

2020

# PBwel



## P&B Weir Electrical Ltd. Rail Earthing Equipment

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## RAIL EARTHING EQUIPMENT

The PBwel range of equipment for use on the Rail track and the OHL network has been specifically designed with the UK rail industry and has a proven track record of many decades service. As well as supplying a standard range of approved equipment. PBwel also can design new solutions for any rail portable earthing requirement.

### SHORT EARTHS

PBwel supply various short Earths to the rail industry ranging from 1.5mtr Short Orange Earths to Blue Jumpers.

### DEP EARTHS

Standard DEP Earths are 1.5mtr long, with Arctic Orange Cable and CE62 Clamps at each end. However, leads can be supplied at any length if required, with either a CE62 or an S9B Clamp depending upon the application.

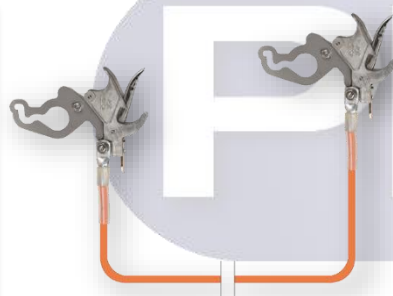
### SHORT BONDS AND JUMPERS

Bonds and Jumpers can be supplied at any length required for non-Network Rail applications. Please contact us to discuss your requirement.

### PRODUCT BENEFITS



- Lightweight
- Fully approved
- Solid construction



#### DEP SHORT ORANGE RAIL EARTH KIT 1.5M

The PBwel 1.5m Short Orange DEP Earth comprises two CE62 snap-on style line end clamps and an interconnecting 50 sq.mm and Arctic Orange Aluflex lead.

**Part Number:** MISC-00232  
**PADS Number:** 0091/020322

#### RAIL BLUE LEAD CONTINUITY KIT

Comprising of 2 x CE62 with removal plates and 8m blue lead.

**Part Number:** MISC-00280



#### RAIL CONTINUITY JUMPER KIT

Comprising of 2 x S9B clamps joined by a 50 sq.mm and 8m long blue lead.

**Part Number:** MISC-00287  
**PADS Number:** URLT/023549



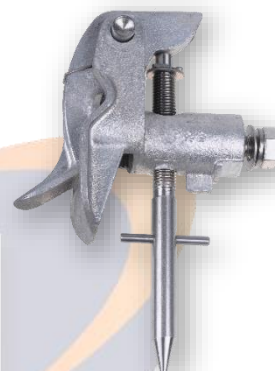
## CE62 LINE END CLAMP

The CE62 incorporates a stainless steel jaw, which is spring-loaded to reduce application and removal time associated with typical clamps of the screw type. The CE62 is suitable for a conductor range between 4mm to 20mm diameter. A stainless steel removal is added to ease the location and removal of the clamps.

Clamping Diameter:	4- 20mm
Short Circuit Rating:	12.5 kA/ 1s
Applied with:	Applicator Head
Weight:	0.434kg
<b>Part Number:</b>	<b>EFD-16733</b>
<b>PADS Number:</b>	<b>0091/012306</b>

## S9B SHORT TAPER LINE END CLAMP

Clamping Diameter:	6.3 - 38mm
Short Circuit Rating:	17.5kA/ 2s
Applied with:	Ring Type Op. Socket
Weight:	0.519kg
<b>Part Number:</b>	<b>FA3218-A</b>
<b>PADS Number:</b>	<b>0091/020527</b>



## LONG EARTHS

Long Blues are generally 8mtr in length, however, any length can be provided if specified for non-Network Rail work. Although an S9B to J117-D configuration is standard, Long Blues can also be supplied with CE62 Clamps (not Network Rail approved).

## INTERLOCK EARTHS

Interlocked earths provide the same connections as a regular Long Blue, however, the Clamps utilise a lock-and-key system where the Earth End is removed using the line end. This ensures that Engineers do not accidentally disrupt the path to earth prematurely as the Earth End can only be removed by using the line end clamp.

