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Poling Handbook - Fittings & Furniture

Pole Fittings and General Furniture

About this document ...

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Issue Draft 0b	26-Jun-2002	Nick Adams	Draft 0b -including comments from Field & Training
Issue Draft 0a	24-May-2002	Nick Adams	First draft - new poling

			handbook May 2002

Table of Content

1 *Introduction*

This document should be read in conjunction with ISIS EPT/ANS/A010 Specification for Poling Work.

This document describes the methods, equipment and plant to be used for dressing and preparation of poles, prior to being erected.

Where manual handling is unavoidable always use correct handling and lifting techniques – refer to the Health & Safety Handbook in the first instance.

1.1 Scope

The contents of this document cover all aspects of pole preparation, prior to poles being erected.

The instructions for the handling, erection and recovery of poles using mechanised methods are contained in EPT/OHP/B034.

The erection of stays and struts is covered in ISIS EPT/OHP/B035 & EPT/ANS/A015.

The erection of poles by manual methods is contained in EPT/OHP/B037

1.2 Training

Any person carrying out or assisting in the operations described in this ISIS **must** have been trained in the appropriate practice.

Where there is any practice carried out which is not covered by these instructions then that practice should conform to other existing documented and trained practices.

1.3 Safety

These SAFETY notes are for all concerned with poling, and the general public – please read them.

1.3.1 Operational Safety

1. Establish who is in charge of operations before any work commences and keep this arrangement in place throughout the task.
2. Ensure you have a clear system of communications for the task in hand.
3. Always wear the appropriate safety clothing and equipment detailed in safety ISIS, and the Health & Safety Handbook..

4. Roadwork Guarding should be carried out as described in the current Code of Practice for Street works documentation. The Code of Practice and Signing, Lighting and Guarding can be accessed in Openreach eAssistant sections here and here
5. Always observe general safe lifting and handling practices.
6. Where a pole is supported on a pole horse and there is any risk of it rolling, falling or being knocked off, do not leave it unattended.
   Wood poles are a natural product, and because of the variability in size of the trees from which they are produced sizes and weights will vary considerably. (Specifications define minimum sizes to achieve specific strength. Absolute maximum weights are also specified.) Whenever poles are to be manually handled or erected, smaller poles in the class and of the length required should be selected. This should ensure that weights are no more than the average figures given in EPT/OHP/B058. **It is strongly recommended that heavier poles or Southern Yellow Pine poles (3m mark 'Z') should not be manually handled or erected. Where this is unavoidable appropriate numbers of extra people should be used in the exercise**.
7. During manual pole handling teamwork is essential. Poor teamwork or misinterpreted instructions can leave one person taking an unsustainable load with the consequence of serious injury. However, it is essential that ONLY one person is in charge, and issues instructions to the team. Ensure that everyone understands what is about to happen when any command or order is given. Any command must be clear. Be especially careful when a new person joins an established team. You may know exactly what is about to happen, they may not.
8. The work site **must** be adequately guarded to ensure that unauthorised persons are kept clear of the work area. It is particularly important that where a possibility exists of a pole becoming unstable, that the work area is kept clear.
   Ensure that work will be sufficiently clear of any overhead obstructions or hazards during operations, particularly power lines. Separation distances are referred to in Health & Safety Handbook, EPT/OHP/B058 & EPT/PPS/B046
9. Where there is any chance of a load falling whilst it is being carried or lifted by a group of people, ensure that there is an agreed safety side, and where possible all those involved should work from that side. This will enable everyone to move clear if the pole should be dropped.
10. Have a clear agreed signal for dropping the load in an emergency

Creosote

All wooden poles are currently pressure impregnated with 100% coal tar creosote which meets BS 144 Part 1 Type 2. Guidance on the risks and the precautions which must be followed when handling creosote timber is given in SFY/HSH/C009 - Handling and Examination of Creosoted Poles. CGA/N207

For normal dry poles standard protective equipment should be worn.

Poles are seasoned and treated to reduce the probability of creosote 'bleeding' out to a minimum; however, a small percentage of poles will bleed. Where poles are bleeding significantly and have not been installed, they should not be used. Poles will occasionally bleed in situ, and where these have to be handled or climbed avoid getting the creosote on your skin as far as possible by wearing protective clothing. If the clothing gets contaminated with creosote such that it is likely to come through the clothing or gloves, change the protective clothing. It is advisable to carry spare protective clothing.

