T Level Technical Qualification in Engineering and Manufacturing – Maintenance, Installation and Repair

8712-313 Electrical and Electronic Occupational Specialism

Grade Standard Exemplification Material

Pass - Summer 2025

Version 1-0

Version and date	Change detail	Section	Question
v1-0 31st October 2025	First published		

Contents

Introduction

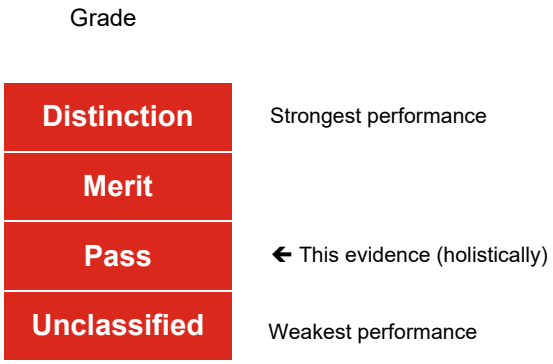
Summer 2025 Results

This document is aimed at providers and learners to help understand the standard that was required in the summer 2025 assessment series to achieve a pass grade for the 8712-313 Electrical and Electronic Occupational Specialism (OS)

The Grade Standard Exemplification Material (Grade SEM) evidence provided for the pass grade displays the holistic standard required across the tasks to achieve the pass grade boundary in the Summer 2025 series.

The aim of these materials is to provide examples of knowledge, skills and understanding that attested to **3 marks above** pass standard (threshold competence) in Summer 2025. It is important to note that in live assessments a candidate's performance is very likely to exhibit a spikey profile and standard of performance will vary across tasks.

The Occupational Specialism is graded Distinction, Merit, Pass or Unclassified.



The pass grade boundary is based on a synoptic mark across all tasks. The materials in this Grade SEM are separated into two sections as described below. Materials are presented against a number of tasks from the assignment.

Task

This section details the tasks that the candidate has been asked to carry out. What needs to be submitted for marking and any additional evidence required including any photograph/video evidence. Candidate evidence that was or was not included in this Grade SEM has also been identified within this section.

In this Grade SEM there is candidate evidence from:

Task 1 Plan and prepare for the maintenance activities
Task 2 Perform and record the maintenance activities
Task 3A Review and report the maintenance activities
Task 3B Peer Review
Task 4 Complete handover

Candidate evidence

This section includes exemplars of candidate work, photographs of the work in production (or completed) and practical observation records of the assessment completed by provider assessors. This was evidence that was captured as part of the assessment and then internally marked by the provider assessor.

The Occupational Specialism brief and tasks can be downloaded from here.

Important things to note:

- We discussed the approach to standard setting/maintaining with Ofqual and the other awarding organisations before awarding this year. We have agreed to take account of the newness of qualifications in how we award this year to recognise that students and teachers are less familiar with the assessments (https://www.gov.uk/government/publications/ofqual-guide-for-schools-and-colleges-2025/ofqual-guide-for-schools-and-colleges-2025#grading), whilst also recognising the standards required for these qualifications.

- The evidence presented, as a whole, was **3 marks above** the pass grade. However, performance across the tasks may vary (i.e. some tasks completed to a higher/lower standard than pass grade).

Grade descriptors

To achieve a pass (threshold competence), a candidate will be able to:

Interpret technical information, plan, assess risk and follow safe working methods appropriately when applying practical skills to an acceptable standard to satisfy the requirements of the brief.

Adequately prepare working areas to allow safe working, acknowledging potential risks and applying acceptable housekeeping techniques during tasks.

Demonstrate basic technical skills for diagnosing components, assemblies and sub-assemblies to complete maintenance, installation and repair activities in line with the requirements of the brief.

Demonstrate adequate skills using tools and equipment for electrical and electronic maintenance, installation and repair, ensuring safe isolation, removal and replacement of components.

Demonstrate basic knowledge and understanding of the principles and processes required for disassembly, repair, configuration and re-assembly of electrical and electronic systems, ensuring that most tolerances and calibrations are in-line with specification.

Work safely showing an understanding and suitable level of awareness in the preparation and application of processes, selection and use of tools, equipment, materials and components for maintenance, installation and repair activities.

Mostly use industry and technical terminology accurately across different communication methods with some consideration of technical and non-technical audiences.

Task 1 Plan and prepare for the maintenance activities

Assessment number (eg 1234-033)	8712-313
Assessment title	Electrical and Electronic Occupational Specialism

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	1
Evidence title / description	List of requirements and resources, including justifications for the selections Completed Risk Assessment Method statement
Date submitted by candidate	DD/MM/YY

Task 1

Assessment themes:

- Health and safety
- Planning and preparation
- Systems and components

You must analyse the brief and technical information about the system provided and then:

- create a list of the requirements and resources needed to carry out the maintenance activities, justifying your selections. This must include:
    - all necessary technical information to confirm the type, scope and requirements of the activity
    - tools and equipment
    - materials, components and consumables
    - wastage and disposal requirements
    - time needed to carry out the activity
    - fault diagnosis techniques to be used
    - any access requirements.
- produce and complete a risk assessment
- produce a method statement.

Additional evidence of your performance that must be captured for marking:

none.

Candidate evidence

Task 1 – List of requirements

List of requirements

Necessary technical information

The circuit that I plan and prepare for maintenance tasks is. This circuit powers and controls the movement and timing of an automatic door which functions when a pressure plate is given enough pressure to give it a signal. The circuit includes 3 switches which are used for the emergency exit button and pressure sensors. There are also 2 diodes to protect the 2 relays since they can deteriorate and become faulty faster when an excessive amount of voltage is sent to it. The motor is there to be able to move the door in the desired direction. This system works through at first the sensors will react to the pressure and give a signal to the relay depending on what pressure sensor went off for example pressure sensor 1 it will send the signal to relay 1. Before the signal reaches the relay 1 it is met with a protective diode which is there to make sure not voltage spikes are in contact with the relay. Once the relay which is normally closed (NC) is powered, it then changes to normally open (NO) which allows the current to go through to the motor which then turns the door clockwise. However, instead of pressure sensor 1 going off if it was pressure sensor 2 the charge would go to relay 2 which will reverse the polarity allowing the door to move anti clockwise.

