

	Doc or ECO #:	ECO-71095-002	Date:	6/11/2019	Author: JV	
	Rev. #:	01				
Engineering Change Order (ECO)	Engineering Approval:	AEG	Date:	6/14/2019	Quality Approval	DO

P/N #:	71095	Effective Date:	June 12, 2019
Title:	MSS ICB Ducting / Noise Reduction		

1.0 Purpose / Summary

There have been multiple complaints of the MSS ICB being too noisy for operators with long working hours. This has been corrected by adding ducting within the panel and changing the fans within the panel.

2.0 Parts Affected

Part Number	Notes	Removed	Added	Modified	REV
71951	Ducting exhaust	☐	☒	☐	A
71952	Ducting exhaust	☐	☒	☐	A
71953	Ducting intake	☐	☒	☐	A
71954	Ducting intake	☐	☒	☐	A
72044	New exhaust fan	☐	☒	☐	A
72043	New intake fan	☐	☒	☐	A
70703	PWM board	☒	☐	☐	
70702	Old fan	☒	☐	☐	
71569	Old fan	☒	☐	☐	
71710	Holes added for ducting	☐	☐	☒	B
71643	Redesigned to seal against computer	☐	☐	☒	B
71095	General BOM Cleanup	☐	☐	☒	

3.0 Detail

The fans used within the panel had a very whiney pitch to them compared to similar fans of other brands. We also noticed a linear correlation between fan RPM and system volume. In conclusion of testing we decided to move forward with Delta fans and decided we could reduce overall RPM of the fans by adding a duct to force the air into or out of critical locations. Intake duct allows cool ambient air to flow directly over the computer heat sink, and exhaust ducts allow hot air to flow directly out of the panel, avoiding internal recirculation. It was also decided that the PWM board is not beneficial to the cooling within the panel, it just further contributes to the noise issue.

Old Fans, the PWM Boards, and their hardware were removed from the ICB assembly. They were replaced with quieter fans, and ducts to better direct the air inside. During these BOM changes, some

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BOM cleaned was performed like removing old PNS from the BOM, assigning VR part numbers to McMaster items, and syncing the SolidWorks assembly with the current BOM.

For installation of the ducts into a previously assembled panel, the following are needed.

Parts and Components

- qty (1)- 71951 ducting exhaust
- qty (1)- 71952 ducting exhaust
- qty (1)- 71953 ducting intake
- qty (1)- 71954 ducting intake
- qty (1)- 72043 Ducting Intake fan
- qty (2)- 72044 Ducting Exhaust fans
- qty (1)- 71643 USB Retention **REV B**
- qty (1)- 71710 Computer Mount Plate **REV B**
- *qty(1)- 72116 Computer mount plate drilling guide *(Can be used to rework 71710 Rev A to Rev B)

Hardware

- | | |
|---|----------------------------|
| -qty (5)- 72084 #6 x 3/8" Plastites | -for securing intake duct- |
| -qty (4)- 71932 #6 x 5/8" Flat head screw | -new intake fan screws- |
| -qty (4)- 71801 #6 x 1/4" Flat head screw | -to fill PWM board holes- |
| -qty (2)- 70663 #6 right angle studs | -to secure exhaust ducts- |
| -qty (2)- 71493 #6 slim lock nuts | -to secure exhaust ducts- |

A quickturn fab run was initiated, material will be transferred to stock from Engineering.

4.0 Disposition of Material

Rework of all current stock of 71710 to REV B. Installed Rev A 71710 plates can be modified to Rev B using 72116 (MSS ICB Computer mount plate drilling guide)

71643 Rev A are of no use for panels now. Rev A can not be reworked to Rev B.

Old Fans: label and put into storage as ICB fans.

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PWM Boards are no longer needed, but a few can be kept on hand for future repairs if necessary.

5.0 Action Items

Action	Department	Acknowledgement Initials
Epicor update	ENG	RN
Rework old stock 71710	ENG	JV
Develop field installation work instructions	ENG	JV
Document S/N of first ICB with modification	QA	DO

6.0 Modified / Referenced Documents:

Document	Current Revision
70218 - MSS ICB Assembly Instructions	D

7.0 Revision History

Date Revised (mm-dd-yyyy)	Location of Change (section, paragraph no., step no., etc.)	Description of Change Made	Name of Person making the Change