



# Large-Scale Systems Integration of Aerospace Assembly

**A**IT has served as the full-scale integrator to some of the world's preeminent Aerospace companies and cutting-edge projects. With more assemblies and automated alignment systems operational worldwide than any other company, AIT has gained vast experience in integrating the various systems required to build aircraft. Our expert coordination equates into a competitive advantage in time to market and cost containment for our Aerospace partners.



**MANDREL ASSEMBLY** » AIT successfully served as Vought's Facility and Systems Integrator for Sections 47/48.

**SUBASSEMBLIES** » Prime Complete Project Integrator for 787 final assembly.

**BODY JOIN ASSEMBLY** » AIT's Systems and Facility Integration proved integral to join the mid- and aft-body sections of the 787.

As a Systems Integrator, AIT brings together the component subsystems into one system and ensures that the subsystems function together as expected as one system. AIT expertise spans a wide variety of aircraft geometries, materials, and technologies – including our portfolio from The Boeing Company, Vought Aircraft Industries, Global Aeronautics, Lockheed Martin, and Airbus España.

The Boeing Company

### 787 Final Assemblies Integrator

As Prime Contractor/Integrator for the final assembly of the composite 787 Dreamliner in Everett, WA, AIT responded with several innovative solutions:

- Two automated assembly systems and a complete automated positioning system, with major subassemblies
- Automated Circumferential Drilling System
- Horizontal Stabilizer/Vertical Fin/ APU Installation Tool

Vought Aircraft Industries

### 787 Integrator Sections 47/48

Not only did AIT work with Vought to design a new factory flow for the 787 in Charleston, SC, but we also served as the Total Project Integrator for the 22-foot wide aft fuselage Sections 47/48. In this context, we defined an entirely new process to build the aircraft in the 342,000-square-foot building – substantially raising the bar in streamlined, economical manufacturing. The new layout included 16 fabrication and assembly cells to accommodate the Section 47/48 mandrel manufacturing process. AIT worked closely with Vought to ensure this mass undertaking was integrated with precision.

Lockheed Martin

### F-35 Joint Strike Fighter Final Assembly System

Our work as Prime Contractor/Integrator on the JSF Final Assembly brought together much of



#### Client Recognition:

AIT has been the Aerospace industry's company of choice when it comes to aircraft assembly systems – with hundreds of systems worldwide.





**LASER-TIGHT ASSEMBLY** AIT's Automated Positioning and Alignment System used laser tracking for precision final assembly of the F-35 JSF.

**SECTION ASSEMBLY** AIT provided Facility Automated Assembly Cell for 45/11 Mate to Sections 43, 44, and 46.

**TOOLING INTEGRATION** As Prime Integrator for Airbus España, AIT delivered turnkey tooling for the A380 rear fuselage.



the core technology developed by AIT over more than a decade. The automated positioning and alignment system incorporated integrated laser tracking to facilitate aircraft structure alignment by locating parts and controlling aircraft geometry. AIT's integration accelerated speed to market and competitive advantage from curtailed cycle and ramp-up times. This was the first project of its kind to be implemented at Lockheed Martin's Fort Worth, TX, facility.

Global Aeronautica

### 787 Systems/Facility Integrator

As their Facility Integrator, AIT worked with Global Aeronautica to design the factory flow of their new 334,000-square-foot building, where they integrate, test, and apply surface finish to more than 60% of the 787 fuselage. As such, AIT served as Facility Integrator for the mid- and aft-body joins assembly lines, which encompassed joined Sections 43, 44, 45/11, 46 with Sections 47/48. The Integrator scope for the assembly line included seven separate positions,

each with individual system integration components and transportation between. In its role, AIT provided turnkey integration, support, capital equipment, and automation for the entire process.

Global Aeronautica

### 787 Dreamliner Integrator Positioning and Assembly Systems

For Global Aeronautica in Charleston, SC, AIT served as Prime Contractor and Integrator to design, fabricate, and install the 787 Dreamliner automated flexible positioning system used to join Section 45/11 mate to Sections 43, 44, and 46. The system automatically measured key positions on the four assemblies to ensure precise alignment.

Airbus España

### A380 Section 19 Alignment and Drilling Project

AIT was chosen to be the Prime Contractor/Integrator to provide turnkey tooling for the assembly of Airbus' A380 rear fuselage, Section 19. For the project, AIT delivered automated flexible alignment and positioning systems and integration. At that time, the Airbus plant, located in Getafe, Spain, manufactured one of the largest primary structure carbon fiber fuselage sections built. The tapered Section 19 is over 32 ft. long and 28 ft. tall at the forward end.

### Technological Pioneer

AIT has been a technological pioneer in automated aircraft assembly, creating many new technologies and bringing them first to market in these and other integration projects:

- Automated positioning and alignment
- Jig-less and gaugeless tooling
- Patented Numerically Controlled Drill Jigs (NCDJs)
- Part-to-part assembly

### About AIT

Advanced Integration Technology (AIT) is a leading industrial automation company delivering turnkey factory integration solutions to the Aerospace industry. Accustomed to managing multiple large, simultaneous, international projects, AIT has served as the full-scale integrator to some of the most prominent Aerospace companies' cutting edge projects. Relying on the strength of our diverse team of engineering pros, AIT has earned a leading position as the predominant turnkey integrator and prime contractor to the world's foremost Aerospace companies – including Airbus, The Boeing Company, Bombardier, Spirit AeroSystems, and Vought Aircraft Industries. Our precision-engineered technology and automation have enhanced the industry's ability to manufacture aircraft in less time and with greater exactness and flexibility. Learn more at [www.aint.com](http://www.aint.com)



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