Line end clamps are available in an S9B style or CE5 style (designated S9Bi and CE5i respectively).



## RAIL NON-INTERLOCK LONG BLUE

Comprising of 1x 8m blue earth lead with J117-D one end and S9B the other end.

Short Circuit Rating:	8.9kA/ 1s & 12.5kA/ 0.25s
<b>Part Number:</b>	<b>MISC-00250</b>
<b>PADS Number:</b>	<b>0091/012210</b>



## S9B STYLE INTERLOCK

Long Earth comprising of CE63 Earth end and S9Bi line end clamps, interconnecting 50 sq.mm and 8m long blue Aluflex lead.

Short Circuit Rating: 8.9kA/ 1s & 12.5kA/ 0.25s

**Part Number:** EFT-16726

**PADS Number:** 0091/012188

## CE5 STYLE INTERLOCK

Line Earth comprising of CE63 Earth end and CE5i line end clamp and interconnecting 50 sq.mm blue Aluflex lead x 8m long.

Short Circuit Rating: 8.9kA/ 1s & 12.5kA/ 0.25s

**Part Number:** EFT-16741

**PADS Number:** 0091/012568



## J117-D RAIL CLAMP

The J117-D clamp is designed for fitting to all types of rail commonly used throughout the UK. The clamp is ruggedly constructed from steel, which is zinc galvanised to protect from site atmospheres. Busbar material aluminium. The J117-D clamp contact arrangement allows for the use upon both 'flat-Bottomed' and 'Bull-Head' rail types.

**Part Number:** EFT-16736

**PADS Number:** 0091/002251

## J117 NSE CLAMP

The J117-NSE clamp is designed for fitting to all types of rail commonly used throughout the UK. The clamp is ruggedly constructed from steel, which is zinc galvanised to protect from site atmospheres. Copper busbar tin-plated. The J117-NSE clamp contact arrangement allows for the use upon both 'Flat-Bottomed' and 'Bull-Head' rail types.

**Part Number:** EFT-16729

**PADS Number:** 0050/001303





## SHORT CIRCUITING STRAPS

Short-Circuiting Straps are used to short the positive and negative circuit of a d.c Feeder section. Each Strap consists of three J117-NSE clamps fitted with insulated flexible copper leads. Short circuit straps have been fully tested and approved by Network Rail.

The body of the J117-NSE has an insulating shield to prevent welding to the Rail in the event of a fault current. Clamps are suitable for fitting to both Bull-Head and Flat-Bottomed rails and use a hardened steel tip to penetrate corrosion. Network Rail approved alternative lengths and tamperproof clamp variants can also be provided if required.



### SHORT CIRCUITING STRAP

Each strap consists of three J117-NSE clamps fitted with flexible insulated copper leads.