Tools and equipment

Digital multi meter (DMM) – this is necessary to perform maintenance activities as it can measure many things such as resistance, polarity, current and voltage which is vital to know to find the correct diagnosis.

Testing probes – these probs are insulated also they are used with the DMM to ensure that the test you are doing are precise enough to give the readings which will lead to the diagnosis.

Screwdriver – this tool will also be insulated for the safety of the user and there are 2 types which will be needed a Phillips and a flathead to ensure that we will be able to open and close components securely.

Soldering iron – a necessary component since it is used to attach components or connect wires that the user has disconnected. This reconnects parts securely making sure that they won’t come apart and be a hazard if done right.

Insulated wire cutters and pliers – used to open up wires and they will need to be insulated for the safety of the user.

Crocodile clips – this will be connected to the DMM to be able to help the user to get readings off the circuit easier since it only needs hands to clip onto the component then it can be hands free allowing the user to look at the DMM properly.

Resoldering pump – in case there is a mistake soldering and there has been too much solder applied this pump will allow it to suck up the excess making it easy to perform the task again.

Soldering iron holder and a wet sponge – this is necessary for soldering since you will need the holder when the solder is not in your hands and putting it down on the surface is a major hazard. Also, the wet sponge is there to ensure an excessive solder material on the iron is taken off with ease.

Co2 fire extinguisher – this is necessary for the safety of everyone and we will need this one specifically because if we were to use water it will make it worse.

COSSH safety booklet – having this booklet will help with preventing hazards and it will tell you everything you will need to do in case of a hazard and how to treat it. This is crucial as it can save many lives and cause less panic.

Materials, components and consumables

Solder material – to be able to solder we will need this material which is in a ration of 60:40 with tin and lead making the soldering much easier since you are able to heat it up and apply it really quick and it can go back to solid in a considerable amount of time.

Relays – since this circuit has 2 relays and relays can wear out due to voltage spikes it will be convenient to have these since it is likely a fault may occur on this. This component is necessary in this circuit as it allows the motor to spin in the desired direction.

Protective diodes – since the relays are common to be faulty the reason for why they could be faulty is because these diodes are not able to carry out the correct function they are supposed to.

Fuse – this component will allow us to know whether there is a short circuit in this and it can protect us from hazardous encounters.

Circuit breaker – this also helps with alerting the user of a short circuit by making sure no current is still flowing through the circuit.

Electrical wires – in case a wire is completely ruined it will be easier to switch out rather than trying to fix it.

Electrical tape – in case there is any visible faults with the wires and any opening this will help a lot since it will make sure nothing is leaving the circuit.

COSSH – this booklet is a must for all maintenance tasks as this booklet shows us all the possible hazards that may occur and show us what to do in these situations and how to get help and take care of them calmly.

Wastage and disposal

Broom – this is to make sure most of the big pieces of waste and rubbish is easy to gather together.

Hoover – used to ensure that very little specs of waste and rubbish is cleaned up that the broom has missed.

Normal waste bin – used for normal rubbish such as plastics, paper and so on.

Specialised waste bins – used to dispose of batteries and other components since they are not allowed to go into normal recycle bins as they need a different way to exterminate.

Health and safety

Protective goggles – the eyes are fragile and in case of anything going wrong they will always need protection.

Laboratory coat – in case of any spills and mess this will give some protections maybe to even fires as it gives protection to the skin.

Anti-shock mat – since we will be working on this circuit on a surface, we will make sure to not allow electricity to reach the ground causing a very hazardous environment.

Tidy working surface – since there are no distractions as they could be hazardous when having a soldering iron in your hand.

Insulated gloves – these are an extra layer of protection since it allows your hands to be safe and they will be in direct contact with this system so we cannot allow the electricity to spread.

Rubber sole boots – in case the electricity is flowing through your body these will make sure that the electricity will not reach the ground.

Time needed

The time needed will vary on how many problems I am faced with but on an average acknowledging that will have to diagnose and fix the problem I will say on an average of 3 hours. This is a rough estimation since I have not come into contact with this and I do not know the problems but from the diagnosis I will be certain of an exact time.

Access requirements

Since many of the tools such as screwdrivers, solders, testing probes, crocodile clips, wire cutters and pliers are already out I will not need any supervisors help to retrieve these however I will need access to the DMM since it is in a cupboard.

Task 1 – Risk Assessment

Hazard	Probability	Severity	Cause	Mitigation

This scale is used to easily comprehend how harmful a hazard can be, how probable, how it is caused and how to approach and tackle the hazard. This has been used since it can be a struggle to comprehend if these hazards are life threatening or fatal. Finding what you need to know about a hazard and how to tackle it in a tense situation the user must find out how quick and this is how the table will be in the advantage.

Severity scale

Low	Medium	High	Life threatening	Fatal

This scale is in this manner as it is self-explanatory as low will be something that may irritate you at the moment leaving no scars or bruises and it will not be something you are very startled by. The medium on this scale is when the victim is startled by the shock and it may leave bruising and noticeable pain. The high on the severity scale will leave the victim to be really hurt and it will leave physical marks on them also making them feel very startled by the hazard and possibly even making them have a severe injury so it is advised that they seek medical attention. Life threatening will leave physical marks and cause a lot of panic as like with the high severity but this will be much more different and special help from doctors will be needed as this could eventually lead to the death or an injury which will last forever. Finally, we have fatal which will cause the immediate death of the victim.

