openreach

ISIS Directive
For Openreach people

EPT/OHP/B079

Issue 1, 30-Nov-2020
Use until 30-Nov-2021

Published by Openreach Overhead Policy Team

Privacy- None

Crown Ring Poles

Attachment of additional equipment

About this document ...

Author

The author of this document may be contacted at:

Wesley Grantham
Electrical Protection & Overhead Professional
(BOI)
Post Point BY2Grimsby Pyewipe TEC
Estate Road No. 2
South Humberside Ind Est
Grimsby
LINCS
DN31 2TJ

Telephone: +447736637011
Fax:
Email: wesley.grantham@openreach.co.uk

Content approval

This is the Issue 1 of this document.
The information contained in this document was approved on 30-Nov-2020 by Glen Barford, Overhead Network Policy and Standards Specialist

Version History

Version No.	Date	Author	Comments
Issue 1	30-Nov-2020	Wesley Grantham	New document, incorporating AEC B329

Table of Content

1 *Introduction*

This document details the options for attaching additional equipment to Crown Ring and Cross Arm Poles.

It also describes the procedure for replacing a Crown Ring with a Ring Pole Head 2 (Halo Ring).

2 *About Crown Ring Poles*

Pole Head Ring Type Split 15 Way (Crown Type Rings) were fitted to Distribution Poles prior to 1960.

- The Ring is supported by 4 support arms, located above and below
- Those with the their original “J” Brackets and insulators attached occupy a significant area of the Pole Top, which limits opportunity for attachment of new equipment
- NB: The vertical height of the Ring on the Pole (and Bass Steps) are not totally uniform and may vary
- This document looks at the different Crown Ring scenarios that may be encountered and explains the options for deployment of new equipment on such poles

Figure 1 – Crown Ring Pole head

3 *Options for attachment of Fibre CBT's / Blocks*

- In some cases, the Crown Ring may have had some or all of its J Brackets and Insulators removed (See figs 2 to 5), which opens up space above and below the Ring.
- Providing the permitted envelope of space (800mm) rule can be complied with, new equipment can be added
- On Poles where most of the insulators and brackets are still in-situ (as in Fig 6), there will be less space and some adjustment of existing equipment may be required. See section 6 for appropriate network adjustment.

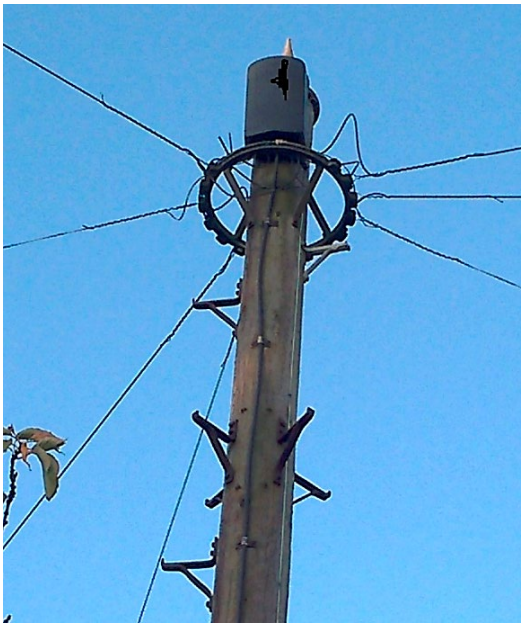

Figure 2

Figure 3

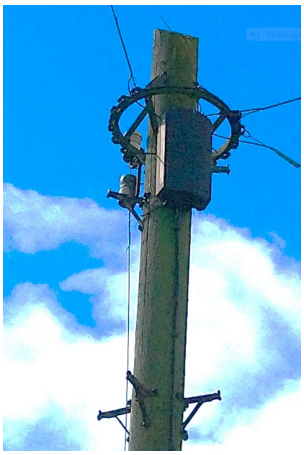

Figure 4

Figure 5

Figure 6

4 *Envelope of space rule*

In all cases the Envelope of space rule must be complied with. See details below.

- Equipment can be located either above, or below the Crown Ring, providing that the 800mm rule can be complied with
- Openreach Blocks / CBT's must not extend above the tip of the pole
- No attachments should be made in the red zone, or in the climbing area
- The 800mm measurement is taken from the working steps upwards
- Measurement can be carried out from ground level using height measuring rods
- Full details of the 800mm rule can be found in EPT/ANS/A011 – section 4.2

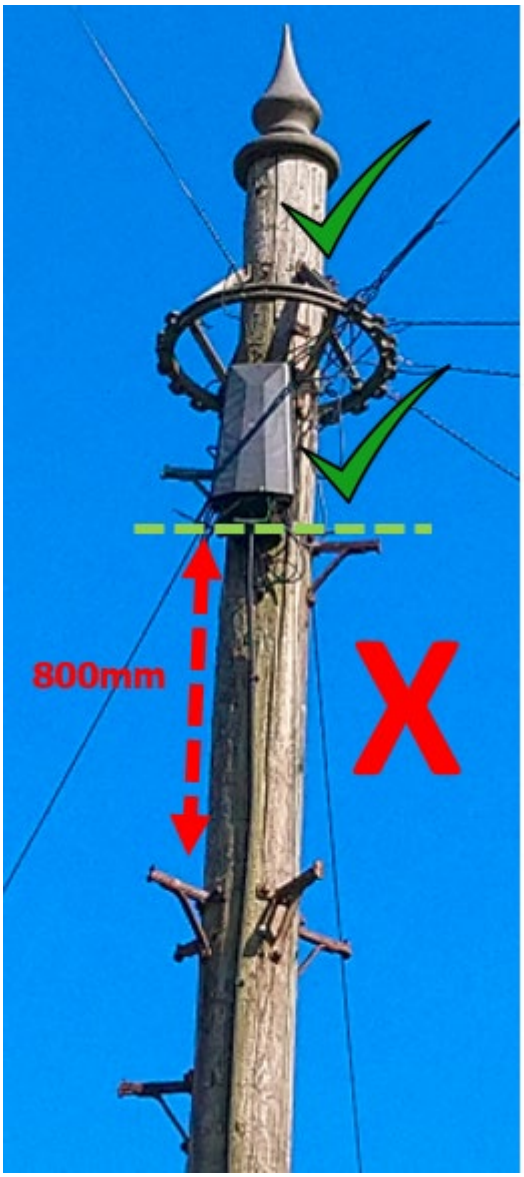

Figure 7 - Envelope of space rule

5 *Attachment of Dropwires*

Dropwires may be attached using the following options:

1. By using a “Bolt 25” which is threaded between the upper and lower apertures on the Ring and a “Hook Clamp Dropwire”25. This is the recommended option.
2. Alternatively, the wire may be attached directly to the upper or lower ring aperture.

3. Or, to the J Bracket (one wire per J Arm)
4. The Crown Ring is capable of accommodating 30 radially distributed Dropwires

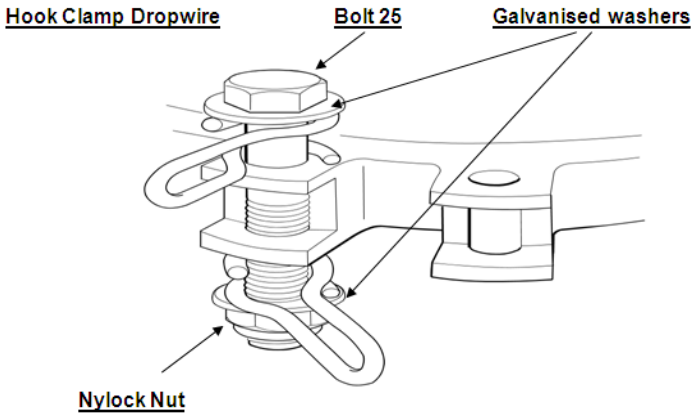

Figure 8 – Option 1 (Bolt 25)

Figure 9 – Option 2

Figure 10 - Option 3

6 *Network Adjustments*

- Where a Crown Ring has most of its J Brackets and Insulators still attached, there may be little available space on the pole for new Blocks / CBT's and so a Network Adjustment is likely to be required.

- The preferred adjustment in these circumstances is a Halo Ring Conversion. This involves installation of the new Halo ring just above the Crown, transfer of wires from old to new ring, then removal of the old Crown assembly. See figs 11 to 21 below.

6.1 Replacing crown Ring with a Halo Ring

Crown ring replacement procedure:

This work is best carried out from a MEWP, but can be done from the pole. In both cases, two people are required.

