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For All Openreach People

EPT/OHP/C032

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Working on Joint User Poles

Directive

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Content approval

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1 *Introduction*

Following privatisation of the Electricity Supply Industry, the Electricity Boards are now referred to as Distribution Network Operators (DNO).

This document describes processes and regulations that BT people must follow when working on Joint User Poles. Full details are within EPT/PPS/B037 and EPT/PPS/B038

Pole sharing has had its difficulties, and if agreed practices are not followed, hazards may be created. Safety regulations must be adhered to, and it is essential that quality of attachment work be of the highest standard.

BT has no automatic right of attachment to a DNO pole and the content of this document must be adhered to.

2 *Identification of Joint User Poles*

When a licence for joint use has been granted, the owner of the pole should fit to the poles concerned, at a height of not less than 1800mm from the ground, permanent and distinctive labels bearing the following characters. However some DNOs may not fit these labels.

2.1 DNO Poles

J - Indicating joint use - Number as appropriate (indicating maximum permitted number of dropwires).

C - If cables larger than dropwires are authorised.

2.2 BT Poles

J - Indicating joint use.

If the pole is to be used as a “distribution pole” by BT, BT may attach a further label under the above letters to indicate that it is a distribution pole and also its distribution pole number.

Other labelling may also be present to indicate pole condition, when last tested or if treated with boron.

3 *Safety*

3.1 Introduction

As the effects of contact with mains power lines are so serious it is absolutely imperative that contact with such power lines is effectively prevented. The basis for this lies in the “built-in" safety standards for line construction (mainly by maintaining minimum clearances between BT lines and power lines). However, this must be backed up by BT people observing joint user working methods. **You are responsible for your own safety and the safety of others. A careless approach to joint-user work can cost lives and it could be yours.**

Separating distances relating to joint-user work are the **ABSOLUTE MINIMUM CLEARANCES** and are designed to safeguard against any possible contact between BT and power wires, cable or plant.

The main objects of the standard requirements are:

1. Prevention of accidental contact with LIVE wires, including indirect contact via BT wire, cable, ladders etc.
2. Avoidance of climbing hazards to DNO staff who may be obstructed by badly positioned BT plant on their poles.

3.2 Two man working on ALL Joint User Poles

Two man working is now mandatory on all Joint Use poles nationwide from 1st May 2009.

This applies to both DNO and BT owned poles.

Many activities demand a two-man activity - e.g. complex road crossing provision - however; **ALL** activities will now require two people to be in attendance.

3.2.1 Working on Joint User Poles

Once you are aware the job involves a Joint User pole, then:

- The first action is to ensure that it will be necessary to climb /access the pole.
- Carry out an on site risk assessment form, including completing the written assessment to ensure that other site circumstances would not prevent work continuing, before calling for assistance. Further detail on the written assessment is within Section 4 and a copy of the document is at Appendix A.

Note: **An assessment is needed regardless of two person working.**

- Once confirmed that it is necessary to climb / work on any JU pole, the field engineer must request a simple “assist” to arrange for a second man to be sent out to assist.
- Ensure that the second person is ‘on-site’ before any work commences on the JU pole.

3.2.2 Role of the Second Person

The requirement is simply for a second person to be in attendance – there is no specific role simply because it is a JU pole.

However, if the task would have benefited from a second person, e.g. Complex road crossing, then the second person should do whatever is necessary to assist, but this stipulation would not lead to a third person being required.

Note: **TRCs cannot be raised for the second person’s attendance.**

3.3 Danger Notices on Poles Carrying Power Lines

New Regulations contained in the Electricity Safety, Quality and Continuity Regulations 2002, identify that DNOs need to warn the public of the hazard of overhead power lines, to include LV and HV, but excluding LV ABC. To complete this task they are undertaking a programme to have labels attached to **all** poles carrying overhead power. This includes **ALL Joint User Poles** irrespective if owned by the DNO or BT.

3.3.1 No A1024 Labels on DNO Owned JU Poles

Distribution Network Operators (DNOs) have requested Openreach personnel do NOT attach A1024 labels to their poles. Existing labels will be withdrawn from poles and no new labels are to be placed on Joint User poles not owned by BT. the A1024 procedures must still be used to report all cases of defective plant that cannot be corrected in a quality way during the site visit, but no label should be attached to DNO owned poles.

3.4 Sharing a DNO pole - What are the Practical Issues?

The following questions and answers are designed to highlight some of the issues.

Does the pole comply with BT’s safety standards?

The DNO should carry out routine inspections of their poles and mark them accordingly. DNO poles erected after 1950 should carry a 3m mark. Older poles used by DNOs do not always have the 3m mark displayed. See section 3.9 for further guidance on poles with no 3m mark.