Exceptionally, if a pole is wet with creosote and is to be manually handled, use Hessian or, other suitable cloth to absorb the creosote and/or wrap the pole where it would come into contact with personnel. Further details are in ISIS EPT/OHP/B058.

Other preservative treatments have occasionally been used within BT, but only very small numbers of poles having these alternative treatments are in use in BT. Poles having such treatments can be identified by the three-metre mark (see EPT/OHP/B058).

1.3.1.1 Safety Checks

Ensure that all the necessary formal safety checks have been carried out on your equipment. In addition, ensure that you have checked the equipment before use and that you are confident it is safe to use and not damaged. Look particularly at the equipment for lifting, handling and dressing poles, for example ropes, pole grabs, hammers and other hand tools etc.

1.4 Manpower Requirements

The manpower used for pole handling will be different for virtually every circumstance, and will depend upon the pole weight, vehicle location, the pole site and how the pole will be transported between the two.

The Risk Assessment at Section 6 of this document should also be consulted to help determine the numbers of people required.

2 *Handling of Poles*

2.1 General Principles

Full details on handling, carrying and transporting poles are in ISIS EPT/OHP/B037.

3 *Dressing Poles*

3.1 Wood Pole Dressing

3.1.1 General

Poles must be placed on a Horse Pole to dress them.

Wood poles should normally be fitted with steps. An earth wire should be provided if the pole is to be a DP, or lightning protection is to be provided at pole top. Earth wires are not required on steel hollow poles. Mounting block terminal and ring should be provided if required, and the pole should be numbered. Refer to ISIS EPT/ANS/A010 & EPT/ANS/A020 for size of wires

3.1.2 Pole Steps

This section describes the standard Pole Steps currently in use, the positions in which they are fitted, and the methods of fitting them on a pole.

All new poles are fully stepped regardless of whether they will be climbed. There are many carrier poles in the field without steps, these may be accessed and worked on from a ladder when the need arises.

When stepping a pole, always ensure that both bass steps are fitted – these are required for safety reasons.

3.1.3 Description of Steps, Pole

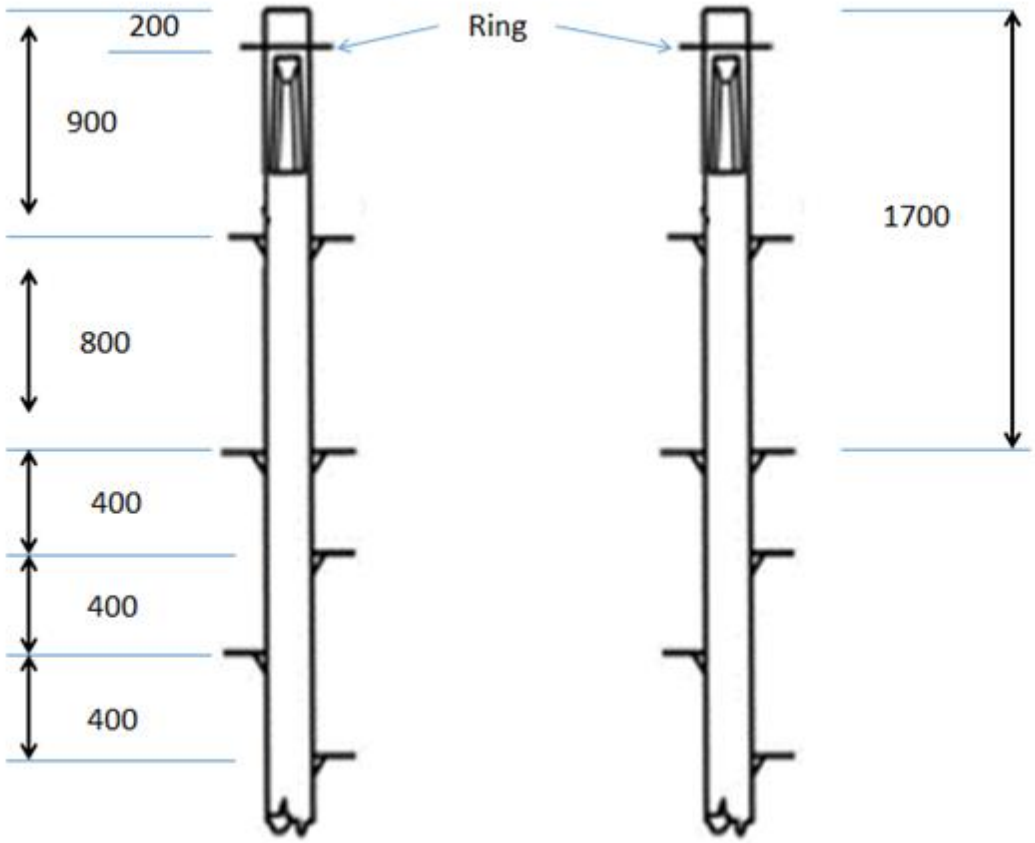
Two patterns of Steps, Pole No 1, for use on wood poles have been used, one having three fixing-holes in vertical line, and the other has a fixing-hole on each side, level with the tread, and one at the lower-end of the strut.