When working from the pole, engineers should rotate between pole top & ground support roles as and when required.

Note - A Halo Ring network adjustment is quite complex /expensive, so should only be requested or implemented where there is definitely no space available for new attachments within the permitted envelope.

- Redundant Openreach blocks & associated equipment should be removed to create space.
- No blocks should be mounted below the 800mm line. The upper envelope of space extends vertically from a position of 800mm above the 'working steps' to the top of the pole (on most poles this is the position of the lower Bass step). The full circumference of the pole above the 800mm line can be used to mount equipment providing it doesn't obstruct the Bass steps. If the crown pole has 2 bass steps it is acceptable to lower the uppermost step so it is level with the lower step – step 18 below refers. No blocks etc shall be fitted such as to cause obstruction to belting up below the 800mm line.

In addition to the usual site activities, before starting work on the pole always:

- Carryout the standard pre-climb check on the pole (hammer test etc.)
- Ensure the ground area surrounding the pole is fully guarded off.

In general if the pole is 'D' (policy or non-policy) then it's not cost effective to convert the Crown to a Halo ring. The pole should just be replaced because of its age and the fact of it being 'D'.

In exceptional situations where it's not possible to renew a non-policy 'D' pole within reasonable timescales, it may still be beneficial to convert the crown to a halo ring.

Installing the new ring

1. Using an 18mm Dia SDS wood bit, drill just above the upper bracket fixing points of the crown ring. (approx.. 200mm from the tip of the pole) NB: it is important that the hole is central & level.

2. If any of the pot insulators cause an obstruction for the drill, unscrew/remove them.

3. Try the bolt through the hole & gauge the mix of washers that will be required when the new ring is fitted.

Figure 11 – Bolt sleeved through pole

4. Fit the new ring, ensuring that the locking nut is fully tightened. NB: A new longer washer is currently being sourced to reduce the number of washers required.

5. Before works starts to transfer wires to the new ring check all wire heights over carriageways & ensure customer fix is sound with no corrosion. This is particularly important for older types of wires that may not be providing service & have been in place for many years with no maintenance.

Figure 12 – Halo Ring fitted

6. With the new ring installed, begin transferring wires off the crown & onto the new ring.

7. DO NOT UNWIND WIRES FROM THE CLAMP Instead, unwind the short helix, then lift and shift to the new ring.

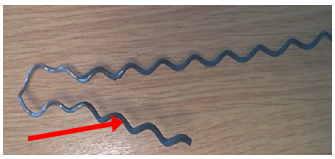

Figure 13 – Short helix

8. Where wires cross the carriageway, always use the come along device to support the wire during transfer.

Figure 14 – Use of Come along device

9. There is no need to disconnect the wires from the block in order to run them behind the ring, wires can be run in front of the ring, but should be managed towards the block using straps cable fixing 12A. Ensure the wires are routed to allow easy removal of the crown.

10. Once the wires have been transferred, check that any crossing the carriageway etc. have minimum clearances.

11. Once all Dropwires have been transferred onto the new ring work to remove the old crown can begin. A fully intact crown with insulators is heavy, so it is important that it is removed carefully!

12. Run a sash line from ground level, up and over the new ring & attach it to one side of the crown using a bowline knot.

13. Make 2 cuts in the circular frame of the crown, such that it forms 2 halves with each half supported by 2 upper & lower bracket arms. NB. Gloves & eye shield are required for this task.

Figure 15 – Saw cut line

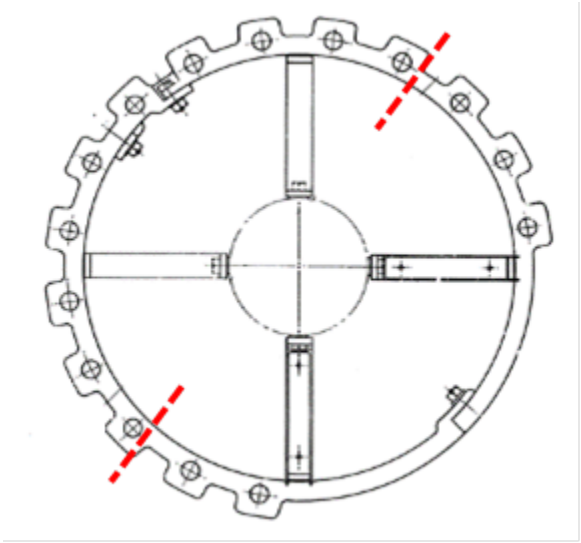

Figure 16 – saw cut lines – plan view

14. With the ground engineer maintaining tension on the sash line at all times, undo the support bracket coach screws on the half which is supported by the sash line & carefully lower to the ground.