**Part Number:** EFT-16732/1

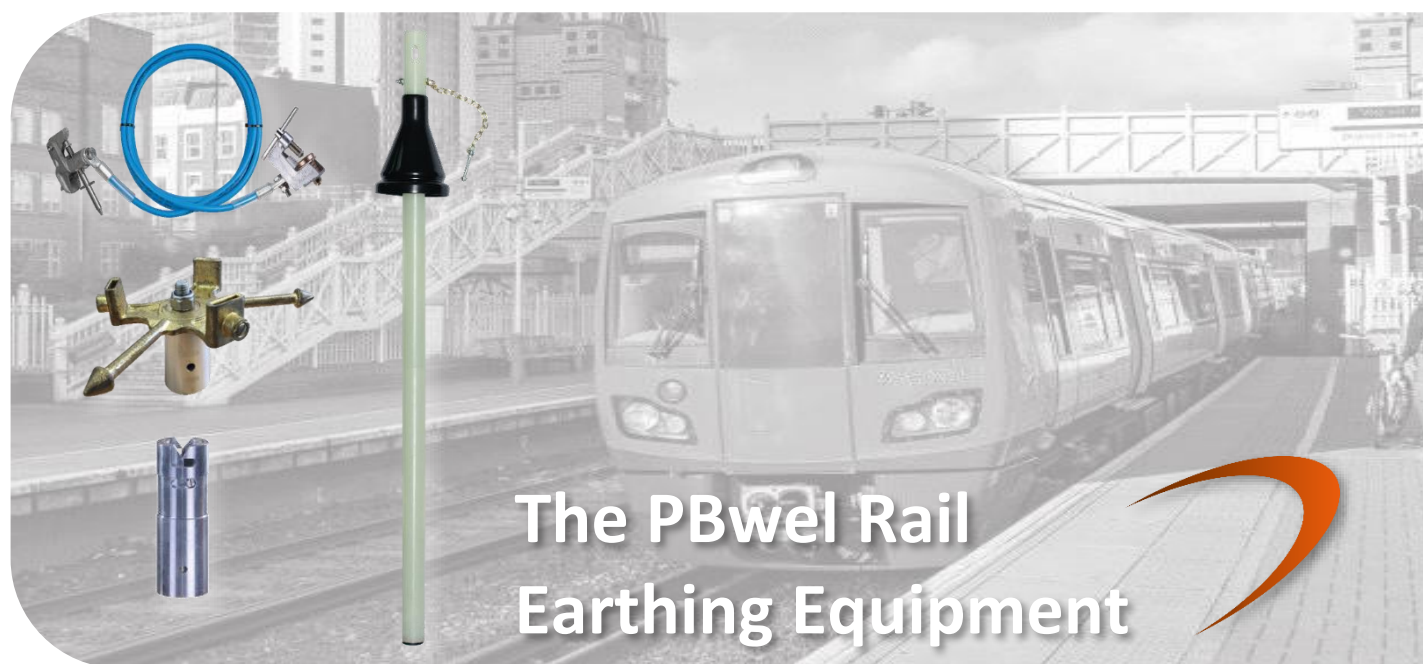
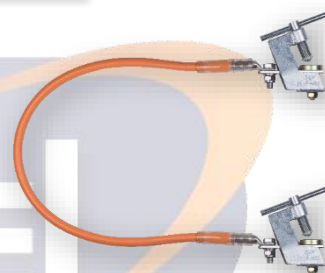
**PADS Number:** 0091/012196

## RAIL SHORTING BOND

Two off J117-NSE clamps interconnected by 70mm insulated tinned copper cable assy x 1.8mm long. Alternative lengths are available.

**Part Number:** EFT-16735/1

**PADS Number:** 0050/001303



## The PBwel Rail Earthing Equipment

## OPERATING POLE KIT

PBwel supply Operating Pole kits which are fully approved for use upon the Rail Network. Sections are manufactured from a lightweight resin-impregnated electrical insulation grade fibreglass.



### NETWORK RAIL POLE KIT (PARTS AVAILABLE SEPARATELY)

The kit comprises of 1 x Top Section Pole, 1 x Primary Insulator Pole, 3 x Intermediate Section Poles, 1 x Applicator Head + Adaptor, 1 x Bottom Section Pole and 1 x Carry Bag.

**Part Number:** MISC-00341  
**PADS Number:** 0091/012305

### PRIMARY INSULATOR POLE

Primary insulator pole conforming to Network Rail specification NR/PS/ELP/27188.

**Part Number:** EFT-17451  
**PADS Number:** 0091/012470

### 4' TOP SECTION RAIL POLE Style 1 (PBwel Pattern)

**Material:** Glass Cloth reinforced epoxy resin tubing.  
**Length:** 4ft (1.22m)  
**Weight:** 0.700kg  
**Part Number:** EMR-18180  
**PADS Number:** 0091/002062

### 4' TOP SECTION RAIL POLE Style 2 (Bowthorpe Pattern)

**Material:** Glass Cloth reinforced epoxy resin tubing.  
**Length:** 4ft (1.22m)  
**Weight:** 0.700kg  
**Part Number:** EFR-18181  
**PADS Number:** 0091/002356



## 4' INTERMEDIATE SECTION POLE RAIL

Material: Glass cloth reinforced epoxy resin tubing.  
 Length: 4ft (1.22m)  
 Weight: 0.700kg  
**Part Number: EFR-18183**  
**PADS Number: 0091/002061**

## 4' BOTTOM SECTION POLE RAIL

Material: Glass cloth reinforced epoxy resin tubing.  
 Length: 4ft (1.22m)  
 Weight: 0.700kg  
**Part Number: EFR-18182**  
**PADS Number: 0091/002480**  
 Can be used in conjunction with 8ft sections to make up the required length

## DISPENSING HEAD WITH PBwel ADAPTOR

Pole Type: Bowthorpe Pole  
**Part Number: EFT-20126**  
**PADS Number: 0091/001986**

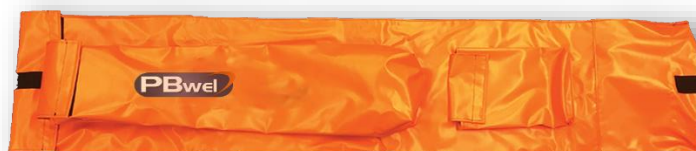
## DISPENSER HEAD MT630C M/C

**Part Number: EMT-20127**

## RAIL OPERATING POLE KIT BAG

Material: Nylon Reinforced PVC  
**Part Number: EBB-18514**  
**PADS Number: 0111/196948**

*Pole kits can also be supplied with a range of fittings such as CEA/S2 socket, P331 socket, alternative adaptors for applicator heads or additional pole sections. Please enquire for details.*



## TREE PRUNING EQUIPMENT

The PBwel range of tree pruning equipment is ideal for removing branches and tree debris from near overhead lines.



### SAW PRUNING HEAD ASSEMBLY

Suitable for fitting to standard Bowthorpe type top section poles.

The curved 6-TPI blade is 355mm long and manufactured from lacquered stainless steel to ensure long service life.

**Part Number: EFS-18324**



### BRANCH CLEARANCE SAW

Suitable for fitment to middle section Bowthorpe style poles. The curved 6-TPI blade is 355mm long and manufactured from lacquered stainless steel to ensure long service life.

**Part Number: EFD-18404**



### TREE PRUNING HEAD

High quality steel side action cutting blade. Suitable for fitting upon a standard Bowthorpe type top section operating pole. Able to cut branches up to 44mm diameter. Fitted with a nylon operating cord, for ease of use from ground level.

**Part Number: SK130296-0/1 (Top pole fitting)**



### PRUNING SAW ADAPTER

Pole type: Spigot Pole

Application: Allows fitting of Pruning Saw

**Part Number: EMS-18320**



## RAIL HEADS AND SOCKETS



### CEA/S2: ESI-S2 OPERATING SOCKET

Sprung bayonet socket recommended for use with S9Bi and CE5i clamps. Provides greater control of clamp. Fits PBwel Top Pole directly or Bowthorpe Top Pole using Adapter 4927.

Weight: 0.385kg

Part Number: EFS-11203

PADS Number: 0054/063207

### FEMALE SPIGOT ADAPTOR

Pole Type: Bowthorpe Top Pole

Application: Allows fitting of PBwel heads to Bowthorpe Poles

Part Number: 4927

PADS Number: 0054/003008



### P331 OPERATING SOCKET

Pole Type: Bowthorpe Top Pole

Taper Type: Long or Short Taper

Part Number: EFS-18314

PADS Number: 0091/020526

### P3313 OPERATING SOCKET

Pole Type: Bowthorpe Top Pole

Fuse Type: LEL or S&E Fuses

Part Number: EFS-18319

PADS Number: 0091/002477



### DISPENSING HEAD WITH PBwel ADAPTOR

Pole Type: Bowthorpe Top Pole

Part Number: EFT-20126

PADS Number: 091/001986



## SIGNAL SIGHTING TARGET

The PBwel Signal Sighting Target features a flashing white LED light array, to aid signal sighting in poor visibility conditions. Developed with Network Rail. Suitable for sighting ground and standard signals.