Only the second type is now available.

3.1.4 Position of Steps on Poles

As from April 2020 all Poles should be stepped as shown in *Figure 1,* although other variations might be found on existing Poles.

Figure 1 Standard Stepping



Poles still fitted with arms should have the arms removed, and the pole re-stepped as shown in Figure 1.

In all cases, the steps must continue to within 4.5m of the ground, or, in the case of sloping ground to within reach of a Ladder Extension 4, erected in the normal approach position and at the recommended ladder angle of 1:4. This will be a maximum of 5m vertically from the ladder foot position to the bottom step. If the distance is too great once the pole has been erected fit extra steps. Only working steps can be fitted below 4m from the ground line of the pole.

(Rule of Thumb – No of steps = height of pole in metres –1)

3.1.5 Use of Coach Screws

Steps, Pole No 1 are secured to the pole by Screws Coach which are designed to be driven in with a Hammer for all but the last 12mm.

It is essential, for safety, that the last 12mm be screwed home.

The Coach Screws should be driven into the pole horizontally, so that the head of the screw beds firmly on the step when finally screwed home.

The coach screws **must** be located in sound timber; they should **never** be driven into 'shakes' or old screw holes.

3.1.6 Method of Fitting of Steps

1. If the pole is a DP, fit the ring first as it can be used to help to turn the pole on the horse. Fit one set of step positions, starting at the top, then work down one side of the pole, then turn it over and work up the other side.
2. Estimate or measure the 4.5m position approximately using the 3m mark and the depth of the pole, and ensure the lowest step will come below this.
3. While fitting the steps, remember the 3m mark should be easily visible. Consider the line of any underground cable which will be covered by capping. Place the steps so that the capping when provided will not obscure the 3m mark.

3.1.7 Step Repositioning/Replacement

Where it is necessary to vary or alter a step position due to 'shakes' or old screw holes move the step as little as possible to ensure that the step is in sound timber. Wherever possible move the step 12-25 mm from the original position in any direction. Plug the old holes with Plugs Creosoted.

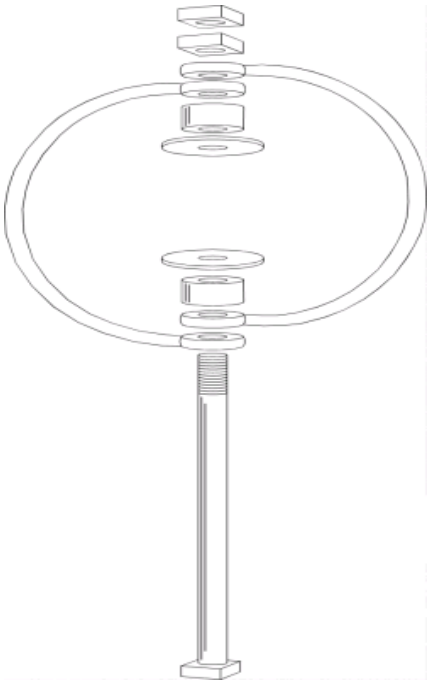
Never use the old holes when replacing a step.

3.1.8 Rings

(a) Wood distribution poles should normally be fitted with rings at the time of erection.