Are there any restrictions on access to a DNO pole once a licence has been issued?

There are no restrictions on access to Low Voltage (LV) poles once a licence has been issued, visits to the pole may be carried out at any time for the purpose of making extra or to maintain an existing attachment.

Attachments to High Voltage (HV) poles are less common and are not encouraged by the DNOs. However, in the rare instances where a licence has been issued for a HV pole, it is essential to contact the relevant DNO for guidance on access, BEFORE any work is carried out. A period of advance notice will have to be given (length of notice is dependent upon various factors) but it is UNLIKELY to be less than 15 days.

Can we use standard BT tools/equipment when working on a DNO pole?

No special tools are required when working on a LV pole. However, only non-conducting **blue ladders** may be used to climb ALL Joint Use poles. Under NO circumstances can aluminium ladders be used.

Does the agreement allow BT's contractors to work on DNO poles?

Yes, the agreement stipulates that all personnel carrying out work on DNO poles should be "competent persons". This applies to BT's own staff and its contractors. Contractors, if challenged, must be able to produce documentary evidence showing they have had the necessary training to carry out the work.

3.5 Recording of Competence to Work on JU Poles

As part of the Job Risk & Licensing process for engineers, managers must record that people are competent to work on JU poles. See ISIS SFY/NNS/V300 - Job Risk Assessment & Licensing

3.6 Power Wire Identification

It is usual for the NEUTRAL power wire throughout the route to be lowermost or uppermost in the service wires, do not rely on this. All services are connected to it and it is usually bare.

ON LV overhead services the LIVE wires can be bare or insulated. Where the LIVE wires are insulated it is important that the integrity of the insulation is visually checked prior to approaching the vicinity. All conductors must be treated as live irrespective of the insulation type and safety distances and working/access clearances must be maintained.

For further information refer to the 'glovebox guide to working in the vicinity of power'.

3.7 Measuring the Height of Power Conductors

Before undertaking the task of wire height measuring, appropriate roadworks guarding and site guarding as detailed in Informe streetworks, must be carried out.

Warning: Do not measure the height of a power conductor with a measuring tape held between the conductor and the ground. A measuring tape may contain a reinforcing metal strand which could transmit a lethal voltage to the person handling the tape.

For LV power lines, Rods Clearance Complete or Rods Telescopic may be used to obtain a direct height measurement of the conductors. To determine the clearance between a power line conductor and a BT wire or cable, measure the height above ground of each item separately and take the difference see section 5.

For HV power lines, a measuring instrument which does not require contact with conductors **must** be used. Height Measuring Instrument (Ultrasonic) is the current recommended product.

Unless it is known for certain that the power line is LV, a measuring instrument which does not require contact **must** be used.

Use of Rubber Gloves

Whenever there is a risk, however slight, of accidental contact between BT plant and power conductors; gloves IR **must** be worn. They **must** also be worn whenever measuring the heights or clearances of LV lines, and when erecting BT wires over LV.

Gloves IR (to BS EN60903 class 00) are available in small, medium and large sizes.

Warning: Gloves IR in good condition provide good protection against contact with LV conductors but are NOT designed to protect against contact with HV conductors.

Minimum operating clearances with HV conductors MUST be maintained at all times.

3.8 Permissible Tools, Ladders or Mechanical Aids used on Joint User Poles or near to Power Lines

Prior to climbing, working on or altering the load on any pole owned by a DNO which carry BT wires, cables or other systems which BT needs to access, the General Test and Examination must be carried out detailed in EPT/OHP/C022.

- **The non-conducting blue ladder 7A must be used to access joint user poles.**
- Joint user poles must **not** be climbed during the hours of darkness, other low ambient light or thunderstorms.
- PPE (gloves, eyeshields, correct footware and belt safety 11) must be worn.
- All tools and equipment that requires periodic testing or inspection must be recorded on the appropriate system.

  To avoid danger, keep ladders, crane jibs and booms, pole erection units, elevating platforms, etc, well clear of electrical equipment and, in particular, avoid any possibility of their contact with overhead power wires. When working near HV power lines, as far as possible, keep all personnel, tools and appliances away from any HV power conductor by a distance at least equal to the clearance detailed in ISIS EPT/PPS/B046

3.9 DNO Owned Joint User Poles with no 3m Mark Displayed

Pre Climb Check:

Climbers have a responsibility before starting work on any pole, including those not owned by BT, to check wire clearance heights and to test the pole (and any strut) for soundness to make sure it is safe to climb. Part of that inspection includes checking the position of the 3m mark to ensure correct setting of the pole.

