

**Fibre Optic Splice Closure with  
integrated organiser system**

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# **1 General**

1.1 The installation instruction describes the necessary steps to install the FOSC-400D5. The product may be used on an optical fiber cable using loose tube and slotted core constructions as well as ribbon fiber cable.

1.2 The FOSC-400D5 kit is supplied with one splice tray organizer. Each tray accommodates up to 36 fiber splices max. Supplementary tray kits may be used (up to 7 extra trays maximum per closure), increasing the capacity of FOSC-400D5 up to 576 single fusion splices.

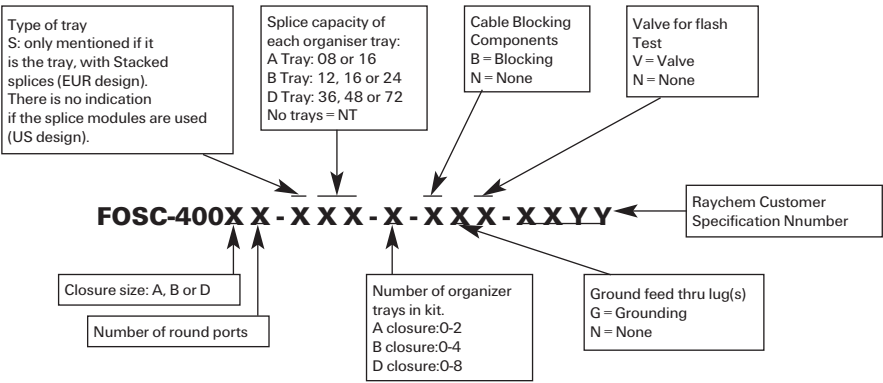
1.3 The splice tray accommodates fusion splice protection type such as Raychem SMOUV-1120-serie and mechanical splices (GTE, ATT, CSL, FIBRLOCK, SIECOR, AMP or other similar products).

1.4 FOSC-400D5 has one oval cable entry port which can handle 2 cables. Five large circular ports will handle one cable each.

1.5 The FOSC-400D5 can be installed in direct buried, manholes or aerial locations

## 2 Product description

### 2.1 Product designation



#### Ex. FOSC-400D5-36-1-NNN-A6007

- D5      D size with 5 circular ports
- 36      Tray for upto 36 splices using splice modules
- 1      Closure is delivered with 1 tray
- NNV      The closure is not equipped with cable blocking, but has a valve for flash testing and no components for electrical grounding of cable
- A6007      Customer control number

#### FOSC sizing information (dimensions in mm)

Raychem description	Total closure length	Outer dia closure		Max.fusion splice capacity  (250µ fibers)	Cable diameter in			
		min. (body)	Max. (body + clamp)		Circular port		Oval port	
					min. (*)	max. (*)	min. (**)	max. (**)
FOSC-400A4	420	152	205	32	5	19	10	25
FOSC-400B2	540	152	205	96	5	32	10	25
FOSC-400B4	540	152	205	96	5	19	10	25
FOSC-400D5	710	240	285	576	5	32	10	25

(\*) Cable diameter for 1 cable/port

(\*\*) Cable diameter for 2 cables/port

## 2.2 Content FOSC-400D5-36-1-NNV

- Dome with valve
- Base with strength member connections and one tray assembly
- Clamp
- Velcro strap
- Oval outlet seal kit
- Sealing ring

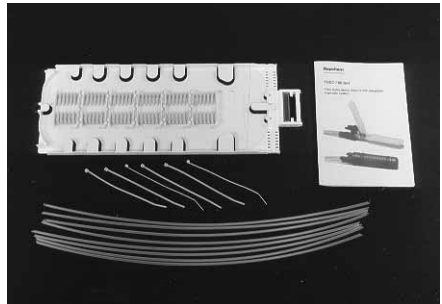


## 2.3 Supplementary kits

### 2.3.1 Tray kit

#### FOSC-D-TRAY-36-1

- One tray for 36 fusion splices
- Tray lid
- Tie-wraps
- 8 Large transportation tubes (id.= 2.8 mm)



### 2.3.2 Cable seal-kit

#### FOSC-B/D-CSEAL-1-NT

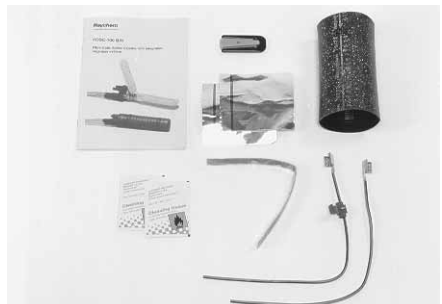
- Aluminium cable protection tape
- Heat-shrinkable cable sleeve
- Cleaning tissue
- Abrasive strip
- \* Shield continuity wire \**
- \* Shield continuity connector \**
- \* Installation instruction \**



### 2.3.3 Oval outlet cable seal kit

#### FOSC-B/D-CSEAL-2-NT

- Heat shrinkable sleeve
- Branch-off clip
- Aluminium cable protection tapes
- Abrasive strip
- Cleaning tissues
- \* Shield continuity wires \**
- \* Shield continuity connector \**
- \* Installation instruction \**



#### 2.3.4 Loose tube slack tray

##### FOSC-D-BASKET

- Slack tray
- Tie-wraps

#### 2.3.5 Re-entry kit

##### FOSC-D-O-RING-SEAL-KIT

- Desiccant
- Sealing ring
- Cleaning tissue



*\* Only included if the seal kits are ordered separately.*

#### 2.4 Accessory kits

##### 2.4.1 FACC-HEAT-GUN-220V

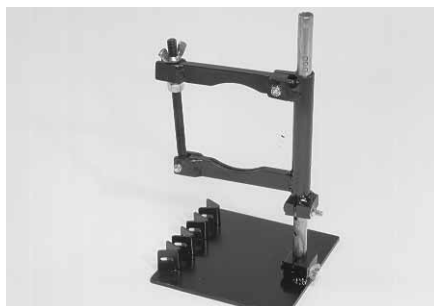
Hot air gun CV 1981 (1460 Watt) and Reflector PR 26.

Min. required hot-air temperature: 350°C.



##### 2.4.2 FOSC-WORK-STAND

FOSC holder device



##### 2.4.3 FOSC-400D-POLE-MOUNT

Bracket for mounting D-closure to pole or wall.

##### 2.4.4 FOSC-D-VAULT-BAG

Flame retardant bag to cover closure for vault application.

### 3 General precautions

- 3.1 Do not use damaged sleeve nor trim heat-shrinkable sleeve before installation.
- 3.2 The FOSC-400D5 closures can be installed at temperatures between  $-1^{\circ}\text{C}$  and  $+45^{\circ}\text{C}$ .
- 3.3 Generators used should have enough capacity for the hot air gun utilisation.

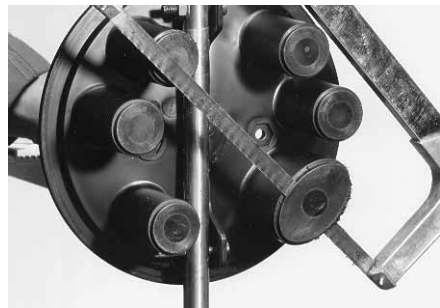
Optical fiber infrastructure network elements may contain end of optical fiber attached to the optical output when the device is operational. Laser radiation can seriously damage your eyesight. Please follow your local safety guidelines.

### 4 Cable installation in oval outlet

- 4.1 Attach the closure in the FOSC work stand using the nut and the bolt. Loose and remove the clamp. Push the lever down to release the locking tab. Open the clamp lever and release the clamp using the lever legs. Remove the dome, the sealing ring and store carefully for later use.



- 4.2 Open the oval port for cable entry by cutting the port at the ridge with a hacksaw. Deburr the inner edge of the port opening with abrasive strip.



- 4.3 Remove any dirt, mud or other contaminants from the cable sheath for approximately 2 meters with a clean cloth. Take the oval cable seal and slide it over the cables. The non-coated edge of the sleeve and the arrows should be pointed to the base of the closure.



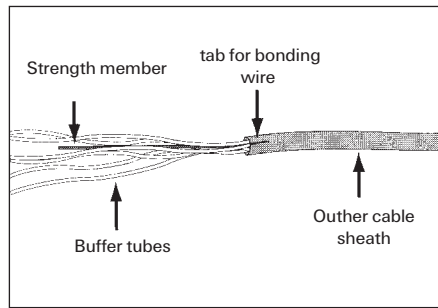
4.4 Slide the cables through the opened oval port. Prepare cables as described in section 5 (cable preparation).



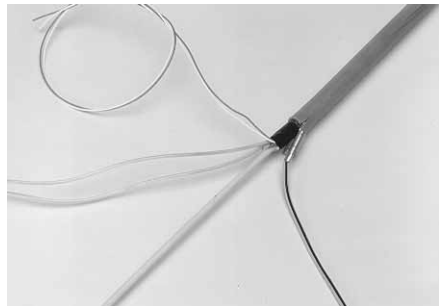
## 5 Cable preparation

5.1 Remove the cable sheath (and shield if present) over a length as required by locally approved practice (e.g. 1.5 meters). Clean filling compound from fiber tubes and cut central strength member at a distance of 230 mm from outer jacket.

Note. For the ribbon cable the maximum striplength is 1.5 m.

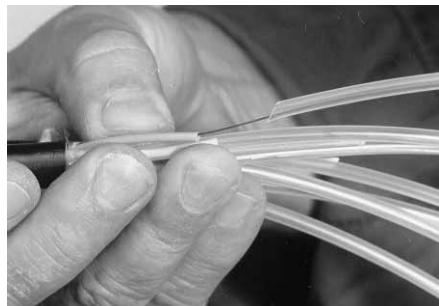


5.2 If a shield continuity is required, cut cable sheath axially for 25 mm from cable ring cut. Crimp shield clip on cable sheath with pair of pliers. Protect the clip with self adhering tape.



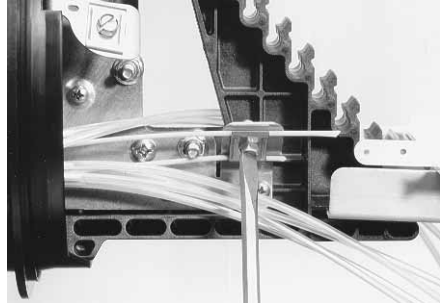
5.3 Cut the loose tube, at a distance of 40 mm from the cable ring cut and remove and degrease fiber bundle. Select a transportation tube which fits over the loose tube. Slip transportation tube over fibers and the loose tube.

**Note:** for slotted core cable: use an appropriate kit which converts the slotted cable construction into a loose tube construction.

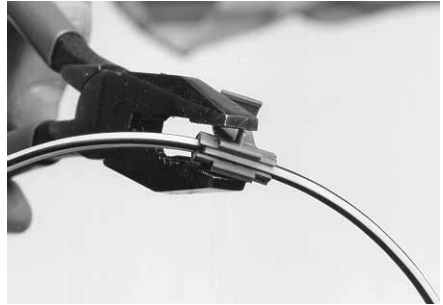




5.4 Align cable ring cuts with edge of base. Slide strength members into clamps and tighten. Cut away the excess length of strength member.



5.5 If required, connect shield continuity wire of both cables with shield continuity clip. Talk pairs, if present, will be connected together according to the local procedures.



## 6 Sealing of oval outlet

6.1 Thoroughly clean oval port and cable sheath with the cleaning tissue over a distance of 100 mm from the edge of the port.



6.2 Abrade oval port and cable sheath circumferentially on the cleaned area with the abrasive strip. Remove any abraded material with a clean cloth.



6.3 Place oval seal over the oval port and cable. Mark the sleeve length onto the cable.



6.4 Match the blue line of the aluminium cable protection foil with the marks on the cables. Wrap aluminium cable protection foil around cable.



6.5 Slide the oval cable seal over the oval port. Install the branch-off clip. Check that the heat-shrinkable sleeve butts up against the FOSC-base and the branch-off clip is completely inserted. Tape the two cables together.

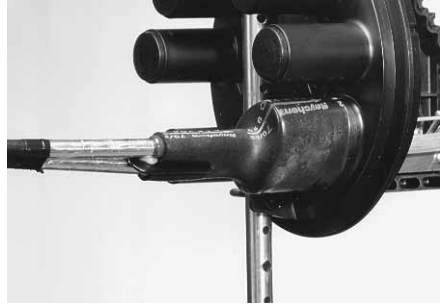


6.6 Shrink the oval cable seal on the FOSC-base side with the recommended hot air gun device with reflector. Shrink sleeve until the green thermo-indicating paint is converted to black. (Make sure the hot-air temperature is at least 350°C). (If a FACC-HEAT-GUN-220V is used, set position on scale 10).



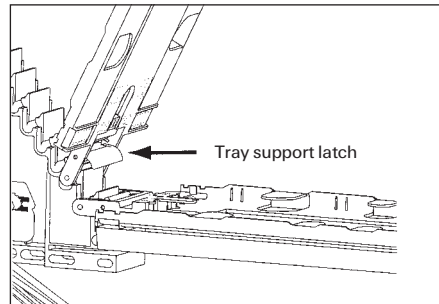
6.7 Shrink down the end of the sleeve on the cable side. Heat until the sleeve shrinks down on the cables and take care that the green thermo-indicating paint is converted to black. Postheat the clip on both sides till the adhesive shows a proper flow on the clip between the two cables.

**Wait until the sleeve is cool to the touch before moving the cables.**



## 7 Positioning the transportation tubes and fibers

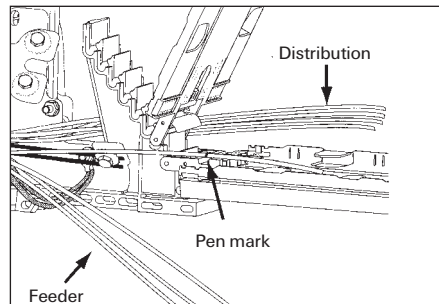
7.1 Lift the top tray to expose the bottom tray, which should be filled first. Use the tray support wedge attached to the bottom of the second tray to hold it out of the way.



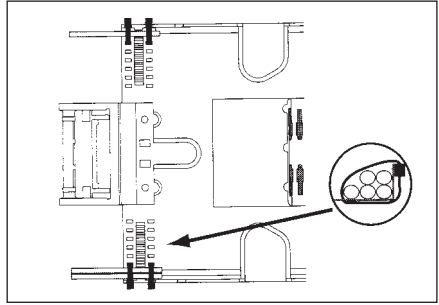
7.2 Route the distribution tubes around the tray holding bracket so that they will reach the distribution side of the tray.

7.3 Remove the tray cover and align the transportation tubes along the outer sides of the tray.

7.4 Place a pen mark on each tube 5 mm beyond the tie-down slots. Use a buffer tube cutter to cut each tube at the mark, and remove the excess tube from each fiber group. Clean the fibers from the grease.



7.5 Secure the transportation tubes to the tray with tie wraps as shown.



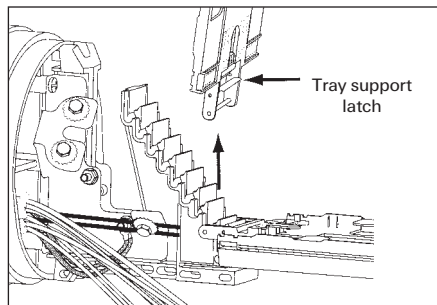
7.6 Arrange the fiber around the tray for storage until the fiber is to be spliced.

7.7 When all fibers to be stored in this tray have been arranged, replace the tray cover.

7.8 Repeat steps 7.1 through 7.7 for each tray until all fiber has been stored in a tray.

## 8 Add or remove splice trays

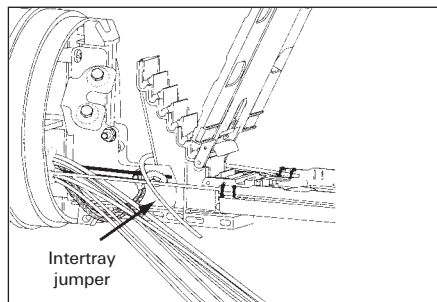
8.1 To add splice trays, put the tray support latch down, hold the tray vertically over the tray holder bracket, and insert the tray hinge into the next unoccupied slot on the tray holder bracket. Put the tray support latch up to lower the tray.



8.2 To remove splice trays from the FOSC-400D base, raise the tray and put the tray support latch down. Pull the tray hinge out of the tray holder bracket, releasing the tray.

## 9 Intertray jumpers

9.1 Fiber placed on one tray can be spliced with fiber from another tray by using an intertray jumper to route the fiber to the desired tray.



9.2 Place appropriate intertray identification markers on a transportation tube. (Intertray ID markers are marked "1TO" through "8TO" and "1" through "8", to indicate which tray the jumper came from and which tray it is going to.)

9.3 Guide the desired fibers through the marked transportation tube (now called the intertray jumper).

9.4 Secure one end of the intertray jumpers to the originizing splice tray with two tie wraps. If you have to remove existing tie wraps, cut and replace one at a time to avoid moving the existing transportation tubes.

9.5 Guide the jumper through the opening in the tray mounting bracket to the appropriate destination tray and position it in the tray (see section 7).

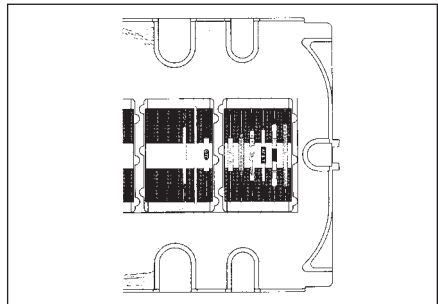
9.6 With a pen, mark the jumper 5 mm beyond the tie wrap slot. Use the buffer tube cutter to cut the jumper at the mark, and secure the jumper to the splice tray with two tie wraps. The fibers can now be stored or spliced.

## 10 Fiber splicing and storage on trays

10.1 Always begin splicing with the bottom tray. Lift the remaining trays and secure them with the tray support on the underside of the second tray.

10.2 Remove all stored, unspliced fibers from the tray and clean those that will be spliced. Refer to the splice manufacturer's instructions for directions on fiber splicing.

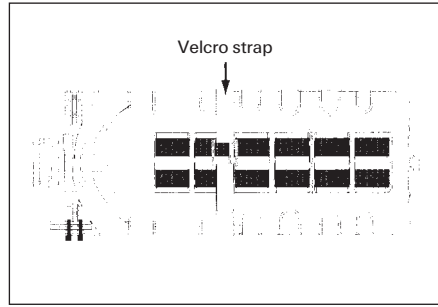
10.3 Store the first completed splice in the top splice slot (the slot farthest from the hinge). Coil the slack loops around the tray in an orderly fashion. The six splice modules can be moved or removed to accommodate your splice arrangement; however, the lowest splice module (the one closest to the hinge) can not be closer to the hinge than its position indicates. No more than six modules can be placed in one splice tray.



10.4 Subsequent splices should be stored in the tray from the top slot down. Slack loops can be secured under the tabs around the outside edges of the tray and in the spaces between splice modules.

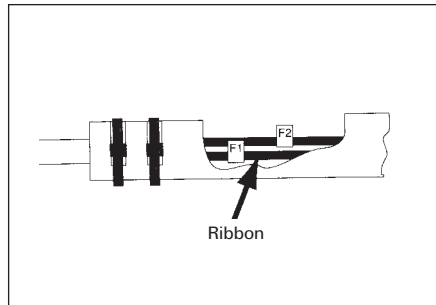
10.5 When you have completed all the splices in the tray, replace the tray cover. Repeat steps 10.1 - 10.4 until all splices are complete and all tray covers have been replaced.

10.6 Secure all trays to the bottom tray bracket with the Velcro strap as shown.



## 11 Splicing of ribbon cable

11.1 Identify each ribbon. Split each ribbon into individual fibers. Follow the manufacturer's recommendations for the splitting ribbons. Splice and organise the fibers as explained in section 10.



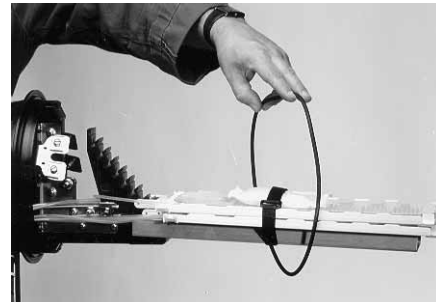
## 12 Dome installation

12.1 Open and remove the desiccant bag from its package and place the desiccant bag on the upper tray. Secure the trays and the desiccant bag with the Velcro strap.



12.2 Ensure seal areas and sealing ring are clean and that the sealing ring is in place at the base.

**Important.**  
**Make sure the sealing ring is well positioned.**



12.3 Place the dome carefully over the trays onto the base. Put the clamp around the base/dome interface. Close the clamp.



## 13 Re-entry

13.1 Remove the clamp.

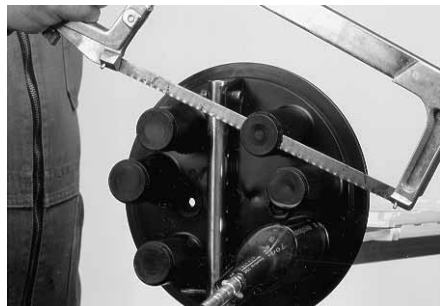


13.2 Remove carefully the dome and the sealing ring. Keep the sealing ring and seal area of the closure free of dirt. (If needed rinse with clear water).

13.3 The dome may be reinstalled by following the procedure as described in section 9. Replace the 75 grams of desiccant. **The sealing ring has also to be replaced if damaged.** A new sealing ring and 75 gram of desiccant can be ordered: FOSC-D-O-RING-SEAL-KIT.

## 14 Cable installation in circular outlet

14.1 Open the port for cable entry by cutting the port at the ridge with a hacksaw. Deburr the inner edge of the port opening with abrasive strip.

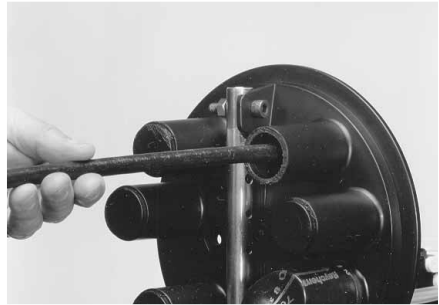


14.2 Remove any dirt, mud or other contaminants from the cable sheath for approximately 2 meters with a clean cloth. Take the cable seal sleeve from the kit FOSC-B/D-CSEAL-1-NT and slide it over the cable. The non-coated edge of the sleeve and the arrows should be pointed to the base of the closure.

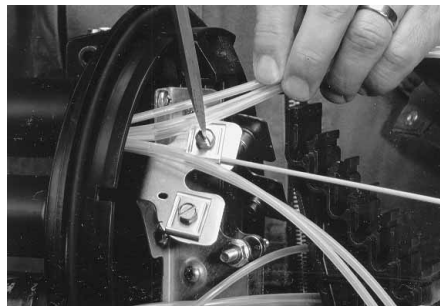


14.3 Prepare the cable as outlined in section 5 "Cable preparation".

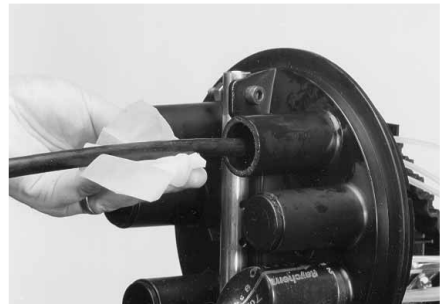
14.4 Slide the prepared cable through the opened entry port and install the transportation tubes described in section 5.



14.5 Align cable ring cut with the edge of the base. Slide strength member into clamp and tighten the nut. Cut away the excess length of strength member.



14.6 Thoroughly clean port and cable sheath with the cleaning tissue over a distance of 100 mm from the edge of the port.





14.7 Abrade port and cable sheath circumferentially on the cleaned area with the abrasive strip. Remove any abraded material with a clean cloth.



14.8 Place cable seal over the drop outlet of FOSC base. When cable seal butts against the base, mark the sleeve length on cable sheath.



14.9 Match the blue line of the aluminium cable protection foil with the marks on the cables. Wrap the aluminium cable protection foil around cable.



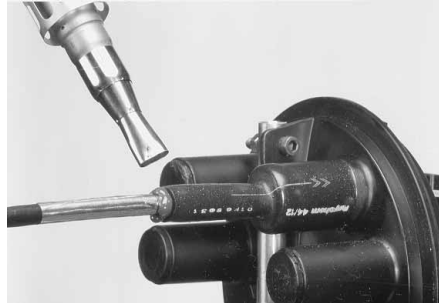
14.10 Slide the cable seal over the port and shrink the cable sleeve on the base side with the recommended hot air gun device. Use the reflector to ensure heat distribution around the outlet. Shrink sleeve until the green thermo-indicating paint is converted to black.

**Note.** Setting thermogun: FACC-HEAT-GUN - 220V in position 10. Minimum hot air temperature should be 350°C.



14.11 Shrink down the end of the sleeve on the cable side. Heat till the sleeve shrinks down onto the cable and the green thermo-indicating paint is converted to black. A ring of red adhesive should be visible at the cable on the end of the sleeve.

**Wait until the sleeve is cool to the touch before moving the cables.**



14.13 **Re-install the sealing ring, the dome and the clamp (see section 12).**

## **15 Additional cable installation**

15.1 For each added cable use a FOSC-B/D-CSEAL-1-NT. For each added cable proceed as per section 11. The fiber splicing is outlined in section 7.

15.2 Reclose the closure with the sealing ring and the dome.

## **16 Slack storage tray kit (FOSC-D-BASKET)**

16.1 If uncut loose buffer tubes are to be stored, the tube slack tray must be mounted. Detach the splice trays from the tray mount by removing the retention bar and pulling out splice trays.

16.2 Install slack tray by pushing the slack tray into the groove of the tray holder bracket.

16.3 For storing uncut loose buffer tubes, slide the fibers and slack loose tubes through the oval port, being careful not to kink the tubes.

16.4 Store the slack inside the tray and hold in place with tie wraps.

16.5 Position assigned fibers/transportation tubes to be spliced in the splice trays.

16.6 Replace splice trays in tray mount bracket. (Splice trays will now be mounted above slack tray.)



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