

ELECTRICAL INSTALLATION CONDITION REPORT

Electrical Testing Company

Elelectric Way, Electric Business Park, Electric Town, , EL1 1EL

Tel No: 01987 1112223 Fax No: 01987 111123

We are an Approved Contractor enrolled with the National Inspection Council for Electrical Installation Contracting. 37, Albert Embankment, London SE1 7UJ Enrolment No. AB999999

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Report Number:

ECR 15-04-2013 ETC001 FS 32846 000003

A. Details of the Client

Client: Xample Car Dealership

Address: Xample Trading Estate

Xample Road

Xample

XX1 1XX

Purpose for Which This Report is Required:

To assess compliance with BS 7671

B. Details of the Installation

Occupier: Xample Car Dealership

Address: Xample Trading Estate

Xample Road

Xample

XX1 1XX

Description of Premises: Commercial

Estimated Age of the Electrical Installation: 10.00 years

Evidence of Alterations and Additions: Yes

Estimated Age: 2 years

Date of Last Inspection: 01/07/2007 Records Available: Yes

C. Extent and Limitations of the Inspection

Extent of the electrical installation covered by this report:

Complete installation. Where remedial works have been carried out at the time of test, data has been updated.

Limitations

- 1. Where fluorescent fittings would require every fitting to be disconnected, or electronic equipment (potential risk of damage to electrical components) is part of circuits to be tested, the insulation resistance test will only have been carried out by between phase/neutral (linked together) and earth. The phase to neutral measurement will not have been measured and therefore not recorded.
- 2. Functional testing of fire alarms and emergency lighting has not been carried out. This will if requested be carried out under a separate report.
- 3. Where circuits have been "Untraced", "Unable to gain access to carry out tests" or "Unable to shut down to carry out tests", this will be stated under section "N. Distribution Board / Circuit Observations and Recommendations"
- 4. The list of deviations recorded in sections "M. Site Observations" and "N. Distribution Board / Circuit Observations and Recommendations" cannot be taken as an exhaustive list. Where deviations have been recorded as a Code FI (further investigation required), further deviations maybe found by the competent person carrying out the investigation.
- 5. No testing has been carried out above a height of 3.5 metres. If testing is requested, the client is to provide appropriate access equipment with trained personnel as necessary unless otherwise agreed. An attempt may be made to calculate an earth loop impedance reading above 3.5 metres by estimating the length of circuit and using the R1 + R2 method. If this method is used it will be recorded as below in section "N. Distribution Board / Circuit Observations and Recommendations." "Unable to gain access to carry out measured earth loop tests, figures entered are R1 + R2 (Ohms) based on the appropriate measured length of circuit. (This figure is for guidance only)" Polarity and earth continuity have not been tested and therefore not recorded.
- 6. No extra-low circuits have been tested with regard to burglar, fire alarm, equipment/plant control circuits and emergency lighting systems (central battery type). The 240-Volt supplies to these items of equipment will have been tested where access to equipment panels could be gained.

- 7. Under section "F. Supply Characteristics and Earthing Arrangements", measurement Ze can only be accurately obtained with the electrical system de-energised and the main earthing conductor isolated from the installation. Where this is not practicable for safety considerations, the main earthing conductor will not be disconnected and that Ze becomes Zdb.
- Where suspicion that items of equipment contains asbestos (e.g. fuse flash arrestors), fuses will NOT be removed. 8. Therefore, fuse type and size will not be verified or recorded and minimal testing and recording (see note below) of the equipment containing asbestos will be carried out. An observation will be recorded "Unable to gain access to carry out full testing of equipment due to the presence of asbestos", category Code FI (further investigation required). Note: Restricted to cable type and size, earth loop PFC and overall insulation resistance tests if accessible without dismantling the equipment.

This inspection has been carried out in accordance with BS 7671: 2008 (IEE Regulations)

Cables concealed within trunking and conduits, or cables and conduits concealed under floors, in roof spaces and generally within the fabric of the building or underground have not been inspected.

D. Next Inspection

The interval below is based upon all observations and recommendations being carried out to bring the electrical installation up to current standards.

I/We recommend that this installation is further inspected and tested after an interval of not more than 60 Months .

E. Declaration

To the best of our knowledge and belief we confirm that the details recorded above and in the attached Observation and Circuit Test Results are an accurate assessment, within the extent and limitations specified at C, of the condition of the electrical installation at B above.

Inspected and Tested By: Fred Sparks (Test Engineer)

Reviewed By:

Bill Gates (Qualifying Manager) on 13/05/2013

F. Supply Characteristics and Earthing Arrangements

Number and Type of Live AC 3-phase 4-wire Conductors: 400V Neutral Earthing Arrangements: TN-C-S

Nature of Supply Parameters

Zill Hates

Nominal Voltage, U/U₀(1): **400 V** Nominal Frequency, f(1): 50 Hz

Prospective Fault Current P-P-P, I_{nf}(2): **14.00 kA** External Loop Impedance Z_o(2): **0.03** W

Prospective Fault Current P-N, I_{nf}(2): **7.60 kA** Note: (1) by enquiry, (2) by enquiry or by measurement

Supply Protective Device

BS (EN): **BS 88-2 (E&G)** Nominal Current Rating: 160 A

Short Circuit Capacity: 80.0 kA

Main Supply Conductor

Material: Three Phase Csa: 35.00 mm

> Concentric (PCU/PVC/PVC)

G. Particulars of Installation Referred to in the Report

Means of Earthing Main Protective Conductors

Means: Suppliers facility

Material

CSA (mm)

Unbunched Copper Cable*

25.00

Details of Installation Earth

Electrode: NA

Current Rating: 200.00 A

Voltage Rating: 500.00 V

Current (IDn): NA mA

Earth Electrode Location: NA
Electrode Resistance to Earth: NA W

Fuse Rating or Setting: **NA A**Number of Poles: **3**

Rated Residual Operating

Main Switch or Circuit Breaker

Main Equipotential Bonding Conductors

| Туре | Present | Connected | Material | CSA (mm) |
|-----------|---------|-----------|-------------------------------|----------|
| Water | Yes | Yes | Copper Conductor/Steel | 72.00 |
| | | | Armour** | |
| Gas | No | - | - | - |
| Oil | No | - | - | - |
| Lightning | No | - | - | - |
| Pipework | Yes | No | - | - |
| Steelwork | No | _ | _ | _ |

Rear corner Location: of workshop

BS (EN): **BS 60947/3**

H. Observations and Recommendations

Operating Time at IDn: NA s

Referring to the attached Schedule(s) of Inspection and Test Results and subject to the limitations specified at section C of the Inspection section:

Remedial work is required: Yes

If Yes, please see the observations as listed on the following pages under Site Observations and Distribution Board/Circuit Observations.

Code C1: 'Danger present'. Risk of injury. Immediate remedial action required.

Code C2: 'Potentially dangerous'. Urgent remedial action required.

Code C3: 'Improvement recommended'.

Code FI: Further investigation required to determine whether danger or potential danger exists.

Code C5: Comment only and is not a recommendation and is not part of BS7671.

I. Summary of the Inspection

Date of the Inspection: 15/04/2013 Overall Assessment: Unsatisfactory

General Condition of the Installation: The electrical installation is in a generally good condition but has category C1 Installation: and/or category C2 codes found and recorded. (C1 - Danger present with risk of installation is in a generally good condition but has category C1 Installation:

injury, therefore immediate remedial action required. C2 - Potentially dangerous,

therefore urgent remedial action required).

J Schedule(s)

The attached Schedules are part of this document and this Report is valid only when all pages are present.

K. Schedule of Inspections

| Item 1.0 | Description Condition/adaguage of distributor/a/aummly intoka aguinment | Outcome |
|-------------|--|---------|
| 1.0 | Condition/adequacy of distributor's/supply intake equipment Service Cable | PASS |
| 1.1 | Service Cable Service cut-out/fuse(s) | PASS |
| 1.3 | Meter Tails - distributor | PASS |
| 1.4 | Meter Tails - consumer | PASS |
| 1.5 | Metering equipment | PASS |
| 1.6 | Means of isolation | PASS |
| 2.0 | Presence of adequate arrangements for parallel or switched alternative sources (551.6; 551.7) | PASS |
| 3. 0 | Automatic disconnection of supply | I AGO |
| 3.1 | Main earthing and bonding arrangements | C2 |
| 3.1.1 | Presence and condition of distributors earthing arrangement | PASS |
| 3.1.2 | Presence and condition of earth electrode arrangement | PASS |
| 3.1.3 | Adequacy of earthing conductor size | PASS |
| 3.1.4 | Adequacy of earthing conductor connections | PASS |
| 3.1.5 | Accessibility of earthing conductor connections | PASS |
| 3.1.6 | Adequacy of main protective bonding conductor size(s) | C3 |
| 3.1.7 | Adequacy of main protective bonding conductor connections | PASS |
| 3.1.8 | Accessibility of main protective bonding conductor connections | PASS |
| 3.1.9 | Provision of earthing/bonding labels at all appropriate locations | PASS |
| 3.2 | FELV, SELV & PELV | |
| 3.2.1 | Source providing at least simple separation | NA |
| 3.2.2 | Plugs, socket-outlets and the like not interchangeable with those of other systems within the premises | NA |
| 3.3 | Reduced Low Voltage (s/phase 55V & 3-phase 63.5V to earthed mid point) | |
| 3.3.1 | Adequacy of source | PASS |
| 3.3.2 | Plugs, socket-outlets and the like not interchangeable with those of other systems within the premises | PASS |
| 4.0 | Other methods of protection (where the methods of protection listed below are employed, details should be provided on separate sheets) | |
| 4.1 | Double insulation | NA |
| 4.2 | Reinforced insulation | NA |
| 4.3 | Use of obstacles | NA |
| 4.4 | Placing out of reach | NA |
| 4.5 | Non-conducting location | NA |
| 4.6 | Earth-free local equipotential bonding | NA |
| 4.7 | Electrical separation for one or more item(s) of equipment | NA |
| 5.0 | Distribution equipment | |
| 5.1 | Adequacy of working space/accessibility of equipment | PASS |
| 5.2 | Security of fixing | PASS |
| 5.3 | Condition of insulation of live parts | PASS |
| 5.4 | Adequacy/security of barriers | PASS |
| 5.5 | Condition of enclosure(s) in terms of IP rating | PASS |
| 5.6 | Condition of enclosure(s) in terms of fire rating | PASS |
| 5.7 | Enclosure not damaged/deteriorated so as to impair safety | PASS |
| 5.8 | Presence of main switch(es), linked where required | PASS |
| 5.9 | Operation of main switch(es) (functional check) | PASS |
| 5.10 | Correct identification of circuit protective devices | PASS |
| 5.11 | RCD(s) provided for fault protection - includes RCBOs | PASS |

Pass indicates Acceptable condition
Limit indicates Limitation
NA indicates Not applicable
C1 or C2 indicates Unacceptable condition
C3 indicates improvement recommended
FI indicates further investigation required to determine whether danger or potential danger exists
C5 indicates Comment only and is not a recommendation and is not part of BS 7671

| 5.13 RCD(s) provided for additional protection -includes RCBOS 131 RCD(s) provided for protection against fire - includes RCBOS 151 Manual operation of circuit-breakers and RCDs to prove disconnection 1515 Confirmation that integral test button(s)/switch causes RCD(s) to trip when operated (functional check) 1516 Presence of RCD quarterly test notice at or near equipment where required 1517 Presence of diagrams, charts or schedules at or near equipment where required 1518 Presence of one-standard (mixed) cable colour warning notice at or near equipment where required 1519 Presence of replacement next inspection recommendation label 1519 Presence of alternative supply arrangement warning notice(s) at or near equipment where required 1519 Presence of replacement next inspection recommendation label 1520 Presence of other required labelling (specify) 1521 Presence of other required labelling (specify) 1522 Examination of protective device(s) and base(s); correct type and rating (no signs of unacceptable thermal damage, acroing or overheating) 1523 Single-pole protective devices are in the line conductor only 1524 Protection against mechanical damage where cables enter equipment 1525 Protection against mechanical damage where cables enter metallic enclosures 1526 Protection against mechanical damage where cables enter metallic enclosures 1527 PASS 1528 Protection against mechanical damage where cables enter metallic enclosures 1529 Protection against mechanical damage where cables enter metallic enclosures 1520 Protection against mechanical formage where cables enter metallic enclosures 1521 Protection against mechanical formage where cables enter metallic enclosures 1522 Pass 1523 Protection against electromagnetic effects where cables enter equipment 1524 Protection against electromagnetic effects where cables enter metallic enclosures 1525 PASS 1526 Protection against electromagnetic effects where cables enter equipment 1526 PASS 1527 Pass 1528 PASS 1528 PASS 1529 Pass 1529 Pass | | | D.4.00 |
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| 6.18 Provision of fire barriers, sealing arrangements and protection against thermal effects 6.19 Band II cables segregated/separated from Band I cables 6.20 Cables segregated/separated from non-electrical services 6.21 Termination of cables at enclosures 6.21.1 Connections under no undue strain 6.21.2 No basic insulation of a conductor visible outside an enclosure 6.21.3 Connections of live conductors adequately enclosed 6.21.4 Adequacy of connection at point of entry to enclosure (gland, bush or similar) 6.22 General condition of wiring systems PASS PASS PASS PASS | 6.17.1 | Where reasonably likely to be used to supply mobile equipment for use outdoors in all cases | PASS |
| 6.19 Band II cables segregated/separated from Band I cables 6.20 Cables segregated/separated from non-electrical services 6.21 Termination of cables at enclosures 6.21.1 Connections under no undue strain 6.21.2 No basic insulation of a conductor visible outside an enclosure 6.21.3 Connections of live conductors adequately enclosed 6.21.4 Adequacy of connection at point of entry to enclosure (gland, bush or similar) 6.22 General condition of wiring systems PASS PASS PASS | 6.17.2 | For all socket-outlets of rating 20 amps or less provided for use by ordinary persons | C3 |
| 6.20 Cables segregated/separated from non-electrical services 6.21 Termination of cables at enclosures 6.21.1 Connections under no undue strain 6.21.2 No basic insulation of a conductor visible outside an enclosure 6.21.3 Connections of live conductors adequately enclosed 6.21.4 Adequacy of connection at point of entry to enclosure (gland, bush or similar) 6.22 General condition of wiring systems PASS PASS | 6.18 | Provision of fire barriers, sealing arrangements and protection against thermal effects | PASS |
| 6.21 Termination of cables at enclosures 6.21.1 Connections under no undue strain 6.21.2 No basic insulation of a conductor visible outside an enclosure 6.21.3 Connections of live conductors adequately enclosed 6.21.4 Adequacy of connection at point of entry to enclosure (gland, bush or similar) 6.22 General condition of wiring systems PASS PASS | 6.19 | Band II cables segregated/separated from Band I cables | PASS |
| 6.21.1 Connections under no undue strain 6.21.2 No basic insulation of a conductor visible outside an enclosure 6.21.3 Connections of live conductors adequately enclosed 6.21.4 Adequacy of connection at point of entry to enclosure (gland, bush or similar) 6.22 General condition of wiring systems PASS PASS | 6.20 | Cables segregated/separated from non-electrical services | PASS |
| 6.21.2 No basic insulation of a conductor visible outside an enclosure 6.21.3 Connections of live conductors adequately enclosed 6.21.4 Adequacy of connection at point of entry to enclosure (gland, bush or similar) 6.22 General condition of wiring systems PASS PASS | 6.21 | Termination of cables at enclosures | |
| 6.21.3 Connections of live conductors adequately enclosed 6.21.4 Adequacy of connection at point of entry to enclosure (gland, bush or similar) 6.22 General condition of wiring systems C1 PASS PASS | 6.21.1 | Connections under no undue strain | PASS |
| 6.21.4 Adequacy of connection at point of entry to enclosure (gland, bush or similar) 6.22 General condition of wiring systems PASS PASS | 6.21.2 | No basic insulation of a conductor visible outside an enclosure | |
| 6.22 General condition of wiring systems PASS | 6.21.3 | Connections of live conductors adequately enclosed | |
| Cian Constant Contained by Contained | 6.21.4 | Adequacy of connection at point of entry to enclosure (gland, bush or similar) | PASS |
| 6.23 Temperature rating of cable insulation PASS | 6.22 | General condition of wiring systems | |
| | 6.23 | Temperature rating of cable insulation | PASS |