### SIGNAL SIGHTING TARGET COMPLETE KIT

SST LED target unit, ground signal foot, standard signal foot, primary insulator pole & high visibility durable fabric reinforced pvc carrying bag.

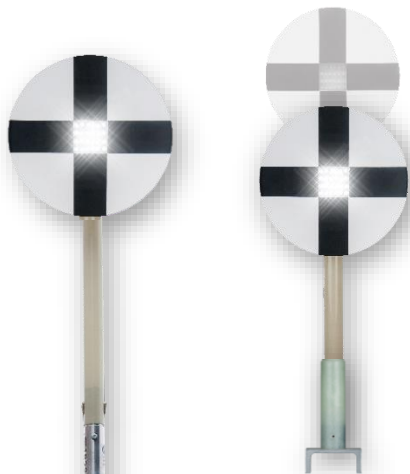
**Part Number:** EFT-17479

**PADS Number:** 0086/011540



PBwel





## SST LED TARGET UNIT

Part Number: EAT-17480

PADS Number: 0086/011542

## SST FOOT LONG BOTTOM POLE

For sighting standard signals.

Part Number: EFT-17400

PADS Number: 0086/011541



## SST FOOT SHORT BOTTOM POLE

For sighting ground signals.

Part Number: EFT-17477

PADS Number: 0086/011543



## SST CARRY BAG

Size: 1550mm x 420mm

Specification: with velcro fastening top flap and 50mm webbing strap with outside pocket.

Part Number: EBB-18512

PADS Number: 0086/011545





## D3/LLI

The D3/LLI Live Line Indicator is a resistive type voltage detector designed for use on overhead a.c. rail electrification systems operating at 25kV nominal voltage. The 'LLI' threshold is specified as  $12\text{kV} \pm 5\%$ , however, it should be noted that induced voltages could reach 10kV.

The unit is designed to be mounted on approved fibreglass earth poles with the pole immediately below the indicator being the primary insulator (ref EFT-17451 - 0091/012470). The signal emitted by the D3/LLI is both audible and visible. Power is provided by a rechargeable battery, housed within the main unit. The battery can be charged in situ using the charger supplied.

The D3/LLI comprises a main unit and a contact probe. The contact is manufactured from lightweight fibreglass tubing and houses the calibrated resistor stack. The pole section is foam-filled to increase the voltage that it can withstand. The probe is connected to the overhead line by an aluminium hook. The top of the pole is coated in a special high reflectivity paint to ease visibility when applying the indicator in poor lighting conditions and a limiting collar is fitted to demark the limit of any electrified lines. The Earth connecting lead is designed to fuse should the unit be misused by applying the main unit directly to traction current and the cable is housed in a protective jacket to shield the operator.

## PRODUCT BENEFITS

- True  $12\text{kV} \pm 5\%$  Threshold
- Audible and visual warning
- Self-test Function
- Fully interchangeable
- Insulation tested
- Compatible with primary insulator poles

## D3/LLI LIVE LINE INDICATOR COMPLETE KIT

Kit consisting of main unit assembly, contact probe assembly, magnet & lead assembly, battery charger, Westminster rail bag and rechargeable battery.

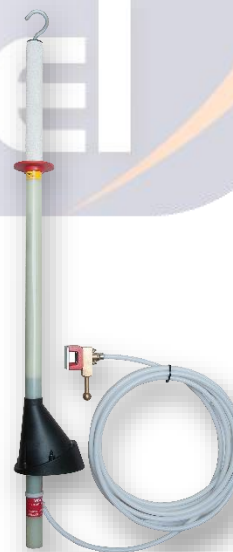
**Part Number:** EFT-17413



## D3/LLI CONTACT PROBE ASSEMBLY

Replacement probe assembly

**Part Number:** EAT-17417

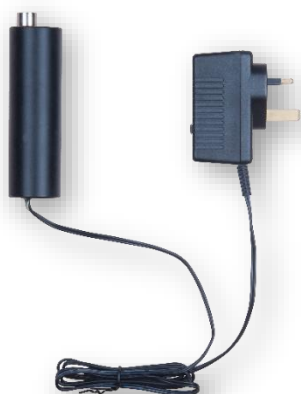




## D3/LLI MAIN UNIT

Replacement main unit, supplied with a magnet and lead assembly.

