



Hemtack

ENGINEERING CHANGE ORDER

REQUEST DATE	7/8/2024	REQUESTED BY	L. HUNT	REQUESTED RELEASE DATE	7/12/2024	ECO #	ECO-00145
AFFECTED PRODUCT LINES	BOARD MOUNTED VALANCES (BMV)						
REASON FOR CHANGE	ELIMINATE BUMP UNDERNEATH FABRIC DUE TO HINGE SIZE.						
DESCRIPTION OF CHANGE	IMPLEMENT NEW PIANO HINGE TO IMPROVE APPEARANCE ON TOP SURFACE						
COST IMPACT	N/A						
DOCUMENT / PART NUMBER	OLD REV	NEW REV	DOCUMENT/ PART DESCRIPTION	CHANGE DESCRIPTION	FORM, FIT, OR FUNCTION AFFECTED Yes, or No	PART DISPOSITION (USE AS IS) (REWORK) (SCRAP) (OBSOLETE) (RETURN TO VENDOR) (OTHER)	
MPMI1591	-	-	HINGE, PIANO 1 IN W 0.113 KD 1569A922, STEEL	RELEASE NEW PART NUMBER COMPONENT: SAME AS PART NUMBER COLOR: N/A STOCK CLASS: ROLLER PARTS PU: EA RU: EA RF: 1 CRITICAL: NO CO: USA	NO	-	
N/A	-	-	IMPLEMENT NEW PIANO HINGE ON BOARD MOUNTED VALANCES (SEE ENG TEST REPORT ON PAGES 3-8)	CHANGE FROM MPMI0195 TO MPMI1591 ON BMV WITH WIDTHS ABOVE 72"	YES	N/A	
ADDITIONAL INFORMATION							
AFFECTED DOCUMENTS / PROCESSES (CHECK ALL THAT APPLY)							
BOM / CONFIG	<input checked="" type="checkbox"/>	PRODUCT / PART SPEC	<input checked="" type="checkbox"/>	QC CHECKLIST	<input checked="" type="checkbox"/>	PART DRAWING	<input checked="" type="checkbox"/>
				ASSEMBLY DRAWING	<input type="checkbox"/>	INSTR SHEET	<input type="checkbox"/>
				PROCESS VISUAL AIDS	<input checked="" type="checkbox"/>	WORK INSTRUCTIONS	<input checked="" type="checkbox"/>
ECO APPROVALS ROUTING							
APPROVER	APPROVAL REQUIRED	APPROVER NAME	APPROVAL STATUS	APPROVED ON	NOTES		
PHASE II MANAGEMENT (US - DL)	<input checked="" type="checkbox"/>	T. DAVIDSON	APPROVED	07/08/2024			
PHASE II PROD DEV (US - NY)	<input checked="" type="checkbox"/>	L. HUNT	APPROVED	07/09/2024			
MANAGEMENT (MX)	<input checked="" type="checkbox"/>	L. MONTEJO	APPROVED	07/08/2024			
QC / ENG (MX)	<input checked="" type="checkbox"/>	H. AMEZQUITA	APPROVED	07/08/2024			

IT (MX)	<input checked="" type="checkbox"/>	E. CASTELLANOS	APPROVED	07/10/2024	
PRODUCTION (MX)	<input type="checkbox"/>				
MATERIALS (MX)	<input type="checkbox"/>				

ACTIONS REQUIRED

BOM / CONFIG	<input checked="" type="checkbox"/>	WILL BE MODIFIED BY IT (MX)
PRODUCT / PART SPEC	<input checked="" type="checkbox"/>	WILL BE MODIFIED QC / ENG (MX)
QC CHECKLIST	<input checked="" type="checkbox"/>	WILL BE MODIFIED QC / ENG (MX)
PART DRAWING	<input checked="" type="checkbox"/>	WILL BE MODIFIED QC / ENG (MX)
ASSEMBLY DRAWING	<input type="checkbox"/>	WILL BE MODIFIED QC / ENG (MX)
INSTR SHEET	<input type="checkbox"/>	WILL BE MODIFIED PHASE II (USA)
PROCESS VISUAL AIDS	<input checked="" type="checkbox"/>	WILL BE MODIFIED QC / ENG (MX)
WORK INSTRUCTIONS	<input checked="" type="checkbox"/>	WILL BE MODIFIED QC / ENG (MX)

PICTURES, DRAWINGS, ETC.