Pass indicates Acceptable condition
Limit indicates Limitation
NA indicates Not applicable
C1 or C2 indicates Unacceptable condition
C3 indicates improvement recommended
FI indicates further investigation required to determine whether danger or potential danger exists
C5 indicates Comment only and is not a recommendation and is not part of BS 7671

| 6.24 | Condition of accessories including socket-outlets, switches and joint boxes | PASS |
|-------|--|------|
| 6.25 | Suitability of accessories for external influences | PASS |
| 7.0 | Isolation and switching | |
| 7.1 | Isolators (537.2) | 5400 |
| 7.1.1 | Presence and condition of appropriate devices | PASS |
| 7.1.2 | Acceptable location | PASS |
| 7.1.3 | Capable of being secured in the OFF position | PASS |
| 7.1.4 | Correct operation verified | PASS |
| 7.1.5 | Clearly identified by position and/or durable marking(s) | PASS |
| 7.1.6 | Warning label posted in situations where live parts cannot be isolated by the operation of a single device | PASS |
| 7.2 | Switching off for mechanical maintenance | |
| 7.2.1 | Presence and condition of appropriate devices | PASS |
| 7.2.2 | Acceptable location | PASS |
| 7.2.3 | Capable of being secured in the OFF position | PASS |
| 7.2.4 | Correct operation verified | PASS |
| 7.2.5 | Clearly identified by position and/or durable marking(s) | PASS |
| 7.3 | Emergency switching/stopping | |
| 7.3.1 | Presence and condition of appropriate devices | NA |
| 7.3.2 | Acceptable location | NA |
| 7.3.3 | Capable of being secured in the OFF position | NA |
| 7.3.4 | Correct operation verified | NA |
| 7.3.5 | Clearly identified by position and/or durable marking(s) | NA |
| 7.4 | Functional switching | |
| 7.4.1 | Presence and condition of appropriate devices | PASS |
| 7.4.2 | Correct operation verified | PASS |
| 8.0 | Current-using equipment (permanently connected) | |
| 8.1 | Condition of equipment in terms of IP rating | PASS |
| 8.2 | Equipment does not constitute a fire hazard | PASS |
| 8.3 | Enclosure not damaged/deteriorated so as to impair safety | PASS |
| 8.4 | Suitability for the environment and external influences | PASS |
| 8.5 | Security of fixing | PASS |
| 8.6 | Cable entry holes in ceiling above luminaires, sized or sealed so as to restrict the spread of fire (indicate extent of sampling in Section D of report) | PASS |
| 8.7 | Recessed luminaires (e.g. downlighters) | |
| 8.7.1 | Correct type of lamps fitted | NA |
| 8.7.2 | Installed to minimise build-up of heat by use of 'fire rated' fittings, insulation displacement box or similar | NA |
| 8.7.3 | No signs of overheating to surrounding building fabric | NA |
| 8.7.4 | No signs of overheating to conductors/terminations | NA |
| 9.0 | Location(s) containing a bath or shower (Section 701) | |
| 9.1 | Additional protection for all low voltage (LV) circuits by RCD not exceeding 30 mA. Regulation 701.411.3.3 | C3 |
| 9.2 | Where used as a protective measure, requirements for SELV or PELV are met. Regulation 701.414 | NA |
| 9.3 | Shaver sockets comply with BS EN 61558-2-5 or BS 3535. Regulation 701.512.3 | NA |
| 9.4 | Presence of supplementary bonding conductors unless not required by BS 7671: 2008. Regulation 701.415.2 | PASS |
| 9.5 | Low voltage (e.g. 230 volts) socket-outlets sited at least 3 m from zone 1. Regulation 701.512.3 | NA |
| 9.6 | Suitability of equipment for external influences for installed locations in terms of IP rating. | |
| 0.0 | Regulation 701.512.2 | C2 |

9.8 Suitability of current using equipment for particular position within the location. Regulation 701.55

Pass indicates Acceptable condition
Limit indicates Limitation
NA indicates Not applicable
C1 or C2 indicates Unacceptable condition
C3 indicates improvement recommended
F1 indicates further investigation required to determine whether danger or potential danger exists
C5 indicates Comment only and is not a recommendation and is not part of BS 7671

9.7

L. Guidance for Recipients on the Recommendation Codes

Only one Recommendation Code should have been given for each recorded observation in sections M and N under column "Severity".

- It is important to note that the recommendation given at Section D (Next Inspection) of this report for the maximum interval until the next inspection is conditional upon all items which have been given a Code 1 or Code FI being remedied immediately, and all items which have been given a Code 2 being remedied as a matter or urgency. See column "Severity" in in sections F, N and M.
- It would not be reasonable for the inspector to indicate that the installation is in a satisfactory condition if any observation in this report has been given a Code C1, Code C2 or Code FI classification.
- The testing engineer reserves the right to isolate any part of the installation that in the engineers opinion would give rise to immediate shock or fire risk.

Code C1 (Danger present)

Where an observation has been given a Code C1, the safety of those using the installation may be at risk and immediate remedial action is required.

The person responsible for the maintenance of the installation is advised to take action without delay to remedy the observed deficiency in the installation or to take other appropriate action (such as switching off and isolating the affected part(s) of the installation) to remove the potential danger. The Approved Contractor issuing this report will be able to provide further advice.

Code C2 (Potentially dangerous)

Code C2 indicates that whilst safety of those using the installation may not be at immediate risk, urgent remedial action should be taken as soon as possible to remove potential danger. The Approved Contractor issuing this report will be able to provide further advice.

Code C3 (Improvement recommended)

Where an observation has been given a Code C3, the inspection and/or testing has revealed a non-compliance with the current safety standard which, whilst not presenting immediate or potential danger, would result in a significant safety improvement if remedied. Careful consideration should be given to the safety benefits of improving these aspects of the installation. The Approved Contractor issuing this report will be able to provide further advice.

Code FI (Requires further investigation)

However, where "FI" has been entered against an observation in the "Severity" column at sections N and M, the inspector considers that further investigation of that observation is likely to reveal danger or potential danger that, due to the agreed extent or limitations of the inspection and/or testing, could not be fully identified at the time.

Code 5

Code 5 is a comment only and not a recommendation and is not part of BS7671. It is intended as information only, which could be useful to the person ordering this report, the engineer carrying out the inspection and/or the competent person carrying out any remedial actions.



Occupier: Xample Car Dealership

Address: Xample Trading Estate

Xample Road

Xample

XX1 1XX

Test instrument details used in the compilation of this report:

MakeModelSerial NumberMeggerMulti/Function123456478

M. Site Observations and Recommendations

| Ref. S1. | A main equipotential bonding conductor is required for the pipework between buildings where the electrical supplies are from different sources or separate DNO services. Regulation 411.3.1.2 | Severity C2 | Rectified By | Date |
|-------------|--|----------------|--------------|------|
| S2. | The equipotential bonding conductor connected to the water service is too small in relationship to the cross-sectional area of the neutral of the supply. Regulation 544.1.1 Table 54.8 | C3 | | |
| \$3. | Where equipotential bonding to a service, structural steel-work or lightning protection system is not using a separate copper conductor e.g utilizing armouring, conduit, trunking, mineral copper sheath or core of a cable and this installation sustained a broken or poorly jointed neutral causing diverted neutral current and if cable(s) within are being operated at a significant proportion of their current carrying capacity for long periods or installed where there are higher ambient temperatures, this may result in overheating of the live conductor(s). Recommend installation of a separate copper conductor of an appropriate size to the neutral of the supply as per Regulation 544.1.1 Table 54.8 (comment only). | C5 | | |



Ref.

Occupier: Xample Car Dealership
Address: Xample Trading Estate

Xample Road

Severity

Xample

XX1 1XX

Rectified By

Date

N. Distribution Board / Circuit Observations and Recommendations

1. Switch Fuse: A **Location:** Workshop No observations or recommendations made. 2. **Distribution Board: 1** Location: Rear corner of workshop 2.1 Circuit 2L1, 2L2, 2L3: The maximum permissible earth loop impedance (Zs) C2 has been exceeded therefore, the protective device may not operate in the required time as per BS7671, recommend seeking advice from the manufacturer of the device. Regulation 411.3.2.1, 411.3.2.5 & 411.3.2.6 3. Fuse Board: 1/1L1 Location: Showroom 3.1 Circuit 4L1: All sockets rated at 20 amps or less throughout the property C3 require additional RCD protection having a rated residual operating current (In) not exceeding 30mA and an operating time not exceeding 40 ms at a residual current of 5 In unless it is a circuit supplying a socket(s) that is/are specifically labelled or otherwise suitably identified for a connection of a particular item(s) of equipment. Regulation 411.3.3 3.2 Circuit 8L1: Low insulation resistance reading(s) recorded. Regulation C2 621.3.2 3.3 Suppressed observation: Protective Device Observations. Scope: 5L1 Reason: Due to the characteristics of the load (resistive) - overload current protection is not required. Regulation 433.3 (ii) Distribution Board: 1/2L1 4. Location: Workshop Circuit 1L1, 1L2, 1L3: Although the measured earth loop impedance is within 4.1 C3 the maximum Zs permitted by BS7671, where measurements are taken at ambient temperature and the increase of resistance of the conductors due to temperature rise under load conditions, the protective device may not operate in the required time as per BS7671 (0.8*Uo/la), recommend seeking advice from the manufacturer of the device. Appendix 14 4.2 Circuit 4L1: Protective device requires de-rating. Regulation 433.1.1 C2 BJ 20/03/2013

| Ref. | | Severity | Rectified By | Date |
|------|--|----------|--------------|------------|
| 4.3 | Circuit 4L1: The maximum permissible earth loop impedance (Zs) has been exceeded therefore, the protective device may not operate in the required time as per BS7671, recommend seeking advice from the manufacturer of the device. Regulation 411.3.2.1, 411.3.2.5 & 411.3.2.6 | C2 | BJ | 20/03/2013 |
| 4.4 | Circuit 4L2: Unable to gain access to carry out all tests. It is the inspector's opinion that there is no apparent risk for continued use and therefore, as agreed with the client, this observation is categorized as a limitation (LIMIT). Regulation 612.1 | LIMIT | | |
| 4.5 | Circuit 4L3: Item of electrical equipment not suitable in terms of it's I.P rating for the environment and external influences in locations containing a bath or shower. Regulation 701.512.2 | C2 | | |
| 4.6 | Circuit 4L3: All items of electrical equipment, cable(s) and wiring systems in locations containing a bath or shower require additional protection by RCD(s) having a rated residual operating current (ln) not exceeding 30mA and an operating time not exceeding 40 ms at a residual current of 5 ln. Regulation 701.411.3.3 | C3 | | |
| 4.7 | Circuit 2L1b: The maximum permissible earth loop impedance (Zs) has been exceeded therefore, the protective device may not operate in the required time. Regulation 411.3.2.1, 411.3.2.5 & 411.3.2.6 | C2 | | |
| 4.8 | Circuit 2L1a: Protective device requires de-rating or cables require uprating subject to the load - overload risk. Regulation 433.1.1 | C2 | | |
| 4.9 | Suppressed observation: Continuity high on ring main (voltage drop). Scope: 2L2 | - | | |
| | Reason: As the majority of equipment in this area is air driven, there are no loads that would cause excessive voltage drop. | | | |
| 4.10 | Suppressed observation: Protective Device Observations. Scope: 4L3 Page 19: Due to the characteristics of the load (registive), everland current | - | | |
| | Reason: Due to the characteristics of the load (resistive) - overload current protection is not required. Regulation 433.3 (ii) | | | |
| 5. | Split RCD Fuse Board: Valet bay Location: Valet bay | | | |
| 5.1 | A main equipotential bonding conductor is required for the pipework between buildings where the electrical supplies are from different sources or separate DNO services. Regulation 411.3.1.2 | C2 | | |
| 5.2 | Main protective equipotential bonding conductor is too small in relationship to the cross-sectional area of the neutral of the supply. Regulation 544.1.1 Table 54.8 | C3 | | |
| 5.3 | The equipotential bonding conductor connected to the structural steel-work is too small in relationship to the cross-sectional area of the neutral of the supply. Regulation 544.1.1 Table 54.8 | C3 | | |
| 5.4 | Where equipotential bonding to a service, structural steel-work or lightning protection system is not using a separate copper conductor e.g utilizing armouring, conduit, trunking, mineral copper sheath or core of a cable and this installation sustained a broken or poorly jointed neutral causing diverted neutral current and if cable(s) within are being operated at a significant proportion of their current carrying capacity for long periods or installed where there are higher ambient temperatures, this may result in overheating of the live conductor(s). Recommend installation of a separate copper conductor of an appropriate size to the neutral of the supply as per Regulation 544.1.1 Table 54.8 (comment only). | C5 | | |
| 5.5 | Circuit 4L1: Continuity reading high on ring main (Rn), suspect loose termination or broken ring connection. Regulation 433.1.103 and Appendix 15 | C2 | | |

