

Evolutions in

Turn-key Integrated Systems

There are few commercial airplanes in the sky today that Electroimpact has not helped build. For over 30 years, Electroimpact has specialized in riveting machines, advanced fiber placement, robotic assembly systems, tooling, spacecraft handling equipment and complete automation solutions for wing panel assembly.

As a Tier 1 supplier to OEMs, our success is enabled by our engineers and our partnerships with high-

quality, reliable and cost-effective suppliers in the local aerospace supply chain.

Until recently, we designed, built, and supported custom standalone automation equipment for our customers. Electroimpact employs a unique model where our engineers work on all aspects of a project from cradle to grave. The scope of work involved in standalone equipment along with the Electroimpact model allowed our engineers to master

every aspect of the design and build of the equipment.

For example, an Electrical Engineer on a riveting machine would draw the full electrical schematic, and then design, build and meticulously wire each and every electrical enclosure and integrated system.

Our engineers' experience and intimate knowledge of our equipment and their processes has allowed us to expand and



take on more responsibilities. Today, our customers commonly ask us to provide turn-key factory installations for entire automated assembly systems.

These complete automated assembly solutions are larger and more complex as they comprise an assortment of machines, robots and flexible tooling that all must seamlessly coordinate with each other and communicate under one integrated control and safety system.

In addition to the increased size and complexity, the complete system is delivered as a single turn-key installation as opposed to being staggered. This change in product scope, requirements and schedule has led to an evolution in our approach to the electrical engineering of a system.

Our new approach focuses our engineering experience on the design, integration and documentation of the system and allows us to partner with local panel build shops for an efficient, high-quality electrical assembly and wiring of our equipment.

We find our partners by touring the many supplier facilities located within one hour of our headquarters in Mukilteo.

When identifying a future partner, we assess whether the supplier is able to build to quality standards defined by Electroimpact and regulatory bodies, be scalable, leverage existing and future build technologies, be cost competitive, and provide feedback and suggestions for us to improve our own processes.



One of our successful partnerships is with a supplier called Process Solutions. Located in Stanwood, WA, Process Solutions has 30 years of experience with electrical panel build, a large staff of wiring technicians and a large assembly space.

Process Solutions builds electrical panels for a number of Electroimpact projects. Electroimpact Electrical Engineers create 3D models of all parts, model their exact mounting locations on the electrical panel and document all corresponding electrical wiring of the panel using SolidWorks Electrical, an innovative new software that integrates 3D modeling and electrical wiring schematics.

Upon completion of the project documentation, the integrated

3D and electrical schematics are electronically transmitted to Process Solutions. To build the electrical panels, Process Solutions machines the electrical enclosure, installs all the parts, and accurately terminates and labels all wiring between parts per the Electroimpact electrical schematic.

Process Solutions then performs a quality inspection before returning a finished electrical panel to Electroimpact to be integrated into the equipment installation. The extensive skilled staff and large assembly space at Process Solutions allows them to handle even the largest systems Electroimpact has undertaken, greatly leveraging our engineering team's experience, which otherwise could get bogged down in the manufacturing effort of building and wiring the electrical panels ourselves.

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Productivity, quality and efficiency are all improved with this partner relationship.

Electroimpact has been able to successfully design and implement full turn-key integrated systems by utilizing our experienced engineers to design, 3D model and document the electrical system, enabling our skilled local supplier base to assemble, build and wire high-quality complicated custom assemblies.

Partnerships with local suppliers, such as Process Solutions, have

enabled us to take on large, full automated assembly system projects while simultaneously improving the quality of our customer delivered equipment and documentation.

This has been such a success that we have begun implementing the same process for our equipment’s pneumatic assemblies and are looking for other areas where we can use our supply chain here in Washington to improve our business. ▲



Dr. Peter Zieve is the founder and owner of Electroimpact, Inc., a respected aerospace assembly automation firm headquartered in Mukilteo, WA. He received his BSEE from MIT in 1976 and his Ph. D. in Mechanical Engineering from the University of Washington in 1986.