Hemtack
S.A. De C.V.

ENGINEERING REPORT

REPORT TITLE:	BMV LOW PROFILE PIANO HINGE	REPORT DATE:	07/02/2024
REPORT NUMBER:	ENGREP098	CREATED BY:	J. Ruiz
QA & ENGINEERING APPROVAL	CC:		
H. Amezcua	L. Hunt, L. Hernandez, M. Chang, H. Amezcua.		

1. Background:

This test is intended to evaluate a potential change to resolve a problem for customers that don't like the appearance of the top surface of BMV because of the "bump" created under the fabric by the large door hinge used. Particularly for BMV that are wider than 72 inches. This issue has been subject of customer claims and remakes.

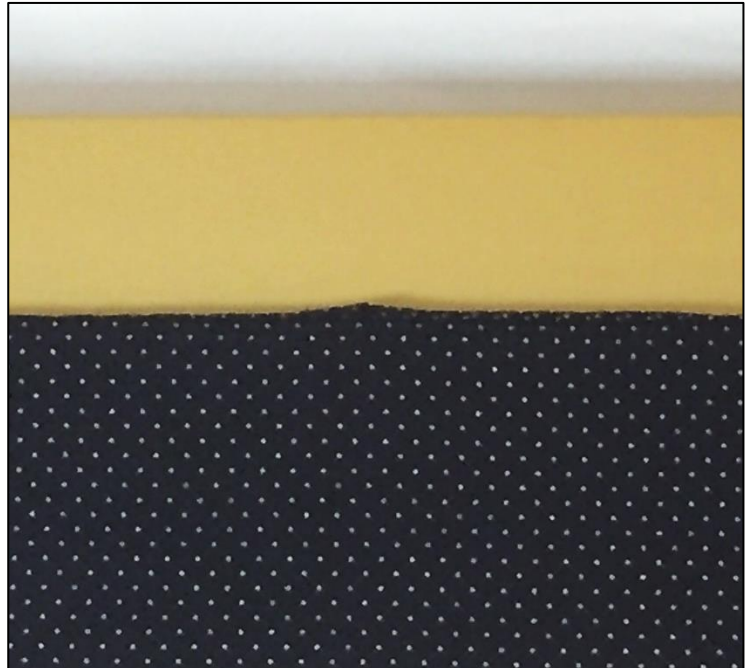
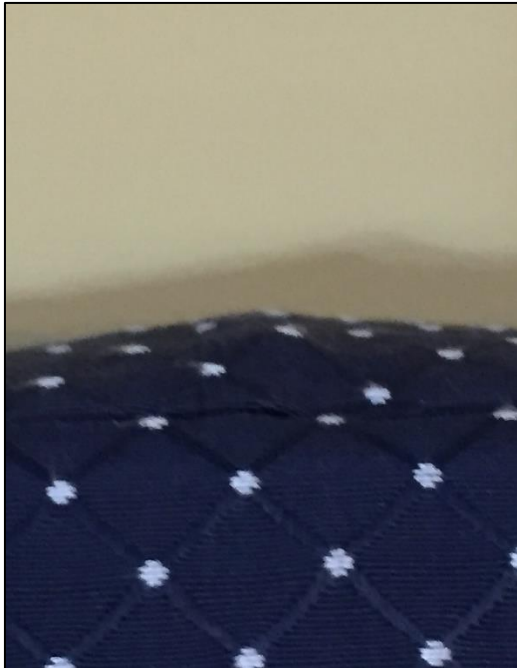