DNO Poles found with no 3M mark:

Where the pre-climb check of a DNO Pole identifies that there is no 3M mark present, it must not be climbed. Access to the pole must only be from a Platform Elevating or other approved method e.g. scaffolding.

Activities permitted on a pole with no 3m mark:

Providing that the Pole is not climbed, the normal range of overhead work activities are permitted (including attachment, re-tensioning or recovery of Dropwires and Aerial cables).

3.10 DNO owned poles with an additional “L” marking

Western Power Distribution (WPD) have introduced an additional assessment method for their poles originally marked “S” or “D”. The purpose of this assessment is to assess the extent of decay or other defects on the pole. Where the assessment indicates the pole does not need renewal within their current program, it will be marked with a “L” - this indicates that the tasks and possible additional loadings are “Limited”. See photo below:-

WPD is one of the 7 DNOs operating in the UK. Their area of operation was originally in South West England and South Wales. However WPD have recently taken over Central Networks, who were the DNO in the East & West Midlands areas.

This new assessment method is currently only in use in the SW & South Wales, but will be rolled out into the new WPD areas during 2012

3.10.1 Working on a JU pole with the additional "L" marking

Prior to commencing any work, it is necessary to complete the following:-

- A standard on site Risk Assessment
- The Written JU pole specific Risk Assessment
- A standard pre-climb check of the pole

It is only permitted to work on a "L" classification pole from a MEWP, and only the following tasks can be completed. Do NOT climb:

- Testing / proving of lines /fault location etc
- Renewal / retension / refix of existing dropwires - like for like renewal includes changing a DW10B for CAD55, or obsolete dropwire for DW10B/CAD 55
- Like for like renewal of aerial cable is also permitted

No new dropwires or aerial cables can be added. If this is required, it will be necessary to contact WPD. It is likely that if a reactive pole replacement was necessary to allow further works, Openreach would be expected to pay for such work. Contact your local planner for further advice

4 *Written Risk Assessment Form*

4.1 Completion of the Written Risk Assessment Form

The Written Risk Assessment Form (WRAF) was introduced within Access Engineering Communication AEI/AEC/B025. AEC B025 has now been incorporated into this document and withdrawn.

4.1.1 Introduction

Following discussions with the DNOs, Openreach has agreed to introduce a Written Risk Assessment Form or WRAF to be completed prior to any work commencing, where it is necessary to work on JU poles. This requirement applies to both DNO and Openreach owned JU poles.

An existing Openreach process was already in place, for any MEWP work in the vincinity of HV power lines. This was detailed in the Health & Safety Handbook (H&SH), SFY/HSH/D039. The new WRAF form will replace the use of the laminate, which is detailed in Appendix 1 of SFY/HSH/D039.

4.1.2 Ordering the WRAF forms

The WRAF forms are supplied in pads of 20. Each form is double sided, and the covers of the pads also contain guidance for completion.

Although a stationery item (similar to A108 'No Access' cards) the pads are ordered through stores, using Item Code 061461.

Copies of the form can be found in the Appendix to this ISIS document.

4.1.3 Completion of the form – for work on Joint Use poles

In ALL cases, complete the names and location at the top of page one together with the number and identity of pole/s covered by the assessment.

- **Section 1** is to be completed before work commences on a Joint User pole with LV from a ladder.
- **Section 2** is to be completed before work commences on a Joint user pole with LV from a MEWP.

Within each section, consider the risks as identified by the relevant symbol in each panel.

Tick the top box within the panel to verify that the Risk and relevant control measures have been checked and are in place. If necessary, indicate in the lower box if further specific control measures have been applied.

Any other risks or controls, not specific to those detailed in the panels, should be recorded at bottom of page two.

This form can be used to record hazards / controls for a single Joint User pole or a multiple number of poles contained in the specified worksite (JU pole route). If applicable, all poles assessed need to be identified and recorded (use notes field on page two).

4.1.4 Retention of the forms

Once completed, the Risk Assessment (WRAF) must be retained for possible future reference, for a minimum of six months.

In the case of MEWP assessments, the completed forms should be retained in a specific folder on the vehicle

In the case of JU pole assessments, the completed form should be retained by the originator, until it can be passed to the Line Manager. The Line Manager must retain copies for a period of six months from the date of completion.

Copies of the form can be found in the Appendix to this ISIS document.

