



Hemtack

# ENGINEERING CHANGE ORDER

REQUEST DATE	6/9/2021	REQUESTED BY	H. AMEZQUITA	REQUESTED RELEASE DATE	6/11/2021	ECO #	<b>ECO-00031</b>
AFFECTED PRODUCT LINES	A-OK MOTORIZED ROLLER, ZEBRA, SOLAR WITH CASSETTE VALANCE AND A-OK MOTORIZED ROMAN SHADES						
REASON FOR CHANGE	MPMI1286 TAB MOUNT IDLER ADAPTER / END PLUG ASSY IMPROVEMENT FOR EASE OF OPERATION AND COLOR MATCH						
DESCRIPTION OF CHANGE	NEW DESIGN OF MPMI1286 ALLOWS THE PART TO SPIN EFFORTLESSLY WHICH WILL IMPROVE OPERATION OF MOTORIZED SHADES USING A-OK AM25 MOTOR (MPMI1263).						
COST IMPACT	CURRENT: \$0.1970, NEW: \$0.1970 – NO INCREASE IN PART COST PER THIS ENGINEERING CHANGE						
DOCUMENT / PART NUMBER	OLD REV	NEW REV	DOCUMENT/ PART DESCRIPTION	CHANGE DESCRIPTION	FORM, FIT, OR FUNCTION AFFECTED <small>Yes, or No</small>	PART DISPOSITION <small>(USE AS IS) (REWORK) (SCRAP) (OBSOLETE) (RETURN TO VENDOR) (OTHER)</small>	
MPMI1286	1	2	TAB MOUNT IDLER ADAPTER / END PLUG ASSY	NEW COLOR: BLACK DIMENSIONAL CHANGE FOR SPIN IMPROVEMENT  SEE ATTACHED ENGINEERING REPORT IN PAGES 3 TO 6	NO	USE AS IS	
N/A	E	F	KITS PARA PIEZAS MOTORIZADAS (ALMACEN)	UPDATE MOTOR KITS CHART	NO	N/A	
ADDITIONAL INFORMATION	USE UP CURRENT INVENTORY OF MPMI1286 (REV 1 – WHITE COLOR). NEW DESIGN WILL ENTER PRODUCTION AFTER DEPLETING SUPPLIER INVENTORY.						
<b>AFFECTED DOCUMENTS / PROCESSES (CHECK ALL THAT APPLY)</b>							
BOM / CONFIG	<input 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 checked="" type="checkbox"/>
						PROCESS VISUAL AIDS	<input checked="" type="checkbox"/>
						WORK INSTRUCTIONS	<input checked="" type="checkbox"/>
<b>ECO APPROVALS ROUTING</b>							
APPROVER	APPROVAL REQUIRED	APPROVER NAME	APPROVAL STATUS	APPROVED ON	NOTES		
PHASE II MANAGEMENT (US - DL)	<input checked="" type="checkbox"/>	T. DAVIDSON	APPROVED	06/09/2021			
PHASE II PROD DEV (US - NY)	<input checked="" type="checkbox"/>	L. HUNT	APPROVED	06/09/2021			
MANAGEMENT (MX)	<input checked="" type="checkbox"/>	L. MONTEJO	APPROVED	06/09/2021			
QC / ENG (MX)	<input checked="" type="checkbox"/>	H. AMEZQUITA	APPROVED	06/09/2021			
IT (MX)	<input checked="" type="checkbox"/>	E. CASTELLANOS	APPROVED	06/16/2021			
PRODUCTION (MX)	<input type="checkbox"/>						
MATERIALS (MX)	<input type="checkbox"/>						

**ACTIONS REQUIRED**

BOM / CONFIG	<input 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 checked="" type="checkbox"/>	WILL BE MODIFIED QC / ENG (MX)
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.**