Photo 1 and 2. Customer claim from order 2008518

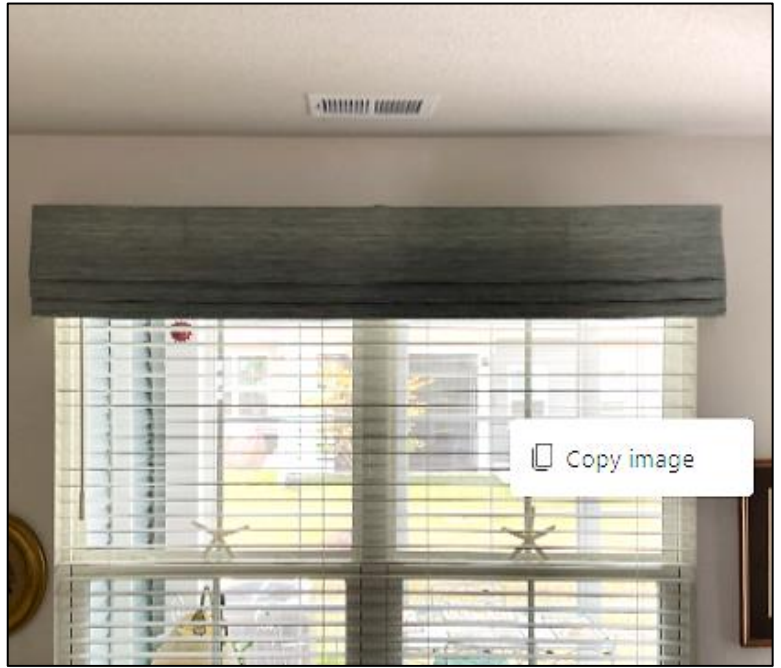


Photo 3 and 4. Customer claim from order 3458324



Photo 5. Customer claim from order 3171640

2. Analysis:

After analyzing the current manufacturing method for BMV wider than 72 inches, we found that we are using what we believe is a piano hinge that is too robust for this application. The pin and barrel are too large in diameter which creates the bump above the valance when mounted. The layers of fabric on top also add to this undesired effect.

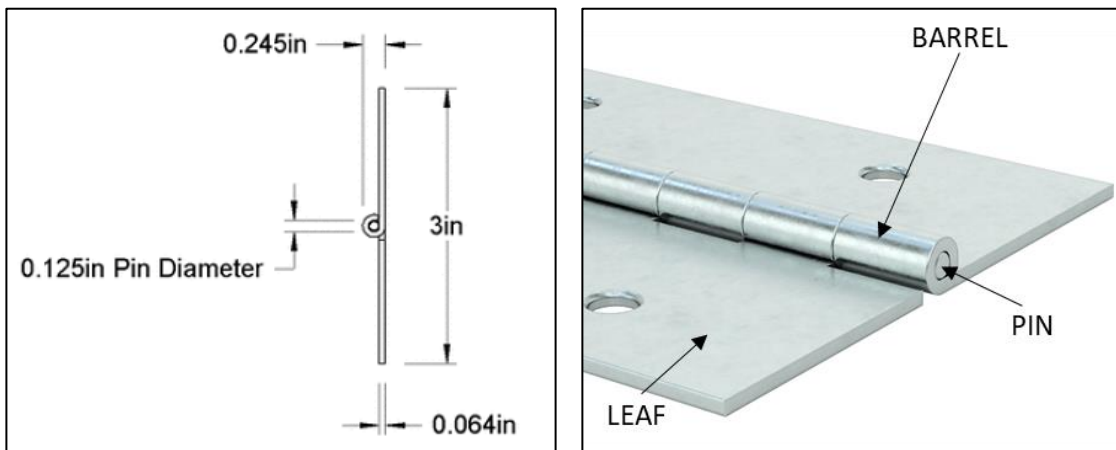


Photo 6 and 7. Current Hinge MPMI0195 (McMaster Part Number: 1608A54)

We tested a different piano hinge that we believe is better suited for this type of application. After evaluating different options from the same supplier, we performed an assembly and functionality test with another piano hinge sample.

