MARIO GONZALEZ CARDONA

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PROFESSIONAL SUMMARY

Highly accomplished and results-oriented Senior Mechatronics Engineer with over 11 years of multi-industry expertise spanning Aerospace, Automotive, and Heavy Industrial Machinery (MEWPs/AWPs). Demonstrated technical authority in leading full-cycle product development, critical electrical system architectures, and high-complexity wire harness design. Proven track record in providing cross-functional technical leadership for global manufacturing operations, maximizing product reliability, and executing real-time troubleshooting for high-stakes environments. Expert in bridging rigorous international regulatory compliance with robust, scalable engineering solutions.

CORE COMPETENCIES & TECHNICAL SKILLS

Electrical Engineering & Systems: Electrical Architecture Design, Wire Harness Design, Low/High Voltage Systems (400V), Schematics, System Integration, Component Selection, Safety Circuits.

3D/2D Design & Packaging: 3D Wire Harness Routing, Complex Vehicle/Aircraft Packaging, 2D Schematic Generation, Installation Drawings, Electro-Mechanical Integration.

Protocols & Control Networks: CANbus Networks, Controller Integration, Sensor Interfaces, Signal Shielding, Electrical Bonding, EMI/RFI Shielding Principles.

Design & Engineering Tools: NX by Siemens, TeamCenter, PTC CREO Parametric, Windchill, Capital Harness Designer, Capital Logic, CATIA, AutoCAD, SAP.

Compliance & Standards: FAA Part 23 Regulations, Global Industry Standards (ANSI, CSA, CE, ISO), Toyota Production System (TPS), Design for Manufacturing (DFM), Design for Assembly (DFA), Engineering Change Controls (CN/CCD/EPR/ECR).

PROFESSIONAL EXPERIENCE

CIRRUS AIRCRAFT — **McKinney, TX**

Avionics & Electrical Engineer II (Aerospace Sector) — *July 2024 – Present*

- Spearhead the complex design, validation, and integration of safety-critical avionics and electrical wiring architectures for aircraft modifications under strict FAA Part 23 regulations.
- Act as technical authority for field engineering, delivering rapid interpretation and troubleshooting for complex system anomalies to eliminate Aircraft On Ground (AOG) situations.
- Lead cross-functional engineering reviews and bench test validation alongside program managers and certification authorities to hit critical milestones.
- Maintain and optimize comprehensive electrical diagrams and 3D/2D harness installations, incorporating DFM/DFA principles to ensure long-term robust performance on production lines.
- Manage component lifecycle strategies and component obsolescence issues, fully executing EPR and ECR compliance procedures.

TEREX GENIE — **Ciénega de Flores, NL, Mexico**

Electrical Design Engineer (MEWPs / AWPs Industrial Sector) — *July 2023 – May 2024*

- Directed full-cycle electrical design and systems integration projects for Aerial Work Platforms (AWP) and Mobile Elevating Work Platforms (MEWPs) from conceptualization through manufacturing deployment.
- Served as the primary global electrical authority for heavy machinery product lines, overseeing the successful implementation of communication networks, low-voltage control circuits, and digital sensors.
- Resolved critical production-line halts and complex field engineering failures by integrating advanced signal shielding, environmental protection, and electrical bonding methods.
- Partnered with materials groups and global tier-1 suppliers to technical-source components, successfully resolving high-risk obsolescence challenges while controlling costs.
- Validated all electrical layouts against heavy machinery international standards (ANSI, CSA, CE, ISO) to ensure robust operability and operator safety.

STELLANTIS — **Mexico City, Mexico**

Lead Design Release Engineer (DRE) – Wire Harness Specialist (Automotive Sector) — *December 2021 – June 2023*

- Coordinated end-to-end wire harness engineering activities across key multi-billion-dollar vehicle platforms, serving as the central point of contact between global product development and suppliers.
- Managed the development and architecture of complex high-voltage (400V) vehicle systems for next-generation EV platforms (RAM 1500), overseeing the routing of 168KWh battery integration packs.

- Eliminated tight packaging bottleneck constraints within vehicle chassis by applying real-time engineering changes (CN/CCD) to mitigate costly assembly delays.
- Tracked financial and logistical metrics of engineering changes, optimizing production budgets and timeline rollouts.

YAZAKI NORTH AMERICA / YAZAKI S. DE R.L. C.V. **Monterrey, Mexico / Canton, MI (USA)**
Product Design Engineer – Automotive Wire Harness Platforms *March 2015 – December 2021*

- **Strategic US Assignment (Michigan | June 2018 – August 2020):** Deployed to the US Corporate Headquarters in Michigan as the operational technical liaison between US and Mexico operations, driving cross-border team cohesion and engineering resolution for the Jeep Grand Cherokee (WL) program.
- **Global Engineering Mentorship:** Handpicked for a 2-month international deployment to Yazaki India to train, mentor, and audit local engineering groups on corporate technical documentation, standardized wire harness rules, and EBOM management.
- **Engineering & Field Support (Monterrey, Mexico):** Initiated tenure in Monterrey, managing product lifecycles, component selection, cost analysis, and EBOMs for major automotive clients while providing direct on-site manufacturing plant support and troubleshooting across the US and Mexico.

EARLY CAREER & LEADERSHIP FOUNDATION

YATES CONSTRUCTION **Corporate Facilities**
Electrical Engineer *2014*

- Managed and supervised corporate facility industrial electrical layouts, ensuring robust field execution and schematic reviews.

DENSO MEXICO S.A. DE C.V. **Apodaca, NL, Mexico**
Production Engineering Intern – Automotive Electronics *November 2012 – November 2013*

- Integrated Toyota Production System (TPS) methodologies into the high-volume assembly and automated inspection of automotive instrument clusters.
- Supported New Product Introductions (NPI) by coordinating technical parameters between production lines and corporate quality departments.

TECRED **Government Projects**
Operations Supervisor *2008 – 2012*

- Supervised and coordinated an operational team of 15 personnel executing digitization and strict process efficiency contracts.

EDUCATION

UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN **San Nicolás de los Garza, NL, Mexico**
Bachelor of Science in Mechatronics Engineering *Graduated 2014*

LANGUAGES

Proficiency: Spanish (Native), English (Full Professional Proficiency).