Probability scale

Not probable	unlikely	Likely	Very likely	Definite

This probability scale determines whether the hazard is likely or not likely to take place or even be a hazard. With not probable on the scale this shows us that the hazard will not be possible in this circumstance allowing it to be deemed clear. Unlikely still has the possibility to happen but it is still low. Likely however gives it a 50% chance of happening so it is not definite whether you can tell. Very likely deems this hazard to happen at a 75% chance and finally which is definite meaning it will happen.

Hazard	Probability	Severity	Cause	Mitigation
Short circuit	Very likely – this is because it has to be one of the most common faults since it takes place when there is wires that are not in good shape or a component has lost its functionality.	Medium to high - the reason behind why I have given this a medium to high severity is solely because of this circuit and it can vary from different circuits but a short circuit if the circuit is turned on and there is nothing tripping the switch like what a circuit breaker can do such as in this circuit it can lead to a fire since the circuit is over working. It will heat up and may even cause a small fire.	This could be for many reasons such as the components in the circuit have failed to do their job and there is a high spike in voltage flowing through the system but it can also be from faulty wiring and the wires being open.	You can resolve this issue by turning off the circuit and finding the issue component by component but first you can do a visual inspection looking for deteriorated parts or exposed wires. Once you have found the issue you can repair what is wrong or swap it out and test. You can also apply a fuse or circuit breaker to this circuit for safety measures from short circuits.
Faulty relays and diodes	Likely – this fault is at this point of the scale because relays are known to deteriorate over time through many reasons such as an increase to temperature or that	Medium to high – this is because this circuit is for an automatic door in a place where a lot of people use that door so if the relays	There are many causes from a short circuit that will increase the temperature of the circuit or another reason apart from this that will rise the temperature. It	You can resolve this issue through turning off the system and replacing the relay and the reason from why it was hot and then to make

	they have not been maintained in a long period of time.	were to malfunction and made the door open and close with a person between it can cause the victim to be trapped potentially breaking bones.	can also be from not being maintained in a long time and it has slowly lost functionality.	sure you will maintain the circuit and everything that is with it for efficiency.
Faulty wiring or openings in the wires	Likely – this is because it is very possible for engineers to install it wrong and leave wires out in the open and or they could just deteriorate over time exposing the copper inside.	Medium to high – since this can lead to a short circuit which can lead to a fire but if it were not that then it can give anyone who comes into contact with it an electrical shock that may leave a mark.	There can be a lot of causes how ever it can be from the lack of maintenance, irregular amount of pressure onto the wires or dodgy wiring.	You can get rid of this problem through turning off the circuit and then removing and adding the wires properly and you can prevent this from regular maintaining
Leaks and spilling liquids	Unlikely – this is unlikely since it will be hard for the building to deteriorate and allow in water or any other liquid from the outside how ever depending on where this circuit is stationed inside the building a person	Medium to high – since this door is quite big and has a decent amount of power it can easily trap the victim and could cause them to break bones or worse. Water does not also work well with electricity and	This can be caused by deterioration on the building allowing water or other liquids to flow in it also can be caused through human error such as the spilling of a substance or in some places there is water sprinklers	You can resolve this issue by fixing the circuit first you have to always turn the power off and you can also patch up the leak that could have been made.

	could have done by accident.	could cause a fire.	inside the building for fire safety.	

Task 1 – Method statement

Method statement

1. First, I will set up my circuit and get myself ready for this maintenance task.
   a) I will make sure that the surface I work on has no defects and no spills.
   b) I will then place the circuit on top of an antishock mat.
   c) Then I will wear my personal protective equipment (PPE) which includes protective eyewear, a laboratory coat, insulated boots and insulated gloves.
   d) Prepare my tools for this task and I would place them out of the way of each other and the tools that will be used include: digital multi meter (DMM), testing probes, crocodile clips, Phillips screwdriver, flathead screwdriver, solder iron with the stand, solder remover, wire cutters and pliers.
2. Secondly, I will do a visual inspection on the circuit.
   a) looking out for any defects with the components.
   b) Then looking for any damaged wires and wires going to the wrong places.
   c) I will also look at the soldering to make sure the wire is connected.
   d) I will also see if any components are missing,
3. Next, I will test the power supply.
   a) I will do this by using the DMM with crocodile clips to make sure that the power supply is not giving out an excessive amount of energy as that can lead to a lot of problems.
4. Since the power supply is not the issue, I will do simple functionality tests to see if how the circuit is functioning with the fault hoping it will give me a deeper understanding.
   a) I will test each pressure sensor and seeing if the signal will go to the relay and then the motor should spin.
   b) After my result I will be testing the other pressure sensor to see if it will do the same.
   c) If there is an issue in this circuit doing this functionality test will help me by indicating around where the problem could be for example if the sensors go off and there is no motion in the motor the issue will be further up in the circuit and I will have to slowly make my way up.
5. After testing for functionality this will tell in what area of the circuit the fault is around.
   a) I will then use different types of methods to fault find such as the half-split method where I split the circuit in half not literally and I check the lower half to see if the readings are all correct with the DMM. If they give correct reading then I will work on the upper half. This method is useful as it gets me closer to where the fault is leading to my diagnosis.
   b) Another method is called the symptom and find method and this where I look for defects or potential issues and I test as I go testing everything individually and eventually it will help me with my diagnosis.
6. After finding the fault I will want to either repair or replace the component/s

a) I will presume I will need the soldering iron for this and I will warm the solder material on the component and use the solder remover to take the component out.
b) I will then replace the component and run for tests.

7. Once I have run for tests and the circuit is working successfully, I will then begin to clean up.
   a) If the circuit is till not working and there are multiple issues I will start again and look for another one.
   b) I will use the broom to clean up any big pieces of rubbish and put it in the bin.
   c) If the broom is not able to pick small pieces, I will use the hoover and dispose the same way.
   d) I would then if I have to dispose of batteries then I will put it in the designated bin.
   e) I will also put all my tools away in the correct places and make sure the solder has come down from a high temperature then put it back in its place.