(b) Use Ring Pole head Dropwire which comes complete with Bolt, Two Nuts and Seating Washers (see Figure 2). Use with Washers Galvanised (available in various sizes) where the space between the ring and the pole has to be packed out.

Figure 2 Rings Pole head Dropwiring



(c) Tighten the first nut until the ring is firmly held on the pole, but can still move up and down, and then use the second nut and lock the two nuts hard together.

3.1.9 Numbering and Labelling

Refer to ISIS EPT/ANS/A010 for further information.

Numbers Pole Plastic and Letters Pole Plastic, (white plastic labels with the number or letter in relief and overlaid black) should be used to number poles. The labels are attached to the pole with Pins Steel No 1 through the holes provided.

3.1.10 Removing Capping from a Pole

Capping is secured to a pole using two different methods. Older versions of capping, manufactured in either metal or plastic, had no pre-drilled holes. It is held in place by ‘Nails Bonding’ and ‘Washers, Galvanized 19’. All later capping comes pre-drilled, allowing the use of ‘Nails Bonding’ without the need of washers. The following removal method can be used in either situation.

Method

Note: Gloves and eye shields must be used for this operation

Remove the 'Nails Bonding' from the capping using a Wrecking Bar (Item Code: 120170) see below**.**

Using a Wrecking Bar

If the nail is tight into the capping use the other end of the Wrecking Bar which has a flat bladed end to lever up the nail or, if easier, under the capping itself to raise the nail head enough to insert the dovetail end of the bar and lever out the nail. See below.

Levering the nail using a Wrecking Bar

Note: **1:** A claw hammer (Item Code: 127316) may be used if the nails are raised enough to enable insertion under the capping or nail head but it must not be forced under the capping using a second hammer or similar device. Any excessive force may cause splintering and injury.

Note: **2:** Some Pole Test teams were issued with a nail puller. This item is also acceptable to use where appropriate.

Note: Gloves and eye shields must be used for this operation

3.2 Hollow Pole Dressing

3.2.1 General

During dressing, the pole tip should be supported on a Pole Horse, the surface of the pole being protected to prevent damage.

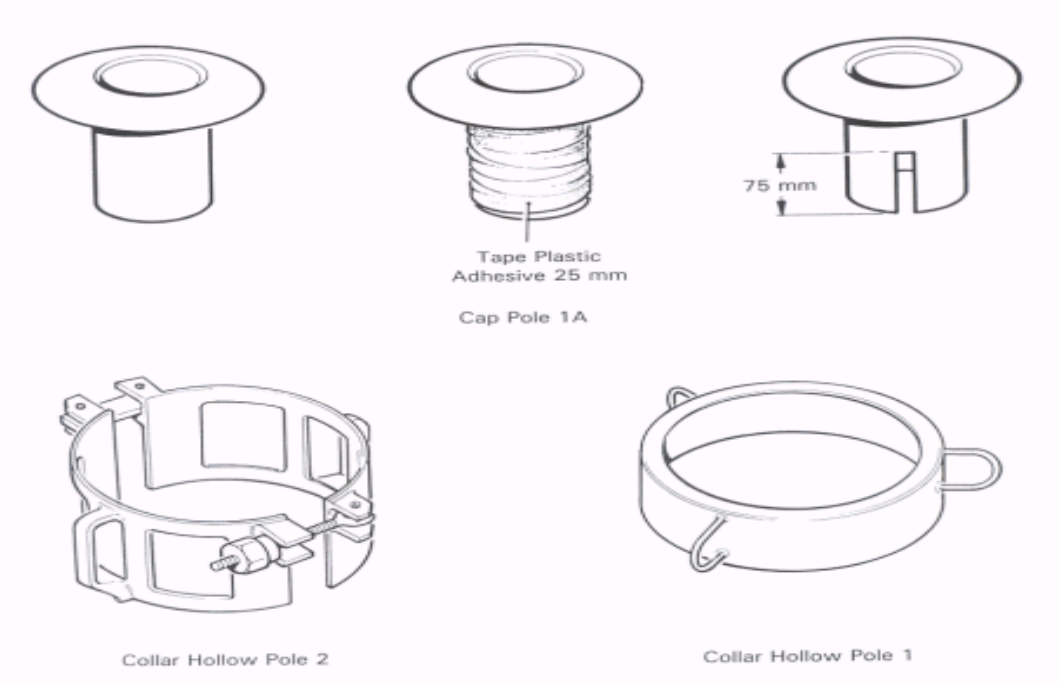
All hollow poles should be fitted with pole caps. Note: The Pole Cap must be made to fit tightly to prevent dislodging in high winds.

