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FTTP Connectorised Multiport Block

Installation instructions

About this document ...

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Issue 1	12-Jun-2014	Chief Engineers Office Technical Documentation Team	New document

Table of Content

1 *Introduction*

This document describes the installation practice of a connectorised multiport block for a single split Fibre to the Premises (FTTP) architecture. The document describes the mounting of the block in underground and overhead locations and details the installation of the block tail into a 24 address point fibre distribution point (24 AP FDP)

2 *Instructions for Underground Multiport Block Installation*

The multiport block is supplied with a fibre tail that has been pre terminated to the ports at the factory. The installation of the multiport block in underground structures is comprised of the following main steps:-

- Securing the block to a suitable cable bearer or flat bar in the footway box.
- Pulling the fibre tail to the FDP location
- Securing the cable into the FDP and laying up the individual fibres.

Securing of the cable into the FDP is detailed in section 4 of this document.

2.1 Multiport Block mounting in footway box

Using suitable cable ties, secure the block to a cable bearer or flat bar in the footway box. Protect the fibre tail by placing Stay Guard 2A Item Code 016321 along the cable length from the block to the entry point of the duct.
See figure 1

Caution: When installing the multiport block in an underground footway box, ensure the minimum bend radius of 80mm maintained

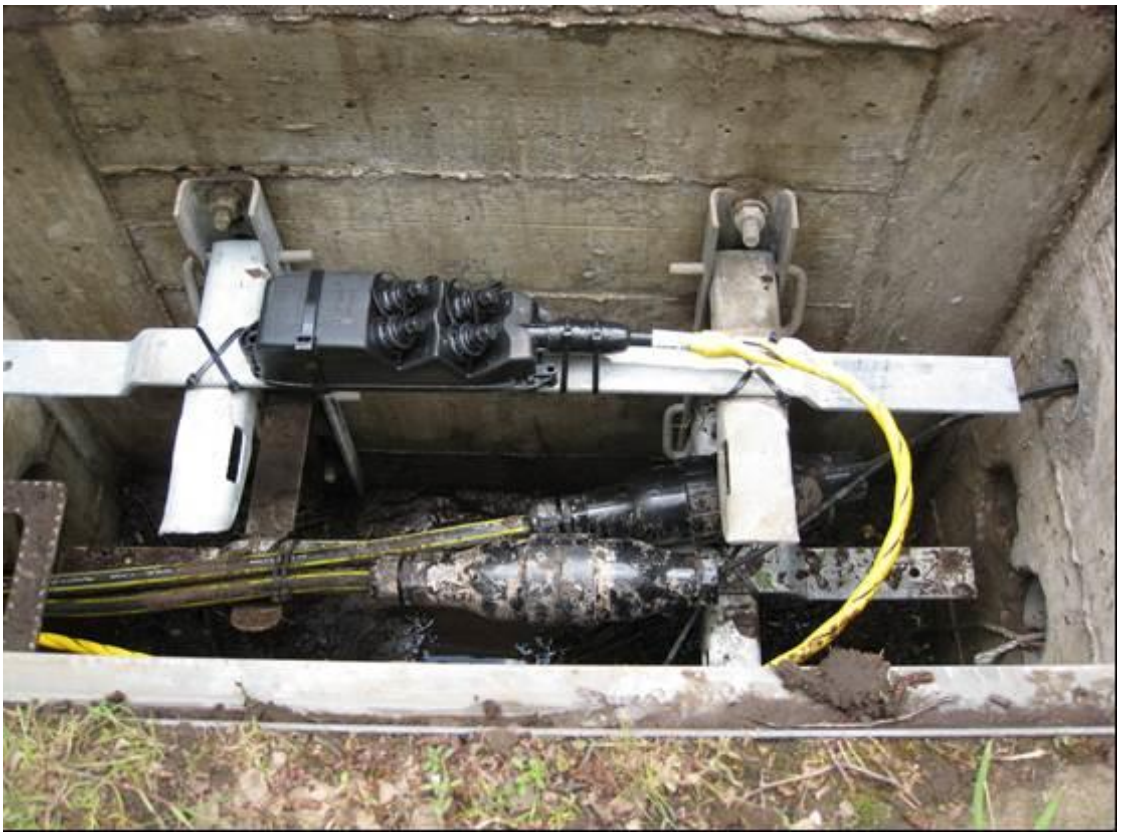


Figure 1

2.2 Installation of Fibre Tail in UG Duct

Install the fibre tail in the underground duct network from the multiport block to the FDP using standard hand cabling practices as detailed in ISIS EPT/UGP/E046.

The maximum pulling tensions for the cable shall be 1.5 kN or hand tension.

Attach a cabling rope to the fibre tail using a minimum of 8 splices. Secure the splices at both ends with PVC tape, see figure 2.

Figure 2

3 *Instructions for Overhead Multiport Block Installation*

The installation of the multiport block in the overhead network is comprised of the following main steps:-

- Securing the block in a suitable location on the Pole
- Pulling the fibre tail to the FDP location
- Securing the cable into the FDP and laying up the individual fibres.

Securing of the cable into the FDP is detailed in section 4 of this document.

3.1 Mounting the Multiport Block on Pole

3.1.1 Standard Installation

The multiport block must be fitted to the pole top in the area shown in section 2 of ISIS document EPT/OHP/B058.

The multiport block incorporates a top mounting bracket as part of the units moulding. The block is also supplied with an adaptor for securing the bottom of the block

The following steps should be followed for mounting the block to the pole.

- Attach a sash line to one of the block ports dust cover eyelets and pull the block to the top of the pole. Ensure the block cannot fall to the floor by tying the sash line to one of the top pole steps with sufficient slack for the block to reach the mounting position. See figure 3.

- Determine the location for the block.
  Mount the block to the pole with a 12x2.5 wood screw item code 454972 inserted through the top mounting hole. Tighten the screw sufficiently to hold the block in place but loose enough to allow the block to be rotated.

- Align the bottom adaptor with the cable butt moulding to determine the adaptors position. Rotate the block sufficiently to allow room to fit the adaptor. Using a 12x2.5 wood screw mount the adaptor to the pole. See figure 3

- Rotate the block back to the vertical position and attach the cable butt moulding to the adaptor using 2 straps cable fixing 1A’s item code 072492.

See figure 4

- Fully tighten top mounting screw.

Figure 3

Figure 4

3.1.2 Pole Stand Off Installation

In some situations it may be necessary to mount the block such that it stands off from the pole rather than mounted flush. An example of this is when drop wire congestion exists and it is necessary for the drop wires to run behind the block.
Where it is necessary to mount the block in the standoff position the steps described in clause 3.1.1 apply with the following amendments.

- For the top mounting place a bottom adaptor in reverse (see figure 5), between the top mounting and the pole and mount to the pole using a 12 x 2.5 wood screw

- For bottom fixing use 2 bottom adaptors fixed back to back with strap cable fixing 1A attach to pole using 12x3 screw. See figure 6. Attach the cable butt moulding to the adaptor using 2 straps cable fixing 1A's see figure 6.

Figure 5

Figure 6

3.2 Installation of Fibre Tail on Pole

In order to prevent future damage to the fibre tail when installing it on a pole the guidance in ISIS EPT/OHP/B073 section 4.1 shall be followed - key information from the above is summarised in the caution note below. (See also ISIS EPT/OHP/B073, Figure 3 Example of Running Feed Cable Avoiding the Ladder Placement Area)

Caution: It is important to avoid placing the cable in the area where the ladder will rest when climbing the pole. The usual position for the top of the ladder to rest on the pole is in the vicinity of the first climbing step. The cable should therefore be diverted to the side of the pole opposite the first step in this area. Local conditions may require the ladder to rest at a different place on the pole. In these cases, site the cable accordingly. Do not run the cable alongside the climbing steps as it could interfere with the placement of the foot on the steps whilst climbing and be prone to damage from heavy footwear.

3.2.1 Fixing the Fibre Tail to the Pole

When fixing the fibre tail on a pole use Cleat wiring hybrid cable Item Code 080809 at 450mm intervals.

Where the FDP is located in a joint box situated at the base of the pole, cut the fibre tail to a length suitable for routing to and installing into the FDP. When installing the cable into the box it may be possible to push the cable down the aluminium capping directly into the jointing box by loosening the lower capping. If this is not possible it will be necessary to remove the capping.

Where the FDP is located further away the fibre tail should be installed to the FDP location following the practices detailed in clause 2.2.

3.2.2 Fibre Tail Protection

When installation is complete, protect the tail on the pole with appropriate sized capping from ground level to a minimum of 2 metres up the pole.

3.2.3 Pole Labelling

An identification label stating CAUTION OVERHEAD FIBRE shall be fitted to the pole.

These Labels are supplied in a pack of 10 (item code 046116). Two label material types are supplied in each pack, a PVC board label and a flexible adhesive label.

Use the PVC board label on wooden poles. The label shall be fixed to the pole above the Pole Test Label or at eye level. Attach the label to the pole using Pin Steel No.2 7/8 inch (item code 070864) - one per each corner area of the label. To avoid damage to the label do not over drive the Pin Steel No.2 7/8 inch into the label, just ensure that the washer on the pin slightly “nips” the label.

4 Installation of Fibre Tail into FDP

4.1 Single Fibre Tail Installation

The multiport fibre tail must be installed into port 3 of the 24 address point FDP since this port provides a mounting point for the strength member anchor.

NOTE:- If the FDP is feeding more than one multiport block then the fibre tails from all the blocks must be installed in port 3 simultaneously. Refer to section 4.2 for additional requirements when installing more than one block tail.

1. Use an FTTP port opening cord Item Code 075442 to open port 3

2. Attach the strength member anchor to the mounting point located above port 3 See figure 8. The anchor is supplied as part of the Circular port kit 3A Item Code 006846.