Task 2 Perform and record the maintenance activities

Assessment number (eg 1234-033)	8712-313
Assessment title	Electrical and Electronic Occupational Specialism

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	2
Evidence title / description	Completed test record sheets Updated maintenance records and control documents Annotated method statement, including any recommendations for further investigation if required Assessor observation Photographic evidence
Date submitted by candidate	DD/MM/YY

Task 2

Assessment themes:

- Health and Safety
- Planning and preparation
- Systems and components
- Working with faults
- Reviewing and reporting

You must:

- prepare the work area for the maintenance activities
- perform the maintenance activities in accordance with the method statement and planning documents produced in Task 1. This must include:
  - decommissioning and inspection of the system
  - disassembly and reassembly of the system
  - diagnosing and recording faults within the system, including carrying out appropriate tests
  - repairing the faults and replacing components as required
  - safely using the appropriate tools and equipment
  - recommissioning of the system
  - demonstration of system functionality to your supervisor
  - re-instating the work area.
- record the maintenance activities, to include:
  - producing and completing test record sheets
  - updating the maintenance records and control documents
  - annotating the method statement, including any recommendations for further investigation if required.

Additional evidence of your performance that must be captured for marking:

assessor observations of:

the work area preparation
the maintenance activities
system functionality demonstration.

photographic evidence which shows:

- the prepared work area
- the work area after disassembly
- faulty components prior to repair or replacement, clearly showing the cause of each fault
- replaced or repaired components in situ, including any solder joints or other connections make
- the re-instated work area

Candidate evidence

Task 2 – Test records

Symptoms Observed

Equipment under test: Automatic door **Number of system:** AD4 **DMM Make**: Rapid Model: 318D **S/N:** MBH00009 **PSU Make:** SCE **Model:** 2.05		
Fault 1		
Tests Applied	**Results**	**Conclusions**
The motor is not spinning so I look around the motor area for any defects and faulty wiring.	There is an extra component connected to the connecting between the motor and circuit obscuring current flow	Therefore, this gives me the understanding on where the issue is coming from and why. But before I change anything I must be 100% sure.
Using DMM I test for continuity within the motor	It beeped	This gives me the knowledge that all the writing within the motor is fine therefore it is the wiring wish is the issue.
Using DMM on voltages I test power supplied. I turned on the power to check if anything else is working	12v The relays were working	This is correct. This then makes me 100% sure that the issue is to do with faulty wiring for the motor since the current in not reaching through
	Faulty Component/Part: Faulty wiring for motor	

Equipment under test: Automatic door **Number of system:** AD4 **DMM Make**: Rapid Model: 318D **S/N:** MBH00009 **PSU Make:** SCE **Model:** 2.05		
Fault 2		
Tests Applied	**Results**	**Conclusions**
I look at the circuit for any visible problems such as faulty wiring	No issues	Therefore this wasn't any help and now I have to do thorough tests
Using DMM on voltages I test power supply	12v correct readings	Since this is correct I can move on and test the circuit and see where it is going wrong
Turn circuit on and test functionality	Pressure sensor 1 is not working	This gives me the understanding that the fault is within this pressure sensor. And I think this because the sensor is not detecting any pressure or not sending out any signal.
Using DMM on continuity I test for short circuit.	It gave a positive reading for short circuit.	The DMM beeped meaning the sensor is short circuited and explains why the fault happened.
	Faulty Component/Part: Short circuit pressure sensor 1	

Equipment under test: Automatic door **Number of system:** AD4 **DMM Make**: Rapid Model: 318D **S/N:** MBH00009 **PSU Make:** SCE **Model:** 2.05		
Fault 3		
Tests Applied	**Results**	**Conclusion**
I look for visit wear and tear in the circuit.	No issues	I was specifically looking for faulty wiring and components. But there's no issues so it gives me the green light to move on
I turn on the power supply and test functionality	Pressure sensor 2 not working	This gives me a further understanding of where the issue is coming from and allows me to get closer to my diagnosis.
Using DMM on continuity I test the pressure sensor for short circuit.	It is not a short circuit	This allows me to get closer to my diagnosis since it cant be that problem.
Using DMM on 2KΩ resistance I test the sensor for open circuit when I apply pressure	No resistance	This tells me that the fault is can open circuit since no resistance meaning that it will give no signal through
	Faulty component/Part: Open Circuit pressure sensor 2	

Equipment under test: Automatic door **Number of system:** AD4 **DMM Make**: Rapid Model: 318D **S/N:** MBH00009 **PSU Make:** SCE **Model:** 2.05		
Fault 4		
Tests Applied	**Results**	**Conclusion**
I test the power supply using DMM on voltages	12v	No problems this will allow me to run the 2 circuit now
Turn on power and run circuit and make an observation	LED not turning on	This will now get me closer to faulty diagnosing this circuit. Now from this observation I will be able to test to see what the issue is.
Using DMM on diode I test to see if the LED turns on	It does not	I open up the box and connect the testing probes to the LED and it did not light up meaning it is the fault
	Faulty Component/Part: LED is not working	

Task 2 – Practical Observation Form

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Candidate Name	Candidate number
Provider name	**Date**

Complete the table below referring to the relevant marking grid, found in the assessment pack.

Do not allocate marks at this stage.

This observation must cover	Assessor observation should include:	Assessment Themes
Work area preparation	• The work area preparation.	• Health and Safety • Planning and Preparation • Systems and Components
Maintenance activities	• Decommissioning and inspection of the system. • Disassembly and reassembly of the system. • Diagnosing faults within the system, including carrying out appropriate tests. • Repairing the faults and replacing components as required. • Using appropriate tools and equipment. • Recommissioning of the system. • Demonstration of system functionality to your supervisor • Re-instating the work area.	• Health and Safety • Planning and Preparation • Systems and Components • Working with faults • Reviewing and reporting

Notes – *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*

Work area preparation:

Candidate gathered their instruments (Digital multi meter, stopwatch, power supply), also their PPE listed in the resource pack. All necessary documents were within easy reach such as wiring diagrams, data sheets timing settings. Risk assessments and COSH data sheets for the lab were clearly in view. Also, bins were provided for faulty parts. Barriers were placed between candidates to prevent candidates cheating and watching other candidates during testing and calibration of the system. Candidate was given four fault report sheets and a spare black pen.