3.2.2 Collar Hollow Pole and UPB

Used where stays or aerial cables are to be fitted to a GRP (now obsolete) pole, or to the new galvanised steel pole. Loops are provided on the current Stainless steel poles.

Collar Hollow Pole No 1 is now obsolete. Where a GRP pole already has dropwires fitted and this facility is needed a Collar Hollow Pole No 2 may be fitted. This is clamped around the pole under the cap. Ensure that the clamp screw is done up tight (Do not over tighten as the GRP pole may be damaged). On galvanised steel poles the Collar Hollow Pole No.2 can be used or the new Telenco UPB to provide anchoring loops.

Figure 3. Hollow Pole Caps, Collars and Telenco UPB



Telenco Universal Pole Bracket UPB

3.2.3 Caps, Pole

1. All new hollow poles should be fitted with a Pole Cap (see Figure 3 *above*).
2. Push home by hand only – do not use unnecessary force or strike with a hammer.
3. If the cap is too loose, several turns of Tape, Plastic Adhesive 25mm can be wound around the skirt.
4. If the cap is too tight a 75mm longitudinal saw cut can be made in the skirt.
5. Existing medium hollow poles are fitted with a Cap Pole 1B. This is a larger cap.

3.2.4 Door Pole Universal/Enhanced Security

Hollow poles are supplied fitted with doors – where security needs to be enhanced or a replacement door is needed due to damage, the following details apply;

ITEM CODE	TITLE	APPLICATION
025521	GALVANISED POLE REPLACEMENT DOOR	Replacement door for both current galvanised poles and stainless steel poles
016327	DOOR POLE FOR USE ON GLASS REINFORCED PLASTIC POLES ONLY	Replacement pole door for GRP poles only
095212	Door Hollow Pole Enhanced Security 1A	Replacement door providing enhanced security for GRP poles
095213	Door Hollow Pole Enhanced Security 2A	Replacement door providing enhanced security for old type galvanised poles
095217	Door Hollow Pole Enhanced Security 3A	Replacement door providing enhanced security for both current galvanised poles and stainless steel poles

Pole Numbering, and Labelling and Ladder Prohibited Sign

Poles should be numbered in accordance with national or local process instructions with plastic self-adhesive labels. Prohibition labels (DO NOT CLIMB) have a red circle with a diagonal red bar over a black ladder on a white background and should be stuck onto the pole to remind staff that the pole should not be climbed. For details on obtaining DO NOT CLIMB and pole numbering labels details see Section 4.

Hollow pole labels should be fitted at a height of approximately 1m above the top of the door.

3.3 Earth Wires

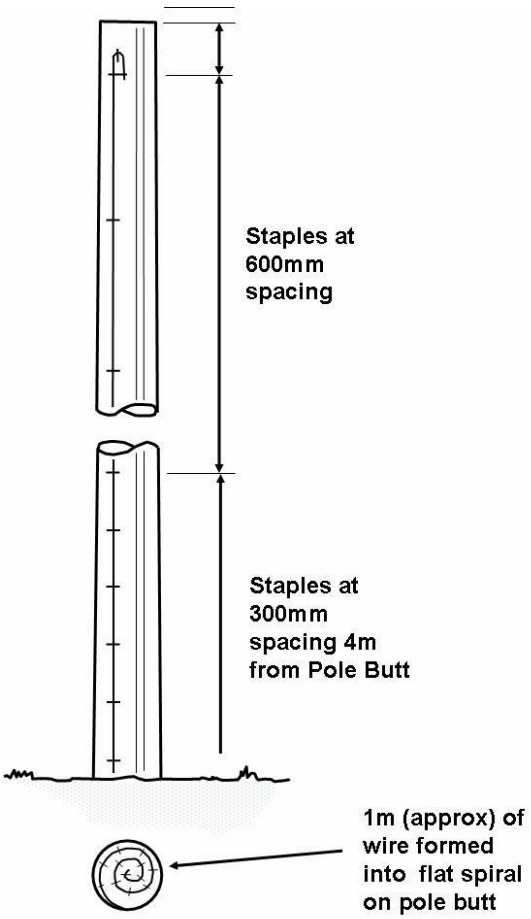
3.3.1 General

Glass Reinforced Plastic poles (now obsolete) were fitted with an earth wire. New steel hollow poles do not require an earth wire.

