



Pre-Assessment Manual: Cable Jointing Assessment

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By the industry, for the industry

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Introduction

The Cable Jointing assessment provides an independent assessment of the occupational competence of low voltage cable jointers.

The assessment is compulsory for apprentices, adult trainees or upskilling workers who seek to gain industry-recognised qualified status to demonstrate they have knowledge and competence in the following key areas:

- Undertaking risk assessments for given circumstances
- Safe isolation
- Completion of a termination to a TP&N switch enclosure
- Completion of a through joint
- The inspection, testing and certification of the circuit
- Understanding and application of procedures, industry recognised working practices and the requirements of statutory and non - statutory regulations relevant to the industry

This Pre-Assessment Manual is designed to help candidates prepare for their upcoming assessment. In this document you'll be able to read:

- Details on each section of the assessment
- Common areas – where candidates fail and how to address this
- General hints and tips for success

Are you ready for assessment?

Your first port of call should be NET's Candidate Self-Assessment Checklist. This is a compulsory document and we recommend that you use this well in advance of your assessment, as part of an honest review of your readiness and to identify areas where further training or experience may be required.

The Checklist will show you everything you should have learned before going into the assessment - read through it and make sure you have done it all. It's your employer's and training provider's responsibility to make sure you've covered everything on the list, so they should go through this with you and help identify any areas of concern.

Your employer and training provider (if applicable) must also sign the checklist to confirm that you have completed everything on the list and that you are ready to complete your assessment. You won't be able to book your assessment until you have signed and submitted this document.

Special considerations

If there are health or other circumstances which may require an application for adjustment to the assessment, please refer to the NET Special Considerations and Reasonable Adjustments Policy on the NET website.

Before you attend...

Common sense can desert the best of us when under pressure, so in the run up to the assessment it might be helpful to consider the following:

- Get a good night's sleep the night before your first assessment day and during the assessment period - you need to be firing on all cylinders, so don't make big plans for the evenings!
- Make sure you know exactly where the test centre is and how to get there. Also leave enough time to travel, you don't want to be late.
- Mobile phones, smart watches or any recording/playback devices are not allowed in the assessment area. If you have any of these with you, they will need to be handed in at the beginning of the assessment and signed out at the end of each day.

Get more support...

NET has a series of Top Tips videos to support candidates in preparing for their assessment - please visit www.netservices.org.uk/videos for more details.

Centre Induction process

Before starting the assessment, the Centre Assessor will brief you on the Assessment Centre's Health and Safety policies and procedures including those for First Aid, emergencies and evacuation of the premises.

Before you start you must be happy that you fully understand the Assessment Centre's emergency procedures. You must ensure that you know the location of equipment, tools, materials and first aid facilities.

The Centre Assessor will also brief you on the procedures and requirements of all sections of the assessment.

Tools

Candidates are NOT permitted to use their own tools, only those provided by the centre MUST be used.

You must inform your assessor immediately if you feel any tools are damaged or defective in any way. The assessor will endeavour to provide replacements. We encourage you to speak up about any issues and do not wait until the end of the assessment.

Publications and Documents

Here's a list of all the publications and documents that the Centre Assessor will provide to you at relevant times throughout the assessment:

- BS 7671 Requirements for Electrical Installations
- IET Guidance Note 3. Inspection and Testing
- IET On-Site Guide
- Candidate Manual

Know your Paperwork

The 'Candidate Manual' is for your reference throughout the assessment but **must remain in the assessment area**. Non-compliance with this procedure will result in you being disqualified from the assessment.

When required, the following additional documents will be provided:

- Risk Assessment
- BS 7671 Schedule of Inspections and Schedule of Test Results

Make sure you're confident about completing a Schedule of Inspections and Schedule of Test Results and be certain you know how to carry out all the necessary tests for these.

Brush up on these for your theory...

There's also a theory element to the assessment. You'll need to be up to speed on the following topics:

- Health and Safety
- Safe isolation procedures
- Harmonised cable colours and phasing
- Cable types and construction
- Gland types
- Oxidisation
- Compound preparation and pouring
- Use and care of tools
- Testing

Make sure you revise these carefully - you don't want to spend time in the assessment test rig getting everything right, only to end up losing points on the theory aspects.