Maintenance activities:

- Decommissioning and inspection of the system
- Disassembly and reassembly of the system
- Diagnosing faults within the system, including carrying out appropriate tests
- Repairing the faults and replacing components as required
- Using appropriate tools and equipment
- Recommissioning of the system
- Demonstration of system functionality to your supervisor
- Re-instating the work area.

- **Disassembly and reassembly of the system**

  Candidate disassembled the system in accordance with their repair method using the correct tools, PPE and instruments.

- **Diagnosing faults within the system, including carrying out appropriate tests**

  Candidate compiled their test reports carrying out appropriate tests to find the failure within the system using logical through processes using the correct tools and instruments.

- **Repairing the faults and replacing components as required**

  Once the faulty part was found with the system the candidate asked the technician for the new part which was replaced.

- **Using appropriate tools and equipment**

  Candidate used appropriate tools and equipment at all times whilst carrying out the repair process.

- **Recommissioning of the system**

  After the repairs were completed, the candidate commissioned the system by using a stopwatch and checking the door opening and closing and once open, stayed open for 10 seconds then closed.

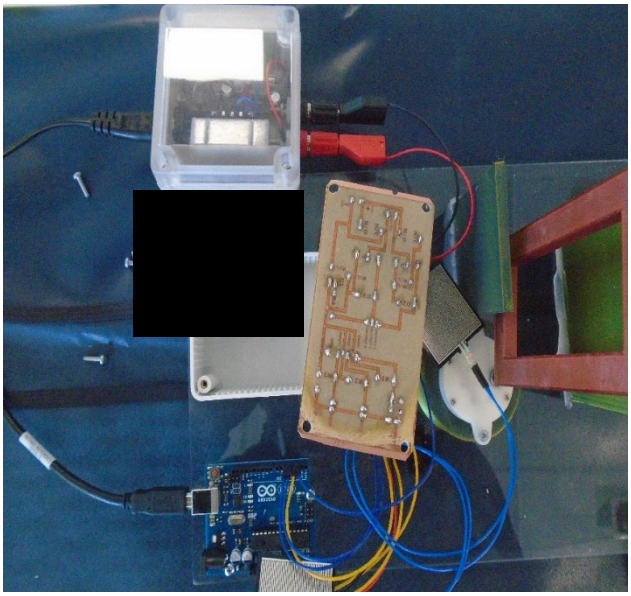
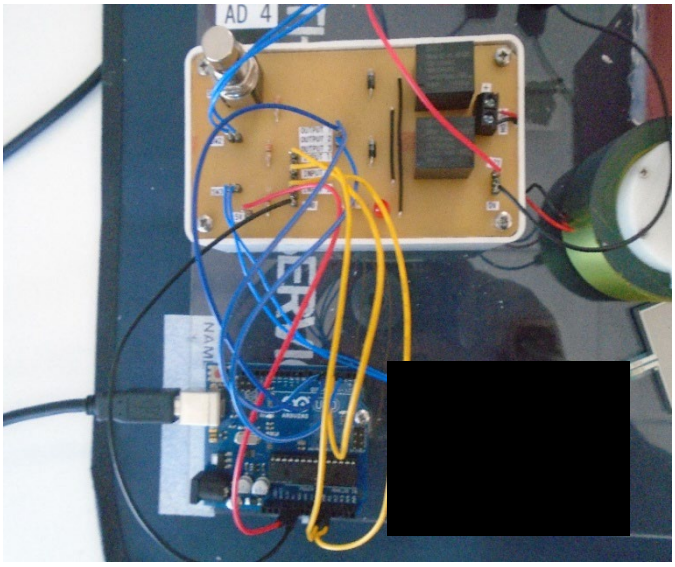
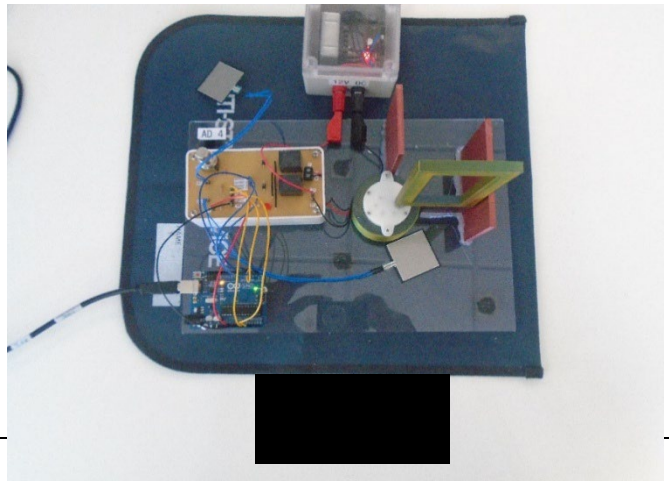
- **Re-instating the work area**