3.3.2 Fitting Earth wires on Wooden Poles

The Earth wire is run straight down the pole, from the top to the underside of the butt where approximately 1m of the wire should be formed into a flat spiral (see fig 4).

Figure 4 Earth Wire



It should be run clear of steps or other pole fittings to minimise the risk of local corrosion between dissimilar metals.

On distribution poles the earth wire should, whenever possible, be run in a line where it will be covered by the capping protecting the cable to the Block Terminal.

From the ground-line to a point 2m up the pole the wire should be stapled at 300mm intervals and above this point to the top of the pole at 600mm intervals.

The earth wire should be secured by Staples, Brass (25mm).

Do not hammer the staples in too hard as this can sever the wire.

For existing poles, or for newly erected poles when it is found that the earth-resistance is too high for the signalling requirements or lightning protection requirements provide an earth at the base of the pole, according to the Earthing Manual EPT/PPS/B025 and Lightning Protection Manual EPT/PPS/B055.

4 *Submarine Cable Marker Beacons - Re-fitting*

Submarine cable marker beacons are used to identify the position of submarine cables across any UK waterway to marine traffic (rivers, estuaries, beaches etc). These markers are designated as Local Aids to Navigation, and must meet the standards for visibility and availability set down by Trinity House, and/or the NLB/CoIL. Under the Marine Port Safety Code introduced in 2000, it is BT's responsibility to ensure that any beacons under its control meet these standards.

When a pole supporting a submarine cable marker beacon needs to be replaced the following process for re-fitting the beacon must be followed.

Submarine Cable Marker Beacon

Fitting the Diamond

Trinity House requires that the installation of the Top mark (Diamond) is at least 2m above MHWS (Mean High Water Springs).

1) The diamond is secured to the pole using the pre-formed universal bracket, which wraps around the pole and clamps the diamond to the pole. This bracket is held in place using the Nyloc nuts and washers provided onto the setscrews fitted to the diamond.

Note: The pre-formed bracket is designed to accommodate a variety of pole sizes, and so can be used for installation of the diamond onto all standard sizes of BT wooden pole stock. The locking nuts and washers are to be used on both sides of the pre-formed bracket to securely locate the final position of this bracket on the setscrews. The internal locking nuts and washers must be screwed all the way down the setscrew before the diamond is lifted into place.

2) Before final tightening of the pre-formed bracket nuts, the position & orientation of the diamond on the pole are adjusted to ensure it is at the correct height and provides maximum visibility.

3) (For Medium & Large diamonds only) When the diamond is correctly located on the pole, pilot holes for the Coach screws are drilled into the pole using a 6.5mm pilot drill through the diamond and mounting bracket. Coach screws are then secured through the front of the diamond & the back of the preformed bracket to help stabilise the diamond on the pole & prevent

rotation. Penny washers & silicon sealant are used on the front face of the diamond, and normal washers on the back of the pole.

4) Before completion of the diamond installation, check that all the nuts & coach screws are tightened securely, and will not work loose (the silicon sealant will help, but proprietary items such as Loctite No1 may also be used to help achieve this).

Fibreglass Diamonds & Fitting Kits:

Gendal Rainford Products, New Unit, Dudnance Lane, Pool, Redruth, Cornwall, TR15 3QX

'A stock of submarine cable marker diamonds and their fixings are held centrally & distributed by BT Subsea in Southampton. For allocation of a new diamond top mark, and the latest copy of installation procedure (SCS029), please contact BT's Marine Liaison Officer on 023 8082 9806 requesting the engineer responsible for Submarine cable marker beacons.'

