

	Doc or ECO #:	VR-PRO4-10-0001-001	Date:	11/18/2020	Author:	aeg
	Rev. #:					
Engineering Change Order (ECO)	Engineering Approval:	aeg	Date:	11/18/2020	Quality Approval	SL

P/N #:	VR-PRO4-10-0001	Effective Date:	November 18, 2020
Title:	New cable for termblock		

1.0 Purpose / Summary

The cable used in the improved termblock assembly went EOL. Birns was not able to locate a suitable replacement, so VideoRay purchased a custom spec cable. The new cable has been tested and has proven to be more durable to the extent that the up-armour can be removed from the assembly.

2.0 Parts Affected

Part Number	Notes	Removed	Added	Modified	REV
72061	New improved assembly, up-armoured	☒	☐	☐	C
VR-PRO4-10-0001	72061 replaced with TB-001M	☐	☐	☒	C
TB-001M	Modified to use new cable	☐	☐	☒	B
TB-001M-ASSM	72061 replaced with TB-001M	☐	☐	☒	C

3.0 Detail

VideoRay termblocks have been failing with increased frequency and with less field use. There had been poor control by the suppliers of the cable used and manufacturing techniques of the assembly.

VideoRay switched to a single source supply chain (entire assembly and cable) supplied by Birns. Shielded 8/20 cable from Belden was used in the assembly. VideoRay additionally added an up-armored assembly to strengthen and reduce twisting of the term block whip [72061]. See ECO-72061-001, ECO-72061-002). This revision (B) seemed to perform adequate in the field.

Birns was no longer able to source the cable and requested a switch to COTS 8/20 cable from Southwire. First article samples of assemblies with this cable failed quickly in cyclic testing.

VideoRay sourced a new custom cable [72936], specifically designed to be more robust. This cable has TPEE insulation and sheath, a smaller diameter, and no central conductor.

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Termblock assemblies made with the new custom cable exceeded 300,000 cycles in our cyclic fatigue test. One sample did fail in under 5000 cycles, but Birns ascribes that to a manufacturing error (poor solder connection) that has been corrected.

Due to the robustness of the new cable the up-armor assembly will no longer be used.

The new cable is has a smaller diameter and a harder/glossier finish than older cables. Term blocks made with the new cable are more rigid as well. They are easily identifiable. The cable is marked, but markings may not align with the termblock terminations.

4.0 Disposition of Material

No old stock of TBM-001M or it's downstream sub-assemblies are in stock.

All new builds should use the latest VR-PRO4-10-0001

Repairs of subs using older non-belden up-armored cables should get the latest version of VR-PRO4-10-0001. Repairs of subs using the "good" shielded belden up-armored are at the discretion of the repair department

5.0 Action Items

Action	Department	Acknowledgement Initials
Update EPICOR	ENG	SL
Update production regarding up-armor	ENG	AEG

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Order new 8/20 cable and ship to Birns	PUR	JB
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6.0 Modified / Referenced Documents:

Document	Current Revision
ECO-72061-001	A
ECO-72061-002	A
WI-72061	A

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
11/18/2020		Init	aeg