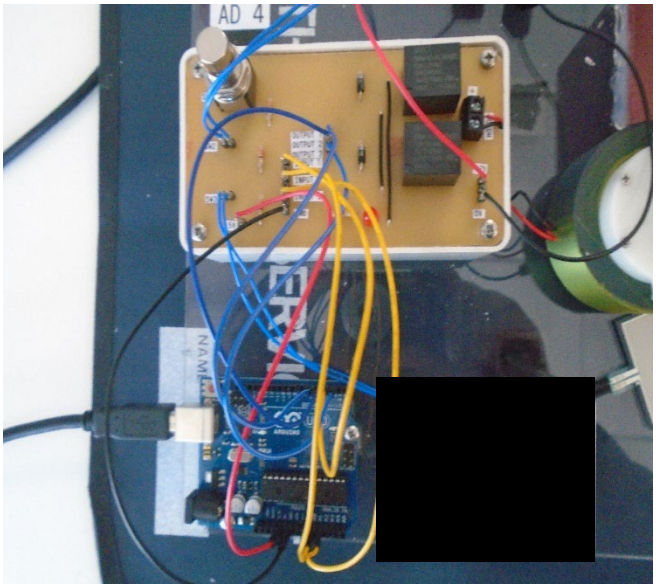
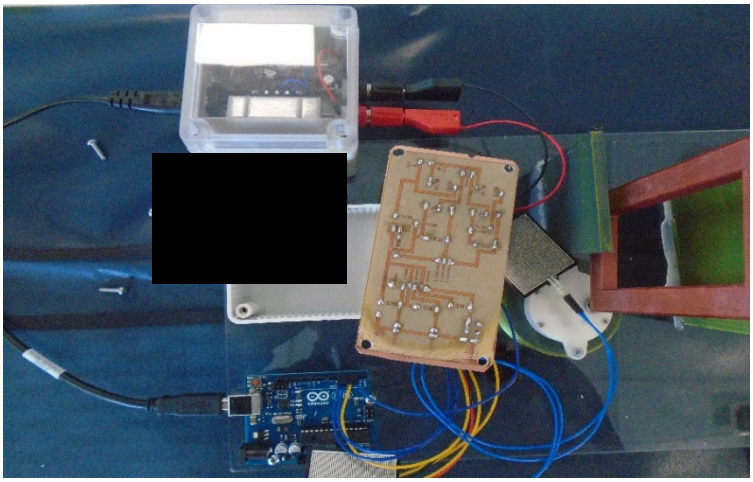
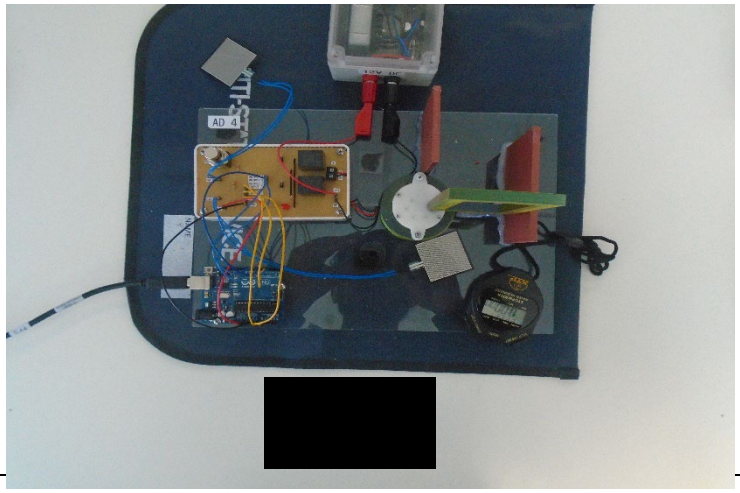
  Candidate placed all tools and instruments away and tidied up their work area, placed the meter leads in its bag and returned tools to the trolley and instruments into the appropriate cupboard.

Internal assessor signature	Date

Task 2 – Photographic evidence

	Risk mitigations or control measures the candidate has put in place to maintain health and safety (H&S).
	Safe isolation procedures whilst wearing the correct PPE (H&S)
	The candidate checking the correctly selected tools and equipment for service and repair activities (PP) Candidate calibrating any tools and equipment (PP)

	Faulty components and a clear cause of each fault, for example, loose wiring (WWF)
	The candidate has maintained a safe work environment during their maintenance task (HS)
	Calibration/tolerance values are within operational specification ensuring system functionality (WWF)

	The candidate has correctly reassembled the system/components (SC) for exempt polarised components the correct way around, clearly marked, screw connections tightened, matching crimps and wires, no exposed wiring or connections, insulated colour coding.
	The quality of repairs, for example soldered joints (WWF).
	The condition of the work area after the maintenance activity has been completed (HS, SC).

	The return of tools and equipment to the correct storage area and waste disposed of correctly (HS, SC).

Task 3A Review and report the maintenance activities

Assessment number (eg 1234-033)	8712-313
Assessment title	Electrical and Electronic Occupational specialism

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	3A
Evidence title / description	No evidence provided.
Date submitted by candidate	DD/MM/YY

Task 3A

Assessment themes:

- Health and safety
- Systems and components
- Reviewing and reporting

You must:

- produce a technical report for the supervisor. This should typically be 850 words and include:
    - a review of the maintenance activities, including fault diagnosis/detection techniques and suggestions for future improvements
    - the faults found and how they were rectified
    - any outstanding faults, including recommendations that may require attention before the next planned maintenance activity according to the current maintenance schedule
    - reporting of stock levels and waste disposal
- produce a revised maintenance schedule from your activities and findings, this must include:
    - recommendations for future planned maintenance, including justifications
    - due date of next maintenance activity.

Additional evidence of your performance that must be captured for marking:

None

Task 3B Peer review

Assessment number (eg 1234-033)	8712-313
Assessment title	Electrical and Electronic Occupational specialism

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	3B
Evidence title / description	Completed peer review forms Candidates amended document following peer review
Date submitted by candidate	DD/MM/YY

Task 3B

Assessment themes:

- Reviewing and reporting

You must:

- carry out a peer review on two risk assessments provided by the assessor. You must consider the following:
  - how well does the risk assessment enable safe working practices for the planned maintenance activities to be performed?
  - how appropriate are the recommended control measure and why?
  - what are the implications to the business of the proposed control measures?
  - how could the risk assessment be optimised/ improved?
- write up feedback for each of the annotated method statements produced by other candidates on separate peer review forms
- update your risk assessment following feedback from the peer review. Any updates need to include justifications for these changes and any changes not made will be reviewed in the handover.

