ELECTRICAL TRAINING
Extra Low Voltage
for touring caravans & motorhomes

Under the Electricity at Work Regulations 1989, all employers have a duty to ensure that employees are competent to carry out any electrical duties expected of them. The National Caravan Council has defined the competences necessary for electrical inspection of touring caravans and motorhomes as part of a standard service. This assessed training course has been developed to provide the necessary proof of the competence of workshop staff.

The CITO Electrical Extra Low Voltage training is recognised by the National Caravan Council as an approved competence qualification for touring caravan and motorhome workshops.

This 2 day course has been written for candidates who have successfully completed the 2 day electrical competence training in the inspection and testing of caravans and motorhomes; and who have gained practical experience of inspection and testing following that training. The ELV course will be considered the higher learning level in our electrical programme and covers 12v and fault finding through circuits and circuit tracing. This course is very intense and will be classroom based training with plenty of practical problem solving exercises.

What the course will give you

Candidates will have demonstrated a thorough knowledge of, and practical ability for:

- Terminology
- Review of low voltage (LV) systems
- ELV sources of supply
- ELV legislation
- ELV wiring
- Circuits
- Circuit tracing
- Fault finding
- Successful completion of the assessment will give a Certificate of Competence.

This course is only available for engineers who have successfully completed the CITO Electrical Training - Test & Inspection course. All delegates must provide copies of their existing certificates when making application for this training course.

This course will run on two consecutive days. Each course will take a maximum of 8 people. The cost includes training, assessment, course materials, certification, and a light buffet lunch on both days. Accommodation if required is not included. All other terms and conditions apply.

Course Cost:

NCC Members:	£450 + VAT
Non Members:	£520 + VAT

Training Coordinator

Sallyann Adams
sallyann@cito.org.uk / 01252 796 085

Skills Active
Caravan Industry Training
74-76 Victoria Road, Aldershot, Hampshire GU11 1SS
Telephone 01252 796 085 / Fax 01252 796 086 / www.cito.org.uk

ELECTRICAL TRAINING
Extra Low Voltage
Syllabus 2010

cito
Caravan Industry Training
part of the SkillsActive Group

COURSE CONTENT

- Terminology
- Review of low voltage (LV) system
- ELV Sources of Supply
- ELV Legislation
- ELV Wiring
- Circuits
- Circuit tracing
- Fault finding

COURSE OBJECTIVES

Terminology

Understand electrical terms and their relationships

- Alternating current
- Direct current
- LV and ELV
- Voltage, current, resistance and power
- Relationship calculations

LV Systems

Review the LV System:

- Inlet
- Consumer unit
- Wiring type
- Legislation

ELV Sources of Supply

Understand battery technology:

- Battery types
- The leisure battery
- Capacity and charging
- Charing tests
- Relative density
- Battery safety and use
  - The battery compartment
  - Terminals
  - Labelling

Know of the characteristics of alternative sources of supply:

- Photovoltaic
  - Simple explanation of the technology
  - Battery charging
  - Installation
- Generators:
  - Types
  - Output
  - Regulation and speed control
- Interests:
  - Simple explanation of the technology
  - Installation

ELV Legislation

Know of the relevant safety legislation:

- EWR 1989 Competence for safe working
- BS 7671:2008
- BS EN 1648-1 Caravans
  - Scope and purpose
- BS EN 1648-2 Motorhomes
  - Scope and purpose
- The general provisions of EN 1648
  - Power supplies
  - Terms and definitions
  - Protective methods
  - Wiring
  - Overcurrent protection
  - Installation of fuses
  - Fuse sizes and relationship between voltage current and power
  - Prohibited locations
  - Selection and connection of appliances
  - Socket outlets and external lights
  - Users' handbook

ELV Wiring

Understand the relative provisions for ELV wiring:

- Fixed wiring
- Cable type
- Erection methods
- Voltage drop and cable sizing
- Calculations for voltage drop
- Relationship between CSA, current and voltage drop
- Motor movers

Circuits

Prepare circuit drawings

- Circuit diagrams
- Wiring diagrams
- Circuit logic

Circuit Tracing

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Carry out circuit tracing:
- Prepare circuit diagrams
- Prepare wiring diagrams

Use test instruments:
- The multimeter
- Tests to be carried out
- How to test
- Test results
- Test simulations- LV and ELV

Fault Finding

Understand how to fault find:
- Fault types
  - Open circuit
  - Short circuit
  - Cross polarity
  - High resistance
  - Low resistance
  - Data bus
- Use of test instruments
- Tests on simulations (ELV)
- Processing results

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