4.2 Summary of Rules for Working on Joint User Poles

Note: **LOW VOLTAGE MEANS - VOLTAGE TO EARTH NOT EXCEEDING 1000V R.M.S.**

- Be vigilant at all times when working near power lines. Lives can be put at risk by a careless approach to joint user work.
- Do not make unlicensed or unauthorised attachments.
- BT circuits must only be attached below the power conductors.
- Complete the written On Site Risk Assessment. Take action on any risks identified by the Risk Assessment.
- Before climbing a joint user pole, BT staff should look for any damage to power conductors or insulators plus objects (such as tree branches, kite strings etc) on the pole, that could put DNO conductors in contact with metal liable to be touched while working on the BT attachments. Staff should follow the normal procedures for checking the soundness of the poles and their foundations before climbing a joint-user pole.
- Where DNO cables running up or down the pole have damaged insulation and/or visible bare conductors, conduct a full on site risk assessment and where applicable do not rest or lash a ladder to the pole and report the damage to the appropriate DNO.

- When clearing storm damage, carefully examine the joint route throughout its length for contacts between BT plant and power conductors. If necessary check with the DNO its safe to proceed.
- Covers should not be missing from connexion boxes that form an integral part of lighting brackets. Therefore follow the precautions:
- Where all BT plant is below the lighting bracket and the correct separation distance is maintained, the pole is regarded as safe.
- Where BT plant is above the lighting bracket, the pole must not be climbed until the DNO/Lighting Authority has replaced the cover. They must be notified of the defect immediately via your Line Manager.
- Check that where poles have been taken over, any metal cladding at the base of the pole has been removed.
- Only use ladder extension 7A insulated (blue ladder).
- Do not work above the level of the topmost BT wire.
- The ladder must not project above the topmost BT wire and do not leave your ladder unattended when erected.
- Power conductors or any metalwork associated with the power system (including lighting brackets) must never be touched, as they could be live. Similarly stay wires must not be touched - particularly the section of the staywire above the insulator.
- If 500mm working clearance between BT staff and bare metalwork cannot be achieved, the metalwork shall be proved dead, before work commences.
- BT attachments are not normally made to Distribution Network Operators' (DNO) HV poles, and BT should certainly not seek to make any new attachments. If ANY work is required on existing attachments, or if attachments are identified as part of Line Plant Rearrangement works by the DNO, then BT must also plan the necessary work to remove such attachments. However, it is essential before any work is carried out that the following instructions are followed:-
  - Advise your Line Manager of the presence of BT attachments on a HV pole
  - A written Risk Assessment must be completed before any work is started
  - Contact must be made with the DNO, to obtain written permission for ANY work
  - Representatives from the DNO must be present on site during the work
- It should be appreciated that the purpose of the technical conditions is to ensure that all staff can carry out their work with reasonable convenience in PHYSICAL and ELECTRICAL safety and hence risk of imposing dangerous voltages onto the BT network from the power supply is negligible. A sensible approach when working on joint user poles is to treat all wires, cables etc as LIVE. This technique is used by the DNOs.

- Only carry out such work in daylight.

5 *Test and Examination of Joint User Poles*

Staff MUST test all poles in the approved manner before climbing. When the owner's test indicates that a pole is in a defective condition it will be marked and must NOT be climbed.

Should an unmarked pole be found defective after testing, your Line Manager should be informed so that the pole owner can be notified. The defective pole must NOT be climbed.

Prior to climbing, working on or altering the load on any pole owned by a DNO which carry BT wires, cables or other systems which BT needs to access, the General Test and Examination must be carried out detailed in EPT/OHP/C022.

When examining or working on joint user poles, including those owned by BT, care must be taken to keep clear of power wires and stay wires or any other metallic item which could come into contact with DNO plant. Only wood poles of the types used by BT or the DNOs may be worked on; if there is any doubt treat the pole as 'D' and inform your manager.

Poles identified as 'D' by the owners must not be climbed or worked on. DNOs normally use a red coloured 'D' label similar to BT's but if you are in any doubt treat the pole as 'D' and report the problem to your manager.

Other companies have different inspection systems to BT and IT MUST NOT BE ASSUMED THAT THE POLE UNDERGOES THE SAME INSPECTION SYSTEM AS BT's. Carry out your General Test and Examination carefully.

On non-BT poles receiving post-installation treatment in the form of bandages protruding above ground level, the ground level for testing purposes must be assumed to be at the top edge of the protective bandage. No attempt must be made to test the protected area or to remove the bandage.

Many DNO poles are now being treated with Boron Rod ground line treatment. This treatment is also being used on Openreach poles over 25 years old. Both new and suspect poles are being treated in this way. The treated poles are indicated by the presence of plastic plugs at the ground line and a label on the pole. These plugs should not be removed. Poles treated in this way should be tested in the normal manner avoiding hitting the plugs.

