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Zollner Location Case

Operation & Maintenance Manual

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1 Introduction

This document is designed for use by the maintenance staff (technicians and their supervisors) to maintain (fault find, repair or replace) components of the Zollner Location Case system and associated components.

Throughout this document, references will be made to other essential information and documentation either prepared by HW or provided from the equipment supplier/manufacturer.

After safety issues are discussed in Chapter 2 this manual follows a logical path from Description of the relevant components, equipment installation, repair/replacement, routine maintenance and finally a spare parts listing.

- **Chapter 2: Safety**
Gives details of any relevant safety issues to be observed in the use and disposal of the equipment.
- **Chapter 3: Details of Zollner Location Case Equipment**
Gives details of the Zollner Location Case system and equipment.
- **Chapter 4: Zollner Location Case Installation**
Gives details on installation of the Zollner Location Case Installation.
- **Chapter 5: LEMUR Product**
Details the recommended maintenance checks required for LEMUR coating if applied.
- **Chapter 6: Maintenance**
Details the recommended maintenance checks required to ensure the ongoing correct operation of the system.
- **Chapter 7: Part Numbers**
Lists the main parts of the system complete with Supplier and Part numbers to aid in the re-ordering of spare parts.

1.1 Maintenance Policy

The Zollner Location Case system comprises highly reliable components. However, should a fault occur, the respective unit can be completely replaced or repaired.

1.1.1 Component Repair

Repair of the Zollner Location Case system is assumed to be limited to replacement of either failed complete components or wiring replacement as necessary.

To summarise, the maintenance policy is one of "Repair by Replacement" since:

- Internal components are relatively inexpensive with respect to the cost of fault diagnosis and repair.
- Most internal components are interchangeable although some disassembly may be required for access.

1.2 Competencies and Training Requirements

Staff with the responsibility for installation and maintenance of the Zollner Location Case system must hold the required Network Rail licenses.

The training will provide the skills and knowledge needed to identify faulty modules/components and the correct procedures for their replacement. Training for the repair of line replaceable units (modules) is not available. Line replaceable units, where appropriate will be returned to the manufacturer for repair or replaced from spares where repair is not practical.

1.3 Glossary of Terms and Abbreviations

HW	Henry Williams - A Division of Trackwork Limited
Loc	Location/Location Case/Trackside Enclosure
mm	millimetres
VAC	Voltage (AC) Alternating Current
VDC	Voltage (DC) Direct Current

1.4 Drawing References – Zollner Location Case Systems


Each Zollner Location Case system is provided with a complete set of drawings. As the requirements of each system may be different, each drawing set is individual to each system build.

The drawing set for each Zollner Location Case system typically consists of:

- HW Layout drawing – General Arrangement (Inc. parts list).
- HW Circuit drawing – Wiring Diagram
- Zollner Circuit drawings (Provided by Zollner)

The user must ensure that the correct drawing set is used before any maintenance or repair work is carried out.

The drawing to use should be the correct version of the drawings detailed in Figure 1. This provides the generic wiring for a Zollner Location case. For the wiring of the Zollner equipment, then use of the correct version of the Zollner drawings should be used.

CUBICLE ID:		
	Henry Williams Ltd - Electrical Projects	DARLINGTON ENGLAND
PRODUCED <i>E. Stedensom</i>	Zollner Location Case Wiring Schematic	DWG. No
CHECKED <i>[Signature]</i>		2020.003-A1-001 E001
APPROVAL <i>[Signature]</i>	The copyright and all other rights related to this drawing or document remains at all times with Messrs. Henry Williams Ltd. Without their written authorisation it must neither be copied or reproduced nor be communicated or rendered acceptable or profitable in any form to any third parties.	ISSUE J


PART DESCRIPTION: ZOLLNER CASE - FITTED				HW DRAWING No: 2020.003-A1-001			
				PARENT PROJECT:			
	NAME	SIGNATURE	DATE	A2			
DRAWN:	M. Brewster	<i>M. Brewster</i>	13/02/2020				
CHECKED:	S. Ward	<i>S. Ward</i>	02/03/2020				
APPROVED:					SHEET No. 1 of 4	REVISION No. M11	NOT TO SCALE

Figure 1: Drawing Borders of HW drawings

2 Safety

2.1 Supply Details. Isolation and Risk of Electrocutation

The Zollner Location Case is designed to work with 230VAC TN supplies and as such there is a danger of electrocution once any of the doors are opened, and covers are removed.

The maximum cable size the Distribution Board will accept is 25mm.

The Distribution Board is rated at 100A.

