CLAIMS

What is claimed is:

1. An assembly system for assembling a gas turbine engine comprising:

a support beam defining a horizontal plane for assembly of engine components along a horizontal axis substantially parallel with the support beam;

a forward arm supported on the support beam for supporting a forward portion of an engine component;

an aft arm supported on the support beam for supporting an aft portion of the engine component, wherein the aft arm and the forward arm are each movable between a stowed position substantially parallel with the support beam and a mount position substantially transverse to the support beam;

an aft mounting ring attachable to an aft end of an engine assembly;

a forward mounting ring attachable to a forward end of the engine assembly;

a drive mounted to the aft arm engageable to the aft mounting ring for rotating the engine assembly about the horizontal axis; and

a roller assembly supported on the forward arm and engageable to the forward mounting ring to support the first end of the engine assembly during rotation about the horizontal axis, wherein the forward mounting ring includes a groove receiving a roller of the roller assembly for supporting the forward portion of the engine assembly.

2. The assembly system as recited in claim 1, including at least one additional arm disposed between the forward arm and the aft arm for supporting a portion of the engine assembly.

3. The assembly system as recited in claim 2, wherein the at least one additional arm includes a first arm and a second arm movable vertically relative to the support beam.

4. The assembly system as recited in claim 2, including an end assembly supported on one of the at least one additional arm, the end assembly including a lateral adjustment linkage for aligning an engine component secured thereto in a direction transverse to the horizontal axis.

5. The assembly system as recited in claim 4, wherein the end assembly includes first and second clamps set apart from each other on opposite sides of an engine centerline.

6. The assembly system as recited in claim 3, including a first mount secured to the engine assembly and engageable with the first arm and a second mount secured to the engine assembly and engageable with second arm.

7. The assembly system as recited in claim 1, wherein each of the forward arm and the aft arm are supported on a sliding support movable along the support beam.

8. The assembly system as recited in claim 1, including a motor corresponding with each of the forward arm and the aft arm for driving a linkage to move the corresponding one of the forward arm and the aft arm between the stowed position and the mount position.

9. The assembly system as recited in claim 1, wherein the aft arm is movable about a pivot between the stowed and mount positions.

10. The assembly system as recited in claim 6, wherein the forward arm is movable vertically to adjust spacing between the support beam and the roller.

11. The assembly as recited in claim 1, wherein the aft mounting ring includes locking features engageable to the drive mounted on the aft arm.

12. The assembly system as recited in claim 1, including at least one cart for supporting an engine component relative to the horizontal axis that enables positioning of the supported engine component in at least two directions.

13. A method of assembling a gas turbine engine comprising:

attaching an aft mounting ring to an aft portion of an aft engine section;

attaching a forward mounting ring to a forward portion of a forward engine section;

supporting a first intermediate engine section along a horizontal axis;

attaching the aft engine section to the intermediate engine component;

supporting a portion of the aft engine section along a horizontal axis with a drive supported on an aft arm by attaching the aft mounting ring to the drive, wherein the aft arm is moved from a stowed position substantially parallel with a support beam supporting the aft arm to a mount position substantially transvers to the support beam such that the aft arm is attachable to the aft engine section;

supporting a portion of the forward engine section along the horizontal axis with a roller assembly supported on a forward arm by coupling the roller assembly to the forward mounting ring, wherein the forward mounting ring includes a groove receiving a roller of the roller assembly for supporting the forward portion of the engine assembly;

rotating the aft, first intermediate and forward engine sections about the horizontal axis with the drive supported on the aft arm; and

performing assemble operations on the aft, first intermediate, and forward engine sections.

14. The method as recited in claim 13, wherein the drive comprises a motor driving a gear assembly and the aft mounting ring includes gear teeth engaged by the gear assembly for driving rotation of the aft engine section about the horizontal axis.

15. The method as recited in claim 13, wherein supporting the forward engine section includes inserting the rollers into the groove of the forward mounting ring.

16. The method as recited in claim 14, wherein supporting the first intermediate engine section along the horizontal axis includes fixing a first arm to a first mount attached to the first intermediate engine and a second arm to a second mount attached to the first intermediate engine section.

17. The method as recited in claim 16, including detaching the first arm and the second arm from the corresponding first mount and second mount prior to rotating the aft, first intermediate, and forward engine sections about the horizontal axis.

18. The method as recited in claim 13, including aligning the aft engine section along the horizontal axis with a cart, wherein the cart enables positioning of the aft engine section in at least two axes.