

Mark Reimer

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SUMMARY

Manufacturing product engineer with 25 years taking hardware from first builds to volume production in electronics assembly, MEMS wafer fab, and heavy equipment. Scaled a MEMS fab to 3x output, stood up a 40,000 sq ft site, and now own SMT circuit board process engineering. Managed \$15M in equipment vendors and six years of build-to-spec component supply for OEM customers. Work from DFM, FMEA, SPC, DOE, and structured root cause; comfortable on the floor and in the leadership readout. Available for up to 50% travel.

WORK EXPERIENCE

Collins Aerospace — Sr Principal Project Engineer — Coralville, IA

Aug 2025–present

Process engineering owner for standing up a new production line for a circuit board set.

- Lead the ramp of a new circuit board set line from 25 to 75 sets/day in four months, with a target of 130 sets/day, across SMT placement, reflow, robotic contact soldering, underfill, automated optical inspection (AOI), X-ray inspection, in-circuit test (ICT), depanel, and conformal coat. Own throughput and process capability at each station, clearing one bottleneck at a time without yield regression.
- Bring manufacturing requirements into design reviews: DFM feedback to design engineering on board layout for coating coverage, depanel tab placement, and underfill.
- Use AOI and process data, with X-ray and ICT results, to root-cause defects and drive corrective action with production and design.

Collins Aerospace — Sr Principal Project Engineer — Cedar Rapids, IA

Feb 2020–Aug 2025

Technical owner for taking a MEMS wafer process from lab to mass production.

- Carried the MEMS build process from development to production, including site layout of a 40,000 sq ft wafer fab and technical input on equipment selection and facility requirements.
- Scaled output 3x in two years inside the existing footprint, ahead of the new fab build-out, unlocking \$50M in additional sales. Nominated Engineer of the Year finalist (2024) for this work.
- Managed a \$15M equipment program across external vendors: contracts, payment schedules, delivery dates, and risk mitigation plans for technical and schedule issues.
- Led control architecture and software for custom process equipment: 7 downstream plasma ashers (multi-wafer ashing system, patent pending) and 48 electrolytic gold plating cells. Ran a DOE that cut ash time 25%, and specified chillers for the ashers' microwave generator heat load.
- Built an interim MES to track every wafer through each manufacturing step, giving production flow control and a failure-analysis dataset for the process trouble areas.
- Replaced manual RF filter test with an automated robotic test cell (Fanuc robots, Rockwell PLC), defining test coverage for parts leaving the fab.
- Senior technical escalation for fab tool maintenance and repair: metal sputtering, plasma treat, etch, ash, and other high-vacuum tools.

Collins Aerospace — Sr Material and Process Engineer — Cedar Rapids, IA

Apr 2013–Feb 2020

Process engineering for printed wiring board (PWB) assembly across multiple US sites.

- Deployed advanced manufacturing processes across US sites, including automated fastener installation and automated conformal coat on PWB assemblies. A DOE on the coating process improved thickness control 50%; Engineer of the Year semi-finalist (2014).
- Ran reliability testing of BGA attachments to PWB substrates and set the criteria for when designs require underfill, feeding results back into design rules.
- Delivered an Industry 4.0 integration of work-instruction software with networked torque tools, rolled out globally, attaching actual process data to each serialized assembly for traceability.
- Wrote design and equipment specifications for a robotic assembly cell on a high-volume radio: automated mechanical assembly, hardware installation, and adhesive application across five sub-assemblies, saving \$400K/yr in build and inspection labor.
- Helped design software to manage age-sensitive chemicals, cutting expired-chemical findings 50% across 40 facilities.

ESP International — Engineering Manager — Cedar Rapids, IA

Apr 2007–Apr 2013

Managed the global engineering team (US and India) for a component supplier to OEM customers.

- Owned the technical interface in both directions of a build-to-spec supply chain: qualified and managed component vendors manufacturing to OEM customer specifications, then supported those OEM customers through design, change, and quality issues.

- Led development of a cost-effective radial shaft seal product line with high mud exclusion, from design through supplier launch; four US patents granted on seal designs, including labyrinth and spring-free elastomer constructions that cut part count and machining.
- Designed custom assembly fixtures with poka-yoke elements, process controls, and inline tests.
- Improved tracking and implementation of open engineering changes with a new order process.
- Ran FEA on customer design projects and custom rubber seal designs; delivered technical seminars on metal casting and seal design to customer engineering groups.

John Deere — Design Engineer — Davenport, IA

Apr 2006–Jul 2007

- Relocated production of four cab lines from one site to another with a cross-functional team. Analyzed every part on the relocated lines and cut part count 5% by qualifying equivalent components at the new location.

Whirlpool — Project Engineer — Amana, IA

Apr 2005–Apr 2006

- Recommended and implemented design changes for cost and quality on the side-by-side refrigerator line, realizing \$200K in cost reduction; two patents granted on refrigerator door assembly and icemaker drive coupling.
- Participated in Kaizen and lean manufacturing events on the side-by-side and bottom-freezer production lines.

John Deere — Design Engineer — East Moline, IL

Apr 2000–Apr 2005

- Took new combine unloading auger features from concept through design, test, and production.
- Designed a folding unloading auger that reduced overall combine length; three patents granted (US and EP) on the auger engagement mechanism, discharge chute, and grain tank cleanout.
- Ran FEA on grain tank sheet metal structures.

CORE SKILLS

Manufacturing methods: DFM, FMEA, SPC, DOE, root cause and corrective action, lean and Kaizen, poka-yoke

Product and process ownership: lab-to-production transition, line and site stand-up, production relocation, yield and throughput scaling, test plan and test coverage definition

Supplier and partner management: equipment vendor contracts and delivery, component vendor qualification, build-to-spec supply, OEM customer support, engineering change control

Electronics manufacturing: SMT, reflow, robotic contact solder, underfill, AOI, X-ray, ICT, depanel, conformal coat, PWB assembly, BGA reliability, MEMS wafer processing, high-vacuum tools

Automation and software: Fanuc and Denso robots, Rockwell PLC and HMI programming, MES development, C#, Python, SQL, VBA

Design tools: SolidWorks, Fusion 360, AutoCAD, FEA

PATENTS

Inventor on 9 granted patents and 1 pending application spanning semiconductor process equipment, sealing products, appliances, and agricultural machinery.

- US 2025/0237959 (pending) — Plasma multi-wafer ashing system, Rockwell Collins, filed 2024
- US 7,516,531 — Method of assembling universal trim piece system for a refrigerator, Whirlpool, 2009
- US 8,657,296 — Radial shaft seal (self-forming labyrinth seal), Engineered Seal Products, 2014
- US 9,638,327 — Radial shaft seal (single-piece elastomer, no spring or can), Engineered Seal Products, 2017
- US 9,133,937 — Heavy-duty shaft seal, Engineered Seal Products, 2015
- US 9,140,365 — Outer seal for pivot joints, Engineered Seal Products, 2015
- US 8,033,377 — Folding unloading auger engagement assistors, Deere & Company, 2011
- US 7,698,901 — Icemaker assembly for a refrigerator, Maytag, 2010
- US 6,691,861 — Auger discharge chute with dribble door, Deere & Company, 2004
- EP 1425950 — Grain tank cleanout plug, Deere & Company, 2006

EDUCATION AND RECOGNITION

- BSc Mechanical Engineering, University of Manitoba, 1999
- Engineer of the Year finalist, Collins Aerospace, 2024 (3x MEMS chip production output)
- Engineer of the Year semi-finalist, Collins Aerospace, 2014 (automated conformal coat application)