



**DALMIA CEMENT (B) LIMITED – CEMENT PLANT  
ARIYALUR  
ELECTRICAL MANUAL**



Issue No. 01	Rev. No: 03	Effective Date: 07.07.2017	ELEC/SOP/008
Issued By: M.R		Approved By: HOD - ELECTRICAL	
SOP for HT Panels Maintenance			

**Scope** : Describing HT panel maintenance procedure to Electricians

**Responsibility** : Electrical Engineer

**Accountability** : Section Head

**PPE:**

1. Nose mask
2. Goggles
3. Electrical safety Gloves
4. Cotton Gloves
5. Safety shoes
6. Safety helmet

**Tools:**

1. Paint brush
2. Hand Blower
3. Waste Cloth
4. Suitable spanner
5. Insulated Screw driver

**Hazards:**

**Risk Associated**

Electrical Shock  
Minor body injury

**Mitigating Measures**

Tested Electrical Rubber Hand Gloves  
Safety shoes, gloves, helmet, goggles

**Training needs:**

1. Electrical shock recovery Training
2. Emergency preparedness
3. Fire fighting
4. First aid training

**Procedure:**

1. Take the LOTO permit for the particular Panel as per ELEC/SOP/001.
2. Draw out and remove the Breaker from breaker chamber



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3. Clean the Panel with Hand Blower & Cloth, while cleaning use PPEs like Nose mask, goggles and hand Gloves.
4. Discharge the terminal before opening the cable chamber or bus bar chamber through EARTH DISCHARGE TRUCK and after opening discharge through EARTH DISCHARGE ROD.
5. Open the all Panel Doors and Covers While opening doors and covers handle them firmly.
6. Check the all Power and control terminals connection tightness with proper tools.
7. Ensure the discharge condition of Closing and tripping Springs
8. Clean the Breaker with hand blower / cloth while cleaning use PPEs like nose mask, goggles and hand Gloves.
9. Check the contact resistance of Breaker poles with micro ohm meter.
10. Check the insulation resistance value of Breaker poles, after checking the Insulation resistances discharge the poles with discharge rod.
11. Check the Trip and Closing Coil for tightness with proper tool.
12. Check the plug in contacts of Breaker.
13. Check the Panel and Doors earthing.
14. Ensure closing of dummy cable entries.
15. Insert and rack in the breaker by wearing hand gloves.
16. Close the Panel Door Properly with Panel Key.
17. Clear the LC as per ELEC/SOP/004 and Check the Healthiness of the panel with CCR.
18. Record all Check point in the concern Check list.

**Emergency / Emergency Shut OFF:**

1. If electrical shock injury or body injury is there, give First aid and inform to the Safety department or Call Emergency number 3108/9865152222/9750963761.



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**Records/Annexure:**

1. Refer LOTO.
2. JSA as enclosed below.

**JOB SAFETY ANALYSIS :( JSA)**

<b>Job Safety Analysis</b>	Job: HT panel maintenance	Date:	Analysis by:	Reviewed by:
Title of employee doing job: Electrician	Supervisor: Section Engineer	Department: Electrical	Section:	Approved by:
Reqd./recommended PPE: Nose mask, Goggles, Electrical safety Gloves, Cotton Gloves, Safety shoes, Safety helmet				
Put on PPE, Take Permit				
Switch off power and control supply	Electrical shock	Use Tested Electrical Rubber Hand gloves	Damaged Gloves/ Not checked before use	Periodic replacement/To check for damage before use
Draw out and remove breaker from breaker chamber	Body injury	Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job
	Electrical shock	Use Tested Electrical Rubber Hand gloves	Damaged Gloves/ Not checked before use	Periodic replacement/To check for damage before use
Cleaning of Panels	Eye irritation,	Wear goggles	Damaged goggles/non standard goggles/ Not wearing goggles/ Heavy dust accumulated	Periodic replacement/Training
	Respiration problem	Wear Nose mask	Damaged nose mask/ Not wearing mask/ Heavy dust accumulated	Periodic replacement /Training
	Body injury	Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job



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open the panel door	Electrical shock	Use Tested Electrical Rubber Hand gloves	Damaged Gloves/ Not checked before use	Periodic replacement/To check for damage before use
	Body injury	Use proper tools	Nonstandard /damaged tools	Training for tools handling/ Periodic replacement
		Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job
Discharge the panel terminals by discharge rods	Electrical shock	Use Tested Electrical Rubber Hand gloves	Damaged Gloves/ Not checked before use	Periodic replacement/To check for damage before use
		Use Earth rods	Damaged earth rods	Replace it, if not repairable
Check the tightness of Power and control terminals	Electrical shock	Use Tested Electrical Rubber Hand gloves	Damaged Gloves/ Not checked before use	Periodic replacement/To check for damage before use
	Body injury	Use proper tools	Nonstandard /damaged tools	Training for tools handling/ Periodic replacement
		Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job
Ensure the discharge condition of Closing and tripping Spring	Body injury	Discharge the closing and tripping spring tension	Charged spring cause the body injury	Ensure your body parts are away from springs while discharging
Clean the Breaker with hand blower	Eye irritation	Wear goggles	Damaged goggles/non standard goggles/ Not wearing goggles/ Heavy dust accumulated	Periodic replacement/Training
	Respiration problem	Wear Nose mask	Damaged nose mask/ Not wearing mask/ Heavy dust accumulated	Periodic replacement /Training
	Body injury	Use proper tools	Nonstandard /damaged tools	Training for tools handling/ Periodic replacement
		Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job



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Check the contact resistance of Breaker poles with micro ohm meter	Electrical shock	Connect the micro ohm meter to electrical source by proper power chord with plug top arrangement	Damaged power chord without plug top	Check the power chord before connecting to electrical source Replace if damage. Ensure the plug top
		Use the micro ohm meter with proper probe arrangement	Damaged probe	Check the power chord before connecting to electrical source Replace if damage
		Use calibrated meter	Faulty meters	Meter shall be calibrated periodically
Check the insulation resistance value of Breaker poles	Electrical shock	Use the insulation tester with proper probe arrangement	Damaged probe	Check the power probe before connecting to electrical source Replace if damage
		If it is motorized insulation tester, then connect it with proper power chord	Damaged power chord	Check the power chord before connecting to electrical source Replace if damage Ensure the plug top
		If it is manually operated insulation tester, then use insulated handles for rotation	Non insulated handle	Check the handle, make it insulated
Discharge the poles with discharge rod	Electrical shock	Use calibrated insulation tester	Faulty tester	Periodical calibration required
		Use Earth rod	Damaged Earth rods	Replace it, if not repairable
Check the Trip and Closing Coil for tightness	Body injury	Use proper tools	Damaged tools/inappropriate Tools	Training for tools handling/ Periodic replacement
		Wear safety helmet, safety shoes , hand gloves	Tools and material may fall on human body	Without PPE don't perform the job
Check the plug in contacts of breaker	Body injury	Use proper tools	Damaged tools/inappropriate Tools	Training for tools handling/ Periodic replacement
Check the Panel and Doors earthing. Ensure closing of dummy cable entries	Body injury	Use proper tools	Damaged tools/inappropriate Tools	Training for tools handling/ Periodic replacement