

Assembly Line

Pratt & Whitney's Horizontal Assembly Line



Overview

Innovative Jet Engine Assembly Line

- First overhead-automated horizontal moving assembly lines for jet engines
- Used for production of PurePower® engine products
- System currently in place in Middletown, Connecticut; West Palm Beach, Florida and Mirabel, Canada
- Higher efficiency manufacturing model to meet production ramp needs

Information Technology Integration

- Seamless information technology data communication regarding part flow, status of engine build, and which customer is acquiring the engine

Vertical Lift and Rotation

- More ergonomic environment
 - Mechanic adjusts engine up and down to their ideal work height
 - Mechanic able to rotate engine 360 degrees to help with difficult to reach areas
 - Ladders and platforms have been fully eliminated
 - There is no perching under the engines, bending, stooping, climbing
- Automated movement
- Electronically integrated with assembly work instructions

Product never leaves the work area, everything needed for the PurePower engine is integrated into the line

The carriage system on the horizontal assembly line is designed to be flexible, meaning it can be used to assemble three PurePower® Geared TurboFan™ (GTF) thrust classes

- Six different engine models: PW1100G-JM, PW1200G, PW1400G, PW1500G, PW1700G, and PW1900G

Lean Manufacturing Methods Applied

- DC electronic torque wrenches, induction heating, wireless toolboxes and computer stations
- Carrier system line allows high visibility for mechanics to see entire operation



Horizontal Assembly Line – Fast Facts

- 1. Engine carriage system on the line weighs:** 12,000lbs
- 2. Lifts:** 12,000lbs
- 3. Carriage system design** can support all current PurePower GTF engines
- 4. Smart monorail** is automated and independent carrier positioning system
- 5. Most ergonomically** designed engine system in existence
- 6. System capacity** - full system capacity can create 500 engines a year
- 7. Fully compliant** with all OSHA suspended load criteria
- 8. Several redundant** safety systems
- 9. Amount of steel used:** 60 tons of support steel
- 10. Length of monorail for assembly line:** Total of all rails together, including bays for dressing engines is 223,190mm (~733 feet), which equates to approximately eight basketball courts

Pratt & Whitney. It's in our power.™