Rear Coach Screw

Bracket mounting on back of pole

5 *Tools and Equipment Lists*

Item	Item Code	Notes	Supplier
Bolts Arm 6A, 8, 9, 10, 12, 14, 18 (Similar Steel Bars 375 mm x 12m for ground anchors)	 010550 010552 016329 010554 010556 010558 010562 Local Purchase		
Bolt Tie 2 3 4 6	010752 010753 010754 010756		
Brace Coach Screw	112089		
Brooms, Bass	Local Purchase	Ref. 342506 & 342513	Buck and Hickman Tel: 0114 2766660
Caps Pole 1A	016277		
Claw Hammer	127316		
Collar Hollow Pole 1	016317		
Collar Hollow Pole 2	016318		
Draw rope No 1	071830		
Hessian	Local Purchase	Untreated Hessian Cloth 36" Wide	Phillip Stamp & Co Ltd Unit 2 Tollemache Business Park Offton, Ipswich Suffolk IP8 4RT Tel - 01473 657770 ***E-Mail*** sales@philipstamp.co.uk
Rigging Head 1A	126687		
Rigging Weight 1A	126676		
Rod Duct 2	126277		
Hooks Aerial Cable No 1	016240		

Item	Item Code	Notes	Supplier
Horse Pole	126681		
Letters and Numbers Pole plastic A B C D E J L M S T 0 1 2 3 4 5 6 7 8	 012720 012721 012722 012723 012724 012725 012733 012734 012727 012287 013309 013310 013311 013312 013313 013314 013315 013316 013317		
Line Sash 2	115225		
Line Sash 15	126558		
Nut 5/8 inch Whit Square. Nut 16 mm	020780 129290		
Hollow Pole Numbering Labels	Local Purchase	A52058/0 to 9	Critchley Label Centre, Crumlin, Gwent, Tel 01495 244000 Fax 01495 272527
Plugs Creosoted	016266		
Ring Pole Head Dropwire	021240		
Ring Pole Head Stand-off 1A	016286		
Pole Timber Grab Hand Type	123476		
Hollow Pole Climbing Prohibition labels	Local Purchase	A220480	Critchley Label Centre, Crumlin, Gwent, Tel 01495 244000 Fax 01495 272527

Item	Item Code	Notes	Supplier
Rods Pruning	116127 x 3 116129 x 1 114525 x 1		
Rope 12mm 220m max loading	Local Purchase		Marlow Ropes Ltd HAILSHAM 01323 847234 or Bridon Fibers Ltd. Charlton, LONDON 0181 858 6121
Rope 16mm 220m 810kg	Local Purchase	As above	
Rope 24mm 220m 1830 kg	Local Purchase	As above	
Rope Cabling 1	126405		
Screws Coach	014700		
Sling Lifting 4A	126742		
Spanner Ring 9/16" x 5/8" BSW	116592		
Staples Brass 25mm	016274		
Staple Cable Stainless Steel	016275		
Steps, Pole No 1	015550		
Strap Tensioning 1A, 3m	126760		
Strap Tensioning 2A, 9m	126761		
Tensioner 3A	126762		
Thimble 4	015853		
Washers, Galvanised No 4	016152		
Washers, Galvanised No 16 17 18	 016161 016162 016163		
Wire, Copper Soft 1.4mm	054818		
Wrecking Bar	120170		

6 *References*

EPT/ANS/A010 - Specification for Poling Work

EPT/ANS/A012 - Specification for Aerial Cabling

EPT/ANS/A015 - Specification for Pole Strengthening

EPT/ANS/A020 - Specification for Lightening Protection

EPT/OHP/B034 - Poling Handbook - Mechanised Poling Practices

EPT/OHP/B037 - Poling Handbook - Manual Poling - Provision

EPT/OHP/B058 - Poles, General Information and Layout Policy

EPT/PPS/B025 - Earthing Manual

EPT/PPS/B026 - Code of Practice, Protection of Telecommunication Lines from Power Lines

EPT/PPS/B046 - Work on overhead BT lines in the vicinity of power lines

EPT/PPS/B055 - Lightning Protection Manual.

SFY/HSH/A001 - Health & Safety Handbook

SFY/HSH/C009 - Handling and Examination of Creosoted Poles. CGA/N207

SFY/HSH/D019 - Personal protective equipment

NWK/NNS/V025 - Poling

7 *Risk Assessment*

SFY/GRA/A005 must be used to assess the likely hazards that may be encountered during manual poling, and the measures that should be taken to reduce hazards where appropriate.

END OF DOCUMENT