A report must be made to your manager on any pole considered to be unsatisfactory, and for those joint user poles not owned by BT the manager should ensure the owner is informed.

Further examination of Joint User Poles – Measure all BT wires on Joint User poles which cross the carriageway. Whilst it is highly unlikely, there may

be low electricity wires which also cross the carriageway. The minimum installation height for electricity wires is 5.8m and they are installed at greater tensions than BT plant so they are unlikely to dip below BT wires or cables.

If it is suspected that electricity wires MAY be low, in the first instance, make a visual comparison with BT wires that have been checked. Only measure the clearance of electricity wires if a visual comparison does not give a clear result. **Measure (low voltage power lines only)** using either Rods Clearance Complete or Rods Telescopic 7m (see below).

Rods Clearance Complete (IC 116121) may be used to obtain a direct height measurement of the conductors.

Rods Clearance Complete comprise of a set of 7 x 1 metre long GRP (Glass Reinforced Plastic) rods including one with a rubber cradle. As many rods as necessary are joined together and raised to touch the overhead cable, starting with the section with the rubber cradle.

A 2 metre long folding rule, which is included in the set, is used to measure the gap between the bottom of the lower rod and the ground. The height of the cable can then be calculated by adding the rule measurement to the number of rod sections in use. See Fig. 1.

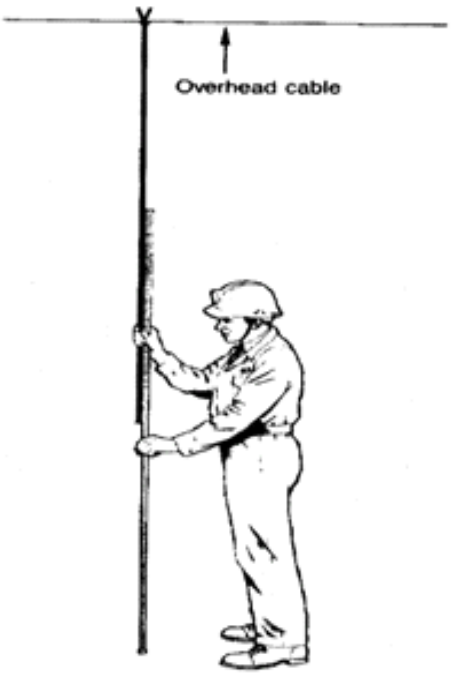

Figure 1: (Above) Rods Clearance Complete.

Note: Gloves IR must be worn during this operation.

If, after measuring, a power cable is identified as low, i.e. below 5.8m over roads or 5.2m elsewhere, contact the relevant DNO.

Rods Telescopic 7m

DO NOT MEASURE LV LINES WHEN IT IS RAINING

To measure the height of a Low Voltage Power line, proceed as follows

1. **From a position directly below the LV line, extend the Rod, from marking to marking making sure that the white ring marks on each section are showing, and keep passing it "to and fro" below the LV cable, as the rod is being raised, until it touches the cable.**
2. **It can now be determined that the height of the LV line, is between the marking on the rod, and the next lowest marking.**
3. **Now very slowly, lower the rod, until the tip can now pass under the LV line without touching.**
4. **Once this point is reached, measure, using a standard rule, or yardstick, the distance from the 'lower' marking ring height, to the top of the outer tube of the rod assembly (see Figure 2, below).**
5. **Add this figure to the 'lower' marking ring height, and this will give the height of the LV line. Eg**

Lower Ring marking	**4.8m**
Distance measured by tape	**80 mm**
Height of LV line	**4.88m**

