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# ELE-3COP-257

## Title – Application of Binder to Hand Laid Cables.

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Before starting work please read this document carefully and note the guidance given.

### 1 Purpose and Scope

This COP describes the procedure to be used when applying Binder to hand build cables and harnesses. The instructions in this document take preference over IPC/WHMA requirements, as do the drawing and any customer documentation.

### 2 Performance Objective

This code of practice is produced to support operators already trained in the installation of heat shrinkable and harnessing products. It identifies the procedure to be used when applying Binder to hand build cables and harnesses.

### 3 Materials and Equipment:

Cable or harness to be bound  
Binder (Usually Kevlar)  
Adhesive tape (Paper)  
Holding Fixture (Small bench vice)  
Scissors

### 4 Health and Safety

Adhere to local Codes and Regulations relating to Safe Working practices. For the U.K. adhere to requirements of the Health and Safety at Work Act 1974 and subsequent amendments. Binder should be cut using scissors, a knife should never be used for cutting binder as this can easily cause personal injury.

### 5 Terms Used

#### Binder

Usually Kevlar, used when required to hold layers of components together.

#### Lay

A number of components helically wound in the same direction without crossovers.

#### Lay Direction

The direction of a component wire in a layer as it goes away from the observer from the top of the cable.

Left Hand Lay passes to the left as it goes from the top of cable.

Right Hand Lay passes to the right as it goes from the top of cable.

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#### 6 Procedure

For cables, starting from the holding fixture, tie the binder onto the cable and tape the end in position using adhesive tape. Bind all the components of the outer layer in position ensuring that the binder is even and the opposite direction to the cable lay.

As a guide the lay length of the Binder should be 1.5 x layer diameter.

For harnesses, start at centre section or transition, tie the binder onto the cable and tape the end in position using adhesive tape. Bind all the components of the outer layer in position ensuring that the binder is even and the opposite direction to the cable lay. (See Figure 1)



FIGURE 1

For cables with multiple layers, binder may be required on each layer to secure during hand build.

#### 7 Inspection Requirements

Adhesive tapes to be removed from cables sections except for the holding tape at the free end.  
That the Binder lay is even with good lay length.  
Binder is wound in opposite direction to cable layer lay direction.  
Ensure component wires are not scraped, nicked, severed or otherwise damaged.  
Ensure that there is no bird caging of wire under Binder.

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### 8 Visual Standards



ACCEPTABLE



NOT ACCEPTABLE  
Lay length of Binder too long



NOT ACCEPTABLE  
Lay length of Binder too short



NOT ACCEPTABLE  
Binder wrapped in wrong direction

| Rev No | CR No           | Date     | Raised      | Approved       |
|--------|-----------------|----------|-------------|----------------|
| 4      | CR06-DM-071     | 07/04/06 | John Cronin | Ken Wallington |
| 5      | CR09-DM-018     | 28/01/09 | Paul Newman | Neil Dorricott |
| 6      | Visual Identity | 06/06/11 | Paul Newman | Neil Dorricott |

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