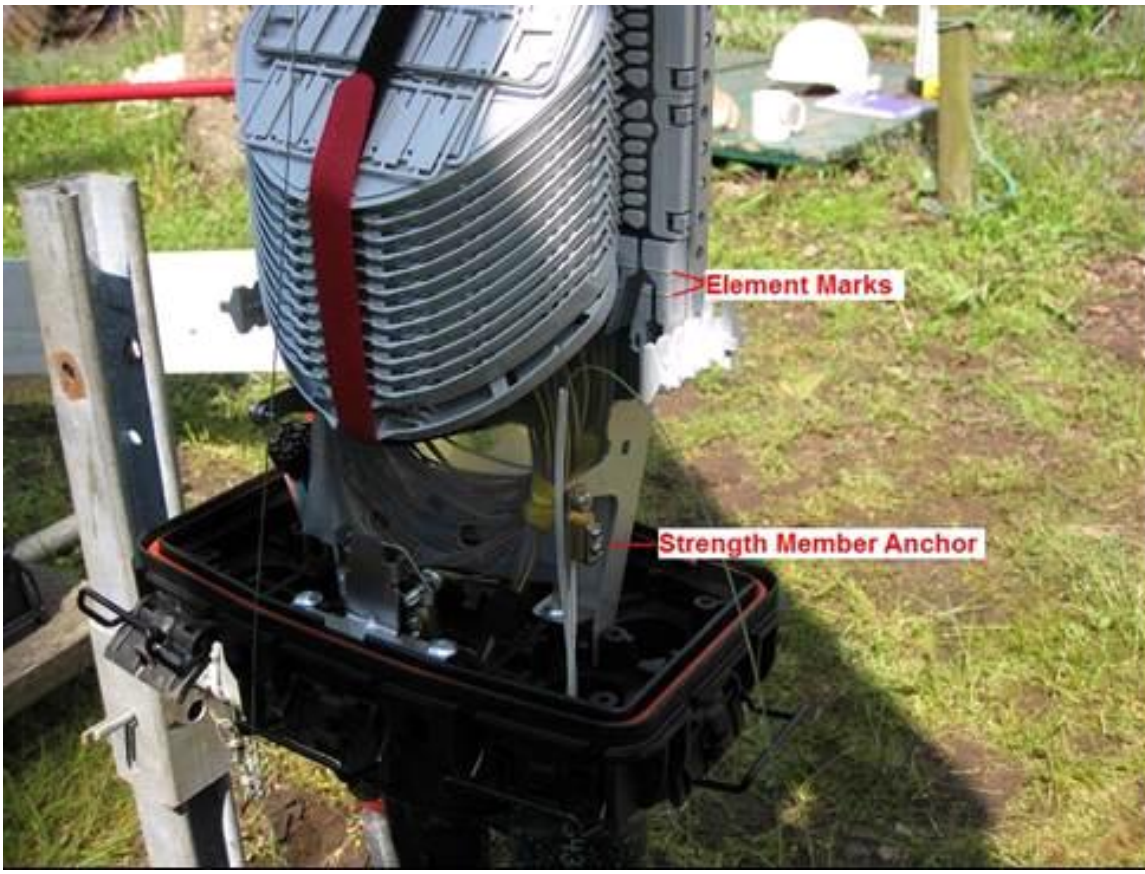


Figure 8

3. Place Stay Guard 2A Item Code 016321 onto the cable close to the duct mouth see figure 9. Prevent the Stay Guard 2A from uncoiling by wrapping PVC tape around the end closest to the duct.

Warning: When installing the multiport block in an underground footway box, ensure the minimum bend radius of 80mm maintained

Figure 9

4. Push the Stay Guard 2A along the cable until it enters the duct. Wrap PVC tape around the end of the Stay Guard 2A furthest from the duct.

5. Decide on the correct cable routing in the footway box from the duct mouth to the FDP. Cut the cable allowing for a 2m length of cable element inside the closure

6. Following the instructions detailed in Appendix A, using an SST-Drop Cable Access Tool, strip 2 meters of cable sheath from the fibre tail

7. Referring to the template in Appendix B cut both strength members using Cutter Cable Hand 5 item code 127451

8. Place additional lengths of Stay Guard 2A onto the cable such that Stay Guard 2A covers the length of the cable from the duct mouth to the sheath butt. Use PVC tape to prevent the Stay Guard 2A from uncoiling.

9. Referring to the template in Appendix B apply a SCOP and cable protection foil. Smooth the cable protection foil with a blunt tool.

Caution: Foils have sharp edges, please use with care

10. Place the circular heat shrink down over the cable.

11. Insert both strength members into the anchor and secure using an allen key

12. Route the fibre element tube to the element marks located on the plastic fibre guide. See figure 8. Cut the element at a position between the element marks to expose the fibres

13. In customer tray 24, relocate the COF 205 splitter node fibres from the outer storage area to the central storage area see figure 10

.

Figure 10

14. Route the element tube to the tube holder. Slide an element support tube 3A Item Code 008121 over the element down to the cable butt and mark the length just under the tube holder. Remove the element support tube 3A, cut to length and re-install over the element tubes. See figure 11

15. Route all 12 fibres from the fibre tail into the outside storage area of customer address tray 24.

16. Position heat shield & using a “D” nozzle start shrinking the heat shrink tube from the top, continue shrinking and converting the paint until the heat shrink is fully shrunk down. Allow the sleeve to cool for approximately 10 minutes before removing. Quality check all paint converted and a visible flow of adhesive at the end of the sleeve. See figure 12