| Ref. 5.6 | Circuit 8L1: Unable to gain access to carry out earth loop tests - readings entered are from carrying out an r2 test only, with a wandering lead fed from another live source to prove earth continuity - therefore, unable to ascertain whether the earth loop impedance is low enough to operate the protective device in the required time. It is the inspector's opinion that there is no apparent risk for continued use and therefore, as agreed with the client, this observation is categorized as a limitation (LIMIT) subject to safe isolation procedures are in place before any maintenance on electrical equipment is carried out. Regulation 612.9 | Severity LIMIT | Rectified By | Date |
|-----------------|---|-------------------|--------------|------|
| 5.7 | Suppressed observation: Protective Device Observations. Scope: 7L1 Reason: Due to the characteristics of the load (resistive) - overload current protection is not required. Regulation 433.3 (ii) | - | | |
| 6. | RCD (Metal Enclosure): RCD Tyre Bay Location: Tyre bay | | | |
| 6.1 | The electrical equipment is enclosed in a metal enclosure which is an exposed conductive part. Regulation 411.5.3 & 411.5.4 | C2 | | |
| 6.2 | Time delay RCD operating in less than 130ms – discrimination might not be achieved with downstream RCD if fitted. Regulation 531.2.9 | C3 | | |
| 7. | Fuse Board: Tyre Bay Location: Entrance of tyre bay | | | |
| 7.1 | Circuit 1L1: Where an RCBO has been installed and is used for additional protection some RCBOs' are so designed that they operate under type-test conditions in marginally less than 40ms at 5 ln, therefore under installed conditions the RCBO may operate in a time marginally exceeding 40ms at 5 ln – If there is doubt about the acceptability of the measured operating time advise that the manufacturer of the device is consulted. Regulation 415.1.1 | C5 | | |
| 7.2 | Circuit 2L1: Low insulation resistance reading(s) recorded. Regulation 621.3.2 | C2 | | |
| 7.3 | Circuit 2L1: RCBO does not operate in the required time. Regulation 612.10 | C2 | | |
| 8. | 110V Transformer (RLV): 110 volt transformer - sockets Location: Workshop | | | |
| 8.1 | Circuit 1L1: The maximum permissible earth loop impedance (Zs) has been exceeded therefore, the protective device may not operate in the required time as per BS7671, recommend seeking advice from the manufacturer of the device. Regulation 411.3.2.1, 411.3.2.5 & 411.3.2.6 | C2 | | |
| 8.2 | Circuit 1L2: A solid link is installed in this fuse way - a correct type and size protective device is required. Regulation 433.1.1 | C2 | | |
| 8.3 | Circuit 1L2: The maximum permissible earth loop impedance (Zs) has been exceeded therefore, the protective device may not operate in the required time. Regulation 411.3.2.1, 411.3.2.5 & 411.3.2.6 | C2 | | |

Ref. Severity Rectified By Date

9. Switch Fuse: 1/2L1/3L1b

Location: Main workshop left hand rear

No observations or recommendations made.

10. Switch Fuse: B

Location: Ist floor offices

No observations or recommendations made.

11. Fuse Board: B/1 Location: Kitchen

No observations or recommendations made.

| | | | | | | | | | | | | | | | | | | | | | Ref. 1 |
|----------------|-----------------------|-----------------|-------------|-------|-----|------------------|------------------|----------------|---------------|--------------|---|------------------------|----------|--------------|-------------|------------------------|----------------|----------------------|----------------|------------------|-----------------------------------|
| | Type/ID: | Switch Fuse: A | | | | | | | Mak | ke/Fram | ne: A | Excel | | | | | | | | tive U Device | |
| F | Fed From: | DNO Supply | | RC | CD1 | | | R | CD2 | | BS (EN): | | | | BS 88-2 (E& | | | | | | |
| | Located: | Workshop | | | | | | NA | l | | | | NA | | | | R | ating: | 160.0 | Α | |
| Sup | ply Type: | AC 3-phase 4-wi | ire 400V Ne | utral | | F | Rating | g: <i>NA</i> | l | Α | | Rating: | NA | | Α | Break | ing Cap | acity: | 80.0 | kA | |
| Cable | BS Type: | 6004 | CSA: | 16.0 | mm | | IDr | n: <i>NA</i> | l | m | Α | IDn: | NA | | mA | C | Overload | d lo/lr: | - | Α | |
| C | CPC Type: | Unbunched | CSA: | 10.00 | mm | Ci | rcuits | s: NA | l | | | Circuits: | NA | | | Instan | t Setting | g I/Im: | - | Α | |
| | | Copper Cable* | | | | | | | | | | Max | imum Le | t-Th | rough | Curren | nt @ lpfc | : Max: | 5.40 F | kA A | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | Cor | nducto | r Deta | ails | 71 | | Overcuri | ent l | Protect | ive Dev | vice | | | | |
| Circuit Number | O Circuit Description | | | | | Number of Phases | Number of Cables | Live Conductor | CPC Conductor | CPC Material | Maximum Disconnection Time Permitted by BS7671 | Protective Switch Tyne | | Sub Category | Rating | Short Circuit Capacity | Overload lo/Ir | Instant Setting I/Im | RCBO (Fuseway) | RCD (Circuit) | Maximum Zs Permitted by BS7671 |
| | | | | | | | n | nm n | mm | | S | BS (E | EN) | | Α | kA | Α | kA | mA | mA | W |
| 1L1 | Spare | | | | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| 1L2 | Spare | | | | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| 1L3 | Spare | | | | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |

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Methods of installation are formatted :<x>, where refers to column <x> of the table given in Appendix 4 of the 17th Edition regulations or in manufacturer's data. Where cables are buried in a duct or directly in the ground, a ground temperature of 15°C @ a minimum depth 0.5 metre with a ground thermal resistivity of 1.2 K.m/W is assumed.

D1 4D1A D2 4D2A Multicore 70°C thiplastic sheathed cables, non-armoured (Cu) Multicore 70°C thiplastic insulated & thiplastic sheathed cables, non-armoured (Cu) D3 4D3A Multicore 70°C armoured thiplastic insulated cables (non-mag. armour) (Cu) D4 4D4A Multicore 70°C armoured thiplastic insulated cables (non-mag. armour) (Cu) D5 4D5 Single-core 70°C armoured thiplastic insulated cables (insulated & sheathed flat cable with protective conductor (Cu) D5 4D5 Single-core 90°C thisetting insulated cables, non-armoured (Al) Multicore 90°C thigh stitic insulated cables, non-armoured (Al) Single-core 90°C thisetting insulated cables (non-mag. armour) (Cu) D4 4E2 4E2A Multi-core 90°C armoured thiplastic insulated cables (non-mag. armour) (Cu) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Cu) D5 4D5 Single-core 90°C thisetting insulated cables, non-armoured (Al) Single-core 90°C thisetting insulated cables (non-mag. armour) (Al) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Cu) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Al) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Al) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Al) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Al) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Al) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Al) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Al) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag. armour) (Al) D5 4D5 Single-core 90°C thisetting insulated cables (non-mag.
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| | Location | n: Wor | kshop | | | | | | S | ite Na | me: Xan | nple Car | Dealers | hip | | | | | |
|----------------|-------------------|--------------|--------|---------|---------------|--------------------------------------|-------------|---------------|---------|-------------|--------------|----------|------------------|--------------------------------|--|--------------------------------|---|---|--|
| Results: | : Z _{dl} | o: 0.10 | W | | Outside | of the I | Potential Z | one: / | Vo | | | | | Earth | ing Arra | ngemen | ts: NA | | |
| | Ip | f: 14.0 | 0 kA | | | Mea | ns of Earth | ning: / | VA | | | | | Ea | rth Elect | rode Typ | oe: NA | | |
| RCD: | ı Dı | n: <i>NA</i> | ms | ; | Ear | th Elect | rode Loca | tion: / | VA | | | | | Ele | ctrode R | Resistano | ce: NA | W | |
| | 5IDi | n: <i>NA</i> | ms | ; | | | | | | | | | Main/E | Electrode E | arthing (| Conduct | or: <i>NA</i> | mn | n |
| RCD2 | ? IDi | n: <i>NA</i> | ms | Wate | er: <i>NA</i> | mm | 1 | Gas: / | VA | mm | | Oil: NA | 4 | mm St | ructural | Steelwo | rk: NA | mn | n |
| | 5IDr | n: <i>NA</i> | ms | ; | Me | talwork | Between E | Buildin | gs (Sep | arate [| ONO Sup | ply): N/ | 4 | mm | | Oth | er: NA | mn | n |
| ā | Ring Ma | in Impe | dances | Circu | it Impeda | | | | n Resis | stance | | | sasured Earth | Fuse | mA) 0° & ode | & 180° Neading) | | Maximum Non-compliance Severity Observed | liance for afe Use |
| Circuit Number | RI | Rn | R2 | R1 + R2 | R2 | CPC Continuous Throughout Circuit | Phase/Phase | Phase/Neutral | 1 | Phase/Earth | Neural/Earth | Polarity | Maximum Measured | At IDn 0° & 16 (Highest Rea | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | At IDn 0° & 18 (Highest Rea | At 5IDn (£30 mA) 0° & 180° (Highest Reading) | | Circuit Compliance for Continued Safe Use |
| | W | W | W | W | W | P/F | MW | MW | I | IW | MW | P/F | W | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | - | - |
| 1L2 | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | - | - |
| 1L3 | - | - | - | - | - | - | - | - | | - | - | - | - | | | - | - | - | - |

| Fed From: DNO Supply Located: Rear corner of workshop NA Supply Type: AC 3-phase 4-wire 400V Neutral Cable BS Type: 6004 CSA: 35.0 CPC Type: Unbunched Copper Cable* RCD1 RCD2 BS (EN): BS 88-2 (E&G) NA Rating: | Type/ID: | Distribution Board | d: 1 | | | | ı | Make/Frai | ne: | Merlin Gerir | 7 | | | | | ve Upline vice |
|--|----------------|--------------------|------------|-------|----|-----------|----|-----------|-----|--------------|------|-----------------|-------|-----------------------|---------|-------------------|
| Supply Type: AC 3-phase 4-wire 400V Neutral Rating: NA A Rating: NA A Breaking Capacity: 80.0 kA Cable BS Type: 6004 CSA: 35.0 mm IDn: NA mA IDn: NA mA Overload Io/Ir: - A CPC Type: Unbunched CSA: 10.00 mm Circuits: NA Circuits: NA Instant Setting I/Im: - A | Fed From: | DNO Supply | | | | | | RCD1 | | | | RCD2 | | BS (EN): | BS 88-2 | (E&G) |
| Cable BS Type: 6004 CSA: 35.0 mm IDn: NA mA IDn: NA mA Overload Io/Ir: - A CPC Type: Unbunched CSA: 10.00 mm Circuits: NA Circuits: NA Instant Setting I/Im: - A | Located: | Rear corner of w | orkshop | | | | NA | | | | NA | | | Rating: | 160.0 | Α |
| CPC Type: Unbunched CSA: 10.00 mm Circuits: NA Circuits: NA Instant Setting I/Im: - A | Supply Type: | AC 3-phase 4-wil | re 400V Ne | utral | | Rating: | NA | А | | Rating: | NA | | Α | Breaking Capacity: | 80.0 | kA |
| | Cable BS Type: | 6004 | mm | IDn: | NA | m | ıΑ | IDn: | NA | | mΑ | Overload lo/lr: | - | Α | | |
| | CPC Type: | Unbunched | CSA: | 10.00 | mm | Circuits: | NA | | | Circuits: | NA | | | Instant Setting I/Im: | - | Α |
| maximum 250 minut 5 for minut 570 minut 570 minut | | | | | | | | | | Max | imum | Let-Th | rough | Current @ Ipfc Max: | 5.40 kA | Α |

| | | | | C | Conduc | tor Det | ails | [2] | Overcur | rent | Protectiv | e Dev | ice | | | | |
|----------------|---------------------------|------------------------|------------------|------------------|----------------|---------------|--------------|---|------------------------|--------------|-----------|------------------------|----------------|----------------------|----------------|---------------|-----------------------------------|
| Circuit Number | Circuit Description | Method of Installation | Number of Phases | Number of Cables | Live Conductor | CPC Conductor | CPC Material | Maximum Disconnection Time Permitted by BS7671 | Protective Switch Type | Sub Category | Rating | Short Circuit Capacity | Overload lo/Ir | Instant Setting I/Im | RCBO (Fuseway) | RCD (Circuit) | Maximum Zs Permitted by BS7671 |
| | | | | | mm | mm | | s | BS (EN) | | Α | kA | Α | kA | mA | mA | W |
| 1L1 | Fuse Board: 1/1L1 | D4:2 | 1 | 1 | 25 | 60.0 | Fe | 5.00 | BS 4752 | - | 125.0 | 25.0 | 87.5 | 1.4 | - | - | 0.28 |
| 1L2 | Spare | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1L3 | Spare | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2L1 | Distribution Board: 1/2L1 | D4:3 | 3 | 1 | 35 | 84.0 | Fe | 5.00 | BS 4752 | - | 100.0 | 25.0 | 70.0 | 1.2 | - | - | 0.28 |
| 2L2 | Distribution Board: 1/2L1 | D4:3 | 3 | 1 | 35 | 84.0 | Fe | 5.00 | BS 4752 | - | 100.0 | 25.0 | 70.0 | 1.2 | - | - | 0.28 |
| 2L3 | Distribution Board: 1/2L1 | D4:3 | 3 | 1 | 35 | 84.0 | Fe | 5.00 | BS 4752 | - | 100.0 | 25.0 | 70.0 | 1.2 | - | - | 0.28 |
| 3L1 | Switch Fuse: B | D4:2 | 1 | 1 | 10 | 40.0 | Fe | 5.00 | BS 4752 | - | 63.0 | 25.0 | 63.0 | - | - | - | 0.37 |
| 3L2 | Spare | - | - | - | - | - | - | - | Solid Link | - | - | - | - | - | - | - | - |
| 3L3 | Spare | - | - | - | - | - | - | - | Solid Link | - | - | - | - | - | - | - | - |

Methods of installation are formatted :<x>>, where refers to column <x> of the table given in Appendix 4 of the 17th Edition regulations or in manufacturer's data. Where cables are buried in a duct or directly in the ground, a ground temperature of 15°C @ a minimum depth 0.5 metre with a ground thermal resistivity of 1.2 K.m/W is assumed.