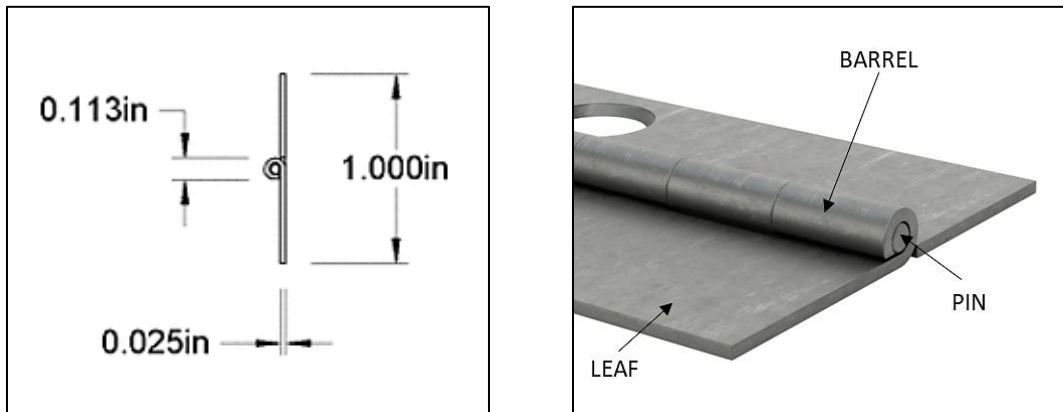


Photo 8 and 9. Proposed Hinge (McMaster Part Number: 1569A922)

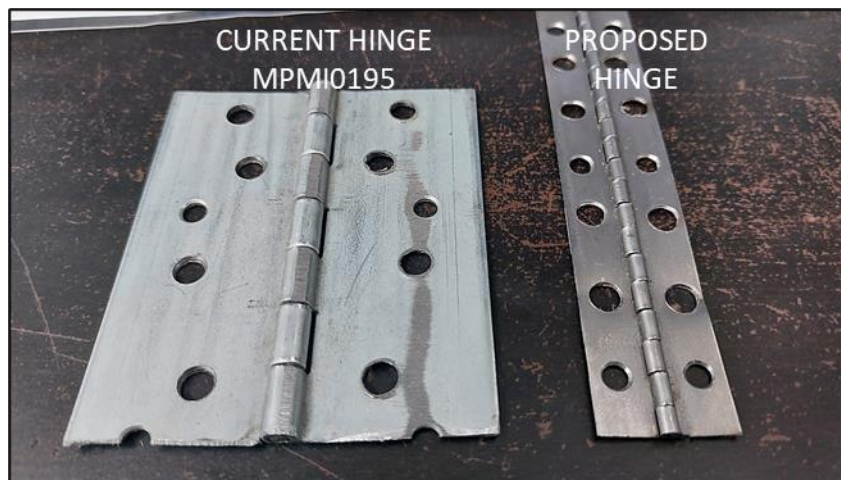


Photo 10. Piano Hinge Comparison

The assembly test was performed with a large BMV at 144 inches wide and 7 inches board.