Additional evidence of your performance that must be captured for marking:

none

Candidate Evidence

Task 3b – Peer review forms

Assessment ID	Qualification number
Candidate name	**Candidate number**
Provider name	**Provider number**
Date	**Series**

Question	Feedback
How well does the risk assessment enable safe working practices for the planned maintenance activities to be performed?	It does not help for safe work as it doesn't give any health issose that can occor
How appropriate are the recommended control measure and why?	They have given fairly appropriate control measures for the risks they gave No PPE has been included in mitigation
What are the implications to the business of the proposed control measures?	Cost of PPE Cost of training Add where signs are needed
How could the risk assessment be optimised/ improved?	Add an introduction Add more risks Make the ratings easier to read

Peer review form

Assessment ID	Qualification number
Candidate name	**Candidate number**
Provider name	**Provider number**
Date	**Series**

Question	Feedback
How well does the risk assessment enable safe working practices for the planned maintenance activities to be performed?	It is a very good risk assessment that heavily details the probability, severity, cause and mitigation. However, I would add more additions of hazards to allow for even more variety. I would recommend providing a numbered scoring system to recognise severity and probability.
How appropriate are the recommended control measure and why?	The measure of control is described very well. It descriptively conveys solutions, the ranges attributed to each provided hazard and the root cause.
What are the implications to the business of the proposed control measures?	There is a moderate amount of implications to the business of the proposed control measure. I recommend linking the assessment to the business itself like sacrifices need to be made such as time and money.
How could the risk assessment be optimised/ improved?	Summary • Additional hazards for variety • Provide numbered scoring system to recognise severity and probability • Link it more to the business itself

Task 3b – Candidate's amended document

Risk assessment

This risk assessment is produced to ensure that the risks of working on or maintain this system can be dealt with and maintained. It will provide a probability scale and severity scale and also a table which will guide the reader easily and clearly to be able to find how to mitigate the issue.

1.Hazard	2.Probability	3.Severity	4.Cause	5.Mitigation

This scale is used to easily comprehend how harmful a hazard can be, how probable, how it is caused and how to approach and tackle the hazard. This has been used since it can be a struggle to comprehend if these hazards are life threatening or fatal. Finding what you need to know about a hazard and how to tackle it in a tense situation the user must find out how quick and this is how the table will be in the advantage.

Severity scale

1.Low	2.Medium	3.High	4.Life threatening	5.Fatal

This scale is in this manner as it is self-explanatory as low will be something that may irritate you at the moment leaving no scars or bruises and it will not be something you are very startled by. The medium on this scale is when the victim is startled by the shock and it may leave bruising and noticeable pain. The high on the severity scale will leave the victim to be really hurt and it will leave physical marks on them also making them feel very startled by the hazard and possibly even making them have a severe injury so it is advised that they seek medical attention. Life threatening will leave physical marks and cause a lot of panic as like with the high severity but this will be much more different and special help from doctors will be needed as this could eventually lead to the death or an injury which will last forever. Finally, we have fatal which will cause the immediate death of the victim.

Probability scale

1.Not probable	2. unlikely	3.Likely	4.Very likely	5.Definite

This probability scale determines whether the hazard is likely or not likely to take place or even be a hazard. With not probable on the scale this shows us that the hazard will not be

possible in this circumstance allowing it to be deemed clear. Unlikely still has the possibility to happen but it is still low. Likely however gives it a 50% chance of happening so it is not definite whether you can tell. Very likely deems this hazard to happen at a 75% chance and finally which is definite meaning it will happen.

Hazard	**Probability**	**Severity**	**Cause**	**Mitigation**
Short circuit	4.Very likely – this is because it has to be one of the most common faults since it takes place when there is wires that are not in good shape or a component has lost its functionality.	2-3. Medium to high - the reason behind why I have given this a medium to high severity is solely because of this circuit and it can vary from different circuits but a short circuit if the circuit is turned on and there is nothing tripping the switch like what a circuit breaker can do such as in this circuit it can lead to a fire since the circuit is over working. It will heat up and may even cause a small fire.	This could be for many reasons such as the components in the circuit have failed to do their job and there is a high spike in voltage flowing through the system but it can also be from faulty wiring and the wires being open.	You can resolve this issue by turning off the circuit and finding the issue component by component but first you can do a visual inspection looking for deteriorated parts or exposed wires. Once you have found the issue you can repair what is wrong or swap it out and test. You can also apply a fuse or circuit breaker to this circuit for safety measures from short circuits.
Faulty relays and diodes	3.Likely – this fault is at this point of the	2-3. Medium to high – this is because this	There are many causes from a short circuit that	You can resolve this issue through turning

	scale because relays are known to deteriorate over time through many reasons such as an increase to temperature or that they have not been maintained in a long period of time.	circuit is for an automatic door in a place where a lot of people use that door so if the relays were to malfunction and made the door open and close with a person between it can cause the victim to be trapped potentially breaking bones.	will increase the temperature of the circuit or another reason apart from this that will rise the temperature. It can also be from not being maintained in a long time and it has slowly lost functionality.	off the system and replacing the relay and the reason from why it was hot and then to make sure you will maintain the circuit and everything that is with it for efficiency.
Faulty wiring or openings in the wires	3.Likely – this is because it is very possible for engineers to install it wrong and leave wires out in the open and or they could just deteriorate over time exposing the copper inside.	2-3. Medium to high – since this can lead to a short circuit which can lead to a fire but if it were not that then it can give anyone who comes into contact with it an electrical shock that may leave a mark.	There can be a lot of causes how ever it can be from the lack of maintenance, irregular amount of pressure onto the wires or dodgy wiring.	You can get rid of this problem through turning off the circuit and then removing and adding the wires properly and you can prevent this from regular maintaining
Leaks and spilling liquids	2.Unlikely – this is unlikely since it will be hard for the building to deteriorate and allow in water or any other liquid from the outside	2-3. Medium to high – since this door is quite big and has a decent amount of power it can easily trap the victim and could	This can be caused by deterioration on the building allowing water or other liquids to flow in it also can be caused	You can resolve this issue by fixing the circuit first you have to always turn the power off and you can also patch up the

	how ever depending on where this circuit is stationed inside the building a person could have done by accident.	cause them to break bones or worse. Water does not also work well with electricity and could cause a fire.	through human error such as the spilling of a substance or in some places there is water sprinklers inside the building for fire safety.	leak that could have been made.