Follow the Specification!

A fundamental aspect of industry competence is being able to follow a specification. Even if your work is safe and meets BS7671 standard, if you have fundamentally not followed the specification details, you will not pass the assessment.

Candidates regularly fail because they do not follow the written instructions in areas such as positioning, measurements, or cable types and sizes. The fact your alternative approach may have been safe or deemed acceptable in your workplace is irrelevant – the ability to follow a specification as set out is a core competence for an electrician.

In your Assessment Area:

The following documents are displayed in your assessment area:

- a) Health and safety information and fire procedures
- b) Risk Assessment information

You should:

- Carefully read all assessment instructions.
- Study the diagrams and information provided.
- Use the information throughout the assessment.

If you do not understand any of the instructions, the Centre Assessor can provide further explanation if required.

Your Responsibilities:

You should bring to the attention of the assessor, any materials or equipment you consider are damaged or unsuitable.

You are responsible for your own safety, and the safety of others who may be affected by your work.

Assessment sections and sequence:

The assessment contains the following sections:

- Safe Working Practices
- Completion of a termination to a TP&N switch enclosure
- Confirming Isolation
- Completion of a Through Joint
- Inspection, Testing and Certification of the circuit
- Assessment of Applied Knowledge

When you have finished a section, you cannot return to that section. Any time left will not be available for other sections.

Safe Working Practices

Maximum Time Allowed: 45 minutes.

You will be allowed 10 minutes to read this section and prepare for assessment.

Risk Assessment

This is a careful examination of the risks associated with both working practices and candidate and centre staff activities.

- A hazard is anything that may cause harm.
- A risk is a chance, great or small, that someone will be harmed by a hazard.

The aim is to make sure that no one becomes ill or gets hurt at the facility. There are three steps to achieve this:

1. Identify the Hazards

Look at what may cause harm to candidates, centre staff, or other people because of a work activity.

2. Decide Who Might be Harmed and How

Look at who may be affected by the work activity, how they may be affected; this may include other candidates and centre staff.

3. Evaluate the Risks and Decide on Precautions

If you find a hazard, there may be a risk to other people; you need to decide what steps must be taken to eliminate or reduce those risks as far as is reasonably practical:

- What needs to be done depends on whether the hazard is low risk or high risk.
- You can determine this by looking at what type of injury may occur and how often it may happen.
- It may be possible to remove the hazard altogether or to take steps to reduce this risk to an acceptable level.
- If there is no risk present, then you do not need to take any action.
- Record 'No action required' on the Risk Assessment document.

Safe Isolation procedure

This is very important as if this is not done correctly on site it could result in someone getting an electric shock and, in the worst case, death.

1. Assessor has isolated as the Authorised Person and issued a permit to work.
2. Apply your locks to the points of isolation.
3. Select approved test equipment and prove that it is working.
4. Test all combinations as shown below on the terminals of the enclosure:
 - L1 and L2
 - L1 and L3
 - L1 and Neutral
 - L1 and Earth
 - L2 and L3
 - L2 and Neutral
 - L2 and Earth
 - L3 and Neutral
 - L3 and Earth
 - Neutral and Earth
5. Re-prove your test equipment is working.
6. Sign and accept permit to work.

Safe Working Practices - Continued

Common Errors

- **Candidates have not demonstrated the correct procedure for Safe Isolation of Supplies.**
 - Make sure you test all the combinations (10-point test).
- **Candidates do not prove test equipment before and after Safe Isolation.**
 - If you do not prove the test equipment before and after you have used it, how do you know that it is working correctly?
- **Candidates do not locate the key in a secure place.**
 - If the key is not secure someone else could take it and re-energize the circuit you are working on.
- **Candidates do not fit warning notices.**
 - Fitting a notice and informing people around you that the circuit will be isolated avoids issues with shutting down IT equipment and people trying to switch equipment back on.

