
Load in Seat: 225 lbs.
Number of Samples Tested: One (1)

Acceptance Criteria:

There shall be no loss of serviceability to the tilt mechanism.

Results:

Sample ID	Number of Cycles	Description of Results
1	300,000	Pass

The submitted sample meets the acceptance criteria of the test described above. Refer to the following page for photograph.



Tilt Mechanism Test-Cyclic

11. SEATING IMPACT TEST

Dates Tested: 3/2/2015 – 3/6/2015
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 11

Section 11.3

Seat Center Impact Test

Bag Diameter: 16"
Bag Weight: 125 lbs.
Number Cycles: 100,000
Height of Drop: 1.2"
Cycles per Minute: 10 to 30

Section 11.4

Load Ease Test

Bag Diameter: 8"
Bag Weight: 165 lbs.
Number of Cycles Required: 20,000 to each Front Corner
Cycles per Minute: 10 to 30
Number of Samples Tested: One (1)

Acceptance Criteria:

There shall be no loss of serviceability to the chair after completion of both the Impact and Load Ease Tests.

Results:

Section 11.3

Sample No.	Number of Cycles	Description of Results
1	100,000	Pass

Section 11.4

Location of Force	Number of Cycles	Description of Results
Left Front Corner	20,000	Pass
Right Front Corner	20,000	Pass

The submitted sample meets the acceptance criteria of the test described above. Refer to the following pages for photographs.



Seating Impact Test



Load Ease Test

12. STABILITY TEST -DYNAMIC (Front and Rear):

Date Tested: 1/19/2015
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 12
All of the chair's adjustable features shall be set for the most unstable conditions.

Chair Type: I

Weight in Seat

(Rear Stability Only):
Type I: 286 lbs. (13 disks)
Type II: 286 lbs (13 disks)
Type III: 132 lbs (6 disks)

Front Stability:

Alternative: N/A
Vertical Load: 135 Lbs
Horizontal Force: 4.5 Lbs
Number of Samples Tested: One (1)

Acceptance Criteria:

Front Stability: The chair shall not tip over as the result of the force application of 4.5 lbf..

Rear Stability:

The force to tip shall not be less than:
Type I: Chair must not tip over
Type II: Chair must not tip over
Type III: [F = 1.1 (47 – H) pounds force.]. H is the seat height in inches. For chairs with seat height equal to or greater than 710 mm (28.0 in.), a fixed force of 93 N (20.9 lbf.) shall be applied.

