

Mahmoud Emad Mahmoud

ELECTRICAL MAINTENANCE ENGINEER | RIG ELECTRICIAN

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Summary

Dedicated Electrical Power and Machines Engineering graduate (Grade: Very Good) with 5 years of specialized onshore drilling experience with the Egyptian Drilling Company (EDC). Expert in the commissioning, maintenance, and complex troubleshooting of **HH Electric VFD Rigs (1500 HP)** and **Caterpillar power generation sets** (3512B, C15, 3406). Proven track record in optimizing **PLC systems** (Siemens, Schneider, Mitsubishi) and **Rig-Sense instrumentation** to maximize uptime and ensure safety in H2S environments.

Technical Expertise

- **Rig Power & VFD:** HH Electric VFD (1500 HP), ABB Drives, MCC Maintenance.
 - **Power Generation:** CAT 3512B, C15 Emergency Gen, CAT 3406, Transformers.
 - **Automation & PLC:** Siemens S7-300, Schneider M340, Mitsubishi Q-Series, Step-7 Troubleshooting.
 - **Drilling Equipment:** Varco TDS-11 Top Drive, Draw works Controls, AC Motor Maintenance.
 - **Instrumentation:** Rig-Sense (Controls/Sensors), Honeywell H2S Detection, CCTV.
 - **Software/Design:** Revit (Advanced), AutoCAD, Dialux, CMMS, MS Office.
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Experience

Egyptian Drilling Company EDC | Onshore Rig | EDC Rig 72 | HH Electric VFD Rig 1500 HP

Senior Electrical Maintenance Engineer | JAN 2025 – Present

- **System Reliability Leadership:** Orchestrated comprehensive maintenance for **Caterpillar 3512B generators**, ensuring 100% power availability for critical drilling operations.
- **Advanced VFD Troubleshooting:** Managed advanced troubleshooting and preventative maintenance for **Oilfield Electric VFD systems**, ensuring precise control of drilling motors

and minimal system downtime and resolving complex drive faults to **minimize non-productive time (NPT)**.

- **Power Generation Mastery:** Spearheaded full-cycle maintenance and load-sharing synchronization for **Caterpillar 3512B, C15, and 3406 generator sets**, guaranteeing 100% power reliability for rig and camp operations.
- **PLC & Automation Management:** Diagnosed and resolved complex hardware and logic faults within **Siemens S7-300, Schneider M340, and Mitsubishi Q-series PLC frameworks** to maintain seamless rig automation.
- **Critical Equipment Oversight:** Directed electrical maintenance for high-impact assets including **Varco TDS-11 Top Drive and Drawworks control systems**, ensuring peak performance during critical drilling phases.
- **Motor Control & Reliability:** Optimized **MCC (Motor Control Center)** panel integrity and performed precision repairs on **AC motors and transformers**, resulting in a measurable reduction in unexpected equipment failures.
- **Instrumentation & Data:** Overseeing **Rig-Sense systems**, including the calibration of sensors and maintenance of data acquisition controls to ensure accurate real-time drilling metrics.
- **Safety & Security Systems:** Guaranteed the continuous operational integrity of the **Honeywell H2S Gas Detection system** and **CCTV surveillance**, maintaining a secure environment and full compliance with safety protocols.

Electrical Maintenance Engineer | May 2022 – Jan 2025

- Performed daily preventative and corrective maintenance on **MCC panels** and low/medium voltage distribution systems.
- Assisted in the inspection and routine servicing of **Caterpillar 3512B and C15 generator sets**.
- Supported senior engineers in troubleshooting **PLC** and **VFD control circuits** to maintain operational continuity.
- Executed onsite repairs for **AC motors and transformers**, ensuring equipment reliability.
- Monitored **Rig-Sense instrumentation and sensor accuracy** for real-time drilling data acquisition.

Junior Electrical Engineer | Oct 2020 – May 2022

- Developed a foundational understanding of rig power systems and safety protocols (**PTW, H2S**).
- Gained hands-on experience in **basic electrical repairs** and component replacements under supervision.
- Assisted in maintaining main camp generator sets (**CAT 3406**) and auxiliary equipment.
- Documented repair logs and updated maintenance records to track asset performance.

El Shorouk Academy | Assigned Teaching Assistant | Oct 2021 – May 2022

- **Technical Instruction:** Delivered academic lectures and led technical discussion sessions for engineering students, focusing on core electrical concepts.
- **Mentorship & Guidance:** Provided individual and group technical guidance, assisting students in complex problem-solving and academic development.
- **Academic Support:** Collaborated with faculty members to deliver high-quality instruction and managed student conferencing to ensure educational objectives were met.

Idea's Consultant Office | Electrical Design Engineer | Jan 2022 – May 2022

- **Design & Engineering:** Developed comprehensive electrical designs and technical documentation tailored to client specifications and international standards.
 - **Technical Proposals:** Prepared detailed technical offers and material take-offs aligned with project-specific engineering requirements.
 - **System Sizing:** Performed equipment sizing and selection, including transformer ratings and distribution board configurations, to ensure system compatibility and performance.
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Education

El-Shorouk University | Bachelor's of Electrical Engineering.

2015 - 2020

Major: Electrical Power and Machines Engineering | **Grade:** Very Good.

Graduation Project: Design of Electrical Systems and Services in Buildings with Revit Software
| **Grade:** Excellent.

CERTIFICATIONS & COURSES

- **Automation:** Electric Motor & Drive Programming (ABB VFD), PLC Step-7 300 Repair, Classic Control.
 - **Power:** Power System Distribution, AC Generators Maintenance, Electrical Design (Revit).
 - **Rig Safety (Certified):** PTW, WMS, H2S Awareness, Work at Height, Firefighting, First Aid, Mechanical Lifting.
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LANGUAGES & SKILLS

- **Languages:** Arabic (Native), English (Very Good - Professional Working Proficiency).
- **Soft Skills:** Leadership, Technical Mentorship, High-Pressure Problem Solving, Teamwork.