Completion of a Termination into a TP&N Switch Enclosure

Maximum Time Allowed: 1 hours 15 minutes.

You will be allowed 10 minutes to read this section and prepare for assessment.

To demonstrate occupational competence, you will be required to:

- Select the correct gland for the given cable and environment.
- Secure a cable into the enclosure with the gland selected.
- Terminate the conductors to industry standards.
- Select and fit the correct size of Earth connection.

To complete this section of the assessment, you must demonstrate occupational competence in accordance with statutory and non-statutory regulations and approved industry working practices.

Make sure that you follow all the instructions given in the Candidate Manual.

Common Errors

- **Candidates do not select the correct size of conductors.**
 - If the cable fitted is too small, then it will cause danger under fault conditions.
- **Candidates do not sufficiently tighten glands.**
 - These are checked and if they can be undone by hand, they would not be deemed to be tight.
- **Candidates do not sufficiently secure conductors on to terminals.**
 - If a conductor can be pulled out of a connection between finger and thumb it would be deemed as loose.
 - These are checked and if they can be undone by hand, they would not be deemed to be tight.
- **Candidates do not correctly identify conductors.**
 - You need to identify what conductors are being used for, this is as per Chapter 51 of BS 7671.
- **Candidates either remove too much insulation, increasing the risk of electrical contact, or not enough to make an effective electrical connection.**
 - If the terminal is on the insulation, when the cable gets warm it will soften and the connection can become loose and burn.
 - If excessive insulation is removed, contact could be made with live conductors.
 - When viewing a connection at 90 degrees you should not see any copper.
- **Circuit is not connected in a way as to ensure effective functional operation.**
 - If the circuit does not work, then the customer would not pay.

Confirming Isolation

Maximum Time Allowed: 15 minutes.

You will be allowed 5 minutes to read this section and prepare for assessment.

You are required to check the cable you are going to join onto is also safe to work on.

1. **Select approved test equipment and prove that it is working.**
2. **Test all combination as shown below on the conductors that you will be terminating to:**
 - L1 and L2
 - L1 and L3
 - L1 and Neutral
 - L1 and Earth
 - L2 and L3
 - L2 and Neutral
 - L2 and Earth
 - L3 and Neutral
 - L3 and Earth
 - Neutral and Earth
3. **Re-prove your test equipment is working.**

Common Errors

- **Candidates have not demonstrated the correct procedure for Safe Isolation of Supplies.**
 - Make sure you test all the combinations (10-point test).
- **Candidates do not prove test equipment before and after Safe Isolation.**
 - If you do not prove the test equipment before and after you have used it, how do you know that it is working correctly?

Completion of a Through Joint

Maximum Time Allowed: 1 hour 30 minutes.

You will be allowed 5 minutes to read this section and prepare for assessment.

To demonstrate occupational competence, you will be required to:

- Prepare the cable for the joint.
- Terminate conductors to industry standards.
- Select and fit the correct size of Earth connection.
- Select the correct resin for the joint.

Common Errors

- **Candidates do not select the correct size of conductors.**
 - If the cable fitted is too small, it will cause danger under fault conditions.
- **Candidates do not sufficiently secure conductors.**
 - If a conductor can be pulled out of a connection between finger and thumb it would be deemed as loose.
 - These are checked and if they can be undone by hand, they would not be deemed to be tight.
- **Candidates do not correctly identify conductors.**
 - You need to identify what conductors are being used for, this is as per Chapter 51 of BS 7671.
- **Candidates either remove too much insulation, increasing the risk of electrical contact, or not enough to make an effective electrical connection.**
 - If the terminal is on the insulation, when the cable gets warm it will soften and the connection can become loose and burn.
 - If excessive insulation is removed, contact could be made with live conductors.
 - When viewing a connection at 90 degrees you should not see any copper.
- **Circuit is not connected in a way as to ensure effective functional operation.**
 - If the circuit does not work, then the customer would not pay.

Inspection, Testing and Certification

Maximum Time Allowed: 30 minutes.

You will be allowed 10 minutes to read this section and prepare for assessment.

