

Method Statement
For The Maintenance of
Control panels
At
Cannon Green

Scope of Works

Control Panels

Personnel

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Site Overview

Sequence of Work

14-01 CONTROL PANELS

Introduction

When working on or testing Control panels it is essential that all local and national statutory regulations should be observed at all times. In the United Kingdom the [Health and Safety at Work etc. Act 1974](#) and the [Electricity at Work Regulations 1989](#) are particularly relevant. It should be noted that control panels having equipment operating above a nominal 415 Volts are excluded from this specification. This does not imply that safety precautions should not be taken when working on equipment above 415 volts.

Care should be taken to make sure that all remote circuits associated with the switchgear are positively isolated before any work is carried out. The isolation should be **'secure'** that is it should either be at the point of work or precautions should be taken to prevent anyone else switching on again when work is in progress. A circuit, whether power or control should never be assumed to be 'dead'. **Voltage tests should always be carried out with proven test**

equipment i.e. a voltage tester should first be checked on a known live source immediately before use and again after use.

Whenever cables are disconnected from switchgear in the course of maintenance or replacement, ensure that the cables are suitably insulated and marked for identification for reconnection.

Visually inspect to ensure plant is operating as expected. Check that any meters fitted show a correct reading, and any timers are set at the correct times for operation. Check readings against a known source.

Controllers, electrical and pneumatic control equipment

Electronic controllers and pneumatic equipment may be found in control panels and details regarding maintenance schedules can be found in the appropriate sections of this schedule.

Appropriate safety guides are as follows:-

[HSE](#) Guidance Note GS 38/1995, Electrical test equipment for use by electricians.

HS(R) 25 - Memorandum of Guidance on the Electricity at Work Regulations 1989.

HSG85 Electricity at Work: Safe Working Practices 1993.14-02 CONTROL PANELS - electrical services (excluding electrical controllers and pneumatic relays)

Before commencing any maintenance work on control panels, read introductory notes, **very carefully and follow all the safety procedures.**

ITEM	FREQ.	ACTION	NOTES
1.Panel exterior.	6m	Check for any physical or mechanical damage. Door locks should be checked.	Any damaged equipment mounted on the front should be made safe and replaced as soon as possible. Locks should be checked for correct security and locking arrangements.
2. Mains isolator (also cubicle isolator).	6m	Inspect for correct mechanical and electrical operation. Lubricate any moving parts as required. Check correct operation of door interlock mechanism and adjust if necessary.	Physically check for security all mains connections. Examine both fixed and moving contacts for wear or "pitting". Use only manufacturer's recommended lubricants. Redress or replace contacts

		<i>Clean out interior.</i>	according to the manufacturer's instructions. Ensure that any mains "shrouding" is refitted after the completion of the work.
3. Fuses. Ensure circuits are dead before carrying out actions.	6m	Inspect fuse carrier/fuse holder for signs of overheating. Check fuse rating and terminations for tightness. Apply grease to fuse holder if required.	Replace if necessary and establish cause of overheating and rectify. Value of fuse should be checked against the circuit application and electrical load.
4. Circuit breakers.	6m	Inspect for signs of overheating and replace if necessary. Inspect connections and tighten if necessary. Check operation by tripping or "test" facility, if fitted.	Establish cause of overheating and rectify. Ensure value of breaker corresponds with circuit application and electrical load.
5. Residual current devices. (RCDs)	12m	Test operation using test facility.	
	12m	Carry out electrical test procedures per IEE Regs.	
6. Power contactors.	12m	Check contact for correct mechanical and electrical operation.	
		Strip and clean interior.	
		Inspect and clean magnetic pole faces.	
		Inspect shaded ring for damage and fixed and moving contacts for wear or "pitting".	Damaged contacts should be redressed or replaced as necessary. Use approved contact lubricant if recommended by the manufacturer. (where fitted)
		Inspect coil for overheating or insulation breakdown.	Spring and contacts should be correctly positioned and seated.
		Clean out arc chutes on re-assembly: Avoid damage or loosening of springs or	