The maximum load of the cabinet is 1A @ 230VAC.

All electrical power feeds to the Zollner Location Case system MUST be ISOLATED. and LOCKED OFF BEFORE opening any of the internal SafeBox doors or removal of any of the covers.

A 230VAC supply voltage is commonly used inside power & signalling cubicles, therefore any personnel working inside these units should be appropriately trained. It should also be noted that all electrical equipment is mounted inside a locked enclosure, which also has large caution labels clearly visible from the front and rear.

Personnel working on any Zollner Location case should be appropriately trained to work with dangerous voltages and be fully conversant with the power circuitry. All connections are shrouded to prevent accidental contact with personnel (fingers etc.) however dangerous voltages may be exposed when using tools such as screwdrivers etc.

Once Isolation has been carried out, it is essential that a proved* voltage indicator is used to recheck that all electrical equipment is dead prior to any works being undertaken.


* It is recommended to use a proving device with the voltage indicator to check for correct operation both before and after checking that the equipment to be worked upon is dead.

2.2 Lifting & Trapping

Zollner Location case systems are very heavy (approx. 250-350Kg) and extra care should be exercised when handling these units. The location case is fitted with external lifting eyes which should be used along with suitable lifting equipment. As per the regulations, the load should be assessed prior to any lifting being carried out.

Each of the location case enclosures is designed with lifting eyes on each side. These have been independently tested with a load weight of 1,000Kg. According to LOLER regulations @ 200% this gives a SWL of 500Kg.

CAUTION! – Zollner Location Cases contain heavy equipment.



**These not only increase the weight of the overall unit,
and may also affect the centre of gravity.**

THE LOAD MUST BE ASSESSED PRIOR TO LIFTING

The Manual Handling Regulations should be taken into account when lifting heavy items.

There is a risk of trapping of fingers when heavy units are moved into/out of the enclosure. It is recommended that heavy duty gloves are worn when carrying out this process.

All enclosures are fitted with metal hooked door stays which should be used to prevent accidents or damage due to wind or other unforeseen circumstances from closing the doors on unsuspecting personnel.

2.3 Disposal of Equipment

Due consideration must be given when disposing of equipment.

Environmental regulations and standards are continually being updated and therefore a risk assessment must be undertaken at the time of equipment disposal.

None of the Zollner Location Case components contain batteries or other toxic materials.

For Zollner Equipment refer to the manufacturer's literature.

**The equipment must be disposed of in accordance with the
Waste Electrical and Electronic Equipment (WEEE) Regulations**

2.4 Fuse Ratings

All fuses should be voltage rated to at least the operational voltage of where they are fitted in the circuit.

The Amperage rating of each fuse is clearly shown on the electrical schematic drawings included with each Zollner Location case system.

It is important that any blown fuses be replaced by fuses of identical rating (both Voltage Rating V, and Current Rating A).

3 Details of the Zollner Location Case Equipment

3.1 General Information

The Zollner Location case is a location case style enclosure which houses a Class I Distribution System for the supply of the following:

- Internal Light
- Internal Anti-Condensation Heater
- 230VAC/24VDC 20A Power Supply for the Zollner equipment

3.2 Zollner Location Case General Arrangement

The photographs below show the layout of the Zollner Location case.