This section will be fully observed by the Centre Assessor.

You will be provided with the following documentation for use throughout the section:

- BS 7671 Requirements for Electrical Installations
- IET Guidance Note 3. Inspection & Testing
- IET On-Site Guide

To demonstrate occupational competence, you will be required to:

- **Carry out a visual inspection of the circuit.**
 - Complete a Schedule of Inspections for the circuit, indicating if the items listed are Acceptable or Not Applicable to the circuit being inspected.
- **Complete the following tests on the circuit, in accordance with Guidance Note 3:**
 - a) Continuity of Protective Conductors
 - b) Insulation Resistance
- **Upon completion of testing, you should remove your locks, sign off the permit and hand it back to the assessor.**

Common Errors

- **Candidates do not prepare the instrument for use or set it on the correct range.**
 - Select the correct function or voltage.
 - Remember to null or zero the leads.
 - Check the meter is in date and safe to use.
- **Candidates do not carry out the test in accordance with Guidance Note 3.**
 - You have Guidance Note 3 and the On-Site Guide with you so if you are unsure, check how the test should be carried out.
 - Do not take shortcuts that you have been shown on site - these may not be correct.
 - If you remember something and need to go back and repeat a test that is fine. You may then need to repeat any other test that is dependent on the test you have just repeated.
- **Candidates do not record the test results.**
 - This can happen when someone carries out testing and records results on a scrap of paper and then at the end, they cannot find the reading they require.
 - Fill in the Schedule of Test Results as you complete each test. This will also highlight anything you may have forgotten.

Assessment of Applied Knowledge

Maximum Time Allowed: 1 hour.

You will be allowed a minimum of 5 minutes to read this section and prepare for assessment.

You will be required to undertake an online assessment consisting of 30 multiple-choice questions.

You will be assessed on your application of knowledge associated with the following:

- Health and Safety
- Safe isolation procedures
- Harmonised cable colours and phasing
- Cable types and construction
- Gland types
- Oxidisation
- Compound preparation and pouring
- Use and care of tools
- Testing

You will be provided with the following publications:

- BS 7671 Requirements for Electrical Installations
- IET Guidance Note 3. Inspection & Testing
- IET On-Site Guide

You are not allowed any other documentation.

Results and Feedback

On completion of your assessment, you will not be given any direct feedback or indication of the result by the Assessor. The NET system will provide you with your results, five days after the assessor has completed the marking.

If you are unsuccessful, the results emailed to you will give a general feedback statement on how you did not meet the criteria for the section/s in question. It will not provide you with a specific marking detail, but the general feedback statement will give you an indication of where further training or improvement may be required before you re-sit the assessment.

NET is unable to provide specific marking detail as the assessment marking criteria must remain confidential.

FAQs

Q: Who can I speak to if I have a query about my assessment or booking an assessment?

A: All assessment enquiries must be made directly to the centre from the list of NET licenced Centres.

Q: How can I book an assessment re-sit?

A: You can re-sit your assessment at the centre where you sat it initially

Q: Is there any preparation I can do prior to taking my assessment?

A: The Candidate Readiness for Assessment Checklist must be completed, signed and submitted before you can book an assessment. The checklist will help you to prepare by outlining all areas of the assessment and what is expected from you.

We recommend that candidates are familiar with the IET On-Site Guide and BS7671 publications.

There are also Top Tips videos on the NET website to help you prepare.

Q: I have not received my results. Where can I enquire?

A: Please note that NET cannot provide candidate results over the phone. To enquire about assessment results, please contact your assessment centre. Most issues surrounding the non-receipt of results arise because of incorrect email addresses being provided at the point of booking.

If your centre experiences technical problems during the assessment process, they must raise a query with NET's IT support and will contact you with an update once the matter has been resolved.

Q: How much does an assessment or re-sit cost?

A: Please contact your assessment centre directly to enquire about their fees.

Q: How do I obtain a replacement or duplicate certificate?

A: To request a replacement certificate, please visit www.netservices.org.uk/certification to access our online replacement certificate form. We aim to process certificate requests within one week.

Contacting NET

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