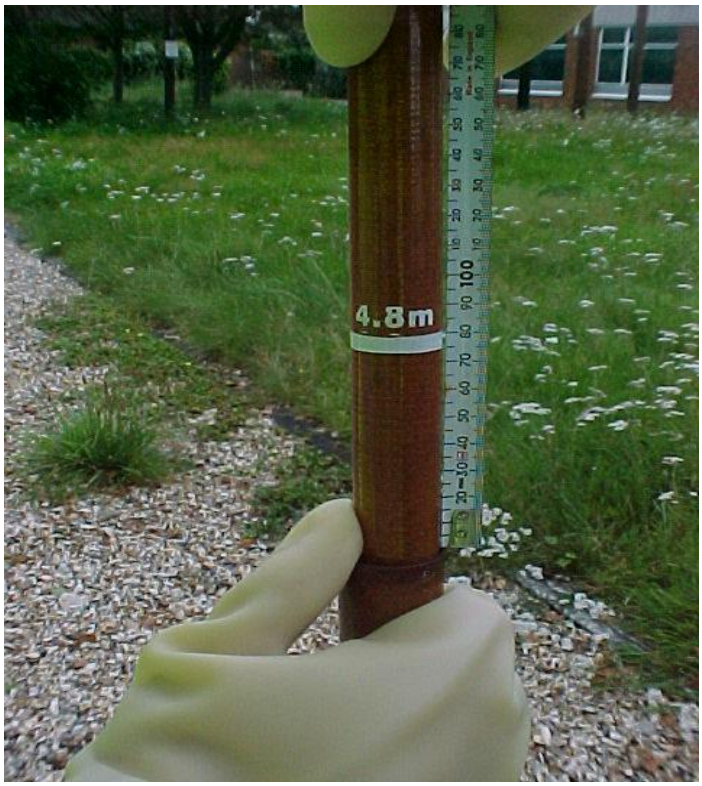

Figure 2, showing 4.8m +80mm

The procedure can then be repeated for the Openreach wire, and the distance between the two wires can be determined.

Remember:

You MUST wear Gloves IR when using the Rods Telescopic 7M to measure LV power.

The clearances given in the documentation are minimum figures; therefore ensure you are erring on the side of caution in your measurements.

6 *Contact Information for Distribution Network Operators*

Company	Area	Contact Tel. No.
Western Power (WPD)	Midlands, South West & South Wales	Midlands E - 0800 056 8090 Midlands W - 0800 328 1111 South Wales- 0800 052 0400 South West - 0800 365 900
SSE Power Distribution	Central & Southern England and Northern Scotland	S England - 08000 72 72 82 Scotland - 0800 300 999

Northern Powergrid	NE England & Yorkshire	NE – 0800 668877 Yorks – 0800 375675
Electricity Northwest (ENW)	NW England	0800 195 4141
UK Power Networks	Eastern Area South East Area London Area	0800 7838838 0800 7838866 0800 0280247
Scottish Power Energy Networks	Central & Southern Scotland Cheshire,Merseyside & N wales (old Manweb area)	0845 272 7999 0845 272 2424

This information is also held by the Safety Helpdesk.

Further details of emergency contact numbers for electricity and gas companies can be found HERE

7 Working on a Joint User D-Pole

Note: This includes where BT plant is still connected to the old pole, and needs to be recovered or reconnected to a new Joint User pole.

- You must be fully trained to carry out this task.
- In all instances a written risk assessment form must be completed.
- The DNOs use a similar pole test process and D criteria to BT. Therefore the procedures for working on BT D-poles can also be applied to Joint User Poles. Under NO circumstances must a ladder be used, all work should be carried out from a PE or other suitable means of access which does not contact the pole.

7.1 'S' Category Poles

Some DNOs still use an S (suspect) category. This definition is not the same with all DNOs, and not all DNOs use the 'S' category. For BT purposes, the rules and guidance within this document apply to 'S' poles and 'D' poles, this includes 'like for like' dropwire renewal. If it is necessary to undertake a 'like for like' renewal of an aerial cable on an 'S' pole, then the DNO should be contacted for guidance, where the DNO is agreeable for Openreach to renew like for like aerial cable an on-site risk assessment must be carried out by the

Second Stage Repair (SSR) O/H manager and the engineer who is to carry out the aerial renewal and also see additional information in Section 8.6 of EPT/OHP/C031 regarding additional support. If the DNO confirm that the pole is still sound, and only marked 'S' because of a change of test cycle, or agree, after testing, to remove the 'S' category, the pole can be climbed, otherwise it must only be accessed by a Platform Elevating.

7.2 Examination of 'D' & 'S' Category JU Poles

It is essential that the pole is subject to a full general examination. In most cases it will be apparent why the pole has been marked as D and the agreed range of tasks can be completed, subject to compliance with all of the guidance detailed in this document.

7.3 Current Joint Use Pole in Imminent Danger of Collapse

If it is genuinely suspected that the pole may be in imminent danger of collapse, then the following guidance should be sought:

- Seek confirmation from your coach/FMA/Line Manager.
- If it is still uncertain, the FMA/Line Manager must contact the Pole Test Request Test Control, on 0800 085 8262, giving details of:

  Accurate location of pole

  Details of tests carried out, by whom, and defects found

  Contact details.
- Then a pole Examiner can be asked to perform a request test.
- Work can proceed (subject to limits), as long as it is determined that the pole in not in imminent danger of collapse.

  If in the opinion of the Coach / FMA / Line Manager or pole examiner, the pole IS in imminent danger of collapse, no work can be carried out on the pole, the matter must be reported to the DNO responsible for the pole. It may also be necessary to pass the matter to BT Planning to resolve the service issue.