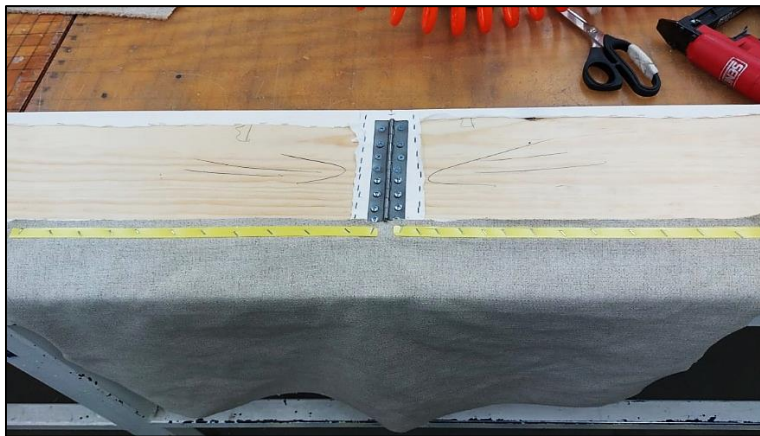
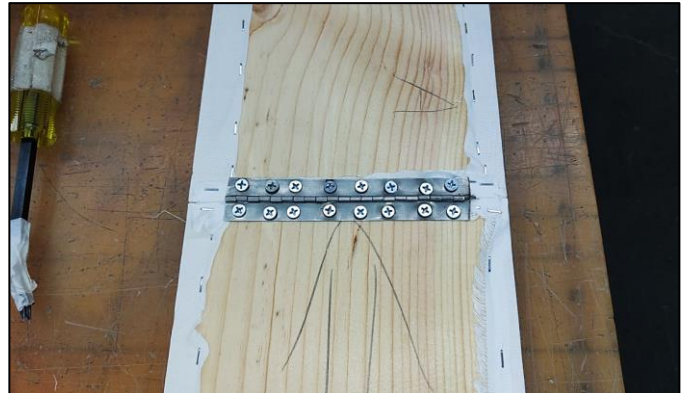
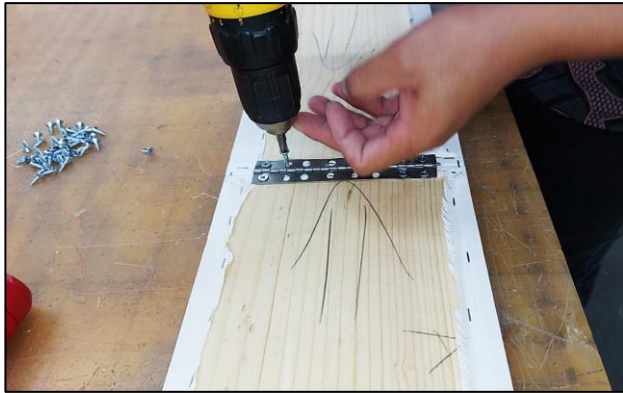


Photo 11, 12 and 13. Proposed Hinge Assembly Test

The following pictures show the result after adding the layers of fabric on top. As shown below, we achieved a much flatter surface which practically makes the bump unnoticeable and improves the appearance.



Photo 14. Proposed Hinge View Front Edge



Photo 15. Proposed Hinge View Top

We performed several cycles of folding and unfolding the BMV to confirm that the proposed piano hinge can withstand these movements without any issues while handling and during installation.

Please see video in this link: <https://youtu.be/paJ2nuuJeUU>

The cost difference between these two piano hinges at 6 feet long each is shown in the image below.

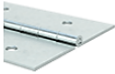
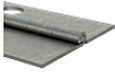
McMASTER-CARR.		1569a922
Order		
Purchase Order (optional)		
Ships today		
1	 <p>Piano Hinge with Holes Zinc-Plated Steel, 3" Overall Width, 0.245" Knuckle Diameter 1608A54 Length, ft. ✓ 6 ft.</p>	<input type="text" value="1"/> Each \$34.10 Each
2	 <p>Piano Hinge with Holes Steel, 1" Overall Width, 0.113" Knuckle Diameter 1569A922 Length, ft. ✓ 6 ft.</p>	<input type="text" value="1"/> Each \$19.91 Each

Photo 15. Proposed Hinge View Top

3. Conclusion:

- We recommend changing the type of piano hinge to the proposed part (1569A922) as we think this is adequate for this type of application.
- The proposed piano hinge is \$14 USD cheaper than the current one.
- The proposed piano hinge helps us achieve an almost flat surface on top which can eliminate the appearance issue which have created customer claims and remakes requests.
- The proposed change will only be applicable to BMV above 72 inches wide.