D1 4D1A Single core 70°C thplastic sheathed cables, non-armoured (Cu)
D3 4D3A Multicore 70°C thplastic insulated & thplastic is sheathed cables, non-armoured (Cu)
D3 4D3A Multicore 70°C thplastic insulated cables (non-mag. armour) (Cu)
D4 4D4A Multicore 70°C armoured thplastic (pvc) insulated cables (non-mag. armour) (Cu)
D5 4D5 Multicore 70°C armoured thplastic insulated cables (with protective conductor (Cu)
D6 4D4 Multicore 70°C armoured thplastic insulated cables (Non-mag. armour) (D1 Multicore 70°C armoured thplastic insulated cables (Non-mag. armour) (Cu)
D5 4D5 Multicore 90°C thestting insulated cables, non-armoured (Non-armoured (Non-armour

| | Locatio | n: Rea | ar corne | r of works | hop | | | | Site N | ame: Xa | mple Car | Dealersh | <i>ip</i> | | | | | |
|----------------|------------------|--------------|-------------|------------|------------|--------------------------------------|-------------|-----------------|-------------|--------------|----------|---|---------------------------------------|--|---------------------------------------|--|---|--|
| Results | : Z _c | lb: 0.0. | 3 V | 1 | Outside | e of the | Potential Z | one: No | | | | | Earth | ing Arra | ngemen | ts: NA | | |
| | I, | pf: 14.0 | <i>20</i> k | A | | Mea | ns of Earth | ing: <i>NA</i> | | | | | Ea | rth Elect | rode Ty | oe: NA | | |
| RCD | 1 ID | n: <i>NA</i> | n | ıs | Ea | rth Elect | rode Loca | tion: <i>NA</i> | | | | | Ele | ctrode F | Resistan | ce: NA | W | |
| | 5 1D | n: <i>NA</i> | n | ıs | | | | | | | | Main/El | ectrode E | arthing (| Conduct | or: <i>NA</i> | mn | n |
| RCD | 2 ID | n: <i>NA</i> | n | ns Wa | ter: NA | mn | ı (| Gas: NA | mm | ı | Oil: N | 4 n | nm St | ructural | Steelwo | rk: <i>NA</i> | mn | n |
| | 5 1D | n: <i>NA</i> | n | ıs | Me | etalwork | Between E | Buildings | (Separate | DNO Su | pply): 🖊 | 4 n | nm | | Oth | er: <i>NA</i> | mn | n |
| | Ring M | ain Imp | edances | Circ | uit Impeda | ances | ļ | nsulation | Resistance |) | | ے ا | | ВО | RCD | Circuit | Φ | |
| | | | | | | | | | | | | Earth | Fuse | eway | - | _ | anc | |
| Circuit Number | RI | Rn | R2 | R1 + R2 | R2 | CPC Continuous Throughout Circuit | Phase/Phase | Phase/Neutral | Phase/Earth | Neural/Earth | Polarity | Maximum Measured E Loop Impedance Zs | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | Maximum Non-compliance Severity Observed | Circuit Compliance for Continued Safe Use |
| | W | W | W | W | W | P/F | MW | MW | MW | MW | P/F | W | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | - | - | Yes | - | 299.00 | 299.00 | 299.00 | Pass | 0.18 | - | - | - | - | - | Pass |
| 1L2 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 1L3 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | |
| 2L1 | - | - | - | - | - | Yes | 299.00 | 299.00 | 299.00 | 299.00 | Pass | 0.40 | - | - | - | - | C2 | Fail |
| 2L2 | - | - | - | - | - | Yes | 299.00 | 299.00 | 299.00 | 299.00 | Pass | 0.40 | - | - | - | - | C2 | Fail |
| 2L3 | - | - | - | - | - | Yes | 299.00 | 299.00 | 299.00 | 299.00 | Pass | 0.40 | - | - | - | - | C2 | Fail |
| 3L1 | - | - | - | - | - | Yes | - | 299.00 | 299.00 | 299.00 | Pass | 0.20 | - | - | - | - | - | Pass |
| 3L2 3L3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

1.44

1.84

2.88

2.88

2.88

| | | | | | | | | | | | | | | | | | | | | | Ref. 3 |
|----------------|-------------|-----------------------------|-------------|-------|------------------------|--------|--------|----------------|-----------|----------|--|-------------------------|----------|--------------|----------|------------------------|----------------|----------------------|---|---------------------|----------------------|
| | Type/ID: | Fuse Board: 1/1 | <u>L</u> 1 | | | | | | Ма | ke/Fra | me: | Wylex | | | | | | | | tive U Device | |
| F | ed From: | Distribution Boar | rd: 1 | | | | | | R | CD1 | | | RC | D2 | | | BS | (EN): | BS 4 | 752 | |
| | Located: | Showroom | | | | | | / | VA | | | | NA | | | | R | ating: | 125.0 | Α . | |
| Sup | ply Type: | AC 1-phase 2-wi | ire 230V Ne | utral | | | Rati | ng: / | VA | A | 4 | Rating: | NA | | Α | Break | ing Cap | acity: | 25.0 | kA | |
| Cable | BS Type: | 6346 | CSA: | 25.0 | mm | | II | Dn: / | VA | n | nΑ | IDn: | NA | | mA | (| Overload | l lo/lr: | 87.5 | Α | |
| c | PC Type: | Copper | CSA: | 60.00 | mm | (| Circui | its: / | VA | | | Circuits: | NA | | | Instan | t Setting | ı I/Im: | 1.4 | Α | |
| | | Conductor/Steel Armour** | | | | | | | | | | Max | imum Le | t-Th | rough | Currer | nt @ Info | Max: | 400 | <i>k</i> Α Α | |
| | | AIIIIOUI | | | | | | | | | | | | | | - | 🔾 . | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | |
| | | | | | | | C | onduc | tor De | tails | = | . | Overcurr | ent | Protecti | ive Dev | /ice | | | | |
| | | | | | | | | | | | loi 76 | |) | | | | | | | | 0 |
| | | | | | tion | 'n | | | | | Bed | <u>ا</u> ا | - | | | acity | | _ | | | Permitted |
| _ | | | | | a | Phases | Cables | _ | Ξ | | l io | 3 | 3 | | | abe | | ₹ | ay) | | err |
| upe | | | | | Inst | Ŗ | | 양 | nct | <u>.</u> |) isc | | | ory | | Ξ | <u> </u> | ting | sew | nit) | Zs F |
| Circuit Number | | | | | Method of Installation | r of | r of | Live Conductor | Conductor | Material | m | Contraction Contraction | 2 | Sub Category | | Short Circuit Capacity | Overload lo/Ir | Set | RCBO (Fuseway) | (Circuit) | mr 671 |
| ä | | | | | hod | nbe | Number | ပ္ | Ö | | e Ĝi | | 5 | ပ္ပ | ng | Ę | <u>8</u> | ant | 30 | 0) (| cim. 3S7 |
| Circ | | Circuit Desc | ription | | Met | Number | Nur | Live | CPC | CPC | Maximum Disconnection Time Permitted by BS7671 | | - | Sub | Rating | Sho | ŏ | Instant Setting I/Im | RC | RCD | Maximum by BS7671 |
| | | | | | | | | mm | mm | | s | BS (| EN) | | Α | _{kA} | Α | kA | mA | mA | W |
| 1L1 | Lights - 1s | t floor offices | | | G1H:2 | 1 | 1 | 6 | 17.8 | Cu | 0.40 | , | · ' | В | 16.0 | 6.0 | - | - | - | - | 2.88 |
| 2L1 | | 1st floor offices | | | D5:6 | 1 | 2 | 2.5 | 3.0 | Cu | 0.40 | | | В | 32.0 | 6.0 | - | - | - | - | 1.44 |
| 3L1 | Lights - gr | ound floor offices | | | D5:2 | 1 | 1 | 1.5 | 1.0 | Cu | 0.40 | | 898/ | В | 16.0 | 6.0 | - | - | - | - | 2.88 |
| | " | | | | | | | | | | | | | | | | | | | | |

3.0

1.0

1.5

1.5

1.0

Cu 0.40

Cu 0.40

Cu 0.40

0.40

0.40

BS 60898/

BS 60898/

BS 60898/

BS 60898/

BS 60898/

В 32.0

В 25.0

В 16.0

В 16.0

В 16.0 6.0

6.0

6.0

6.0

6.0

1 2 2.5

1 1 1.5

D5:6 1 1 2.5

D5:6 1 1 2.5

D5:2

1 1.5

Methods of installation are formatted :<x>, where refers to column <x> of the table given in Appendix 4 of the 17th Edition regulations or in manufacturer's data. Where cables are buried in a duct or directly in the ground, a ground temperature of 15°C @ a minimum depth 0.5 metre with a ground thermal resistivity of 1.2 K.m/W is assumed.

D1 4D1A Single core 70°C thiplastic sheathed cables, non-armoured (Cu)
D3 4D3A Multicore 70°C thiplastic insulated & thiplastic sheathed cables, non-armoured (Cu)
D3 4D3A Multicore 70°C thiplastic insulated cables (non-mag. armour) (Cu)
D4 4D4A Multicore 70°C armoured thiplastic (pvc) insulated cables (non-mag. armour) (Cu)
D5 4D5 Multicore 70°C armoured thiplastic insulated cables (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or without sheath (Al)
D70°C thiplastic insulated cables, unarmoured, with or withou

4L1

5L1

6L1

7L1

8L1

Sockets - ground floor offices

Mens toilet - hand dryer

Ladies toilet - hand dryer

Lights - stairways

| | | | | | | | | | | | | | | | | | | Rei. 3 |
|----------|-----------------|---------|--------|--------|---------------|----------|----------------|--------------|--------------|---------|-------------|---------|---------|---------------|------------|-------------|-------|--------|
| | Location | : Show | room | | | | | | Site Name | Xample | Car D | Pealers | ship | | | | | |
| Results: | z _{db} | : 0.18 | W | 1 | Outside | of the | Potential Zone | : No | | | | | | Earthing Arra | ngements | NA | | |
| | Ipf | : 6.00 | k | Ą | | Mea | ns of Earthing | j: <i>NA</i> | | | | | | Earth Elect | rode Type | : NA | | |
| RCD? | ∕IDn | : NA | m | ıs | Ea | rth Elec | trode Location | : <i>NA</i> | | | | | | Electrode R | Resistance | : NA | V | 1 |
| | 5IDn | : NA | m | ıs | | | | | | | ı | Main/E | Electro | de Earthing (| Conductor | NA. | n | ım |
| RCD2 | ? IDn | : NA | m | s Wate | er: <i>NA</i> | mn | n Gas | s: <i>NA</i> | mm | Oil | l: NA | | mm | Structural | Steelwork | NA. | n | ım |
| | 5IDn | : NA | m | ıs | Me | talwork | Between Buil | dings | (Separate DN | Supply) | : <i>NA</i> | | mm | | Other | : NA | n | ım |
| | | | | | | | | | | | | | | | | | | |
| | Ring Mai | n Imped | dances | Circu | it Impeda | ances | Insu | lation | Resistance | | | _ | | RCBO | RCD Cii | cuit | d) | |
| | | | | | | | | | | | | Earth | | Fuseway | | | iance | |
| | | | | | | | | | 1 1 | | | ш | | ୍ଷ ଚି | | ∞ <u>(g</u> | ·≌ | Ξ. |