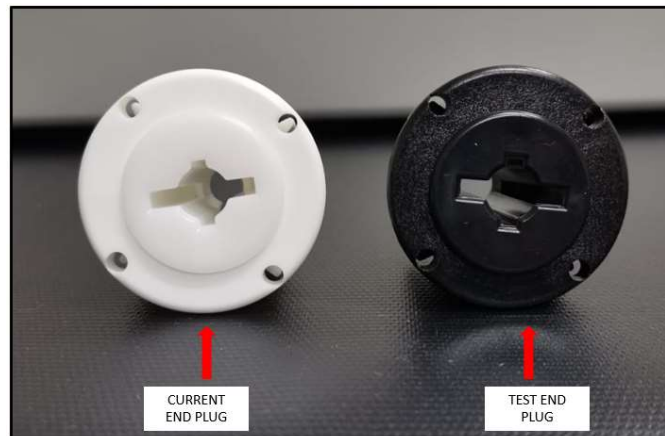
<b>REPORT TITLE:</b>	MPMI1286 TAB MOUNT IDLER ADAPTER / END PLUG ASSY REDESIGN TEST		<b>REPORT DATE:</b>	07/06/2021
<b>REPORT NUMBER:</b>	ENGREP_038	<b>CREATED BY:</b>	Bibiana Sanchez	
<b>QA &amp; ENGINEERING APPROVAL</b>	<b>CC:</b>			
Hugo Amezcuita	Marcos Chang, Hugo Amezcuita.			

## 1. Background:

We evaluated the functionality and performance of the new design of MPMI1286 TAB MOUNT IDLER ADAPTER / END PLUG ASSY.

## 2. Analysis:

The new END PLUGS, which comes in black (Image 1), twist without an effort. The current ones, which are white, have a more difficult time turning.



*Image 1. Current END PLUG vs test END PLUG*

We observed that the new END PLUGS display less effort twisting, compared with our actual END PLUGS.

END PLUGS functionality video:

END PLUG TEST

<https://youtu.be/GgthuasxUHs>

END PLUG CURRENT (MPMI1286)

<https://youtu.be/McyOHm3Nn3g>

We took measurement of each END PLUG separately (inside and outside) (Image 2,3 y 4). The measure of the test END PLUG and the current END PLUG (MPMI1286) are showed in the next table (Table 1 y 2).

OUTER PART				
SAMPLE	DIAMETER		LENGTH	
	D1	D2	L1	L2
TEST	0.919 ± .5% in	0.4335 ± .5% in	1.2635 ± .5% in	1.0835 ± .5% in
CURRENT	0.9205 ± .5% in	0.431 ± .5% in	1.2725 ± .5% in	1.089 ± .5% in

Table 1. Outside parts measurements.

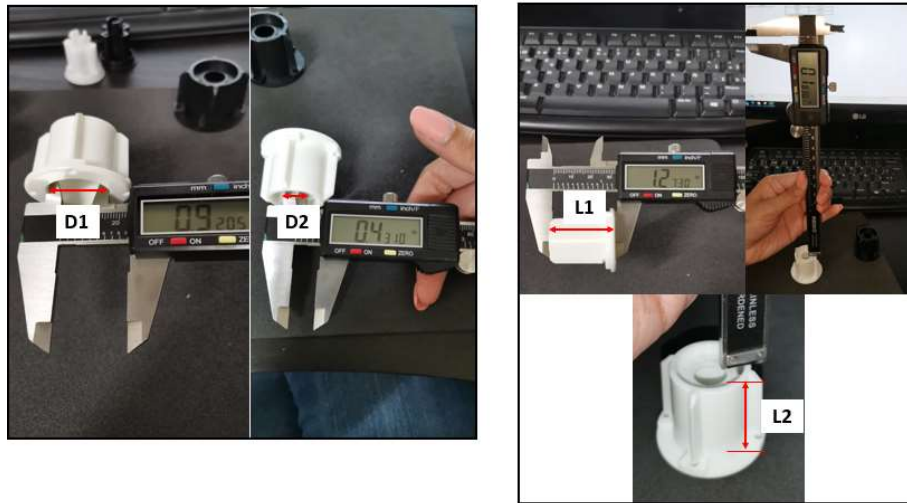


Image 2. CURRENT SAMPLE



Image 3. TEST SAMPLE

INNER PART			
SAMPLE	WIDTH		LENGTH
	W1	W2	
TEST	0.8680 ± .5% in	0.7795 ± .5% in	1.3195 ± .5% in
CURRENT	0.8540 ± .5% in	0.7795 ± .5% in	1.3113 ± .5% in

Table 2. Inside parts measurements.

