

Overview

This national occupational standard is for those gas engineers working on domestic appliances who carry out electrical fault finding (across a range of voltages) on domestic gas appliances and includes the following range of appliances: Cookers, Tumble Dryers, Wet Central Heating Boilers, and Warm Air central heating units. This standard covers the work activities of planning, diagnosing faults, rectifying faults, de-commissioning and commissioning those appliances.

Performance criteria

- You must be able to:*
- Plan and prepare work activities for electrical fault finding on domestic gas appliances
 1. Produce a risk assessment and method statement which incorporates safety provisions in the work site, access to the work site, movement of the workforce, members of the public, and the movement and safe storage of materials, tools and equipment for the job
 2. Survey the work site, pre-electrical fault finding, for any damage or defects to existing building features and record it
 3. Advise the property occupier of any defects found and agree the planned works
 4. Protect the work site and the building fabric against possible damage being caused during the de-commissioning, electrical fault finding and re-commissioning process
 5. Check and confirm all materials, tools and test equipment necessary for the de-commissioning, electrical fault finding and commissioning process are available as required and are fit for purpose
 6. Check and confirm that the siting of the appliance meets the manufacturers' and industry standards' requirements for location, siting and clearances
 7. Confirm that the services and systems meet the appliance manufacturers' and industry standards' requirements for the installation
 8. Carry out all necessary checks and tests to confirm the gas supply, the electricity supply and the earthing system meets the industry requirements for the installation
 9. Check existing installation for any unsafe appliances and system components and apply the gas industry unsafe situations procedures as required
- De-commission domestic gas appliances to industry standards and manufacturers' instructions
10. Check that conditions within the gas and electricity systems will permit safe de-commissioning
 11. Select and use the correct tools and equipment for de-commissioning activities
 12. Use designated safe isolation methods, tests, and procedures to de-commission gas and electricity systems and components
 13. Take precautionary actions to ensure that temporarily de-commissioned appliances, systems, or components do not present a safety hazard
 14. Permanently remove and disconnect appliances, gas system

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components and electricity system components as required

Diagnose and rectify electrical faults on a range of domestic gas appliances to industry standards and manufacturers' instructions

15. Gather evidence from; the customer, property occupier, by visual inspection, and by operation of the appliance, component and system
16. Analyse all evidence in order to assist in fault diagnosis
17. Diagnose and locate electrical faults on appliances, components and systems using industry approved codes of practice, manufacturers' instructions, wiring diagrams, and fault finding charts
18. Confirm the correct diagnosis of the electrical faults using electrical testing equipment and industry standard procedures
19. Rectify the electrical faults on the appliances, components and systems
20. Re-connect electricity system components to the appliance as necessary
21. Use industry standards' electrical safety testing procedures to confirm the integrity of the re-connected electrical systems and appliances
22. Ensure existing gas systems are clean and free of debris
23. Re-connect gas system and components to the appliance as necessary
24. Use tightness testing and purging procedures to confirm the integrity of the re-connected gas system and appliance

Re-Commission domestic gas appliances to industry standards and manufacturers' instructions

25. Confirm the complete appliance installation complies with the manufacturers' specification, industry standards, Gas Safety (Installation & Use) Regulations, British Standards and Building Regulations
26. Check that conditions within the gas and electricity systems will permit safe commissioning
27. Select and use the correct tools and equipment for re-commissioning activities
28. Re-commission the gas appliance, gas system and components
29. Check and confirm the appliance operating pressure and the gas rate meet industry standards' and manufacturers' requirements
30. Check the combustion performance visually and by flue gas analysis as required

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31. Test chimney performance and reconfirm it performs according to manufacturers' and industry standards' requirements
32. Reconfirm that the ventilation requirements meet industry standards for the installation
33. Check and confirm the operation of the gas appliance, the gas system and components to ensure they function safely and operate in accordance with manufacturers' instructions
34. Check and confirm the electrical system and components function safely and operate in accordance with the manufacturers' instructions
35. Instruct the property occupier on the correct operation of the replacement system and components and provide them with their copy of the appliance literature
36. Take precautionary actions to prevent the unauthorised use of un-commissioned gas appliances, gas systems, electrical systems and components by isolation procedures and use of warning notices

Use and communicate data and information to carry out de-commissioning, electrical fault finding and commissioning work

37. Liaise with the property occupier and other people who will be affected by the work during the planning, de-commissioning, installation, and commissioning processes to minimise disturbance to the job
38. Use normative documents, industry standards, British Standards and information from manufacturers' instructions for the appliance to ensure the work is done to the specification
39. Advise of any delays to the work, unsafe situations and required remedial actions to those who require the information
40. Check that the customer is satisfied with the finished job
41. Complete records and documentation confirming the safe re-commissioning of gas appliances, gas systems and components
42. Complete gas appliance and gas system de-commissioning records as required and ensure they are stored securely

Resolve problems within own area of responsibility and competence which could affect the de-commissioning, electrical fault finding and commissioning process

43. Rectify problems within own area of responsibility and competence and report deficiencies in gas and electric input services
44. Resolve problems in accordance with approved procedures when:

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- a) pre-commissioning checks and tests reveal gas appliance, gas system or component defects
- b) appliances, gas systems or components being commissioned do not meet design requirements
- c) the gas appliance, the gas system or component cannot be restored to full performance

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Knowledge and understanding

You need to know and understand: General Knowledge

1. Regulations and guidance governing health and safety in the workplace, environmental protection and the use of risk assessments
2. Legislation covering the general responsibilities of the operative for their own safety and that of others
3. The limits of your own autonomy and responsibility

De-commissioning, Electrical fault finding and commissioning on domestic gas appliances

4. The health, safety and environmental factors which need to be incorporated in risk assessment for electrical fault finding on domestic gas appliances
5. Safe access and working at heights including providing safe access to work at heights, or in confined spaces
6. The methods of working which protect the building décor, customer property and existing systems and components
7. The care and maintenance requirements of tools and equipment, and checks for safe condition
8. The tools, equipment, materials and components required for de-commissioning, electrical fault finding and commission domestic appliances – ordering, supplying, advising, checking and delivery procedures
9. How to safely secure and store tools, equipment, materials and components to minimise loss or wastage
10. The potential hazards that could arise from all de-commissioning, electrical fault finding and re-commissioning activities and the checks to be carried out before work takes place
11. The steps to take should materials, components, tools and equipment not be available at the site to commence the de-commissioning, electrical fault finding and re-commissioning activity
12. How to access and correctly interpret the required information, including normative documents, industry standards guidance documents, British Standards and manufacturers' instructions applicable to the appliance, to ensure the work is done to the specification and industry standards
13. How to confirm that the gas appliance and components, services and systems installation complies with the manufacturers' specification and industry standards.
14. Safe isolation methods, tests, and procedures to de-commission

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gas and electricity systems or components

15. The procedures for temporary and permanent de-commissioning of appliances and systems including use of temporary continuity bonds

16. The precautions to ensure that de-commissioned appliances or systems do not prove a safety hazard

17. Measures to prevent de-commissioned appliances or systems being brought into operation utilising safety and warning notices

18. The need to liaise with others whose procedures or routines may be affected by the suspension of the gas appliance and gas system operation

19. The points in the de-commissioning, electrical fault finding and re-commissioning process where co-operation and liaison with other trades and property occupier may be required

20. How to carry out electrical fault finding The positioning and fixing requirements for gas system components to ensure they conform to the system design and intended purpose

21. The procedures and work methods for:

a) re-connecting to gas and electric input services

b) connecting gas appliances and components to both new and existing gas, water, electric, ventilation and chimney systems

22. The process and procedures, equipment and legislative requirements for applying tightness testing and purging and electrical testing to appliances, gas systems and components to ensure safe functioning

23. The routines and sequences for re-commissioning domestic appliances, gas systems, and electrical systems in accordance with manufacturers' specification and industry standards

24. The procedures for checking the correct operation and performance of domestic gas appliances, gas systems and components and checking against the design specification

25. The procedures for checking the correct operation and performance of domestic gas appliances, gas systems and components to ensure safe functioning

26. The procedures for checking and confirming:

a) the gas system operating pressures

b) the appliance operating pressure and the gas rate

27. The tests, checks and use of flue gas analysers which confirm the suitability of the gas combustion performance as required

28. The tests and checks to confirm the integrity, suitability and performance of the systems

29. How to complete all documentation and records to be left with the

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- property occupier for re-commissioning appliances, systems and
Measures to prevent un-commissioned gas systems being brought into
operation utilising safety and warning notices
30. The system handover procedures and demonstrating the operation
of replacement systems and components to end users
 31. The steps to take when problems arise in the work activities
 32. Job management structures and methods of reporting and
recording job progress or problems delaying progress
 33. How to safely collect and dispose of system contents that may be
hazardous to health or the environments
 34. How to isolate unsafe gas appliances, gas systems and
components and application of the gas industry unsafe situations
procedure

Glossary

“Leisure Appliances” refers to Greenhouse Heaters, BBQ’s, Patio Heaters, Gas Flambeaux, and Outdoor Gas Lighting

“Cookers” refers to Freestanding, Built In, Slide Under, Hotplates, Grilles, Range Cookers, and Duel Fuel Cookers

“Wet Central Heating Boilers” refers to Basic, Condensing and Combination Wet Central Heating Boilers. These can include Open, Room-Sealed, and Fan Draught Chimneys

“Warm Air Central Heating Units” refers to Basic Warm Air Units and Combined Warm Air Units – these incorporate a Gas Circulator Storage Water Heater. They may be configured as Down-flow, Up-flow, Horizontal-flow and Slot-fit and will include Open, Room-Sealed, and Fan Draught Chimneys

“Domestic Gas Appliances” refers to Cookers, Tumble Dryers, Wet Central Heating Boilers, and Warm Air central heating units

“Work Site” refers to the area where the work will take place and all areas affected by the works

‘Services and Systems’ refers to water, central heating, gas, electricity supply, condensate disposal, chimneys and ventilation systems

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