| | Ring M | ain Impe | dances | Circu | it Impeda | ances | | Insulation I | Resistance |) | | ے | RC | | RCD (| Circuit | Φ | |
|----------------|--------|----------|--------|---------|-----------|--------------------------------------|-------------|---------------|-------------|--------------|----------|---|------------------------------------|--|---------------------------------------|--|---|--|
| Circuit Number | RI | Rn | R2 | R1 + R2 | R2 | CPC Continuous Throughout Circuit | Phase/Phase | Phase/Neutral | Phase/Earth | Neural/Earth | Polarity | Maximum Measured Earth Loop Impedance Zs | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & con the second (Highest Reading) | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | Maximum Non-compliance Severity Observed | Circuit Compliance for Continued Safe Use |
| | W | W | W | w | W | P/F | MW | MW | MW | MW | P/F | W | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | - | - | Yes | - | UTT | 299.00 | 299.00 | Pass | 0.34 | - | - | - | - | - | Pass |
| 2L1 | 0.40 | 0.41 | 0.62 | - | - | Yes | - | 299.00 | 299.00 | 299.00 | Pass | 0.34 | - | - | - | - | - | Pass |
| 3L1 | - | - | - | - | - | Yes | - | UTT | 299.00 | 299.00 | Pass | 0.25 | - | - | - | - | - | Pass |
| 4L1 | 0.56 | 0.55 | 0.70 | - | - | Yes | - | 299.00 | 299.00 | 299.00 | Pass | 0.34 | - | - | - | - | C3 | Pass |
| 5L1 | - | - | - | - | - | Yes | - | UTT | 299.00 | 299.00 | Pass | 0.40 | - | - | - | - | - | Pass |
| 6L1 | - | - | - | - | - | Yes | - | UTT | 299.00 | 299.00 | Pass | 0.50 | - | - | - | - | - | Pass |
| 7L1 | - | - | - | - | - | Yes | - | UTT | 299.00 | 299.00 | Pass | 0.52 | - | - | - | - | - | Pass |
| 8L1 | - | - | - | - | - | Yes | - | UTT | 0.10 | 299.00 | Pass | 0.30 | - | - | - | - | C2 | Fail |

| Type/ID: | Distribution Boar | rd: 1/2L1 | | | | Ma | ake/Frame: | Dorman Sm | nith | | | | re Upline vice |
|----------------|-----------------------------|-------------|-------|----|-----------|----|------------|-----------|-------------|--------|-----------------------|---------|-------------------|
| Fed From: | Distribution Boar | rd: 1 | | | | F | RCD1 | | RCD2 | : | BS (EN): | BS 4752 | , |
| Located: | Workshop | | | | | NA | | | NA | | Rating: | 100.0 | Α |
| Supply Type: | AC 3-phase 4-wi | ire 400V Ne | utral | | Rating: | NA | Α | Rating: | NA | Α | Breaking Capacity: | 25.0 | kA |
| Cable BS Type: | 6346 | CSA: | 35.0 | mm | IDn: | NA | mA | IDn: | NA | mA | Overload lo/lr: | 70.0 | Α |
| CPC Type: | | | 84.00 | mm | Circuits: | NA | | Circuits: | NA | | Instant Setting I/Im: | 1.2 | Α |
| | Conductor/Steel Armour** | | | | | | | Maxi | imum Let-TI | nrough | Current @ Ipfc Max: | 4.30 kA | Α |

| | | | | C | Conduc | tor Det | ails | [2] | Overcur | rent | Protecti | ve Dev | /ice | | | | |
|----------------|--|------------------------|------------------|------------------|-----------------|---------------|--------------|--|---------------------------------------|--------------|----------|------------------------|----------------|---|----------------|---------------|--------------------------------|
| Circuit Number | Circuit Description | Method of Installation | Number of Phases | Number of Cables | Elive Conductor | GPC Conductor | CPC Material | Maximum Disconnection Time Permitted by BS7671 | B B Protective Switch Type C | Sub Category | P Rating | Short Circuit Capacity | Overload lo/Ir | | RCBO (Fuseway) | RCD (Circuit) | Maximum Zs Permitted by BS7671 |
| 1L1 | Compressor | D1:5 | 3 | 1 | 4 | 135. 0 | Fe | 5.00 | BS 60898/ | С | 40.0 | 9.0 | 23.00 | - | - | - | 0.58 |
| 1L2 | Compressor | D1:5 | 3 | 1 | 4 | 135. 0 | Fe | 5.00 | BS 60898/ | С | 40.0 | 9.0 | 23.00 | - | - | - | 0.58 |
| 1L3 | Compressor | D1:5 | 3 | 1 | 4 | 135. 0 | Fe | 5.00 | BS 60898/ | С | 40.0 | 9.0 | 23.00 | - | - | - | 0.58 |
| 2L1 | Split Circuit | _ | _ | _ | _ | - | _ | _ | BS 60898/ | С | 20.0 | 9.0 | _ | _ | _ | _ | _ |
| 2L1a | 4kW fan heater MOT area | D5:3 | 1 | 1 | 2.5 | 1.5 | Cu | 0.40 | BS 60898/ | С | 20.0 | 9.0 | _ | _ | _ | _ | 1.15 |
| 2L1b | Fire alarm panel | G1L:2 | 1 | 1 | 1.5 | 6.3 | Cu | 0.40 | BS 60898/ | С | 20.0 | 9.0 | - | - | - | - | 1.15 |
| 2L2 | Sockets - workshop | D1:4 | 1 | 2 | 2.5 | 81.0 | Fe | 0.40 | BS 60898/ | В | 32.0 | 6.0 | - | - | - | - | 1.44 |
| 2L3 | Spare | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3L1 | Split Circuit | - | - | - | - | - | - | - | BS 60898/ | С | 32.0 | 9.0 | - | - | - | - | - |
| 3L1a | MOT Brake tester | E4:3 | 3 | 1 | 6 | 23.0 | Fe | 0.40 | BS 60898/ | С | 32.0 | 9.0 | - | - | - | - | 0.73 |
| 3L1b | Switch Fuse: 1/2L1/3L1b | D1:5 | 3 | 1 | 6 | 135. 0 | Fe | 5.00 | BS 60898/ | С | 32.0 | 9.0 | - | - | - | - | 0.73 |
| 3L2 | Split Circuit | - | - | - | - | - | - | - | BS 60898/ | С | 32.0 | 9.0 | - | - | - | - | - |
| 3L2a | MOT Brake tester | E4:3 | 3 | 1 | 6 | 23.0 | Fe | 0.40 | BS 60898/ | С | 32.0 | 9.0 | - | - | - | - | 0.73 |
| 3L2b | Switch Fuse: 1/2L1/3L1b | D1:5 | 3 | 1 | 6 | 135. 0 | Fe | 5.00 | BS 60898/ | С | 32.0 | 9.0 | - | - | - | - | 0.73 |
| 3L3 | Split Circuit | - | - | - | - | - | - | - | BS 60898/ | С | 32.0 | 9.0 | - | - | - | - | - |
| 3L3a | MOT Brake tester | E4:3 | 3 | 1 | 6 | 23.0 | Fe | 0.40 | BS 60898/ | С | 32.0 | 9.0 | - | - | - | - | 0.73 |
| 3L3b | Switch Fuse: 1/2L1/3L1b | D1:5 | 3 | 1 | 6 | 135. 0 | Fe | 5.00 | BS 60898/ | С | 32.0 | 9.0 | - | - | - | - | 0.73 |
| 4L1 | Split RCD Fuse Board: Valet bay | D1:4 | 1 | 1 | 10 | 135. 0 | Fe | 5.00 | BS 60898/ | В | 50.0 | 9.0 | - | - | - | - | 0.93 |
| 4L2 | RCD (Metal Enclosure): RCD Tyre Bay | D4:6A | 1 | 1 | 10 | 40.0 | Fe | 5.00 | BS 3871/ | 3 | 45.0 | 6.0 | - | - | - | - | 0.51 |
| 4L3 | Shower - mechanics changing room | D1:4 | 1 | 1 | 6 | 135. 0 | Fe | 5.00 | BS 3871/ | 3 | 45.0 | 6.0 | - | - | - | - | 0.51 |
| 5L1 | 110V Transformer (RLV): 110 volt transformer - sockets | D1:4 | 1 | 1 | 4 | 2.5 | Cu | 5.00 | BS 3871/ | 3 | 30.0 | 6.0 | - | - | - | - | 0.76 |
| 5L2 | Spare | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5L3 | Spare | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6L1 | Spare | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6L2 | Spare | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6L3 | Spare | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Lo | cation: | Worksho | p | | | | | | Site Name: | Xample C | Car Deale | rship | | | |
|----------|-------------------|---------|----|-----------|----------|----------------|--------|---------|------------|----------|-----------|----------|------------------------|----|----|
| Results: | Z _{db} : | 0.40 | W | Outsid | de of th | ne Potential Z | one: | No | | | | E | arthing Arrangements: | NA | |
| | I _{pf} : | 8.00 | kA | | М | leans of Earth | ning: | NA | | | | | Earth Electrode Type: | NA | |
| RCD1 | IDn: | NA | ms | E | arth Ele | ectrode Loca | tion: | NA | | | | | Electrode Resistance: | NA | W |
| | 5IDn: | NA | ms | | | | | | | | Main | /Electro | de Earthing Conductor: | NA | mm |
| RCD2 | IDn: | NA | ms | Water: NA | r | nm (| Gas: | NA | mm | Oil: | NA | mm | Structural Steelwork: | NA | mm |
| | 5IDn: | NA | ms | M | letalwo | rk Between E | Buildi | ngs (Se | parate DNO | Supply): | NA | mm | Other: | NA | mm |

| | Ring M | lain Impe | dances | Circu | it Impeda | ances | | Insulation | Resistance |) | | _ | RC | | RCD (| Circuit | d) | |
|----------------|--------|-----------|--------|-------|-----------|--------------------------------------|-------------|---------------|-------------|--------------|----------|---|------------------------------------|---|---------------------------------------|---|---|--|
| Circuit Number | RI | Rn | R2 | R1+R2 | R2 | CPC Continuous Throughout Circuit | Phase/Phase | Phase/Neutral | Phase/Earth | Neural/Earth | Polarity | Maximum Measured Earth Loop Impedance Zs | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & S 180° (Highest Reading) | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & 180° (Highest Reading) | Maximum Non-compliance Severity Observed | Circuit Compliance for Continued Safe Use |
| | W | W | w | w | w | P/F | MW | MW | MW | MW | P/F | w | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | - | - | Yes | UTT | - | 299.00 | - | Pass | 0.50 | - | - | - | - | СЗ | Pass |
| 1L2 | - | - | - | - | - | Yes | UTT | - | 299.00 | - | Pass | 0.50 | - | - | - | - | C3 | Pass |
| 1L3 | - | - | - | - | - | Yes | UTT | - | 299.00 | - | Pass | 0.50 | - | - | - | - | C3 | Pass |
| 2L1 | - | - | - | - | - | NA | - | - | - | - | NA | NA | - | - | - | - | - | Pass |
| 2L1a | - | - | - | - | - | Yes | - | UTT | 299.00 | 299.00 | Pass | 0.60 | - | - | - | - | C2 | Fail |
| 2L1b | - | - | - | - | - | Yes | - | 299.00 | 299.00 | 299.00 | Pass | 1.20 | - | - | - | - | C2 | Fail |
| 2L2 | 0.90 | 0.90 | - | - | - | Yes | - | 299.00 | 299.00 | 299.00 | Pass | 0.30 | - | - | - | - | - | Pass |
| 2L3 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 3L1 | - | - | - | - | - | NA | - | - | - | - | NA | NA 0.50 | - | - | - | - | - | Pass |
| 3L1a | - | - | - | - | - | Yes | UTT | - | 299.00 | - | Pass | 0.50 | - | - | - | - | - | Pass |
| 3L1b | - | - | - | - | - | Yes | 299.00 | 299.00 | 299.00 | 299.00 | Pass | 0.40 | - | - | - | - | - | Pass |
| 3L2 | - | - | - | - | - | NA | - | - | - | - | NA | NA | - | - | - | - | - | Pass |
| 3L2a | - | - | - | - | - | Yes | UTT | - | 299.00 | - | Pass | 0.50 | - | - | - | - | - | Pass |
| 3L2b | - | - | - | - | - | Yes | 299.00 | 299.00 | 299.00 | 299.00 | Pass | 0.40 | - | - | - | - | - | Pass |
| 3L3 | - | - | - | - | - | NA | - | - | - | - | NA | NA | - | - | - | - | - | Pass |
| 3L3a | - | - | - | - | - | Yes | UTT | - | 299.00 | - | Pass | 0.50 | - | - | - | - | - | Pass |
| 3L3b | - | - | - | - | - | Yes | 299.00 | 299.00 | 299.00 | 299.00 | Pass | 0.40 | - | - | - | - | - | Pass |
| 4L1 | - | - | - | - | - | Yes | - | 299.00 | 299.00 | 299.00 | Pass | 0.40 | - | - | - | - | C2 | Fail |
| 4L2 | _ | - | - | UTT | - | NA | - | 299.00 | NA | NA | Pass | UTT | - | - | - | - | LIMIT | Pass |
| 4L3 | - | - | - | - | - | Yes | - | UTT | 37.00 | 40.00 | Pass | 0.40 | - | - | - | - | C2 | Fail |
| 5L1 | - | - | - | - | - | Yes | - | UTT | 299.00 | 299.00 | Pass | 0.30 | - | - | - | - | - | Pass |
| 5L2 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 5L3 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 6L1 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 6L2 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 6L3 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |

| Type/ID: | Split RCD Fuse I | Board: Vale | t bay | | | Make/F | rame: | MEM | | | | | /e Upline vice |
|----------------|-----------------------------|-------------|-------|----|-----------|----------|-------|-----------|-------------|-------|-----------------------|---------|-------------------|
| Fed From: | Distribution Boar | rd: 1/2L1 | | | | RCD1 | | | RCD2 | | BS (EN): | BS 6089 | 98/B |
| Located: | Valet bay | | | | | BS 61008 | | | BS 61008 | | Rating: | 50.0 | Α |
| Supply Type: | AC 1-phase 2-wi | ire 230V Ne | utral | | Rating: | NA | Α | Rating: | NA | Α | Breaking Capacity: | 9.0 | kA |
| Cable BS Type: | 6346 | CSA: | 10.0 | mm | IDn: | 30.00 | mA | IDn: | 100.00 | mA | Overload lo/lr: | - | Α |
| CPC Type: | | | 40.00 | mm | Circuits: | 3L1-4L1 | | Circuits: | 7L1-8L1 | | Instant Setting I/Im: | - | Α |
| | Conductor/Steel Armour** | | | | | | | Max | imum Let-Th | rough | Current @ Ipfc Max: | 2.00 kA | Α |

| | | | | C | Conduc | tor Det | tails | 122 | Overcur | ent | Protectiv | e Dev | rice | | | | |
|----------------|---------------------------|------------------------|------------------|------------------|----------------|---------------|--------------|--|------------------------|--------------|-----------|------------------------|----------------|----------------------|----------------|---------------|-----------------------------------|
| Circuit Number | Circuit Description | Method of Installation | Number of Phases | Number of Cables | Live Conductor | CPC Conductor | CPC Material | Maximum Disconnection Time Permitted by BS767 | Protective Switch Type | Sub Category | Rating | Short Circuit Capacity | Overload Io/Ir | Instant Setting I/Im | RCBO (Fuseway) | RCD (Circuit) | Maximum Zs Permitted by BS7671 |
| | | | | | mm | mm | | s | BS (EN) | | Α | kA | Α | kA | mA | mA | W |
| 1L1 | RCD for Adjacent Fuseway | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2L1 | RCD for Adjacent Fuseway | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3L1 | Sockets - left hand wall | D1:4 | 1 | 2 | 2.5 | 81.0 | Fe | 0.40 | BS 3871/ | 3 | 32.0 | 6.0 | - | - | - | - | 1666.67 |
| 4L1 | Sockets - right hand wall | D1:4 | 1 | 2 | 2.5 | 81.0 | Fe | 0.40 | BS 3871/ | 3 | 32.0 | 6.0 | - | - | - | - | 1666.67 |
| 5L1 | RCD for Adjacent Fuseway | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6L1 | RCD for Adjacent Fuseway | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 7L1 | Water heater | D5:6 | 1 | 1 | 1.5 | 1.0 | Cu | 0.40 | BS 3871/ | 2 | 30.0 | 6.0 | - | - | - | - | 500.00 |
| 8L1 | Outside high level light | D4:2 | 1 | 1 | 1.5 | 15.0 | Fe | 0.40 | BS 3871/ | 3 | 16.0 | 6.0 | - | - | - | - | 500.00 |

Methods of installation are formatted :<x>>, where refers to column <x> of the table given in Appendix 4 of the 17th Edition regulations or in manufacturer's data. Where cables are buried in a duct or directly in the ground, a ground temperature of 15°C @ a minimum depth 0.5 metre with a ground thermal resistivity of 1.2 K.m/W is assumed.