The PPE that will be needed to ensure safety in this task is that the person who is carrying out the task must wear a laboratory coat or a shirt that is made from cotton to prevent static build up which is common in materials like nylon and polyester. Then we will need eye protection which will help protecting a fragile part of your body. We will also need an antishock mat and armlet to ensure that the electricity does not escape and sorted out. Insulated tools to ensure that the electricity is not sent through your body. Also, an RCD although it is not PPE it will still help to ensure the safety of the circuit and the person who is doing maintenance tasks.

Hazard – electric shock. Probability – 4. Severity 1-2. Cause – it will be caused from open wiring or deterioration of components. Mitigation – it will be resolved by turning off the system and depending on how severe this shock is you can sit back and relax before continuing work. And just before you continue you should turn off the circuit and come to a diagnosis of how it happened. Also this can be prevented by testing before hand while wearing all the correct PPE.

Task 4 Complete Handover

Assessment number (eg 1234-033)	8712-313
Assessment title	Electrical and Electronic Occupational specialism

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	4
Evidence title / description	Assessor observation
Date submitted by candidate	DD/MM/YY

Task 4

Assessment themes:

- Health and safety
- Reviewing and reporting

You must now hold a meeting with the client to return to service and complete handover procedures, including:

- demonstration of system functionality
- confirmation of work completed
- amended method statement and how they addressed peer review feedback, including any suggested changes that were not made and why
- appropriate handover documentation.

Additional evidence of your performance that must be captured for marking:

Assessor observation

Candidate Evidence

Practical observation form

8712-313 Maintenance Engineering Technologies: Electrical and Electronic - Summer 2025

Candidate Name	Candidate number
Provider name	**Date**

Complete the table below referring to the relevant marking grid, found in the assessment pack.

Do not allocate marks at this stage.

This observation must cover	Assessor observation should include:	Assessment Themes
Handover	• the handover of the work completed.	• Health and Safety • Reviewing and Reporting

Notes – *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
There was complete application of handover procedures, using correct terminology, fully appropriate for audience All relevant documentation was shared as part of handover procedure with adequate explanation, using a range of relevant and effective communication methods. There was good operational demonstration of system functionality with adequate verbal description and explanation of work completed, communicated accurately.

Internal assessor signature	Date

Principal Moderator Commentary

The candidate showed a functional grasp of the task brief and translated it into a workable plan. Their interpretation of technical documentation was sufficient to guide their actions, though the planning lacked depth in anticipating specific challenges. The risk assessment, while present, did not fully explore the range of potential hazards or articulate appropriate mitigation strategies, particularly in relation to PPE usage and task-specific risks.

The candidate demonstrated a responsible attitude towards preparing the working environment. Their setup supported safe and uninterrupted workflow, and photographic evidence confirmed that basic housekeeping standards were upheld. The workspace remained orderly, though opportunities exist to enhance spatial efficiency and hazard control through more deliberate layout planning.

The candidate successfully identified and repaired faults within the system, applying a straightforward approach to troubleshooting. Their method was appropriate for the scope of the task, though limited in variety and technical explanation. A broader use of diagnostic techniques and clearer articulation of fault logic would strengthen their problem-solving profile.

The candidate handled tools with care and followed safe isolation procedures. Their selection of equipment was generally appropriate, and they demonstrated a growing familiarity with its use. However, their technique lacked fluency in some areas, suggesting that further hands-on experience would help build confidence and precision.

The candidate showed a basic understanding of how to dismantle and reassemble electrical and electronic systems. Their work restored functionality, and tolerances were largely respected. That said, the process documentation did not fully capture calibration details or procedural rationale, which are essential for verifying compliance with technical standards.

Throughout the task, the candidate maintained a safety-conscious mindset. They adhered to procedural safeguards and demonstrated awareness of environmental responsibilities. Despite gaps in the written risk assessment, their practical conduct reflected a commitment to safe working. Decisions regarding tool and material use were sensible, though not always optimised for efficiency.

The candidate communicated effectively in most formats, including the handover and written documentation. While some technical language was used correctly, its application was inconsistent. The ability to tailor explanations for different audiences is emerging but would benefit from more deliberate use of industry-standard terminology.

The candidate submitted all required documents, including a method statement, risk assessment and PO form. These materials provided a basic overview of the task but lacked analytical depth and technical clarity. Enhancing documentation with more specific insights and structured commentary would improve traceability and reinforce procedural understanding.

The candidate completed the assigned activities with care and attention. Their practical work met the expectations of the brief, and faults were resolved effectively. While the overall performance supports a pass, further development in planning, technical articulation, and documentation would support progression toward higher achievement.

The candidate has fulfilled the requirements for a pass, demonstrating threshold competence. Their performance reflects a solid starting point in technical practice, with clear potential for growth. With continued focus on precision, terminology, and risk evaluation.

Get in touch

The City & Guilds Quality team are here to answer any queries you may have regarding your T Level Technical Qualification delivery.

Should you require assistance, please contact us using the details below:

Monday - Friday | 08:30 - 17:00 GMT

T: 0300 303 53 52

E: **technicals.quality@cityandguilds.com**

W: **http://www.cityandguilds.com/tlevels**

Web chat available **here**.