

PATHFINDER 360 ALPHA

OVERHEAD LINE FAULT PASSAGE INDICATOR

INSTALLATION INSTRUCTIONS

JUNE 2009

1. INSTRUMENT IDENTIFICATION

- 1.1 The 360 Alpha has a label giving the model type at the head of the main label. This will indicate Model type 'S', 'D', 'F' or 'FD'.

NOTE: The Pathfinder 360 Alpha Comms has no Model label, and the model type is derived during the commissioning routine.

2 ASSEMBLY

- 2.1 The 360 ALPHA is packaged and delivered five instruments in a cardboard box. The aluminium bracket is fitted to the Pathfinder enclosure at the time of manufacture. If, for any reason the aluminium bracket is removed it should be reassembled as shown in Figure 2. Ensure the crinkled washer is under the bolt head and the solid washer under the nut. DO NOT overtighten the nut. The bracket must be fitted with the sloping edge of the bracket facing down.
- 2.2 The Pathfinder 360 Alpha leaves the factory fully tested and with the battery connected. The sealing cap is screwed down to form the required airtight instrument seal. Do not tighten the cap any further. The cap is correctly tightened when a small alignment marker in the side of the cap is aligned with the centre of the anodised aluminium bracket. See Figure 2. It is not necessary to unscrew the sealed cap of the instrument at the installation stage. This should only be necessary when the battery eventually needs changing.
NOTE: The Pathfinder 360 Alpha Comms is delivered with the battery disconnected – see separate Instructions.
- 2.3 An electronic transportation lock prevents spurious operation until the instrument is installed on site. Hold the magnet provided stationary on the clear beacon lens at the centre of the arrow on the test label. See FIGURE 2. The bright RED LED will light for about 5 seconds and then stop. The bright WHITE LED may flash. The Transportation Lock is now removed, and cannot be re-set.

3 BATTERY TEST

- 3.1 Hold the magnet provided stationary on the clear beacon lens at the centre of the arrow on the test label. See FIGURE 2.
- 3.2 When the magnet is applied in this position, the bright RED LED within the beacon lens will light for 3 - 4 seconds and then reset, during which time the bright WHITE LED will flash once. This indicates a HEALTHY battery. If the magnet is left in this position the bright WHITE LED will begin to flash. This is correct and confirms both battery and instrument are operating correctly.
- 3.3 If the LED fails to flash red OR flashes red and fails to reset within 3 - 4 seconds, then this indicates low battery power and the battery must be changed. See section 'BATTERY CHANGE'.

4 INSTRUMENT TEST

To test the 360 ALPHA (first remove the transportation Lock - see item 2.3):

- 4.1 Stand well clear of any strong magnetic or electric field. Indoors this would include computers and outdoors stand at least 10M clear of an 11KV line.
- 4.2 Swipe the magnet along the arrow on the label 'SWIPE MAGNET TO TEST' as if striking a match. See FIGURE 1. The bright RED LED will begin to flash for about 5 seconds and then stop. The bright WHITE LED will immediately commence flashing with an intense white light. (at intervals of between 10 & 12 secs) This is a correct instrument test result. If the instrument fails to operate carry out a battery test or call Bowdens (01306 743355)
- 4.3 To reset the instrument to the alert mode, hold the magnet on the centre of the test label. When the RED LED goes out remove the magnet. The WHITE LED will cease flashing and the instrument has been reset.

5 ON-SITE INSTALLATION

- 5.1 Select a clean intermediate wood or concrete pole which is not supporting any other equipment. Consult the Technical Specification or manufacturer for any variations or advice.
- 5.2 The instrument must be positioned approximately 3 metres below the lowest phase conductor. (Distance is not critical and may be within the limits 2.5 and 3.5 metres)
The body of the instrument must be positioned exactly below and in line with the centre phase conductor with the lens facing vertically downwards. See FIGURE 1.
On single phase lines the body of the instrument must be in the same relative position as for three phase lines.
- 5.3 The instrument can face towards or away from the source of supply.
- 5.4 The instrument can be attached to the pole using coach bolts through the holes in the support bracket base with one coach bolt through the top hole on one side and the bottom hole on the other. Do not overtighten.

NOTE: Ensure that the 90° angle of the bracket flanges is maintained - the flanges must not be flattened against the pole. See Figure 2.

- 5.5 Ensure the transportation lock has been opened, and the instrument tested, as above.