D1 4D1A Single core 70°C thplastic sheathed cables, non-armoured (Cu)
D3 4D3A Multicore 70°C thplastic insulated & thplastic is sheathed cables, non-armoured (Cu)
D3 4D3A Multicore 70°C thplastic insulated cables (non-mag. armour) (Cu)
D4 4D4A Multicore 70°C armoured thplastic (pvc) insulated cables (non-mag. armour) (Cu)
D5 4D5 Multicore 70°C armoured thplastic insulated cables (with protective conductor (Cu)
D6 4D4 Multicore 70°C armoured thplastic insulated cables (Non-mag. armour) (D1 Multicore 70°C armoured thplastic insulated cables (Non-mag. armour) (Cu)
D5 4D5 Multicore 90°C thestting insulated cables, non-armoured (Non-armoured (Non-armour

| L | Location: | Valet ba | V | | | | | 5 | Site Name: | Xample 0 | Car De | alershi | 'p | | | |
|----------|-------------------|----------|-----|------------|-----------|-----------------|---------|----------|-------------|----------|--------|---------|-----------------|--------------|--------|-----------|
| Results: | Z _{db} : | 0.40 | W | O | utside of | the Potential 2 | one: | Yes | | | | | Earthing Ar | rangements: | TN-C-S | (Inherite |
| | I _{pf} : | 2.00 | kA | | | Means of Eart | hing: | Supplier | rs facility | | | | Earth Ele | ctrode Type: | NA | |
| RCD1 | IDn: | 20.00 | ms | | Earth I | Electrode Loca | tion: | NA | | | | | Electrode | Resistance: | NA | W |
| | 5IDn: | 5.00 | ms | | | | | | | | N | ain/Ele | ctrode Earthing | Conductor: | 40.00 | mm |
| RCD2 | IDn: | 20.00 | ms | Water: | 10.00 | mm | Gas: | None | mm | Oil: | None | m | m Structura | l Steelwork: | 6.00 | mm |
| | 5IDn: | NA | ms | | Metalv | work Between I | Buildii | ngs (Sep | arate DNO | Supply): | None | e m | m | Other: | None | mm |
| | 5IDn: | NA | ms | | Metalv | work Between I | Buildii | ngs (Sep | parate DNO | Supply): | None | e m | m | Other: | None | mı |
| _1 | Ring Main | Impedan | ces | Circuit Ir | mpedance | es | nsulat | ion Resi | stance | | | £ | _RCBO | RCD Circ | cuit | , |
| | | | | | | | | | | | | ÷ | Fuseway | | | , |

| | Ring M | ain Impe | dances | Circu | it Impeda | ances | | Insulation | Resistance |) | | ے | RC | | RCD (| Circuit | ө | |
|----------------|--------|----------|--------|-------|-----------|--------------------------------------|----------------------|---------------|-------------|--------------|----------|---|------------------------------------|---|---------------------------------------|--|---|--|
| Circuit Number | RI | Rn | R2 | R1+R2 | R2 | CPC Continuous Throughout Circuit | Phas <i>e/</i> Phase | Phase/Neutral | Phase/Earth | Neural/Earth | Polarity | Maximum Measured Earth Loop Impedance Zs | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & ce at 5IDn (£30 mA) 0° & ce at 180° (Highest Reading) | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | Maximum Non-compliance Severity Observed | Circuit Compliance for Continued Safe Use |
| | W | W | W | w | w | P/F | MW | MW | MW | MW | P/F | w | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 2L1 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 3L1 | 0.30 | 0.30 | - | - | - | Yes | - | 299.00 | 299.00 | 299.00 | Pass | 0.30 | - | - | - | - | - | Pass |
| 4L1 | 0.30 | 0.45 | - | - | - | Yes | - | 299.00 | 299.00 | 299.00 | Pass | 0.20 | - | - | - | - | C2 | Fail |
| 5L1 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 6L1 | - | - | - | - | - | - | - | - | - | - | - | - | | | - | - | - | - |
| 7L1 | - | - | - | 0.20 | - | Yes | - | UTT | 153.00 | 154.00 | Pass | 0.60 | - | - | - | - | - | Pass |
| 8L1 | - | - | - | UTT | 0.34 | Yes | - | UTT | 264.00 | 268.00 | Pass | UTT | - | - | - | - | LIMIT | Pass |

| | | | | | | | | | | | | | | | | | | | | Ret. 6 |
|----------------|-----------|-----------------------------|-------------|------------|------------------------|------------------|------------------|-------|--------------|---------|-------------|------|----------------|----------|--------------------------|------------------|------------------------|----------------|-------------------|-----------------------------------|
| | Type/ID: | RCD (Metal Enci | losure): RC | D Tyre Baj | V | | | ı | /lake/F | rame: | Merlin Geri | in | | | | | | | ctive U Device | |
| F | ed From: | Distribution Boar | rd: 1/2L1 | | | | | | RCD1 | | | | RCD2 | | | BS | (EN): | BS 3 | <i>871/3</i> | |
| | Located: | Tyre bay | | | | | | BS 6 | 1008 | | | NA | | | | R | ating: | 45.0 | Α | |
| Sup | ply Type: | AC 1-phase 2-wi | ire 230V Ne | utral | | | Rating | : NA | | Α | Rating: | NA | | Α | Break | ing Cap | acity: | 6.0 | kA | |
| Cable | BS Type: | 6346 | CSA: | 10.0 | mm | | IDn | 100.0 | 00 | mΑ | IDn: | NA | | mΑ | C | verload | d lo/lr: | - | Α | |
| C | PC Type: | Copper | | 40.00 | mm | C | Circuits | : 1L1 | | | Circuits: | NA | | | Instan | t Setting | g I/Im: | - | Α | |
| | | Conductor/Steel Armour** | | | | | | | | | Max | imum | Let-Thr | ough | Curren | t @ lpfc | : Max: | 2.00 | kA A | |
| Circuit Number | | Circuit Desc | ription | | Method of Installation | Number of Phases | Number of Cables | | CPC Material | s Maxir | BS (| EN) | Sub Category d | rotect A | Short Circuit Capacity G | P Overload Io/Ir | ₩ Instant Setting I/Im | RCBO (Fuseway) | RCD (Circuit) | Maximum Zs Permitted by BS7671 |
| 1L1 | Fuse Boar | d: Tyre Bay | | | D1:6 | 1 | 1 1 | 6.0 | Cu | 1.00 |) Solid | Link | - | - | - | - | - | - | - | 500.00 |

| | Location | n: <i>Tyre</i> | bay | | | | | | | : | Site Na | ame: X | (ample | Car D | ealership |) | | | | | |
|----------------|-------------------|----------------|------|----|---------|---------|--------------------------------------|-------------|---------------|-----------|-------------|-----------|---------|----------|---------------------------------------|--------------------|--|-------------------------|--|-------------------------------|---|
| Results: | : Z _{di} | : 60.0 | 00 | W | | Outside | of the | Potential 2 | Zone: | Yes | | | | | | Earth | ing Arra | ngements | : <i>TT</i> | | |
| | Ιp | f: 2.00 |) | kA | | | Mea | ns of Eart | hing: , | Installat | tion ear | rth elect | trode | | | Ear | th Elect | rode Type | : Rod | (s) | |
| RCD | - | 1: 100. | | ms | | Ear | th Elect | trode Loca | ation: | NA | | | | | | Ele | ctrode R | esistance | : 60.0 | 0 W | |
| | 5IDr | n: <i>NA</i> | | ms | | | | | | | | | | N | Main/Ele | ctrode Ea | arthing (| Conducto | 6.00 | m | m |
| RCD2 | 2 IDr | n: <i>NA</i> | | ms | Wate | r: None | mn | n | Gas: | None | mm | | Oil: | Non | <i>ne</i> m | m Stı | ructural | Steelworl | : 10.0 | 0 m | m |
| | 5IDr | n: <i>NA</i> | | ms | | Me | alwork | Between | Buildin | ıgs (Sep | parate | DNO S | upply): | Non | <i>ne</i> m | m | | Othe | : Non | e m | m |
| | | | | | | | | | | | | | | | | | | | | | |
| | Ring Ma | in Impe | danc | es | Circuit | Impeda | nces | | Insulati | on Resi | stance | ! | | | _ | _RC | | RCD C | rcuit | Φ | |
| | | | | | | | | | | | | | | | Earth | Fuse | | | √ S | anc | _ |
| | | | | | | | + | | | | | | | | | _ | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | rved | e for |
| _ | | | | | | | CPC Continuous Throughout Circuit | | | | | | | | Maximum Measured Loop Impedance Zs | & 180° Reading) | Aea Sea | & 180° Reading) | Rea Rea | 2 <u>5</u> | Circuit Compliance Continued Safe Us |
| Circuit Number | | | | | | | 55 | Se | Phase/Neutral | | £ | arth | | | Mea | 18 ead | 30 m | ead ead | 30 m est F | Maximum Non Severity Obser | npli; Saf |
| N N | | | | | 7 | | onti | Phase/Phase | , je | | Phase/Earth | Æar | | | nm ube | o. St R | ighe | o° 8 | ighe | E O | Cor |
| gi | | | | | ₩ + | | Sino. | ase/ | ase/ | | /ese | Neural/E | 1 | rolatity | 프로 | At IDn 0° | ĒĒ. | At IDn 0° (Highest I | Ē. | xim /erit | otin. |
| Ö | RI | Rn | R2 | 2 | 2 | R2 | 유 | P. P. | Ph | | Ph | Š | 2 | 2 | Lo Ma | E.E. | 18C | ΞĒ | At (| Ma | نَّحَٰ قَ |
| | W | W | l v | / | w | w | P/F | MW | MW | / N | иW | MW | P/ | F | W | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | | - | - | Yes | - | 299.0 | 00 29 | 9.00 | 299.00 | 0 Pa | ss | 60.00 | - | - | - | - | - | Pass |

| D | ^ | f | 7 |
|---|---|---|---|
| | | | |

| | | | | | | | | | | | | | | | | | | | | | Rei. / |
|----------------|-----------|------------------|--------------|------------|------------------------|------------------|------------------|----------------|---------------|--------------|--|-----------|---------|--------------|-------------------------|---------------------------|------------------|------------------------|----------------|-----------------|-------------------------------------|
| | Type/ID: | Fuse Board: Tyr | e Bay | | | | | | Ма | ke/Fra | me: | MEM | | | | | | | | tive U Devic | Jpline e |
| F | ed From: | RCD (Metal Enc. | losure): RCL | D Tyre Bay | / | | | | R | CD1 | | | R | CD2 | | | BS | (EN): | BS 3 | 371/3 | |
| | Located: | Entrance of tyre | bay | | | | | N | IA | | | | NA | | | | R | ating: | 45.0 | Α | |
| Sup | ply Type: | AC 1-phase 2-w | ire 230V Ne | utral | | | Ratin | g: // | IA | - | 4 | Rating: | NA | | Α | Break | ing Cap | acity: | 6.0 | kΑ | 1 |
| Cable | BS Type: | 6004 | CSA: | 10.0 | mm | | ΙD | n: // | IA | r | nΑ | IDn: | NA | | mA | C | verload | l lo/lr: | - | Α | |
| c | CPC Type: | Unbunched | CSA: | 6.00 | mm | (| Circuit | s: N | IA | | | Circuits: | NA | | | Instan | Setting | g I/Im: | - | Α | |
| | | Copper Cable* | | | | | | | | | | Max | imum Le | t-Th | rough (| Curren | t @ lpfc | : Max: | 2.00 | KA A | |
| Circuit Number | | Circuit Desc | ription | | Method of Installation | Number of Phases | Number of Cables | Live Conductor | CPC Conductor | CPC Material | ω Maximum Disconnection Time Permitted by BS7671 | BS (| | Sub Category | Protecti Rating A | Short Circuit Capacity do | D Overload lo/lr | F Instant Setting I/Im | RCBO (Fuseway) | B RCD (Circuit) | S Maximum Zs Permitted by BS7671 |
| 1L1 | Lights | | | | D1:4 | 1 | 1 1 | 1.5 | 1.0 | Cu | 0.20 | BS 61 | 009/ | В | 6.0 | 6.0 | - | - | 30 | - | 1666.67 |
| 2L1 | Sockets | | | | D1:4 | 1 | 1 2 | 2.5 | 1.0 | Cu | 0.20 | BS 61 | 009/ | С | 20.0 | 6.0 | - | - | 30 | - | 1666.67 |

