

# Thomas Herrick-Reynolds

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## Professional Summary

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Hardware-focused engineer with a passion for physics and aerospace engineering. Hands-on experience building, diagnosing, and repairing real systems from component-level electronics to full vehicle integrations. Skilled at solving complex technical problems, working with legacy hardware and limited documentation, and maturing technical work into documented engineering procedures. Seeking to contribute to projects involving power electronics and aerospace hardware design.

## Technical Skills

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**Electronics:** Component-level diagnostics, PCB modification, legacy circuit rework and modification, analog and mixed-signal systems, bias networks, SMT and TH rework, bench top equipment (oscilloscopes, signal generators, DMMs, variacs)

**Integration & Testing:** Troubleshooting, bias calibration, burn-in testing, power-stage validation

**Automotive Systems:** Engine swaps, drivetrain integration, brake conversion, full vehicle rewires

**Programming:** Python, TypeScript, MATLAB, OpenCV (cv2), LTSpice, Git, VS Code

## Professional Experience

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### Nashville Amplifier Service – Electronics Test Engineer

Jul 2025–Present

Nashville, TN

- Troubleshoot and repair tube and solid-state amplifiers through structured signal tracing and component-level analysis.
- Perform warranty evaluations using manufacturer documentation and service schematics.
- Record and track electrical measurements including tube operating parameters (Ep, G2, G1, Ip, Pd), rail voltages, DC offset, and output values.
- Established measurement baselines across similar units and document new failure modes to improve troubleshooting efficiency and identify recurring issues.
- Modify legacy solid-state boards when parts are obsolete, integrating modern equivalents and verifying stable operation.
- Support touring musicians in reliability-critical environments requiring rapid turnaround, including Red Clay Strays, Khruangbin, Rascal Flatts, Tame Impala, Skillet.

### Arizona Specialty Motors – Automotive Systems Technician

Nov 2023–May 2024

Tempe, AZ

- Responsible for incoming vehicle inventory evaluation and completion of NIADA CPO-certified 125-point inspection checklists.
- Conducted systematic inspection and documentation of drivetrain, suspension, brake, electrical, and safety systems prior to vehicle release.
- Performed maintenance and system work on high-performance platforms including 1000+ hp Nissan GT-Rs, Toyota Supras, and Corvette Stingrays.
- Completed engine swap on Subaru WRX and installed flex-fuel system for ethanol compatibility, integrating fuel hardware and validating ECU, sensor, and drivetrain functionality on base map.

## Education

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**Arizona State University** 2023–2025  
B.S. Physics

**Montgomery College** 2021–2023  
A.S. Aerospace Engineering

## Engineering Projects

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**2014 Jeep Wrangler Unlimited – Salvage Title Rebuild** Aug 2019–Jun 2021

- Rebuilt salvage-titled vehicle into road-certified condition using limited tools and workspace.
- Repaired drivetrain, suspension, and electrical systems and ensured state inspection compliance.
- Managed budgeting and parts sourcing independently. Sold completed vehicle at a profit.

**1968 Dodge Charger – Electrical and Mechanical Restoration** Aug 2017–Aug 2019

- Installed complete wiring harness to resolve chronic electrical faults.
- Converted front and rear drum brakes to disc brakes and replaced hydraulic lines.
- Restored cooling system, transmission lines, brake lines, and interior systems.
- Coordinated restoration sequencing across subsystems.

**2007 Roadtrek SS Agile – Electrical System Rebuild** Dec 2022–Present

- Restored non-functioning vehicle by rebuilding both chassis and house electrical systems.
- Reworked vehicle wiring and redesigned auxiliary power architecture for reliable operation.
- Selected deep-cycle battery based on compatibility with existing inverter/charger charge profile to ensure proper charging behavior and battery longevity.

**1983 Porsche 944 – Corvette Transaxle Drivetrain Integration** Nov 2024–Present

- Executing Corvette drivetrain integration into Porsche 944 chassis to increase power output while preserving the platform's near 50/50 weight distribution.
- Selected Corvette donor specifically for its rear transaxle architecture to maintain original vehicle balance and handling characteristics.
- Integrating drivetrain, torque tube, and wiring harness systems while adapting ECU interfaces and resolving sensor compatibility challenges.