6 WHERE NOT TO USE ALPHA

Pathfinder 360 *ALPHA* indicators should not be used on poles in the following situations

- a) with underground cables
- b) with transformers
- c) with double circuit lines
- d) with tee off lines
- e) closer than 300 metres to 275 - 400 KV lines
- f) closer than 150 metres to 132 KV lines
- g) closer than 100 metres to 66 KV lines
- h) closer than 50 metres to 33 KV lines
- i) closer than 30 metres to 22 KV and 11KV lines
- j) closer than 100 metres to Railtrack HV overhead conductors

Conductor formation

Vertical formation lines or double circuit 'H' poles.

Closed ring circuits.

Other equipment

Poles supporting underground cables or aerial bunched conductors. (ABC)

Poles supporting underslung earth wires, telecoms circuits and low voltage power lines.

Poles supporting transformers or switchgear unless method of application is approved by the manufacturer.

7 BATTERY CHANGE

- 7.1 A battery changing kit is available from the manufacturer and comprises.
 - 1 x Lithium Thionyl Chloride 'D' Cell - 16.5AH.3.5volt complete with plug.
 - 1 x Silica Gel desiccant
 - 1 x Nitrile 'O' ring
- 7.2 Care should be taken when changing a battery on site to prevent ingress of moisture.
Unscrew the instrument cap, remove the old Nitrile 'O' ring and clean cap surface with a clean, dry, fibre free cloth.
Unplug and remove the old battery from its recess.
Carefully remove the white plastic silica gel desiccant from the base of the battery recess and replace with a new capsule.
Insert new battery into recess and plug into pcb socket. Red wire adjacent red dot.
Ensure that the matching 'O' ring surfaces are clean and dry with a smear of silicone grease over each. Replace instrument cap and screw down hand tight so that the alignment marker is in line with the centre of the anodised aluminium bracket. See Figure 1.
- 7.3 Carry out Battery Test to check operation. An Instrument Test can only be carried out if the overhead line is dead or away from a live line.

NON-RECHARGEABLE LITHIUM CELLS and BATTERIES

ADVICE on SAFE HANDLING

Lithium cells are very high energy systems and as such should be treated with respect. However, cells are designed with a safety vent, which will allow the quiet release of electrolyte under conditions of abuse. To ensure the trouble free use of lithium batteries, the following safety considerations must be observed:

1. TEMPERATURE

Cells and batteries should not be exposed to temperatures in excess of 70C (158F)

2. FUSES

Lithium multi-cell batteries are fused by the manufacturer. In some batteries a replacement fuse may be fitted. **UNDER NO CIRCUMSTANCES SHOULD THE FUSE BE REPLACED BY A HIGHER RATED FUSE OR A FUSE BY-PASSED.** If in doubt about replacing fuses, contact the battery manufacturer. Particular care should be taken that unfused single cells are not overloaded or shorted.

3. DISCHARGING

Do not attempt to discharge a lithium cell or battery at a greater rate than that recommended by the manufacturer. Do not force the discharge of single cell or multi-cell batteries as this may result in overheating.

4. DO NOT CHARGE

Never attempt to charge a lithium cell or battery. In the event of accidental charging, the cell or battery may overheat and vent.

5. MULTI-CELL BATTERIES

Do not use single cells to make up a multi-cell battery. If a multi-cell battery is required, consult with the manufacturer who will design and supply to specification.

6. DESTRUCTION

Do not open, puncture, crush or tamper with the cells or batteries as this will release the electrolyte and also expose materials which are potentially flammable.

7. CONTAINERS

Never use lithium cells or batteries in a completely sealed pressure container. A suitable relief device must be incorporated in the container.

8. PRECAUTIONS

In the event that a cell or battery is accidentally shorted or starts to heat up, it should be disconnected immediately and removed to the outdoors or to a well ventilated area to cool down, taking care to protect personnel and surroundings. Once stabilised to a safe condition, the cell or battery can be disposed of in the normal manner. Suitable protective clothing should be worn when handling suspect cells/batteries. If the skin has become in contact with the electrolyte, it must be washed with water.

9. DISPOSAL

Cell and batteries must be disposed of by a licenced disposal specialist. A certificate is issued following correct disposal. **DO NOT DISPOSE OF IN A FIRE.**

10. COSSH

Information is available from the battery manufacturer in connection with COSSH. Further information is also available from the battery manufacturer on battery safety and handling.