| | Location | n: Entre | ance of | tyre bay | | | | | Site | Name: | Xamp | ple Car l | Dealershi | D | | | | | |
|----------------|-----------------|--------------|---------|----------|---------------|-----------------------------------|---------------|-----------------|---------------|---------|------|------------|--|---|---|--------------------------------------|--|---|---|
| Results: | z _{dl} | 60.0 | 0 W | , | Outside | of the I | Potential 2 | Zone: ∧ | lo | | | | | Earth | ing Arra | ngemen | ts: NA | | |
| | Ip | f: 1.00 | k | A | | Mea | ns of Eart | hing: ٨ | IA | | | | | Ea | rth Elect | rode Ty | oe: NA | | |
| RCD: | / IDi | n: <i>NA</i> | m | s | Ea | rth Elect | rode Loca | ation: ∧ | IA | | | | | Ele | ctrode R | Resistan | ce: NA | W | |
| | 5IDr | n: <i>NA</i> | m | s | | | | | | | | | Main/Ele | ctrode E | arthing (| Conduct | or: NA | mr | n |
| RCD2 | ? IDr | n: <i>NA</i> | m | s Wat | er: <i>NA</i> | mm | 1 | Gas: A | /A n | nm | | Oil: N/ | 1 m | m St | ructural | Steelwo | rk: <i>NA</i> | mr | n |
| | 5IDr | n: <i>NA</i> | m | s | Me | talwork | Between | Building | gs (Separa | ate DNO | Supp | oly): // | 4 m | m | | Oth | er: <i>NA</i> | mr | n |
| 1 | | | | | | | | | | | | | | | | | | | ı |
| | Ring Ma | in Impe | dances | Circu | it Impeda | ances | | Insulatio | n Resistar | nce | | | £ | | ВО | RCD | Circuit | ф | |
| Circuit Number | RI W | Rn W | R2 W | S R1+R2 | R2 W | GPC Continuous Throughout Circuit | S Phase/Phase | S Phase/Neutral | S Phase/Earth | М | | 권 Polarity | Maximum Measured Earth Loop Impedance Zs | 3 At IDn 0° & 180° Ø (Highest Reading) | At 5IDn (£30 mA) 0° & ke was 180° (Highest Reading) | At IDn 0° & 180° Highest Reading) | B At 5IDn (£30 mA) 0° & 180° (Highest Reading) | Z Maximum Non-compliance Severity Observed | Circuit Compliance for Continued Safe Use |
| 1L1 | - | - | - | - | - | Yes | - | UTT | 299.0 | 0 299 | .00 | Pass | 62.00 | 80 | 42 | - | - | C5 | Pass |
| 2L1 | - | - | - | - | - | Yes | - | 299.00 | 299.0 | 0.8 | 30 | Pass | 64.00 | 400 | 20 | - | - | C2 | Fail |

| | Type/ID: | 110V Transform | er (RLV): 11 | 10 volt tran | sformer | - <i>soc</i> | ckets | | Mai | ke/Fra | ıme: | Unknown | | | | | | | | tive U Device | |
|----------------|------------|--------------------|---------------|------------------------|------------------|------------------|------------------|---------------|--------------|--|------|-----------|--------------|---------------|--------------------------|------------------|------------------------|------------------|---------------|----------------------|----|
| F | ed From: | Distribution Boar | rd: 1/2L1 | | | | | | R | CD1 | | | RC | D2 | | | BS | (EN): | BS 3 | 371/3 | |
| | Located: | Workshop | | | | | | / | VA | | | | NA | | | | R | ating: | 30.0 | Α | |
| Sup | ply Type: | AC 1-phase 2-wi | ire 230V Ne | utral | | | Rati | ing: / | VA | 1 | 4 | Rating: | NA | | Α | Break | ing Cap | acity: | 6.0 | kA | |
| Cable | BS Type: | 6004 | CSA: | 4.0 | mm | | ı | Dn: / | VA | r | nΑ | IDn: | NA | | mA | C | Overload | d lo/lr: | - | Α | |
| C | PC Type: | Bunched | CSA: | 2.50 | mm | (| Circu | its: / | VA | | | Circuits: | NA | | | Instan | t Setting | g I/Im: | - | Α | |
| | | Copper Cable | | | | | | | | | | Max | imum Le | t-Th | rough | Curren | t @ lpfc | : Max: | 2.00 | k4 A | |
| Circuit Number | | Circuit Desc | | Method of Installation | Number of Phases | Number of Cables | a Live Conductor | CPC Conductor | CPC Material | ω Maximum Disconnection Time Permitted by BS7671 | BS (| - ı | Sub Category | Protecti A | Short Circuit Capacity Q | D Overload Io/Ir | F Instant Setting I/Im | ₹ RCBO (Fuseway) | RCD (Circuit) | Maximum 7s Permitted | |
| 1L1 | 110volt so | ckets right hand v | wall of works | shop | D1:5 | 2 | 1 | 2.5 | 81.0 | Fe | 5.00 | BS 60 | 898/ | В | 16.0 | 9.0 | - | - | - | - | |
| 1L2 | 110volt so | ckets right hand v | wall of works | shop | D1:5 | 2 | 1 | 2.5 | 81.0 | Fe | 5.00 | Solid | Link | - | - | - | - | - | - | - | |
| 2L1 | 110volt so | ckets left hand wa | all of worksh | юр | D1:5 | 2 | 1 | 2.5 | 81.0 | Fe | 5.00 | BS 60 | 898/ | В | 16.0 | 9.0 | - | - | - | - | 0. |
| 2L2 | 110volt so | ckets left hand wa | all of worksh | пор | D1:5 | 2 | 1 | 2.5 | 81.0 | Fe | 5.00 | BS 60 | 898/ | В | 16.0 | 9.0 | - | - | - | - | 0. |

| | Location | n: Work | kshop | | | | | | s | ite Na | me: Xar | nple Ca | r Dealer | ship | | | | | |
|----------------|------------------|--------------|--------|-------|---------------|--------------------------------------|--------------|---------------|----------|-------------|--------------|----------------|------------------|-----------------------|--|--------------------|--|---|--|
| Results | : Z _d | b: 0.30 | W | | Outside | e of the F | Potential Zo | ne: ∧ | lo | | | | | Eart | hing Arra | angemen | ts: NA | | |
| | Ip | f: 2.00 | k/ | A | | Mea | ns of Earthi | ng: ∧ | IA | | | | | E | arth Elect | trode Ty | oe: NA | | |
| RCD: | | n: <i>NA</i> | m | s | Ea | rth Elect | rode Locati | on: A | IA | | | | | E | ectrode F | Resistan | ce: NA | W | |
| | 5IDi | n: <i>NA</i> | m | s | | | | | | | | | Main/ | Electrode | Earthing | Conduct | or: <i>NA</i> | mr | n |
| RCD2 | 2 IDi | n: <i>NA</i> | m | s Wat | er: <i>NA</i> | mm | ı G | as: A | IA | mm | | Oil: / | VA | mm S | tructural | Steelwo | rk: <i>NA</i> | mr | n |
| | 5IDi | n: <i>NA</i> | m | s | Ме | talwork | Between Bu | uilding | gs (Sepa | arate [| DNO Sup | ply): / | VA | mm | | Oth | er: <i>NA</i> | mr | n |
| 1 | | | | | | | | | | | | | | | | | | | |
| | Ring Ma | in Impe | dances | Circu | it Impeda | ances | ln: | sulatio | n Resis | tance | | | ے | | CBO | RCD (| Circuit | φ | |
| | | | | | | | | | | | | | Earth | Fu | seway | 1 | √ 🙃 | anc | _ |
| | | | | | | .= | | | | | | | | γ C | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | Maximum Non-compliance Severity Observed | Circuit Compliance for Continued Safe Use |
| 5 | | | | | | CPC Continuous Throughout Circuit | | _ | | | | | Maximum Measured | & 180° Reading) | Reg | & 180° Reading) | nA) Reg | orve erve | ianc fe U |
| Circuit Number | | | | | | ii t | ase | Phase/Neutral | | E | 된 | | Ĭ Š | % 18 % | 30 r | % 18 Reac | 30 r est | No | mpl I Sa |
| Z | | | | R2 | | Sont | Phase/Phase | Ne | Ĺ | Pnase/Eartn | Neural/Earth | _ > | E | O° S | 3) (£ | 0° 8 | 3) r High | E S | Co |
| cnit | | | | + | | S one | ase | ase | | ase | ura_ | Polarity | i X | At IDn 0°, (Highest F | 0°(+) | At IDn 0° | 5. 0°(F | veri | cuit |
| تَّ | RI | Rn | R2 | 2 | R2 | 유트 | - 심 | P | ď | ۲ | Š | P ₀ | × |] ¥ <u>E</u> | ₹ ₩ | ₹Ē | ₹ <u>₩</u> | Se | పేరి |
| | W | W | W | W | W | P/F | MW | MW | M | W | MW | P/F | W | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | - | - | Yes | UTT | UTT | 156 | 00.3 | 157.00 | Pass | 0.20 | 3 - | - | - | - | C2 | Fail |
| 1L2 | - | - | - | - | - | Yes | UTT | UTT | 156 | 00.3 | 157.00 | Pass | 0.20 | 3 - | - | - | - | C2 | Fail |
| 2L1 | - | - | - | - | - | Yes | UTT | UTT | 170 | 0.00 | 175.00 | Pass | 0.2 | 3 - | - | - | - | - | Pass |
| 2L2 | - | - | - | - | - | Yes | UTT | UTT | 170 | 0.00 | 175.00 | Pass | 0.2 | 3 - | - | - | - | - | Pass |

| | | | | | | | | | | | | | | | | | | | | | Ref. 9 |
|----------------|-----------|-------------------|---------------|------------------------|------------------|------------------|----------------|---------------|--------------|--|------|-----------|--------------|--------|------------------------|----------------|----------------------|------------------|-----------------|-----------------------------------|--------|
| | Type/ID: | Switch Fuse: 1/2 | ?L1/3L1b | | | | | | Ма | ke/Fra | me: | MEM | | | | | | | | ctive U Device | |
| F | ed From: | Distribution Boar | rd: 1/2L1 | | | | | | R | CD1 | | | R | CD2 | | | BS | (EN): | BS 6 | 0898/C | • |
| | Located: | Main workshop | left hand rea | r | | | | / | VA | | | | NA | | | | R | ating: | 32.0 | Α | |
| Sup | ply Type: | AC 3-phase 4-w | rire 400V Ne | utral | | | Rati | ng: / | VA | 4 | 4 | Rating: | NA | | Α | Break | ing Cap | acity: | 9.0 | kA | |
| Cable | BS Type: | 6004 | CSA: | 6.0 | mm | | II | Dn: / | VA | r | πA | IDn: | NA | | mA | c | verload | d lo/lr: | - | Α | |
| c | PC Type: | Steel | CSA: | 135.00 | mm | (| Circu | its: / | VA | | | Circuits: | NA | | | Instan | t Setting | g I/Im: | - | Α | |
| | | Trunking** | | | | | | | | | | Max | imum L | et-Th | rough | Curren | t @ lpfc | : Max: | 4.00 | kA A | |
| Circuit Number | | Circuit Desc | | Method of Installation | Number of Phases | Number of Cables | Live Conductor | CPC Conductor | CPC Material | Maximum Disconnection Time Permitted by BS7671 | | | Sub Category | Rating | Short Circuit Capacity | Overload lo/Ir | Instant Setting I/Im | . RCBO (Fuseway) | . RCD (Circuit) | Maximum Zs Permitted by BS7671 | |
| | _ | | | | | | | mm | mm 135. | _ | S | BS (I | | | Α | kA | Α | kA | mA | mA | W |
| 1L1 | Compress | or 2 | | | D1:5 | 3 | 1 | 10 | 0 | Fe | 5.00 | BS 88-2 | (E&G) | - | 40.0 | 80.0 | - | - | - | - | 1.35 |
| 1L2 | Compress | or 2 | | | D1:5 | 3 | 1 | 10 | 135. 0 | Fe | 5.00 | BS 88-2 | (E&G) | - | 40.0 | 80.0 | - | - | - | - | 1.35 |
| 1L3 | Compress | or 2 | | | D1:5 | 3 | 1 | 10 | 135. 0 | Fe | 5.00 | BS 88-2 | (E&G) | - | 40.0 | 80.0 | - | - | - | - | 1.35 |