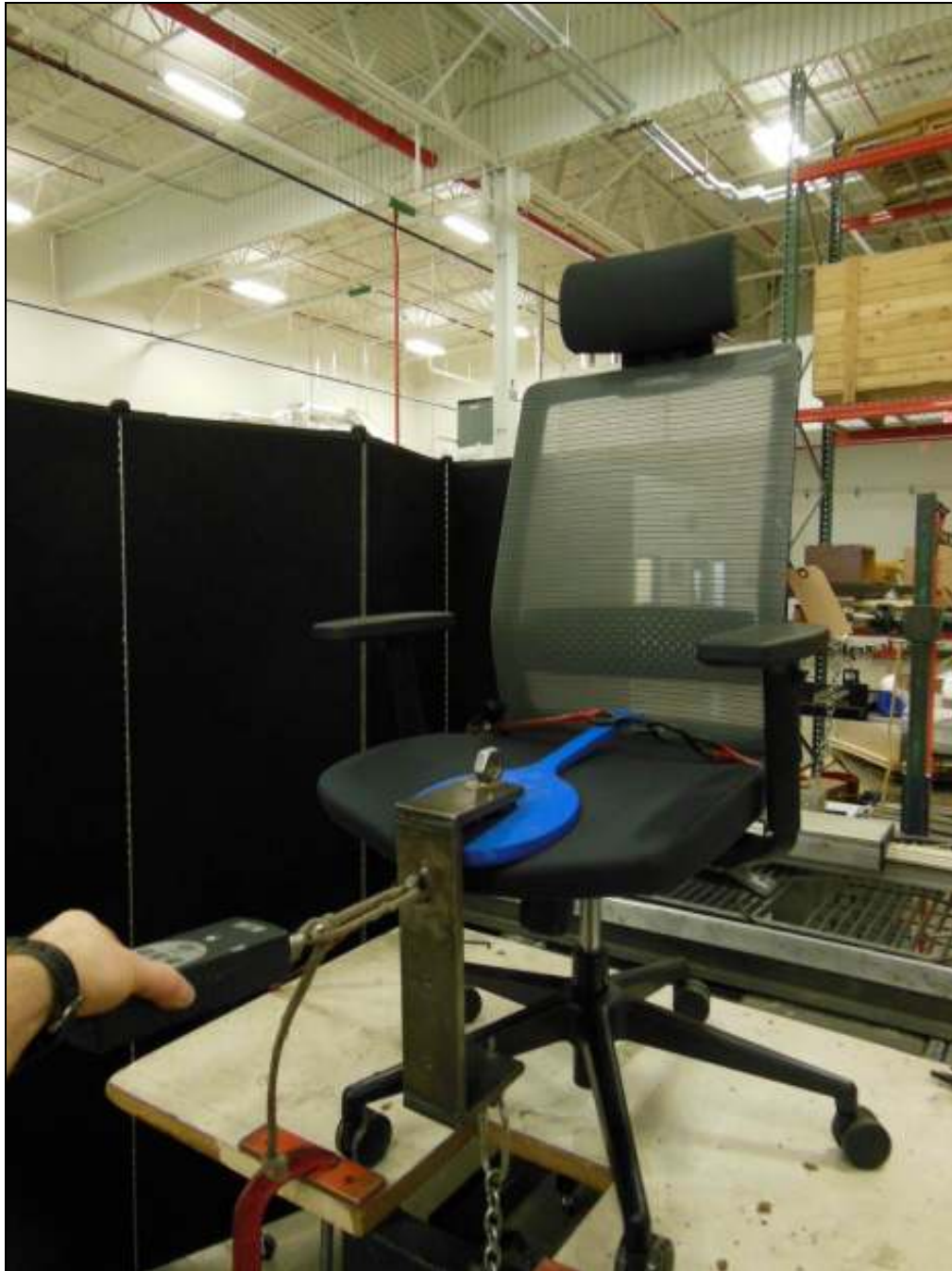
Results:

Sample ID	Front Stability	Rear Stability	Results
1	21.5 lbf. to tip	Pass	Pass

The submitted sample meets the acceptance criteria of the test described above. Refer to the following pages for photographs.



Stability Test - Rear



Stability Test - Front

15. BACK DURABILITY TEST-CYCLIC (Type I):

Dates Tested: 6/16/2015 – 6/22/2015
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 15
Backrest Width: 20"
Number of Cycles Required: 120,000
Center Pull Location: 80,000
Off Center Pull Location: 40,000
Force Applied to Chair Back: 100 lbf.
Load in Seat: 225 lbs.
Cycles per Minute: 10 to 30
Number of Samples Tested: One (1)

Acceptance Criteria:

No structural breakage or loss of serviceability.

Results:

Sample ID	Pull Location	Number of Cycles	Description of Results
3	Center Pull	80,000	Pass
	Off Center Pull	40,000	Pass

The submitted sample meets the acceptance criteria of the test described above. Refer to the following pages for photographs.



Back Durability Test-Cyclic

17. CASTER/CHAIR BASE DURABILITY TEST - CYCLIC:

Dates Tested: 2/9/2015 – 2/17/2015
Condition of Test Sample: New

Test Procedure:

Test Method: ANSI/BIFMA X5.1-2011; Test No. 17
Number of Casters on Base: 5
Type of Casters (Hard or Soft): Hard
Travel Distance (Inches): 30 Inches
Number of Cycles Required: 100,000
Cycles over Obstacles: 2,000
Cycles over Smooth Plate: 98,000
Cycles per Minute: 9
Weight in Seat: 250 lbs.
Number of Samples Tested: One (1)

Acceptance Criteria:

Durability Cycling: There shall be no loss of serviceability.

Caster Retention: The caster shall not separate from the base as a result of the application of the 5 lb. force.

Results:

Sample ID	Test Condition	Number of Cycles	Description of Results
1	Over Obstacles	2000	Pass
	Over Smooth Plate	98,000	Pass

The submitted sample meets the acceptance criteria of the test described above. Refer to the following page for photograph.



Caster/Chair Base Durability Test - Cyclic