**Part Number:** EAT-17415



## D3/LLI BATTERY CHARGER

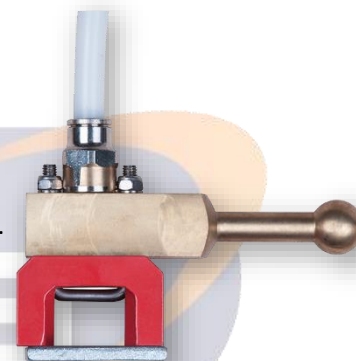
D3/LLI Battery charger for use with nickel-metal hydride PP3 rechargeable battery within the D3/LLI main body.

**Part Number:** EFT-17437

## MAGNET & LEAD ASSEMBLY

Requires factory replacement within main unit.

**Part Number:** EAT-17429



## WESTMINSTER RAIL BAG

**Material:** Orange PVC Fabric Re-enforced

**Dimensions:** 1310mm long x 400mm wide

With Velcro fastening top flap & 25mm webbing shoulder strap.

**Part Number:** EBT-18505

## OTHER PARTS AVAILABLE

Part Number	Product Description
EBT-17405	Replacement Battery (Rechargeable)
EMT-17404	Battery Removal Tool
EAT-17417	Contact Probe
EMT-17433	Magnet (Only)
EFR-18183	Standard Bottom Insulated Pole Section with Rainshield
EFR-18184	Standard Bottom Insulated Pole Selection without Rainshield

## C31 LIVE LINE INDICATOR

The C31 Detector is designed for use on overhead a.c. electrified systems operating at 25kV nominal voltage, to indicate the presence of Traction voltage.

The C31 kit contains a Live Line Indicator supplied in a tough protective carry case, a high voltage probe and hook, an 8m long arctic orange 50mm<sup>2</sup> Aluflex Lead with J117 Rail Clamp and a Battery Charger for charging the C31's internal battery.

The C31 incorporates several important safety features including Dual Independent Circuitry, meaning the analogue meter and the LED indicators work completely independent of each other. If one circuit fails, the other will keep on working for your safety.

**Automatic "Meter Prover"** operates every time the tester is turned on, proving the function of the detectors' circuits and also proving the electrical and mechanical operation of the analogue meter.

**"Triple Resistor Sets"** to ensure that, in the unlikely event of one HV resistor failing, there is still sufficient resistance to safely protect the operator and the equipment. The resistors are tested at 40 kV a.c.

**The 50mm Aluflex grounding cable** will safely conduct the full current of the OHL system in the event of a catastrophic failure of the equipment, such as direct contact of the main housing with the overhead line. Automated Test Cert Validation warning lights will flash when test certificate has expired.

## PRODUCT FEATURES

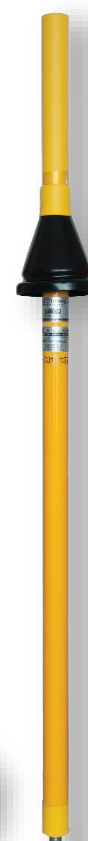


- Dual Independent Circuitry
- Automatic Meter Prover
- Triple Resistor Set

**Part Number:** MISC-00140  
**PADS Number:** 0091/012337

## SPECIFICATION

Range:	0-30kV a.c.
Threshold:	11kV ± 500V
Test Duration:	<25kV 10 mins >25kV 1 min
Absolute Max Rating:	40kV a.c.
Accuracy:	Analogue 2%
Analogue Op. Temp:	-40C to +70C
Lead Op. Temp:	-10C to +50C
Test Current:	0 - 200µA
Seal Rating:	Tester body IP65, Probe and Gauge IP68



**REFLECTIVE  
YELLOW BAND**



**RAIN SHIELD**