7.4 Ex Joint User Pole with only BT Plant, in Imminent Danger of Collapse

Where the pole is an ex-joint user pole with only BT plant present, and is in imminent danger of collapse, the current PIDOC Process for BT poles (Poles in Imminent Danger of Collapse), must be followed. Suppliers (Direct Labour or Contract) must carry out any work to replace or recover the D pole in the specified manner.

8 *General Information on the Application, Licence & Fees for Joint Use*

For General Information on the principles of Application, Licensing and associated fees for Joint Use of Poles see ISIS EPT/PPS/B037 Joint User Poles.

9 *Technical Requirements for Attachments to Joint User Poles*

This section summarises the technical aspects to be considered for attaching plant and equipment to joint use poles belonging to Distribution Network Operators (DNO) or BT. Full details can be found in ISIS EPT/PPS/B038.

BT contractors who work on Joint Use poles must have received appropriate training and are competent to work on Joint Use poles.

BT has no automatic right of attachment to a DNO pole and the procedures detailed in this document **must** be followed.

9.1 Technical Requirements for Attachment to Low Voltage or BT Poles

The purpose of these conditions is to ensure that all staff can carry out work with reasonable convenience in physical and electrical safety and also that risk of imposing dangerous voltages onto the telecommunication network from the electricity supply system is negligible. All attachments on joint user poles shall be made in accordance with the typical arrangements described here, using the approved equipment.

BT plant shall always be below DNO line conductors, cable and equipment not fully insulated and protected. BT plant may, however, be above or below DNO equipment that is fully protected and insulated.

Cables or equipment that are insulated and protected may be regarded as safe to touch.

Contact with cables or equipment not insulated and protected should be prevented by the requirements of these conditions.

9.1.1 BT Cables and Equipment

Detail of all BT equipment and cables can be found in ISIS EPT/PPS/B038.

9.1.2 DNO Line Conductors and Equipment

DNO line conductors may be bare, insulated, insulated and protected. ABC for the purpose of these conditions is treated as insulated line conductors.

DNO Cables

DNO cables on jointly used poles shall be insulated and protected. This shall be achieved either by the use of PVC insulated and sheathed, concentric neutral, steel wire or steel tape armoured cables or by covering insulated cables with a suitable plastic capping or its equivalent for a distance of not less than **500mm** either side of the BT attachment.

Duplex and Triplex cables used by some DNO's for services are not to be regarded as insulated and protected. They can be identified by their use of a bare neutral conductor.

DNO Equipment

DNO equipment may or may not be fully insulated and protected.

Fully insulated and protected equipment (fuses, inserts etc.) have all live parts covered by a case of insulating material or metal which is connected to earth or to the power system neutral. DNO equipment includes electrical equipment such as terminal boxes, fuses, insulators etc. but excluding cables. The DNO shall advise, on request whether a particular item of equipment is insulated and protected. Where LV fuse gear is sited below BT plant, it shall be of an insulated type with fuse carriers or insulated barriers inserted so that there are **no** exposed **Live Terminals.**

9.1.3 BT Stand-off Rings for Multiple Cable Attachments

Not more than two stand-off rings shall be permitted on any DNO jointly used pole for termination of BT attachments. The stand-off rings shall be fixed to the poles so as to be in line with the power conductors unless otherwise specified by the DNO.

Multiple BT attachments - In order to provide adequate access for DNO personnel, the angle of approach to the pole by the BT cables shall be restricted to a maximum of 90 degrees either side of the longitudinal axis of the rings. Where a single BT through cable attachment is required the method of fixing shown in Figure 14 shall be permitted; if this is the only attachment to the pole, a right angle crossing may be allowed.