| | Location | n: <i>Mair</i> | worksh | op left ha | nd rear | | | | Site N | ame: | Xample | e Car I | Dealersh | nip | | | | | |
|----------------|------------------|----------------|--------|------------|---------------|--------------------------------------|--------------|---------------|-------------|--------------|----------|---------------|---|---------------------------------------|--|---------------------------------------|--|---|--|
| Results | : Z _d | b: 0.40 | W | | Outside | of the I | Potential Zo | ne: No |) | | | | | Earth | ing Arra | ngemen | ts: NA | | |
| | Ι _ρ | of: 6.00 | kA | | | Mea | ns of Earthi | ing: N/ | 4 | | | | | Ea | rth Elect | rode Ty | oe: NA | | |
| RCD | 1 ID | n: <i>NA</i> | ms | 5 | Ear | rth Elect | rode Locati | ion: N/ | 4 | | | | | Ele | ctrode R | Resistan | ce: NA | W | |
| | 5ID | n: <i>NA</i> | ms | 3 | | | | | | | | | Main/El | ectrode E | arthing (| Conduct | or: <i>NA</i> | mn | n |
| RCD2 | 2 ID | n: <i>NA</i> | ms | s Wate | er: <i>NA</i> | mm | ı G | as: N/ | 4 mm | | 0 | il: <i>NA</i> | l r | nm St | ructural | Steelwo | rk: <i>NA</i> | mn | n |
| | 5ID | n: <i>NA</i> | ms | 6 | Ме | talwork | Between B | uildings | s (Separate | DNO S | Supply | r): NA | l r | nm | | Oth | er: <i>NA</i> | mn | n |
| | Ring Ma | ain Impe | dances | Circu | it Impeda | ances | In | sulation | Resistance |) | | | ¥ | RC Fuse | BO eway | RCD | Circuit | eo | |
| Circuit Number | RI | Rn | R2 | R1+R2 | R2 | CPC Continuous Throughout Circuit | Phase/Phase | Phase/Neutral | Phase/Earth | Neural/Earth | | Polarity | Maximum Measured Earth Loop Impedance Zs | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & 180° (Highest Reading) | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | Maximum Non-compliance Severity Observed | Circuit Compliance for Continued Safe Use |
| | W | W | W | W | W | P/F | MW | MW | MW | MV | v | P/F | W | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | - | - | Yes | 299.00 | - | 299.00 | - | F | Pass | 0.30 | - | - | - | - | - | Pass |
| 1L2 | - | - | - | - | - | Yes | 299.00 | - | 299.00 | - | F | ass | 0.30 | - | - | - | - | - | Pass |
| 1L3 | - | - | - | - | - | Yes | 299.00 | - | 299.00 | - | F | Pass | 0.30 | - | - | - | - | - | Pass |

| | | | | | | | | | | | | | | | | | | | | | Ref. 10 |
|----------------|-----------|-----------------------------|-------------|-------|------------------------|------------------|------------------|----------------|---------------|--------------|--|------------------------|------|--------------|----------|------------------------|----------------|----------------------|----------------|-------------------|-----------------------------------|
| | Type/ID: | Switch Fuse: B | | | | | | | Mal | ke/Fra | ıme: | MEM | | | | | | | | tive l Devic | Jpline e |
| F | ed From: | Distribution Boar | rd: 1 | | | | | | R | CD1 | | | | RCD2 | | | BS | (EN): | BS 47 | 752 | |
| | Located: | Ist floor offices | | | | | | NA | 4 | | | | NA | | | | R | ating: | 63.0 | Α | |
| Sup | ply Type: | AC 1-phase 2-wil | ire 230V Ne | utral | | | Rating | g: <i>NA</i> | 4 | | 4 | Rating: | NA | | Α | Breakir | ng Cap | acity: | 25.0 | k/ | ١ |
| Cable | BS Type: | 6346 | CSA: | 10.0 | mm | | ΙDι | n: <i>NA</i> | 4 | | nΑ | IDn: | NA | | mΑ | O۱ | erload | l lo/lr: | 63.0 | Α | |
| С | PC Type: | Copper | CSA: | 40.00 | mm | C | ircuit | s: <i>NA</i> | 4 | | | Circuits: | NA | | | Instant | Setting | j l/lm: | - | Α | |
| | | Conductor/Steel Armour** | | | | | | | | | | Max | imum | Let-Th | rough | Current | @ lpfc | Max: | 3.70 | <i>A</i> A | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | Cor | nducto | or Det | ails | _ ر <u>ت</u> | | Over | current I | Protecti | ve Devic | е | | | | |
| Circuit Number | | Circuit Desc | ription | | Method of Installation | Number of Phases | Number of Cables | Live Conductor | CPC Conductor | CPC Material | Maximum Disconnection Time Permitted by BS7671 | Drotective Switch Tyne | | Sub Category | Rating | Short Circuit Capacity | Overload Io/Ir | Instant Setting I/Im | RCBO (Fuseway) | RCD (Circuit) | Maximum Zs Permitted by BS7671 |
| | | | | | | | n | nm | mm | | s | BS (I | EN) | | Α | kA | Α | kA | mΑ | mΑ | W |
| 1L1 | Fuse Boar | rd: B/1 | | | D4:2 | 1 | 1 1 | 16 4 | 46.0 | Fe | 5.00 | BS 38 | 871/ | 3 | 45.0 | 9.0 | - | - | - | - | 0.51 |

| | Location | : Ist flo | oor office | es | | | | | Site I | Name: | Xamp | ple Car l | Dealersh | nip | | | | | |
|----------------|-----------------|-----------|------------|--------|---------------|--------------------------------------|--------------|---------------|-------------|--------------|----------|-----------|---|------------------------------------|---|---------------------------------------|--|---|--|
| Results: | z _{db} | : 0.20 | W | | Outside | of the I | Potential Zo | one: M | 6 | | | | | Earth | ing Arra | ngemen | ts: NA | | |
| | I _{pf} | 5.00 | kA | | | Mea | ns of Earth | ing: N | И | | | | | Ea | rth Elect | rode Typ | e: NA | | |
| RCD: | 1 IDn | : NA | ms | 3 | Ear | th Elect | rode Locat | ion: N | И | | | | | Ele | ctrode R | Resistanc | e: NA | W | |
| | 5IDn | : NA | ms | 5 | | | | | | | | | Main/El | ectrode E | arthing (| Conducto | or: <i>NA</i> | mn | n |
| RCD2 | ? IDn | : NA | ms | s Wate | er: <i>NA</i> | mm | n (| Gas: N | // mi | n | | Oil: N/ | 1 r | nm St | ructural | Steelwo | k: <i>NA</i> | mn | n |
| | 5IDn | : NA | ms | 3 | Me | talwork | Between B | Building | ıs (Separat | e DNO | Supp | oly): // | 1 r | nm | | Othe | er: <i>NA</i> | mn | n |
| | | | | | | | | | | | | | | | | | | | |
| | Ring Mai | n Impe | dances | Circu | it Impeda | nces | Ir | nsulation | n Resistano | се | | | ے | | ВО | RCD (| Circuit | Φ | |
| Circuit Number | RI | Rn | R2 | R1+R2 | R2 | CPC Continuous Throughout Circuit | Phase/Phase | Phase/Neutral | Phase/Earth | Neiral/Farth | מל במוני | Polarity | Maximum Measured Earth Loop Impedance Zs | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & Se and 180° (Highest Reading) | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & 180°(Highest Reading) | Maximum Non-compliance Severity Observed | Circuit Compliance for Continued Safe Use |
| | W | W | W | w | w | P/F | MW | MW | MW | M۱ | w | P/F | W | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | UTT | - | Yes | - | 299.00 | 299.00 | 299. | .00 | Pass | 0.30 | - | - | - | - | - | Pass |

| | | | | | | | | | | | | | | | | | | | | - 17 | ei. i i |
|----------------|-------------|-----------------------------|-------------|-------|------------------------|--------|---------|----------------|-----------|----------|---|----------|-------------|--------------|---------|------------------------|----------------|----------------------|----------------|------------------|------------------------|
| | Type/ID: | Fuse Board: B/1 | | | | | | | Ма | ke/Frar | me: | Wylex | | | | | | | | tive U Device | |
| F | ed From: | Switch Fuse: B | | | | | | | R | CD1 | | | | RCD2 | | | BS | (EN): | BS 3 | 371/3 | |
| | Located: | Kitchen | | | | | | N | 4 | | | | NA | | | | R | ating: | 45.0 | Α | |
| Sup | ply Type: | AC 1-phase 2-w | ire 230V Ne | utral | | | Ratin | g: // | 4 | Α | | Rating | : NA | | Α | Break | ing Cap | acity: | 9.0 | kA | |
| Cable | BS Type: | 6346 | CSA: | 16.0 | mm | | ΙD | n: // | 4 | m | ıΑ | IDr | : NA | | mA | c | verload | l lo/lr: | - | Α | |
| C | CPC Type: | | | 46.00 | mm | (| Circuit | s: // | 4 | | | Circuits | : NA | | | Instan | t Setting | g I/Im: | - | Α | |
| | | Conductor/Steel Armour** | | | | | | | | | | Ma | ximum | Let-Th | rouah | Curren | t @ lpfc | : Max: | 3.40 | kA A | |
| | | Aimoui | | | | | | | | | | | | | | | | | | | |
| | | | | | | | Co | nducto | or De | tails | 71 | : | Over | current | Protect | ive Dev | rice | | | | |
| | | | | | _ | | | | | | tion 376 | | e C | | | | | | | | pa |
| | | | | | Method of Installation | S | S | | | | Maximum Disconnection Time Permitted by BS7671 | i | Switch Type | | | Short Circuit Capacity | | ٤ | | | Permitted |
| 70 | | | | | l ä | Phases | Cables | j. | ō | | Sol | 2 | if ch | | | Сар | | Instant Setting I/Im | RCBO (Fuseway) | | Per |
| шре | | | | | <u>sr</u> | | | Inct | duci | erial | Dis | | Ś | go ry | | ij | lo/Ir | it Ei | /esr | uit) | Zs 1 |
| Circuit Number | | | | | d of | ər of | er of | Live Conductor | Conductor | Material | um Per | 5 | Protective | Sub Category | | Ö | Overload lo/Ir | Se | F. | (Circuit) | Maximum J by BS7671 |
| cnit | | | | | l g | Number | Number | e O | | | izi e | | otec | P C | Rating | ort | erlo | tan | BO | RCD (| BS |
| Ξ̈́ | | Circuit Desc | ription | | ₽ | N | Ž. | . ⊑ | CPC | CPC | ΣįΞ | | P | Su | Ra | ์ ซ | ò | <u> </u> | RC | RC | βÃ |
| | | | | | | | 1 | mm | mm | | s | BS | (EN) | | Α | kA | Α | kA | mA | mA | W |
| 1L1 | Lights real | roffices | | | D5:6 | 1 | 1 | 1.5 | 1.0 | Cu | 0.40 | BS 6 | 0898/ | В | 10.0 | 6.0 | - | - | - | - | 4.60 |
| 2L1 | Lights fron | t offices | | | D5:6 | 1 | 1 | 1.5 | 1.0 | Cu | 0.40 | BS 6 | 0898/ | В | 10.0 | 6.0 | - | - | - | - | 4.60 |
| 3L1 | Sockets 1s | st floor offices | | | D5:6 | 1 | 2 | 2.5 | 3.0 | Cu | 0.40 | BS 6 | 0898/ | В | 32.0 | 6.0 | - | - | - | - | 1.44 |

Methods of installation are formatted :<x>>, where refers to column <x> of the table given in Appendix 4 of the 17th Edition regulations or in manufacturer's data. Where cables are buried in a duct or directly in the ground, a ground temperature of 15°C @ a minimum depth 0.5 metre with a ground thermal resistivity of 1.2 K.m/W is assumed.

D1 4D1A Single core 70°C thplastic sheathed cables, non-armoured (Cu)
D3 4D3A Multicore 70°C thplastic insulated & thplastic is sheathed cables, non-armoured (Cu)
D3 4D3A Multicore 70°C thplastic insulated cables (non-mag. armour) (Cu)
D4 4D4A Multicore 70°C armoured thplastic (pvc) insulated cables (non-mag. armour) (Cu)
D5 4D5 Multicore 70°C armoured thplastic insulated cables (with protective conductor (Cu)
D6 4D4 Multicore 70°C armoured thplastic insulated cables (Non-mag. armour) (D1 Multicore 70°C armoured thplastic insulated cables (Non-mag. armour) (Cu)
D5 4D5 Multicore 90°C thestting insulated cables, non-armoured (Non-armoured (Non-armour

| | Locatio | n: Kitch | en | | | | | | Site | Name: | Xample | e Car L | Dealersi | hip | | | | | |
|----------------|--------------|--------------|------|---------|---------------|--------------------------------------|-------------|---------------|------------|--------------|--------|---------------|---|------------------------------------|---|---------------------------------------|--|---|---|
| Results | : Z d | b: 0.30 | W | | Outside | of the F | Potential Z | one: N | 6 | | | | | Earth | ing Arra | ngemen | ts: NA | | |
| | I, | of: 4.00 | kA | | | Mea | ns of Eartl | hing: M | И | | | | | Ea | rth Elect | rode Ty | oe: NA | | |
| RCD: | 1 ID | n: <i>NA</i> | ms | | Ea | rth Elect | rode Loca | tion: N | И | | | | | Ele | ctrode F | Resistan | ce: NA | W | |
| | 5ID | n: <i>NA</i> | ms | | | | | | | | | | Main/E | lectrode E | arthing (| Conduct | or: <i>NA</i> | mr | n |
| RCD2 | 2 ID | n: <i>NA</i> | ms | Wate | er: <i>NA</i> | mm | ı | Gas: N | И m | m | 0 | il: <i>NA</i> | | nm St | ructural | Steelwo | rk: <i>NA</i> | mr | n |
| | 5ID | n: <i>NA</i> | ms | | Me | talwork | Between I | Building | s (Separa | te DNO | Supply | /): <i>NA</i> | | nm | | Oth | er: <i>NA</i> | mr | n |
| Circuit Number | RI | Rn | R2 | R1 + R2 | it Impeda | CPC Continuous Throughout Circuit | Phase/Phase | Phase/Neutral | n Resistan | Neural/Earth | . | Polarity | Maximum Measured Earth Loop Impedance Zs | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & x 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | At IDn 0° & 180° (Highest Reading) | At 5IDn (£30 mA) 0° & Part 510 (Highest Reading) | Maximum Non-compliance Severity Observed | Circuit Compliance for Continued Safe Use |
| | W | W | W | W | W | P/F | MW | MW | MW | MV | - 1 | P/F | W | ms | ms | ms | ms | No. | P/F |
| 1L1 | - | - | - | - | - | Yes | - | UTT | 299.00 | | | Pass | 0.50 | - | - | - | - | - | Pass |
| 2L1 | - | - | - | - | - | Yes | - | UTT | 299.00 | | - 1 | Pass | 0.50 | - | - | - | - | - | Pass |
| 3L1 | 0.60 | 0.60 | 0.70 | - | - | Yes | - | 299.00 | 299.00 | 299. | 00 F | Pass | 0.40 | - | - | - | - | - | Pass |