PATHFINDER 360 ALPHA

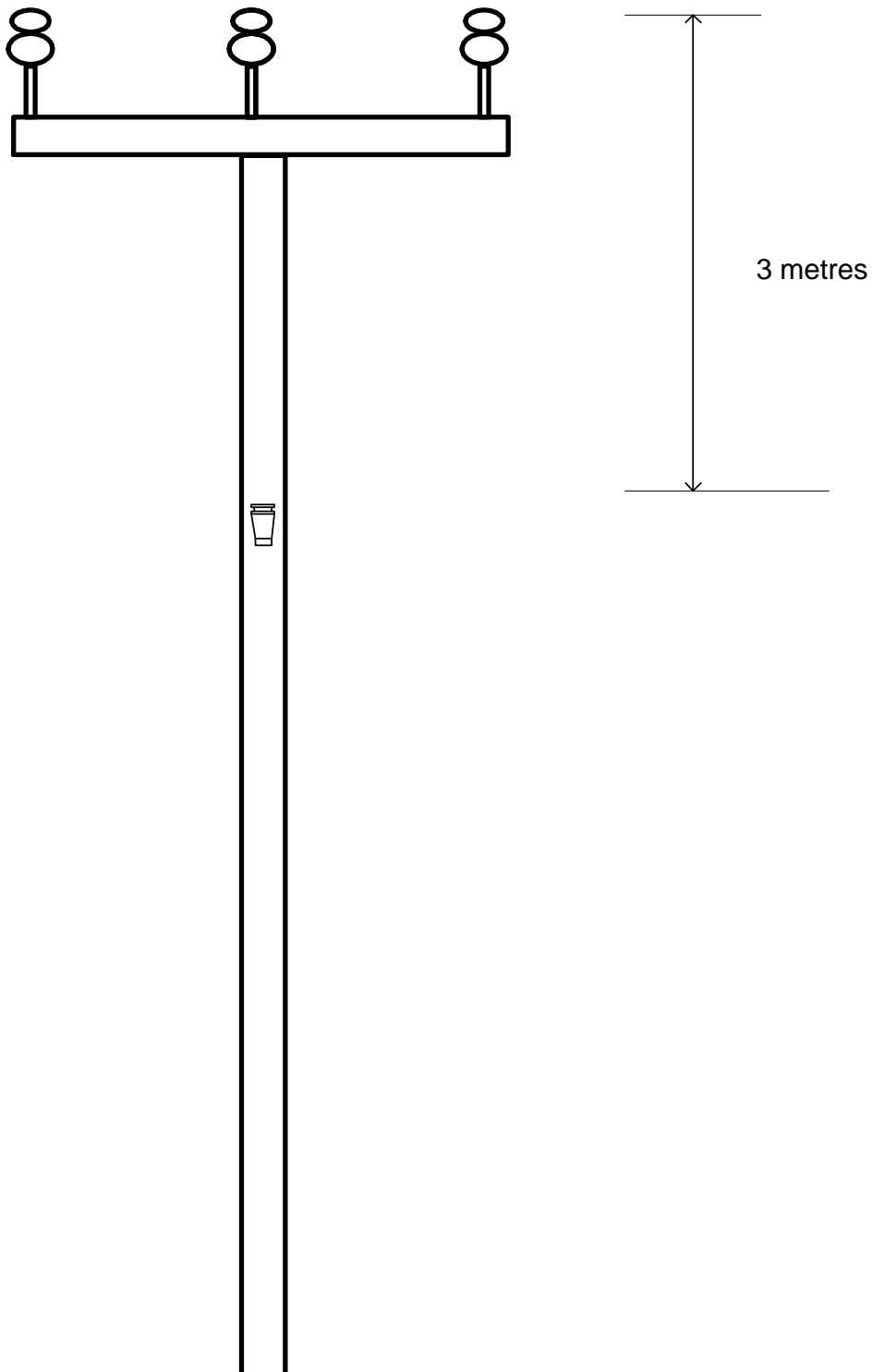


Figure 1.

PATHFINDER 360 ALPHA

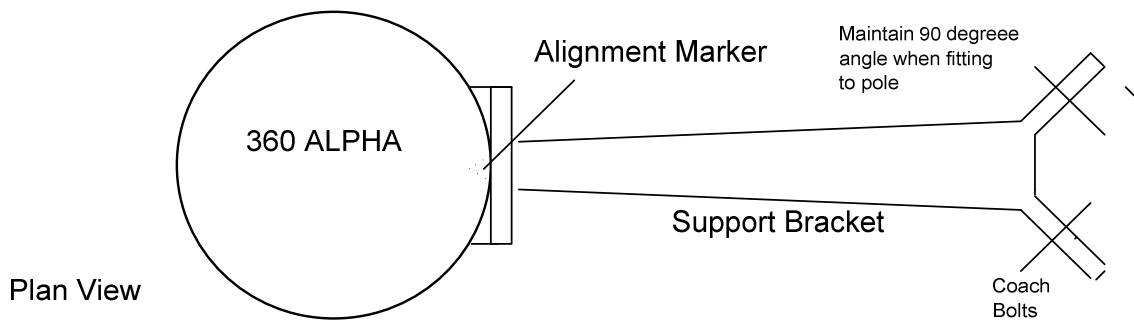
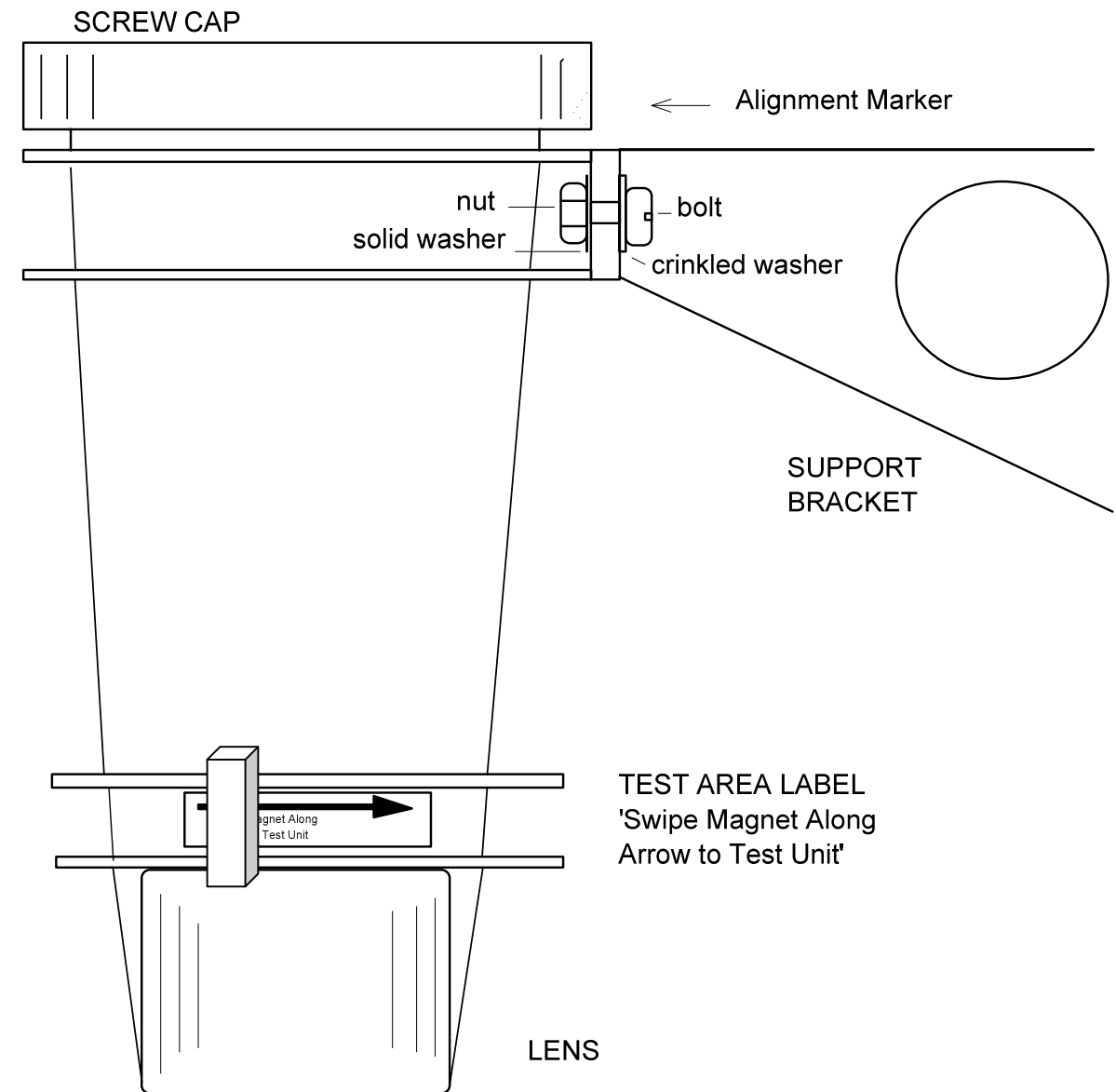


FIGURE 2

File: 360ALPIN.DRW