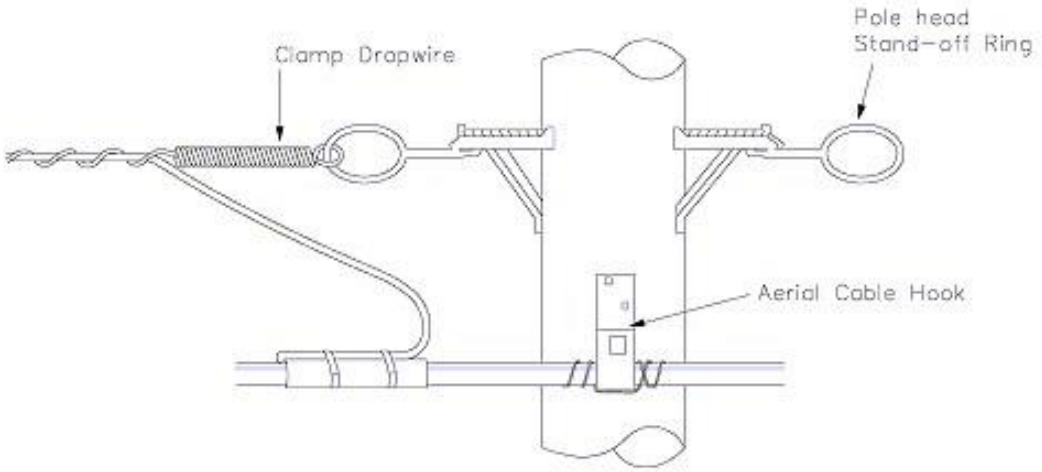

Figure 14

9.2 Technical Requirements for the Attachment of BT Cables to HV Poles, and Combined HV/LV Poles

Refer to SFY/HSH/D043 Section 15.

Check with your Line Manager before any work commences.

10 *Installation, Alteration & Maintenance of Plant on Joint Use Poles*

10.1 Notification of Work on Jointly Used Poles

With the exception of HV poles, work on licensed poles within the terms of the licence may be carried out without prior notice to the owner of the pole.

10.2 Working Practices for Installation & Maintenance of BT Plant

Standard working practices must be used for all cable installation and connections on JU poles.

Practices to install BT wires over LV lines have been revised, and the new working practices must be followed - the “Power Throw” is no longer permitted.

10.3 Renewal of DNO or BT Poles or Rearrangement of Plant

There is a documented process covering all aspects of pole renewal and/or plant re-arrangement. Full details can be found in ISIS EPT/PPS/B037 Street Lighting and Other Mains Voltage Equipment

In practice the only third party plant likely to be encountered is LV Street lighting cables and equipment on DNO LV poles. It is expected that modern plant of this type would be insulated and protected.

All non-current carrying metalwork associated with street lighting equipment must be effectively earth bonded to neutral.

All street lighting equipment other than cables which are insulated and protected should be at least **50mm** from any BT equipment.

If the owner of a joint use pole wishes to permit the attachment of any third party plant this process is covered in ISIS EPT/PPS/B038.

11 *Joint Use Not Complying with Technical Requirements*

11.1 Improvement Work

If attachments are found not to be in accordance with the technical requirements, steps shall be taken within a reasonable time to bring them up to standard. Such improvement work should generally be programmed in co-operation between BT and the DNO with the aim of making the most efficient use of the resources available to both parties and dealing with the cases in an agreed order of priority.

11.2 High Voltage (HV) Routes

Refer to SFY/HSH/D043 Section 15.

Check with your Line Manager before any work commences.

11.3 Charges

A charge may be made for assistance, co-operation or advice by one party to enable the other to carry out its work. In particular, for Class A1 joint use if it is necessary for the DNO to disconnect the power to enable BT to work on its

attachments, the whole cost of the DNO work will be charged to BT. It should be noted that the cost of the DNO work could be substantial.

12 *Contact with Power Emergencies*

What do you do where wires have fallen across BT wires or vice versa?

Keep clear unless a casualty is in contact.

Warn the public to keep away.

Stop traffic unless there is room to drive past in safety.

Inform your support office and the electricity supply company immediately.

What if it is a high voltage contact?

You cannot do anything, even for a casualty, until the power is cut off - only if you are a high voltage engineer properly equipped for the high voltage involved can you do anything.

What if it is a Low Voltage contact?

If possible wait for the power to be cut off, but if any BT wire threatens the public or traffic, and you wear Gloves IR, you can move the BT wires away, or cut them back whichever is most practical. Stand on a dry insulating material, such as a car mat, if possible.

What if a casualty is in contact with low voltage?

Do not touch any wire or the casualty with bare hands, damp gloves or any damp article. Using Gloves IR or insulated tools while standing on insulation, try to remove the live wire, or using a dry stick, dry rope or dry article of clothing, try to drag the wire or the person clear.

What about first aid?

Start first aid immediately a casualty is clear - Seek medically qualified help as soon as possible.

Power contacts - further precautions.

Report even a suspected power contact to the support office immediately so that the lines that may be affected can be disconnected at the MDF if necessary.

Buildings collapsing or catching fire, burnt telephones or continuous bell tinkling are likely indications of power contacts.

When disconnecting lines at an MDF wear Gloves IR and use a suitable extractor. Display a warning sign.

When working on an outside wall close to power wiring, which seems in poor condition, do not touch it or any metal parts. Wear Gloves IR if the wall is wet or if in doubt.

13 *Conditions for BT and DNO Joint Use Poles*

Full details are within EPT/PPS/B037 and EPT/PPS/B038

14 *Appendix A – Written Risk Assessment Form*

A copy of the 

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