

	Doc or ECO #:	71006-002	Date:	4/29/19	Author:	GD
	Rev. #:	A				
Engineering Change Order (ECO)	Engineering Approval:	aeg	Date:	4/29/19	Quality Approval	DO

P/N #:	71006	Effective Date:	April 29, 2019
Title:	Increasing 12VDC converter output filter capacity		

1.0 Purpose / Summary

This modification is designed to rectify the startup issues of on board 12VDC power when multiple accessories are connected to the ROV is connected.

Addition of two 100uF/25V ceramic capacitors is required to increase holding up capacitor bank.

This is an interim solution; the long-term solution will be an ECO to the power PCB [70155]

2.0 Parts Affected

Part Number	Notes	Removed	Added	Modified	REV
71006	Top level assembly	☐	☐	☒	D
71998	Add two 100uF/25V caps	☐	☒	☐	A
71999	Need one square	☐	☒	☐	A
72001	Need two 1" long pieces	☐	☒	☐	A

3.0 Detail

The two 100uF/25 ceramic caps are needed to increase the holding up capacitors by 200uF for 12VDC convert output. Without these additional capacitors, when the ROV is loaded with more accessories, the inrush current exceeds the specified safe inrush current limit of the 48V to 12V Vicor converter (BCM) resulting the shutdown of the converter.

These additional caps are added on the communication PCB [70192] near J1 9 pin connector. The modification requires two 100uF/25V ceramic capacitors together with soldering hardware including Kapton tape (0.75" x 0.5") and 20AWG solid hook-up wire. The mounting/soldering steps are shown below.

This issue is not seen on MSS defenders or other systems where the connection cable limits the inrush.

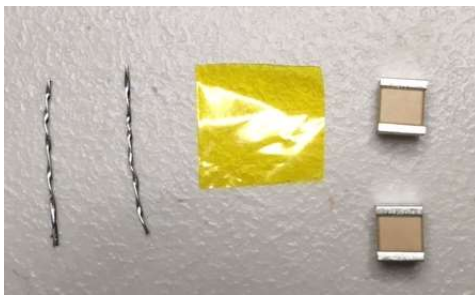
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Work instructions have been updated, but for reference:

Step 1:

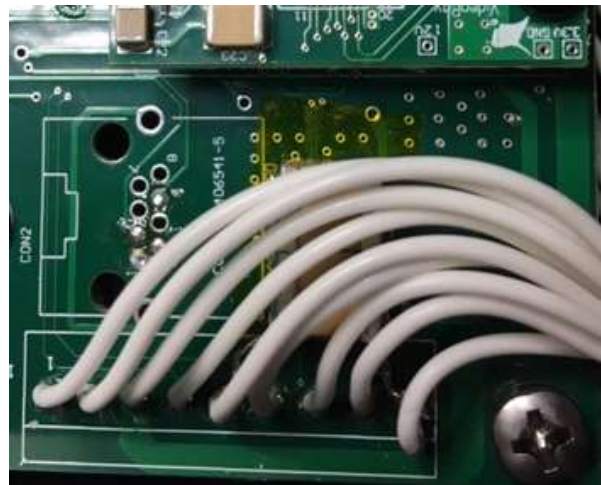
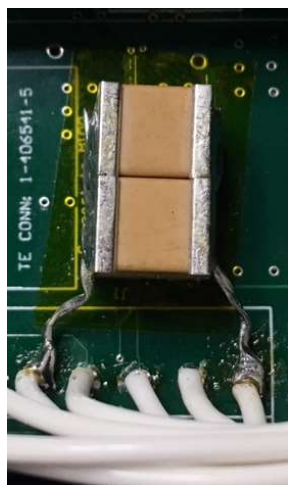
Prep what is needed:

1. 2 x 100v/25V ceramic capacitors (VR P/N: 71998)
2. 0.75" x 0.75" square of Kapton tape (VR P/N: 71999)
3. 2 x 1" long 22AWG hook up wire (VR P/N: 72001)



Step 2:

1. Using hook up wire solder two capacitors in parallel connection
2. Place the Kapton tape near pins 5 & 9 of J1 connector
3. Bend and form the two leads on the capacitors so that they are lined up with pins 5 & 9, when the capacitors are placed on the Kapton tape
4. Solder the two leads to pins 5 & 9 and trim excess wire



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4.0 Disposition of Material

All Pro5 Combo box modules [71006] in stock should be updated to meet the modification listed in this ECO

All Pro5 Combo box modules [71006] in repair should be reworked

Pro5 Combo boxes should be checked for modification when they come in for repairs.

Fielded units not experiencing startup problems will not be recalled.

5.0 Action Items

Action	Department	Acknowledgement Initials
Train production and implement the modification	Engineering	GD
Update R & D and include this modification for the next revision of communication PCB [70192]	Engineering	GD
Advice purchasing to stock new items until the next rev of comm PCB [70192] is released	Engineering	GD
Update EPICOR to include the new items	Engineering	RN

6.0 Modified / Referenced Documents:

Document	Current Revision
WI-70016	B

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
4/29/2019	-	Initial Release	GD
4/29/2018	All	Addition of assembly revision, Clarification of repair disposition, and notes on long term solution	AEG