Figure 17 – Lowering down

15. Now repeat step 13. For the remaining half of the crown ring.

16. Important – use plugs creosote to seal all holes left in the in the pole by the removal of coach screws.

17. Re-fix to the pole, any blocks that may have been temporarily removed to facilitate the installation of the new ring/removal of the crown.

18. If there is an upper bass step fitted to the pole this may be moved down the pole level with the lower bass step to create further room.

Figure 18 – Crown removed

Once work to replace the Crown has been completed, a significant amount of additional space will be provided. Any area above the red line (see Fig 21) can now be used for Blocks / CBT's, which can also be located behind the ring if required.

Figure 19 - Before

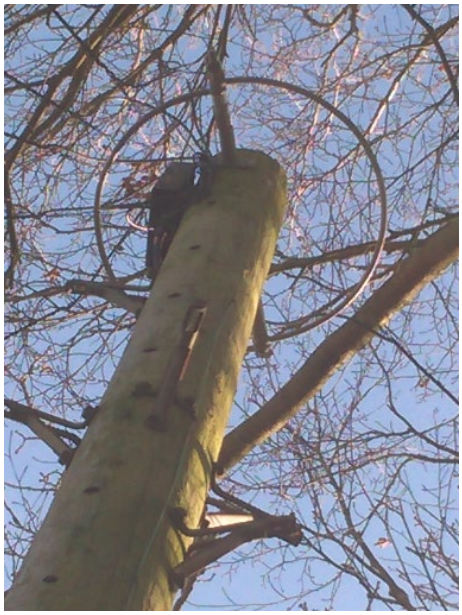

Figure 20 - After

Figure 21 – Block behind Halo

6.1.1 Tools & components required

TOOLS

- An SDS drill
- Come along grip – 069586
- Line sash 2 881487 or sash line 15 – 127430
- 16mm x 330mm wood auger
- 18mm x 330mm SDS wood auger
- 12” hacksaw 079943
- 2 x 25mm spanners 126992
- 1 x 16mm spanner 126985
- 1 x coach screw brace 112089
- 1 x 2lb ball pein hammer 127318

COMPONENTS

- New halo ring – 100915
- 2 x pole steps 015550
- 6 x coach screws 014700
- Washer galvanized 4 (34mm dia flat washer) – 016152
- Washer galvanized 17 (¾ barrel washer) – 016162

- Washer galvanized 18 (1½" barrel washer) – 016163
- Washer galvanized 16 (2 ½" barrel washer) – 016161
- Plugs creosote – 016266
- Straps cable fixing 12A – 072586 (bag of 50)
- Pin steel - 070864

7 *Cross Arm Poles*

- A relatively small number of poles may still be found with Cross Arms attached.
- These are typically (but not exclusively) Carrier Poles in rural locations, rather than Urban Distribution Poles
- Individual wires can be attached to the pole itself, or, providing the Cross Arms appear sound, to the J Bracket, as described for Crown Ring poles in previous slides.
- Where it is required to open a Fibre Distribution point on an existing cross arm pole, a Ring Pole Head 1 must be provided. The Ring should be installed just above the uppermost cross arm, which will typically be located 230mm from the pole top. The hole for the new ring should be drilled at 100mm from the pole top.
- This will help ensure that any lead to cash Fibre wires will continue to reach the CBT position in the event that the Pole is renewed, which is likely.
- Any existing copper wires attached to cross Arms can remain, providing that the Arms are in sound condition.
- Where problems are encountered, further advice can be obtained from the Chief Engineer Overhead Team.

Fig 15 – Cross Arm Pole

8 *Types of Distribution Pole Rings*

Pole distribution rings fall into three main types. These are described below.

Fig 16 - Ring Pole Head 1

Fig 17 - Ring Pole Head 2 (Halo)

Fig 18 - Pole Head Ring Split 15 Way (Crown Ring)

END OF DOCUMENT