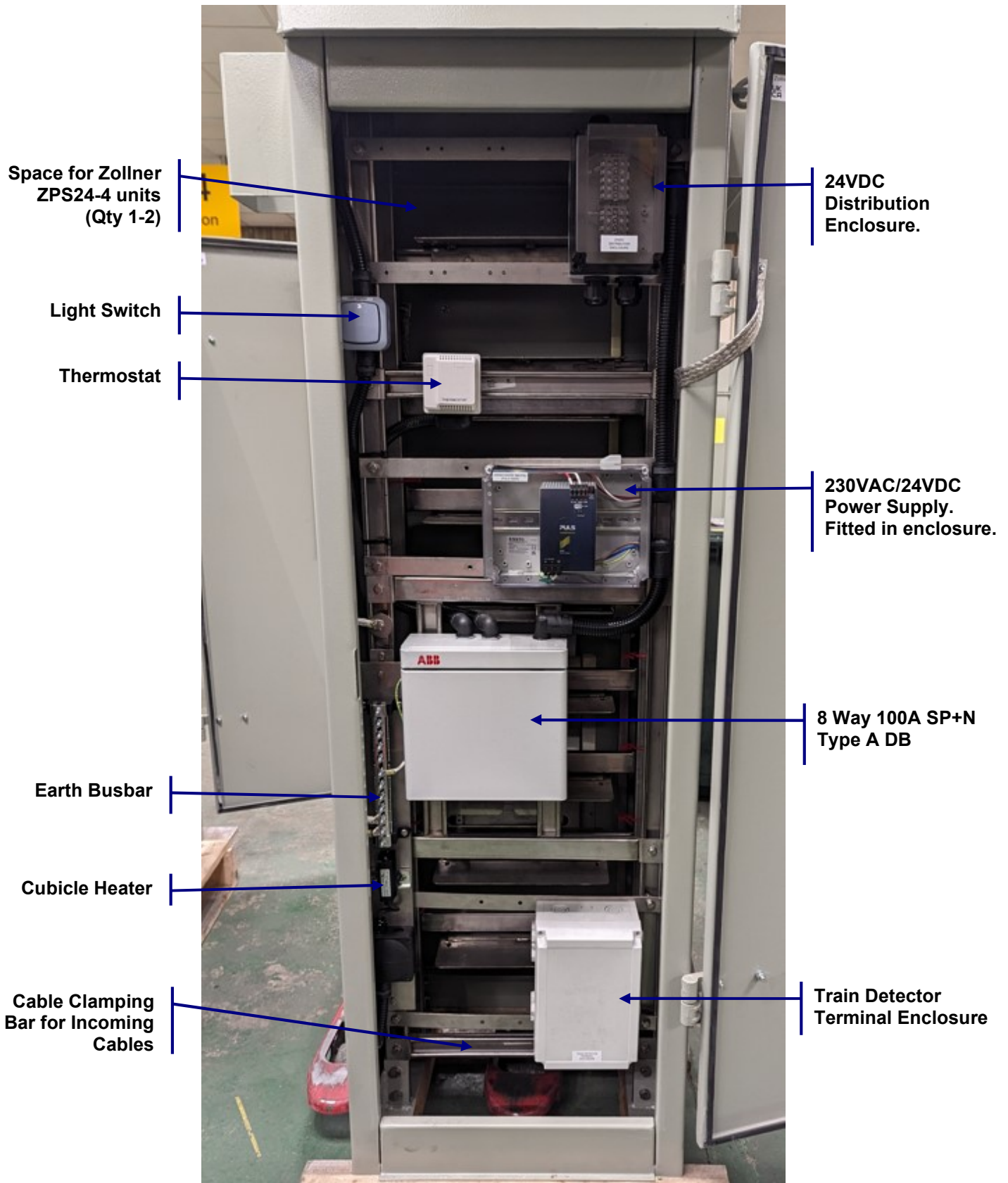


Figure 2: Zollner Location Case Front Arrangement

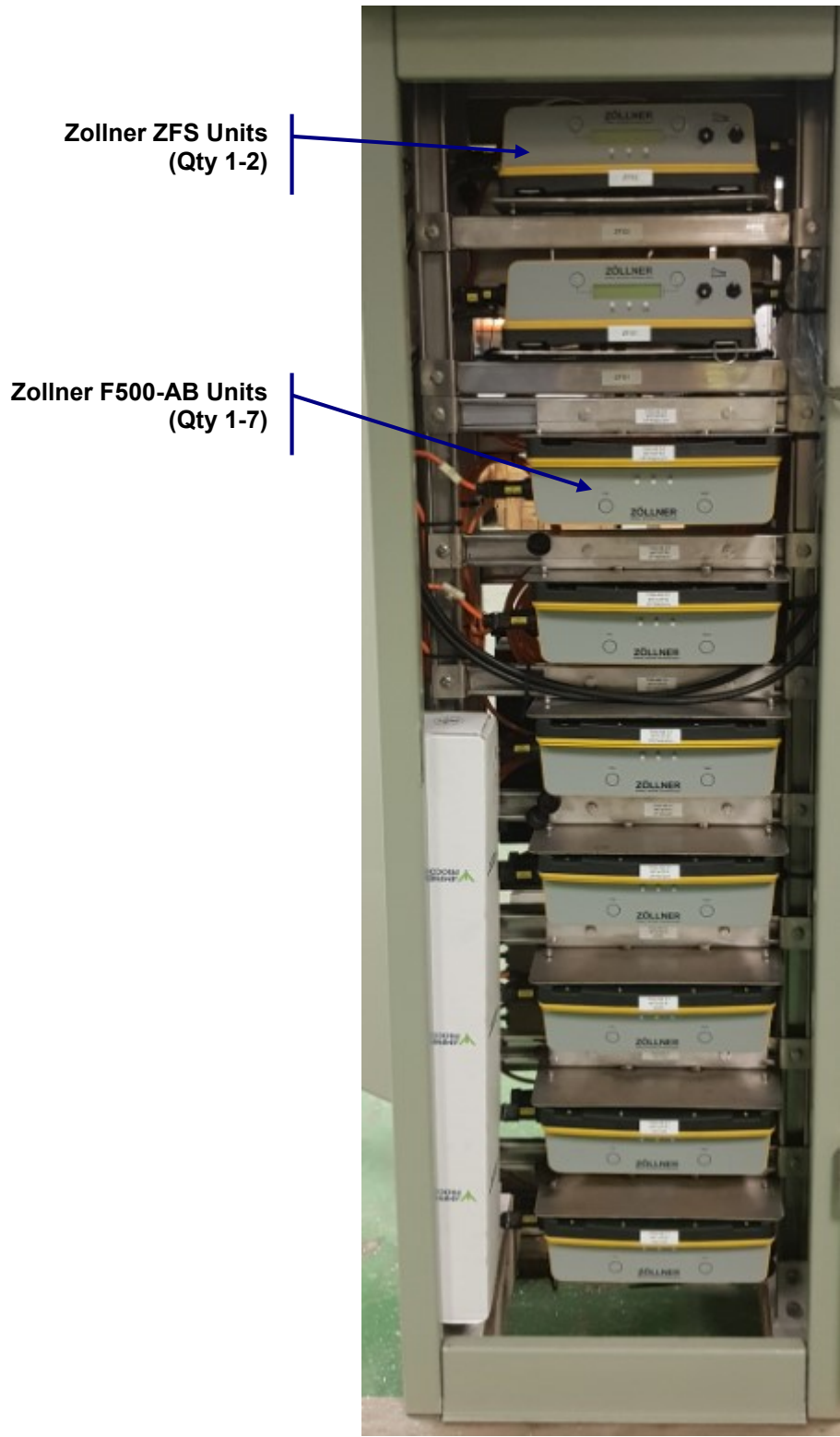


Figure 3: Zollner Location Case Rear Arrangement

4 Zollner Location Case Installation

4.1 Installation of Zollner Location Case to Base

The Zollner Location Case is designed to be installed onto a standard 'small' size location case base as shown in the drawing extract below:

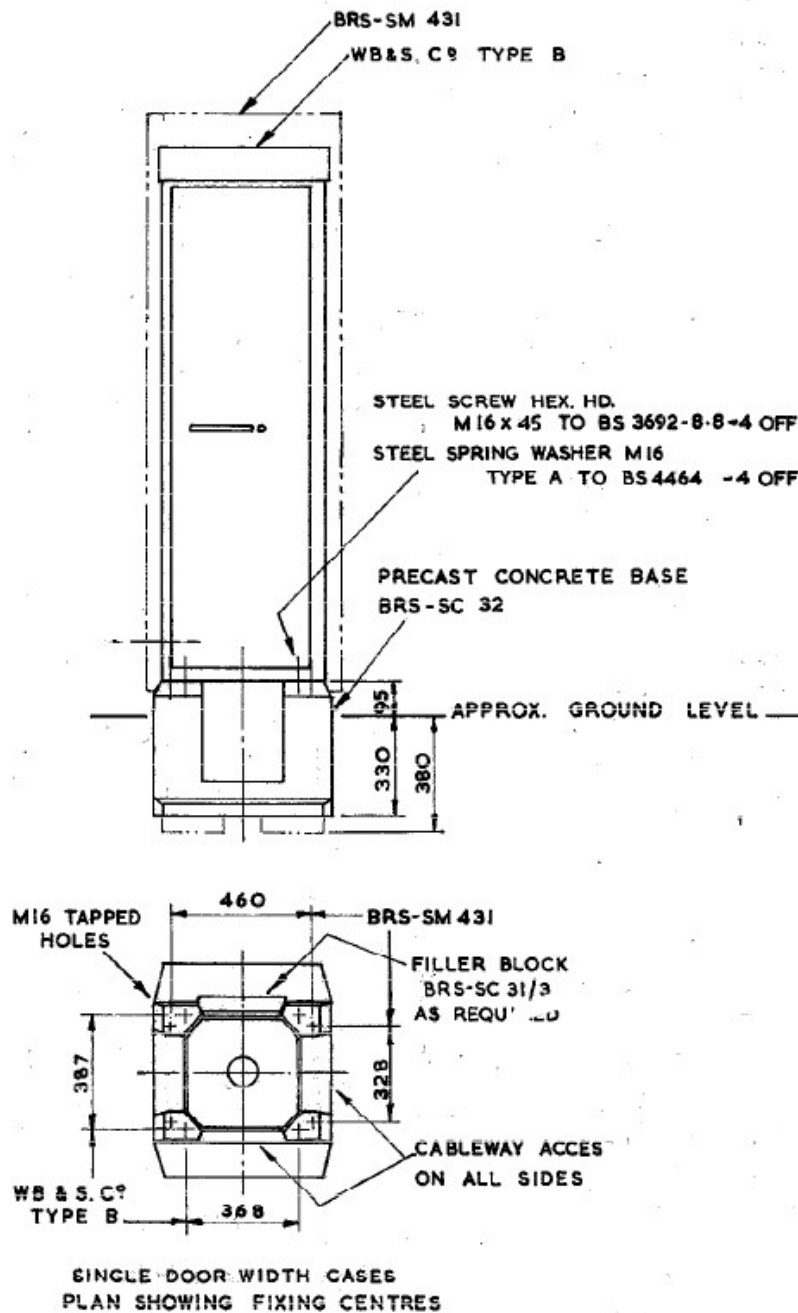


Figure 4: Zollner Location Case fitting to Base Detail

For approved base assembly complete with corner units, filler blocks and fixing kit it is recommended to purchase CAT No. K004/104274.

5 LEMUR Products

Where applied, maintenance regarding LEMUR products, refer to LEMUR manual (TECH173-LEMUR-AG15)

Careful handling is required when assembling flat pack cases to ensure no damage occurs to LEMUR coating. All damage to Lemur coating to repaired to instructions in LEMUR manual.

6 Maintenance

All electrical power feeds to the Zollner Location case unit MUST be ISOLATED and LOCKED OFF prior to accessing connections, terminals or the removal of access covers.

6.1 Replacement of Components

The internal components can be replaced with new on a like-for-like basis as required. For reference, the part numbers for the main components used within the Zollner Location Case are given in the parts list table on each General Arrangement Drawing.

6.2 Annual Procedure

It is recommended that the following work be carried out yearly:

- General visual inspection as to the condition of the enclosure and components within (including wiring).
- Check presence & legibility of all I.D. labelling and warning notices.
- Check all cable connections and crimps are secure and do not show any sign of heat/burning.
- Check that all fuses are present and of the correct size as detailed on the electrical schematic diagrams.
- Remove, inspect, and re-insert fuses. Check carrier tightness & for signs of any burning.
- Ensure all fixing nuts, washers, bolt covers etc. are present, correct, and tight.
- Check cables and glands box for damage or evidence of water ingress.
- Give the equipment a general clean and remove any build-up of dust/debris using a brush and vacuum fitted with small nozzle.
- Before being returned to service, it is recommended to carry out a full operational check of the isolation switches.

For maintenance of the Zollner Equipment refer to the manufacturer's literature

7 Part Numbers

The table below details the part numbers for the main items used in the Zollner Location case, with the description and supplier for each item.

Description	Supplier	Part Number
8 Way 100A SP+N Type A Metalclad Distribution Board	ABB	(HWE-ABB-074) 1SKT210101C0001
Zollner Equipment: Project Specific – See Zollner Drawings		
Earth Disconnect Link	Termate	(HWE-TERMATE-001) TE19/10
Anti-Condensation Heater	Phannenburg 30W Heater	(HWE-HEATER-001) PRH030M
Thermostat	Greenbrook	(HWE-THERMOSTAT-001) Tamperproof 5-35C TH90T-C
Internal Light	Knightsbridge	(HWE-LIGHT-002) AMLEDW
Light Switch	TimeGuard	HWE-LIGHT-011 TimeGuard – TPSL01
24VDC 20A PSU	PULS	(HWE-PULS-001) QS20.244 or 241
PSU Enclosure	Ensto	(HWE-ENSTO-002) SABP182515T
24VDC Through Terminal	ABB	(HWE-SAFEBOX-013) M10/10 - 1SNA115120R1700
Train Detector Terminal	ABB	(HWE-SAFEBOX-015) MA2.5/5 - 1SNA115486R0300
E 92/32 Fuse Switch Disconnecter SP+N	ABB	(HWE-ABB-073) 2CSM200893R1801

8 Guarantee

The function and safety of the equipment is only guaranteed if the warning and safety instructions included in this manual are adhered to.

Henry Williams - A Division of Trackwork Limited is not liable for any personal injury to property that occurs as a result of the warning and manual being disregarded.

Henry Williams - A Division of Trackwork Limited do does not accept any liability or warranty for damage due to the use of non-approved spare parts and accessories.