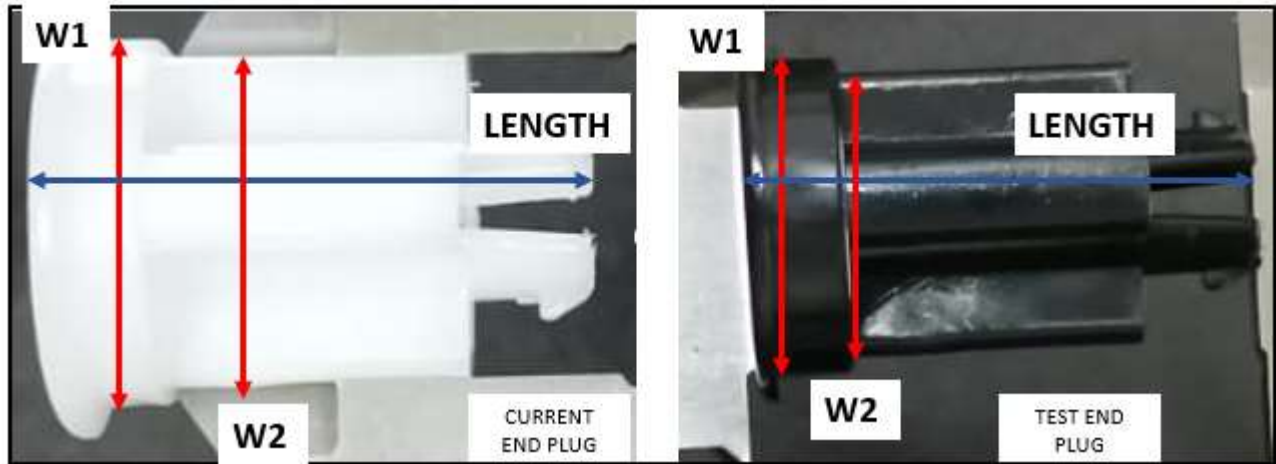


Image 4. Inside parts measurements.

The width difference between the outside and inside parts of the test END PLUG is  $0.236 \pm 0.5\%$ , in comparison with the actual END PLUG components, which are  $0.2223 \pm 0.5\%$  in, resulting in an easier twisting.

The difference between the diameter 1 (D1) of the outside part and the width of the inside part (W1) is  $0.051 \pm 0.5\%$ , in comparison of the difference between components of the actual END PLUG, which are  $0.066 \pm 0.5\%$ , resulting in a firmer turn without generating any noise.

We put the new END PLUGS and the current ones in a motorized assembly, without any issues to report (Image 5).

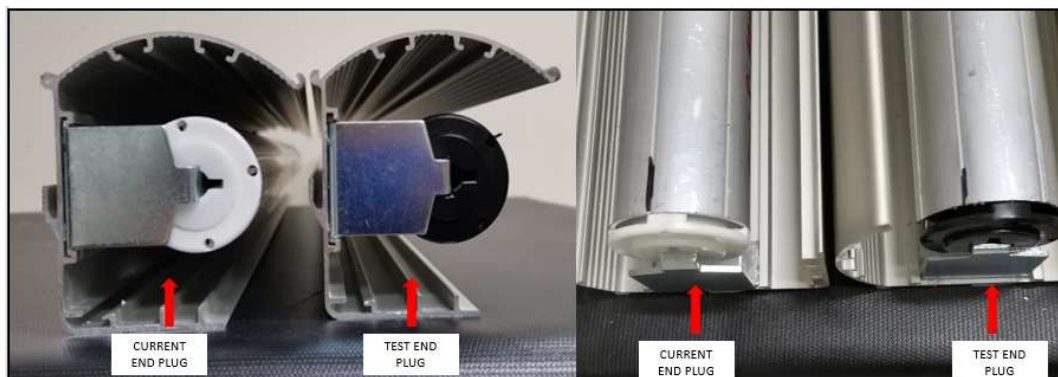


Image 5. END PLUGS assembly.

We performed a functionality test in a motorized assembly of a Cassette 100. Both pieces turned without problem, and a similar velocity, without any significant issues to report.

END PLUG functionality in a motorized assembly.

<https://youtu.be/qkGE1ejvWNO>

### **3. Conclusion:**

Based upon inspection and functionality tests of the new END PLUGS, we can conclude that they turn more easily and they do not represent a significant change in product assembly since the new END PLUGS and the current END PLUGS twists are very similar after incorporating the improvements by the manufacturer.

The color change is also an improvement since it matches the color of the motor head on the opposite end of the roller tube assembly.

Per the samples provided, the parts are suitable for use in production.