		contacts, ensure correct mechanical operation and check all electrical connections for tightness and security.	
7. Starters.	12m	Carry out maintenance as for power contactors.	
- Direct on line. - star delta - two speed-dual wound - two speed-pole change - reversing - auto transformer - quick transition, electric heater and electrolyte types			
8. Thermal overloads.	12m	Inspect for signs of overheating.	Replace if necessary after having established the cause and rectified it.
		Check electrical connections for tightness and security.	
		Inspect trip settings. Operate the trip/test facility ensuring that the switchgear de-energises in a clean and positive operation.	Adjust if necessary to give correct protection for the connected load. Record settings. Check for single phasing protection by operating the starter with one of the power fuses removed.
9. Magnetic overloads.	12m	Inspect for signs of overheating.	
		Check electrical connections for tightness and security.	
		Check oil levels in dashpots and replenish to correct levels if needed.	Completely replace dashpot oil at intervals recommended by the manufacturer.
		Check "time" mechanism.	Select correct dashpot drain hole if necessary.
		Operate "test" facility ensure switchgear de-energises in a clean and positive operation.	

		Inspect trip settings.	Adjust if necessary to give correct protection for connected load.
		Check single phase protection.	This is done by operating starter with one of the power fuses removed.
10. Busbar systems.	12m	Isolate supplies , inspect for signs of overheating, or damage or burnt out cables. Inspect mechanical support systems and adjust fixings if necessary.	Check all cable crimps for security and fraying. Inspect crimp fasteners for correct torque rating.
11. Incoming power supplies.	12m	Measure each line to earth and each line to neutral.	Record readings and check that measured values are within electricity supplier's specification.
12. Panel wiring.	12m	Inspect for signs of overheating or burn marks.	
		Replace any suspect conductors.	
		Check all connections, terminations, earth cables and links for security and tightness.	
		Ensure cable connections are tight and correctly terminated.	
		Check that panel is correctly bonded to earth.	Test continuity and record readings.
13. Flash test.	36m	Carry out within 1.5kV-3.0kV range to detect potential deterioration of the system.	CAUTION - Care should be taken to isolate sensitive equipment.

14-03 CONTROL PANELS - lamps, meters, alarms etc.

ITEM	FREQ.	ACTION	NOTES
Indicator lamps			
1. Circuit.	6m	Check and energise to ensure that the indicator is operational. Replace any blown or discoloured bulbs as required.	Replacement bulbs should be of the correct type and the voltage and power rating must be as per the manufacturer's specification. A device of a higher power rating should not be used.
2. Holder assembly.	6m	Inspect for signs of overheating or	

		electrical burn marks.	
3. Mains/low voltage transformer (if fitted).	6m	Examine for signs of overheating or insulation breakdown.	
<u>Low voltage power packs - ac or dc types.</u>			
1. Condition.	12m	Inspect for signs of overheating.	
2. Voltage input and output tests.	12m	Carry out and compare with manufacturer's tolerance and operational specifications.	Check polarity of outputs where necessary.
3. Load measurements.	12m	Carry out, record and ensure that the load taken from the unit is within the manufacturer's specification.	
4. Associated safety or trip devices.	6m	Check for correct operation.	
<u>Metering (Voltmeter)</u>			
1. Instrument.	6m	Inspect and check for correct mechanical and electrical operation.	Check actual reading, record and compare with a reference voltmeter applied across the same circuit.
2. Needle (pointer).	6m	Check for free and correct movement.	
3. Zero setting.	6m	Check and adjust if necessary.	
<u>Metering (Ammeter)</u>			
1. Instrument.	6m	Inspect and check for correct mechanical and electrical operation.	Check actual reading, record and compare with a reference ammeter applied in series in same circuit.
2. Needle (pointer).	6m	Check for free and correct movement.	
3. Zero setting.	6m	Check and adjust if necessary.	
<u>Alarm integrator</u>			
1.	12m	Inspect and check	

Operation.		operation of each input channel.	
2. Audible and visual alarms.	12m	Check operation and indications including alarm circuits if fitted.	
Smoke alarm unit			
1. Unit	12m	Inspect; check operation by adjusting or operating alarm test facility (if fitted).	
2. Alarm setting.	12m	Reduce setting and note operation of "smoke condition"	
3. Maintenance.		Carry out manufacturer's "testing and maintenance" procedures as required at stipulated frequencies.	
General			
1. Cleaning.	12m	The interior of the control panel should be cleaned.	
Ventilation			
1. Grilles.	3m	Inspect and check that all grilles are free of any obstructions, clean as required.	
2. Fans (forced ventilation).	3m	inspect and check operation of fan unit; clean and replace filter unit as required.	All power and control circuits should be checked for functional operation against the wiring diagrams relevant to the installation.