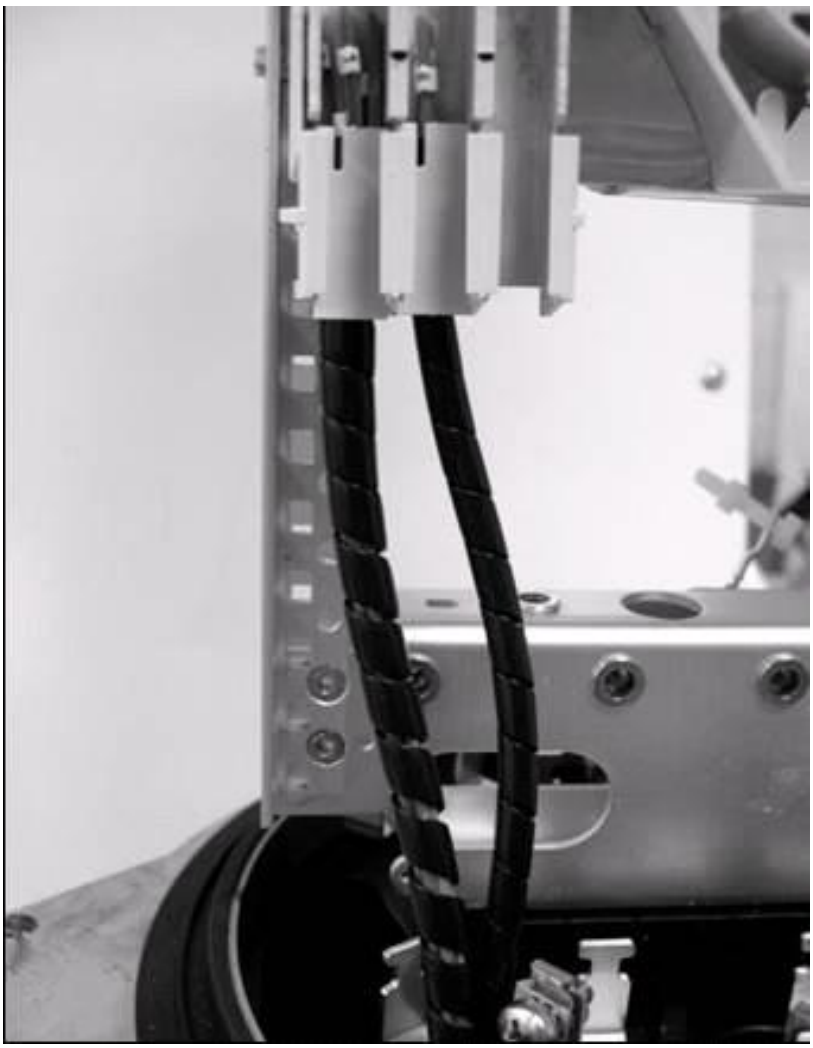


Figure 11(For reference only, current stores item may vary in colour)

17. Fill the port with closure sealant 10B item code 039963, this provides the required blocking and strength of the cable in the port. See figure 13

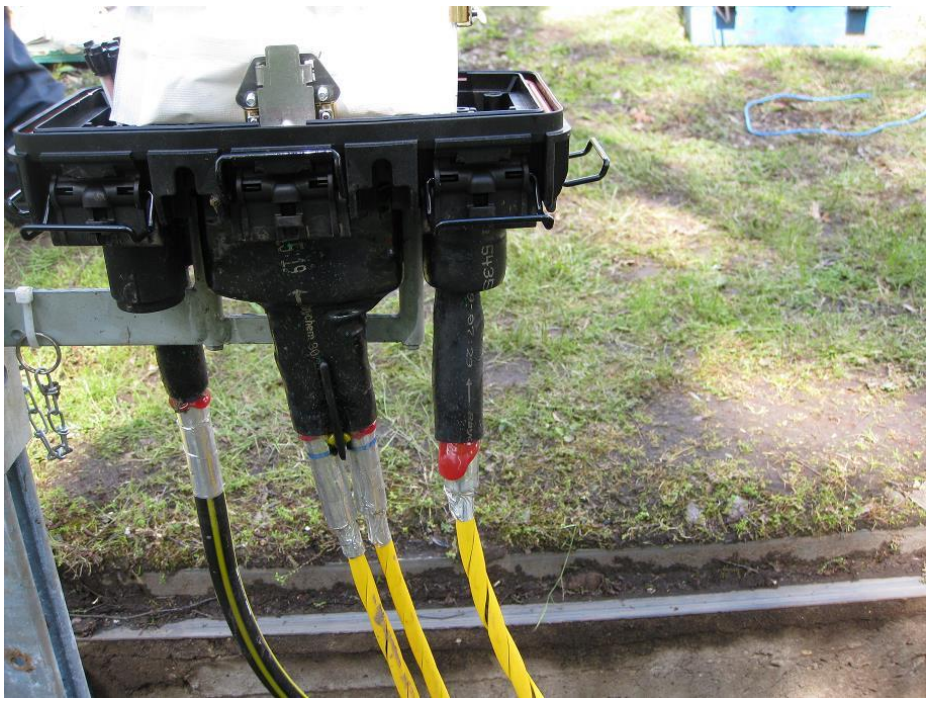


Figure 12

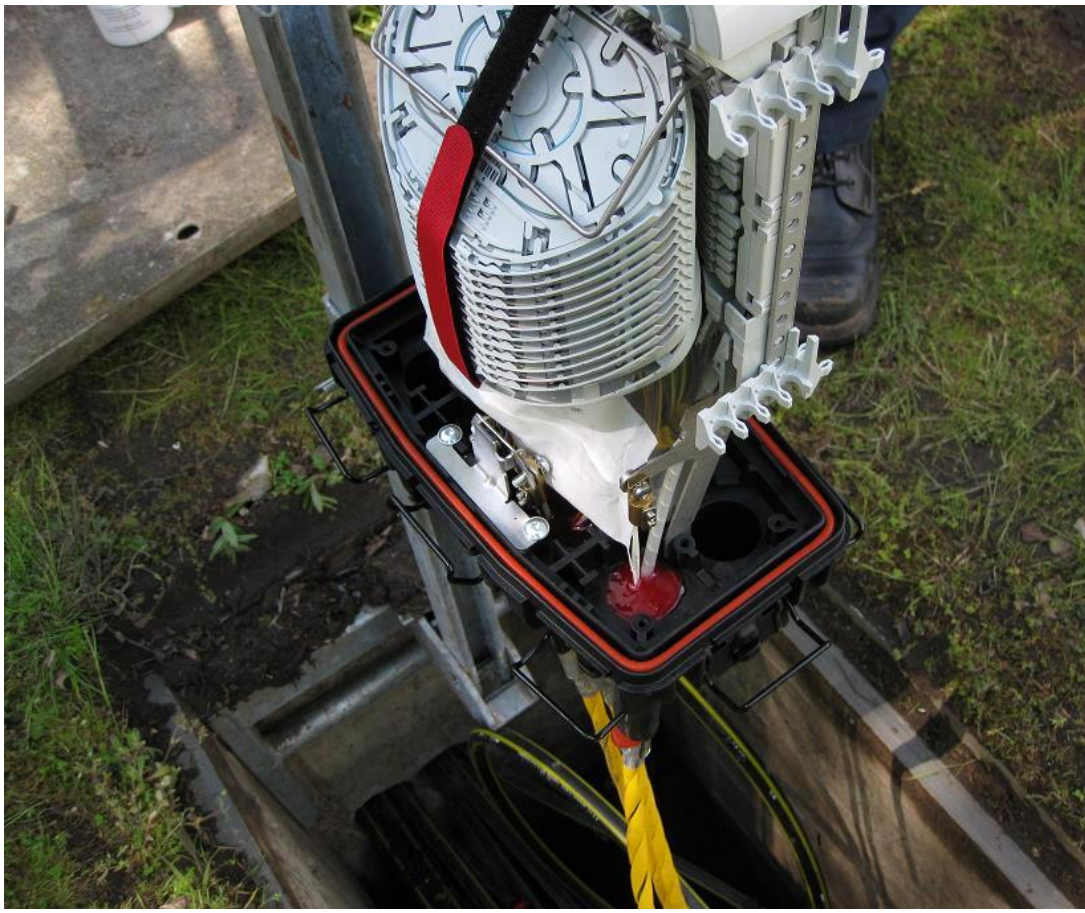


Figure 13

4.2 Multiple Fibre Tail Installation

Installation of multiple fibre tails into the FDP follows the same process as detailed in section 4.1 for single fibre tail installation with the following adaptations.

Warning: When the FDP is feeding more than one multiport block then the fibre tails from all the blocks must be installed into port 3 simultaneously.

1. When applying the SCOP and protection foil treat all the cables as a single cable by wrapping a single SCOP and foil around all the cables

2. Place a single circular heat shrink down over all the cables. See figure 14 for guidance.

3. If sufficient space exists within the anchor, insert the strength members from all the cable into the anchor and secure using an allen key. If the anchor is unable to accommodate all strength members it may be necessary to cut some of them short as to be below the level of the sealant 10B.

4. In customer tray 24, relocate the COF 205 splitter node fibres from the outer storage area to the central storage area, see figure 10. If 2 fibre tails are being installed this operation will need to be repeated in customer tray 23, and for 3 tails repeated for customer tray 22 etc.

5. When routing the fibre tail fibres to the customer trays for storage in the outer storage area, each cable should be assigned its own individual customer tray. I.E. cable 1 fibres stored in tray 24, cable 2 fibres stored in tray 23 etc. Clearly mark each tray identifying the multiport block the fibre tail is feeding. See Figure 15

Figure 14

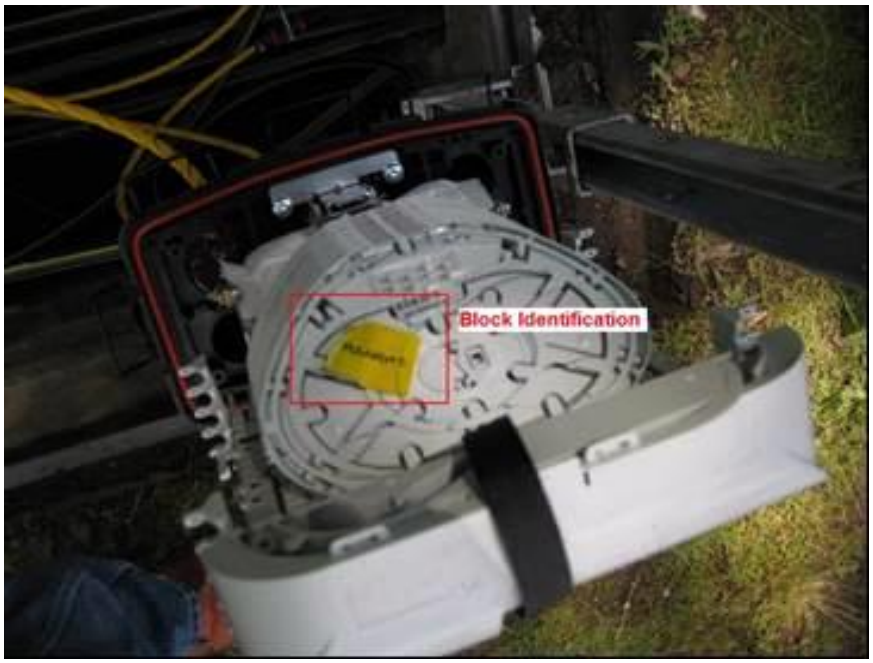


Figure 15

5 *Trouble to Resolve (T2R)*

There may be instances when it becomes necessary to carry out repairs to the multiport block installation as a result of either damage to the block / fibre tail or as a result of a faulty block.

There are 3 main scenarios that could result in a repair needing to be carried out.

- The fibre tail has been damaged
- The multiport block has been damaged
- The multiport block is faulty

In all instances it will be necessary to replace the multiport block and fibre tail however; the repair process at the FDP will vary depending upon the cause and location of the fault and the available unused FDP ports.

Replacement of the multiport block is comprised of the following main steps:-

- Removing the existing multiport block and tail
- Installing the replacement multiport block and tail
- Transferring the end user drop cables
- Installing the new fibre tail into the FDP

5.1 UG Multiport Block and Fibre Tail Replacement

1. At the joint box where the multiport block is located cut the fibre tail leaving a sufficient length of cable exiting the duct for splicing onto a draw rope.
2. If there is sufficient space, mount the replacement multipoint block alongside the existing block. Refer to section 2 of this document for details of how to mount the block.
3. If there is not sufficient space to mount the blocks side by side, label the installed drop cables from the existing block with their associated port numbers. Disconnect the drop cables from their ports and cover the connector ends with dust caps. Remove the existing block from its mounted position and replace with the new block.
4. Attach the previously cut fibre tail exiting the duct to the new block tail using draw rope.
5. At the joint box where the FDP is located cut the existing fibre tail approximately 3m from where it enters the port.
6. Using hand cabling techniques described in ISIS document EPT/UGP/E046 recover the existing fibre tail simultaneously pulling in the fibre tail from the new block. If the existing fibre tail was cut through by a third party it will be necessary to recover the old fibre tail from both the FDP and block locations. In such instances install the new fibre tail following the practices detailed in section 2 of this document.
7. Transfer the fibre drop cables from the old multiport block to the new block. Ensure that the drop cables are installed into the correct corresponding ports of the new block. Inspect and clean both the port and connector before plugging the drop cable into the block.

8. Protect the fibre tail by placing Stay Guard 2A Item Code 016321 along the cable length from the block to the entry point of the duct. See figure 1

5.2 OH Multiport Block and Fibre Tail Replacement

1. Remove the protective capping from the pole.
2. Remove the fibre tail cleats from the pole.
3. Cut the fibre tail approximately level with the pole 3 meter mark.
4. Label the installed drop cables from the existing block with their associated port numbers. Disconnect the drop cables from their ports and cover the connector ends with dust caps. Remove the existing block from its mounted position and lower to the ground using a sash line.
5. Mount the new block onto the pole following the practices detailed in section 3 of this document.
6. Connect the fibre drop cables to the new block. Ensure that the drop cables are installed into the correct corresponding ports of the new block. . Inspect and clean both the port and connector before plugging the drop cable into the block.
7. If the FDP is located in a joint box located far from the pole jump to step 8. If the FDP is located at the base of the pole recover the old fibre tail into the joint box. Pull or push the fibre tail from the new block into the joint box with the FDP. Install fibre tail into the FDP referring to section 5.3.
8. If the FDP is located at a joint box further away from the pole, at the joint box where the FDP is located cut the existing fibre tail approximately 3m from where it enters the port.
9. At the pole end attach the old fibre tail from the FDP to the new fibre tail with a draw rope.
10. Using the hand cabling techniques described in ISIS document EPT/UGP/E046, at the joint box where the FDP is located, recover the existing fibre tail simultaneously pulling in the fibre tail from the new block. If the existing fibre tail was cut through by a third party it will be necessary to recover the old fibre tail from both the FDP and block locations. In such instances install the new fibre tail following the practices detailed in section 2 of this document.

5.3 Installation of new Fibre Tail into FDP

The method adopted for installing the new fibre tail into the FDP will be dependent on FDP port availability.

If a spare port is available, the new fibre tail should be installed directly into the FDP.

If no spare ports are available it will be necessary to splice the old fibre tail from the FDP to the new fibre tail in a 144 fibre small element joint Item Code 008491.

Note: It may be necessary to replace the entire FDP if:-

- There are no spare ports available &
- The fibre tail has been damaged close to the FDP preventing use of the small element joint detailed in 5.3.2

5.3.1 Spare Port Installation

There is currently no practice for removing a previously installed cable from the port of a 24 address point FDP. The replacement fibre tail must therefore be installed into an alternative port.

In the first instance the new fibre tail should be installed into port 8 of the FDP if spare. This is the preferred port since it has the facility for mounting a strength member anchor.

If port 8 is not available then in order of preference the port choice should follow 4, 7, 5, & 6.

The practices detailed in section 4 should be followed when installing the new fibre tail however, the following points should be observed.

- The fibres from the existing fibre tail should be removed from their storage locations. Any fibres that have been spliced through to provide service will also need to be removed from their customer address trays.
- The fibres from the existing fibre tail should be cut off at a position close to where they enter the FDP and removed.

- Other than port 8, the remaining ports do not have a mounting position for the cable strength member anchor. It is therefore necessary to install the cables without the strength member mounted to an anchor when utilising ports 4, 7, 5 & 6.
- Routing of the fibres will vary according to port utilised when laying the fibre up in the storage locations.
- Any fibres that had previously been spliced through from the splitter node to the old block will need to be re spliced to the corresponding fibre of the new block.
- The old fibre tail can now be cut at a location close to the FDP port entry point

5.3.2 Installation without Spare Ports

If no spare ports are available it will be necessary to splice the fibres from the old fibre tail to the new fibre tail using a 144 fibre small element joint.

Splice the fibres from the old fibre tail to the new fibre tail in a single element tray of the small element joint.

Install the cables into the joint following the 144f small element installation instructions (IP019) found in the bookstore general library under Pirelli Installation Guides.

6 *Stores*

Item Description	Item Code
Stay Guard 2A	016321
Strap Cable Fixing 1A	072492
Cleat Wiring Hybrid Cable	080809
CAUTION OVERHEAD FIBRE Label	046116
Pin Steel No.2 7/8 inch	070864
FTTP Port Opening Cord	075442
Cutter Cable Hand 5	127451
Circular port kit 3A	006846
Element Support Tube 3A	008121
Sealant 10B	039963
Heat Protection Kit (SCOP)	003584
Gun Mastic Heavy Duty	013219

“D” Nozzle	126709
144f Small Element Joint	008491
SST-Drop Cable Access Tool	TBA
Corning Multiport Block 50m Tail	MP-01121244SST0050M-N
Corning Multiport Block 100m Tail	MP-01121244SST0100M-N

7 Appendix A SST Drop Cable Access Tool

1. General

This document describes the use of the SST-Drop Cable Access Tool, Corning Cable Systems catalogue part number FDST-000 (Figure 1).

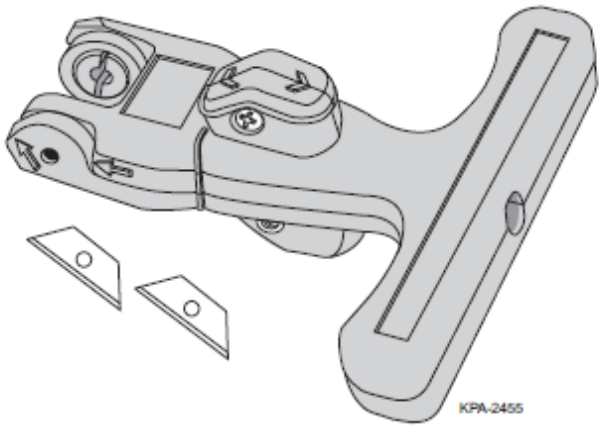


Figure 1 — FDST-000

Warning: WARNING:- This tool contains sharp blades. Use caution when using the tool and when replacing its blades. The use of safety gloves is recommended. Properly dispose of used blades

2. Cable-end Access

Step 1: Measure the strip length required for your application, marking the length with a wrap of electrical tape.

Step 2: Open the tool and insert the cable so that the tape wrap applied in Step 1 is just behind the blades. Close the tool, (Figure 2).

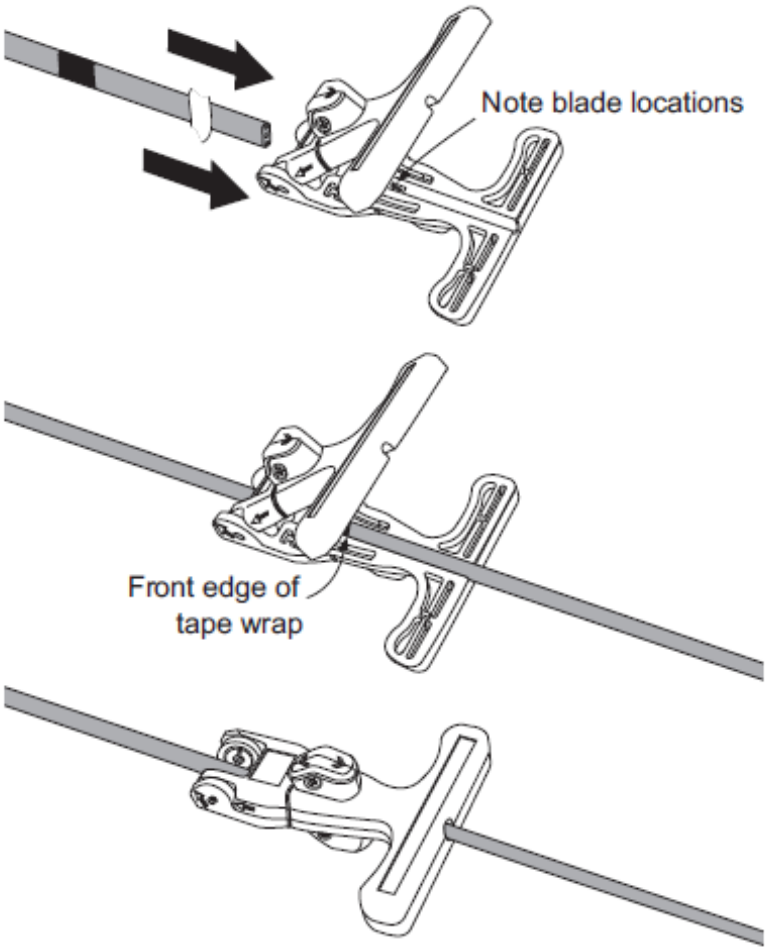


Figure 2 - Tool Placement

Step 3: Firmly hold the cable with one hand and use your other hand to pull the tool alongthe cable until the tool is clear of the end of the cable (Figure 3).

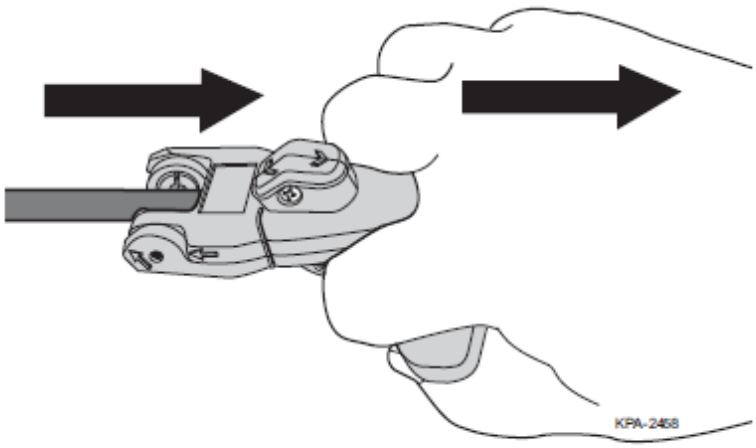
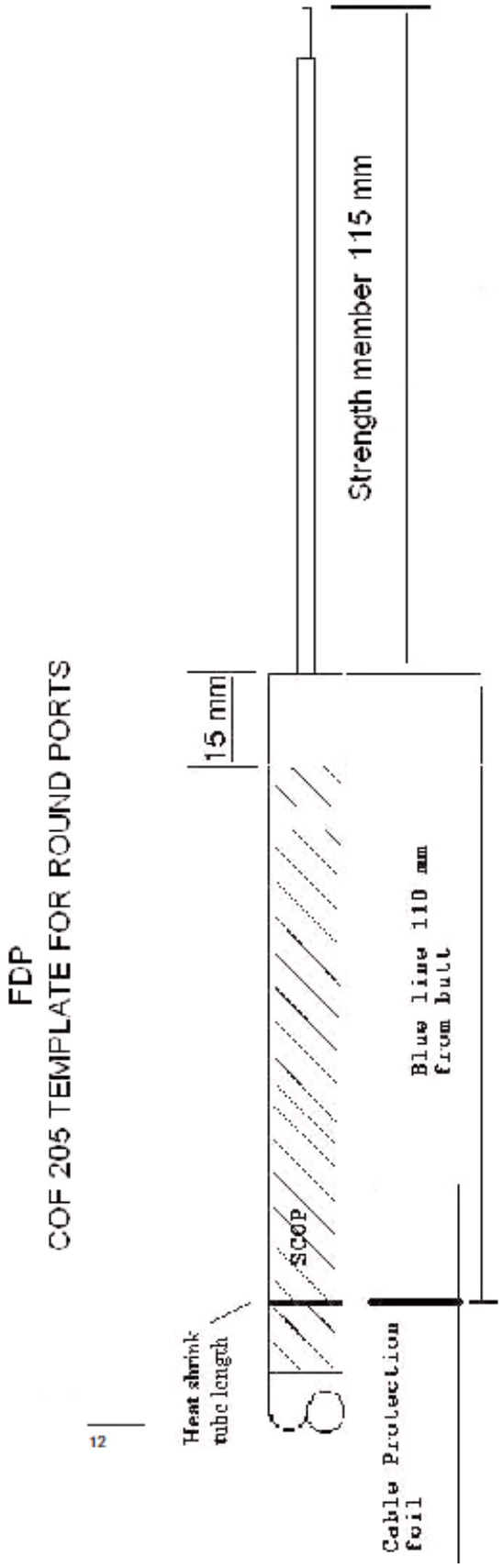


Figure 3 - Tool Use

Step 4: Use scissors to remove the split sections of the cable jacket taking care to avoid damaging the buffer tube.

Appendix B


FDP
COF 205 TEMPLATE FOR ROUND PORTS
15 mm
Strength member 115 mm
Blue line 110 mm
from bull
SCOP
Heat shrink
tube length
12
Cable Protection
foil

END OF DOCUMENT