

James Benitez

Manufacturing Engineer, Defense Prototype Builds

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SUMMARY

Manufacturing Engineer with seven years supporting prototype, low rate, and production intent **mechanical systems** in defense adjacent mobility and high performance manufacturing environments. Converts engineering intent into practical **build plans, assembly sequences**, work instructions, staffing plans, tooling needs, and shop floor priorities. Leads readiness reviews, material coordination, supplier follow up, integration support, test preparation, and issue resolution across engineering, operations, quality, purchasing, and program teams. Applies DFM and DFA, GD&T, **tolerance stack ups**, CMM measurement, PFMEA, process validation, gear assembly, and inspection methods. Uses Creo, NX, SolidWorks, Windchill, SAP, Epicor, MS Project, Excel, Word, and PowerPoint. Active Secret clearance supports controlled defense programs. Ready to help Northstar Mobility Systems deliver disciplined prototype builds, clear risk visibility, and dependable hardware for demanding customers.

EXPERIENCE

Senior Manufacturing Engineer, Prototype Builds

Vector Forge Systems 🏢 January 2025 - Present 📍 Sterling Heights, MI

Owns manufacturing execution for prototype electromechanical and mechanical subsystem builds, guiding readiness, assembly, integration, inspection, supplier coordination, and test support. Leads cross functional decisions across engineering, quality, supply chain, operations, and program leadership.

- Converted released engineering data into build plans, sequences, staffing estimates, and **daily priorities**.
- Closed readiness gaps involving hardware, fixtures, inspection plans, suppliers, and controlled documentation.
- Resolved fit issues with **GD&T**, tolerance stack ups, CMM data, and documented dispositions.
- Improved **DFM** and **DFA** for brackets, housings, gear interfaces, and service access in Creo.
- Created PFMEAs, validation plans, **work instructions**, and inspection points aligned with AS9100 practices.
- Coordinated equipment, shipping, supplier, facility, and off site test needs through **MS Project**.

Manufacturing Engineer II, Ruggedized Vehicle Systems

Apex Terrain Technologies 🏢 March 2023 - December 2024 📍 Warren, MI

Supported prototype and **low rate production** for ruggedized vehicle subsystems, connecting **product engineering** with floor execution. Managed material status, configuration control, tooling concepts, dimensional investigations, supplier activity, customer demonstrations, and test events.

- Aligned **purchased parts**, fabricated components, outside processing, and test hardware with build schedules.
- Translated models and drawings into work instructions, build sequences, and inspection checkpoints.
- Diagnosed gearbox, shaft, housing, and weldment stack up issues using NX and CMM results.
- Created locating, drilling, assembly, and inspection **fixtures** that improved repeatability across **prototype** units.
- Maintained shortages, **nonconformances**, and readiness risks in SAP and Windchill for program reviews.
- Captured supplier visit and test event lessons for subsequent prototype build improvements.

Manufacturing Engineer, High Performance Mechanical Products

Ironwood Performance Manufacturing 🏢 August 2021 - February 2023 📍 Pontiac, MI

Developed manufacturing plans and process controls for low volume mechanical products, including geartrain components, precision housings, fixtures, and dimensional interfaces. Partnered with design, machining, quality, suppliers, and operations within an **ISO 9001** environment.

- Planned geartrain and housing processes from CAD models, prints, inspection needs, and resource constraints.
- Investigated interference and nonconformance using **SolidWorks**, GD&T, gauges, micrometers, and **CMM** reports.
- Facilitated DFM and DFA reviews that improved fastener access and reduced setup complexity.
- Updated PFMEAs, **work instructions**, and **validation** records for recurring low volume builds.
- Tracked supplier commitments, material availability, and dependencies with Epicor, **Excel**, and MS Project.
- Documented engineering findings for disposition, strengthening traceability across prototype release decisions.

Associate Manufacturing Engineer, Prototype Assemblies

Great Lakes Motion Labs 🏢 July 2019 - July 2021 📍 Livonia, MI

Supported supervised prototype mechanical assembly work from engineering release through shop floor execution. Prepared routers, work instructions, fixtures, inspection plans, issue logs, and schedule updates while building practical experience with gears, shafts, fit up, alignment, and controlled rework.

- Prepared routers, **work instructions**, fixtures, and inspection plans for prototype mechanical assemblies.
- Reviewed **Creo** and SolidWorks models, drawings, and bills of material for manufacturability risks.
- Compared dimensional data with **GD&T** requirements and escalated concerns affecting fit or testing.
- Coordinated machining, **purchasing**, **quality**, and assembly activities against prototype build dates.

- Supported gear and shaft assembly, alignment, bearing installation, backlash checks, and controlled rework.
- Maintained build records and schedules with Excel, Word, **PowerPoint**, and MS Project.

PROJECTS

Prototype Build Readiness System 📅 2025

Created a repeatable readiness review structure covering material, tooling, documentation, staffing, inspection, facilities, suppliers, and test support for overlapping prototype builds.

Gear Assembly Inspection Improvement 📅 2024

Improved gear and shaft inspection flow by connecting GD&T review, CMM results, fit up checks, issue tracking, and engineering disposition before test preparation.

LEADERSHIP & AWARDS

- Recognized by program leadership for clear prototype build risk communication and dependable cross functional execution.
- Selected as a manufacturing resource for gear assembly, dimensional investigation, and shop floor issue resolution.
- Received team recognition for practical work instructions and repeatable fixture concepts supporting low rate builds.

EDUCATION

Bachelor's Degree in Mechanical Engineering

University of Michigan-Dearborn 🎓 GPA: 0 📅 2019 📍 Dearborn, MI

***Coursework:** Manufacturing systems, mechanical design, materials science, engineering mechanics*

CERTIFICATIONS

- Active U.S. Government Secret Security Clearance, Tier 3 📅 2025
- ASQ Certified Quality Improvement Associate 📅 2024

TECHNICAL SKILLS

- **3D CAD Tools:** Creo, NX, SolidWorks
- **PLM Systems:** Windchill, engineering releases, configuration control
- **ERP and MRP Systems:** SAP, Epicor, material planning
- **Microsoft Applications:** MS Project, Excel, Word, PowerPoint
- **Quality Systems:** AS9100, ISO 9001, quality records
- **Dimensional Engineering:** GD&T, tolerance stack ups, CMM measurement
- **Manufacturing Methods:** DFM, DFA, assembly sequencing
- **Risk and Validation:** PFMEA, process validation, nonconformance control
- **Tooling and Fixtures:** fixture concepts, locating tools, inspection fixtures
- **Mechanical Assembly:** gear assembly, shaft assembly, fit up inspection

SKILLS

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|------------------------|-----------------------|----------------------|----------------------|
| • Prototype Production | • GD&T | • Process Validation | • Fixture Design |
| • Build Planning | • Tolerance Stack Ups | • AS9100 | • Material Readiness |
| • Build Readiness | • CMM Measurement | • ISO 9001 | • Test Readiness |
| • DFM and DFA | • PFMEA | • Gear Inspection | |

PROFESSIONAL AFFILIATIONS

- ASQ member, engaged with quality improvement methods and manufacturing process discipline.
- Professional manufacturing engineering network participant, sharing practical lessons on prototype readiness and shop floor execution.

LANGUAGES

- English (Native)
- Spanish (Proficient)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST