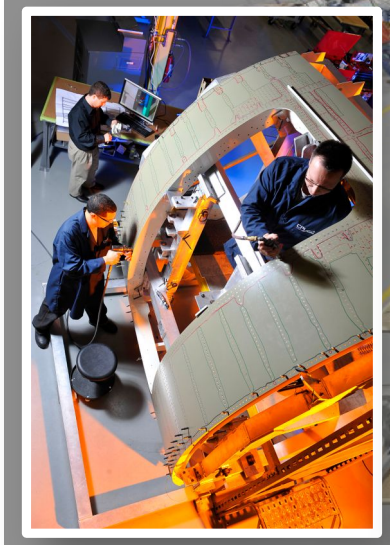
BREAKING THE LEARNING/ DEVELOPMENT CURVE

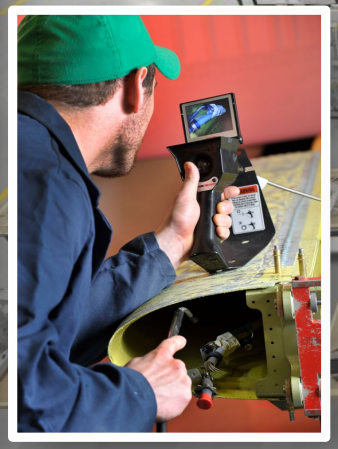
Derick Martin, CPI Aerostructures

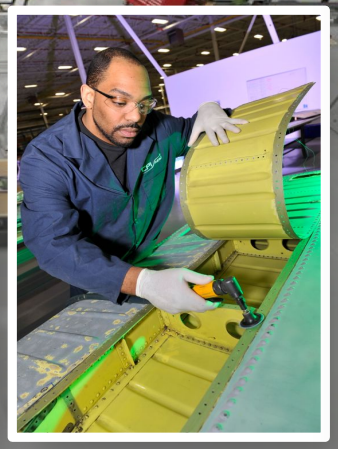
2016 Project Management Symposium

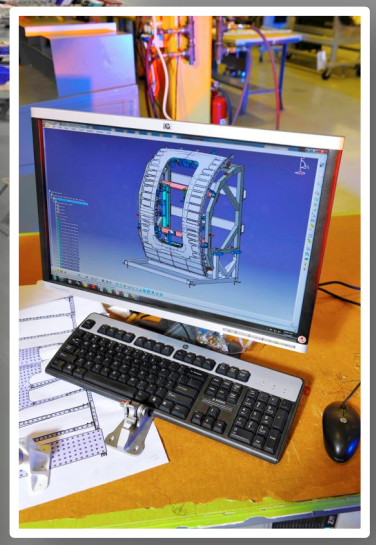
BREAKING THE LEARNING CURVE

Derick Martin ✦ Program Manager ✦ CPI Aero







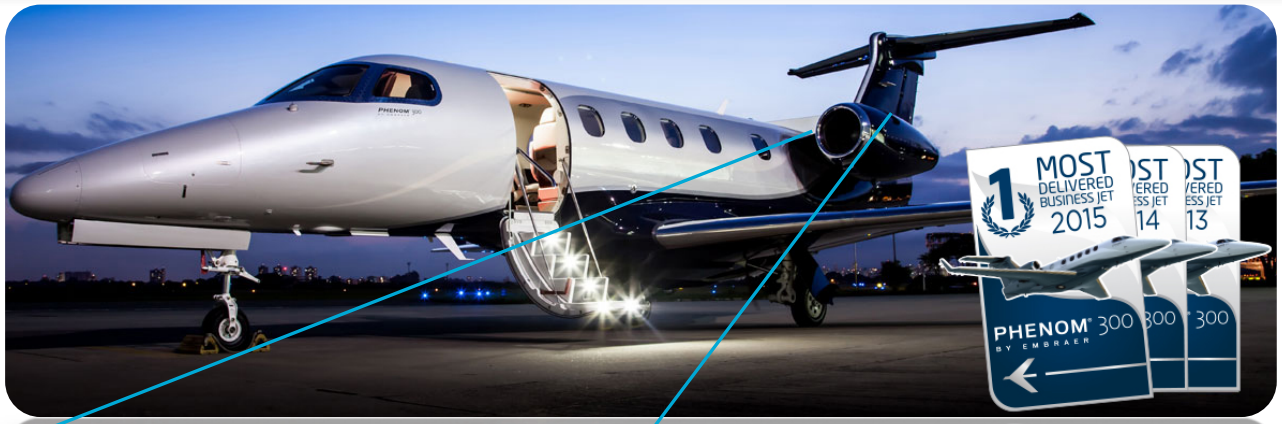


A Premier Supplier of Aircraft Structure

CPI AERO

NYSE MKT: CVU

Phenom 300 Engine Inlet Assemblies



PHENOM® 300
BY EMBRAER

- 6-10 passenger executive jet manufactured by Brazil-based Embraer S.A.
- Best-in-Class for three consecutive years

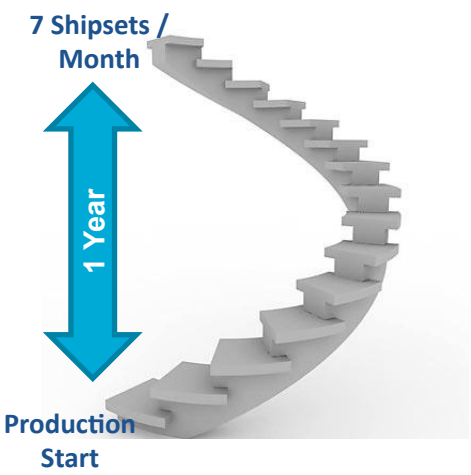
ENGINE INLET ASSMBLIES:

- **Program Management:**
  - Dedicated & specialized program team
- **Supply Chain Management:**
  - Global supply chain of 25 suppliers with unique specialties
- **Planning:**
  - High rate / Constantly evolving program
- **Manufacturing:**
  - Complex, spherical assembly
  - 50 detail components / 40 unique hardware variations
  - Polished lip skin and scoop
- **Quality:**
  - 100% Digital Inspection (CMM)
  - High visual standards

CPI AERO

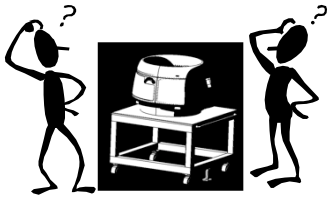
Early Challenges

Steep Ramp Up



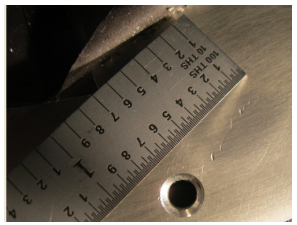
- Sole-source offload from another supplier
- Phenom 300 aircraft in full production cycle
- Unproven manufacturing instructions
- Complex assembly

Poor Communication



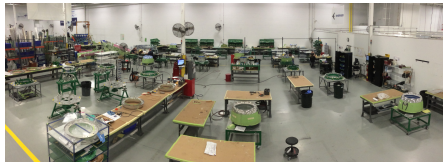
- Expectations difficult to set
- No visual displays
- Results not communicated to manufacturing
- Confusion about responsibilities in IPT

Quality



- Recurring quality issues
- Lost time for rework, re-inspection
- MRB Tags to customer
- Poor confidence level

Rate Tooling / Lean



- 1 set of assembly fixtures insufficient for rate
- Poor Product flow
- Misplaced tooling details
- Misplaced detail parts

Before Plan Implementation

Delivery

- Unable to forecast
- Inconsistent output
- Failure to achieve ramp up milestones

Quality

- Paralyzing, recurring defects
- Root cause difficult / impossible to isolate

Perception

- External
  - Concern: Viability of performance
- Internal
  - Concern: Viability of performance

CPI AERO

Execution of Plan

(The Road to Performance)

- Allowed mechanics to gauge expectations / performance
- "Andon" lights provided feedback on schedule, manpower, quality and constraints
- Performance reflected on weekly basis
- Two-way vehicle for communication

Primary Visual Displays

- Track sheet for isolation tool-related quality issues
  - Filled out by mechanic at point of use
  - Allowed quality engineer to isolate which tools are yielding defects

Quality Tools

Jan 2014

Feb 2014

Jun 2014

2015 & Beyond

- Closer collaboration with Embraer
- Empowered IPT Team
- Divided mechanics into two groups
  - LH Inlets VS. RH Inlets
  - Encouraged friendly competition
  - Drove results

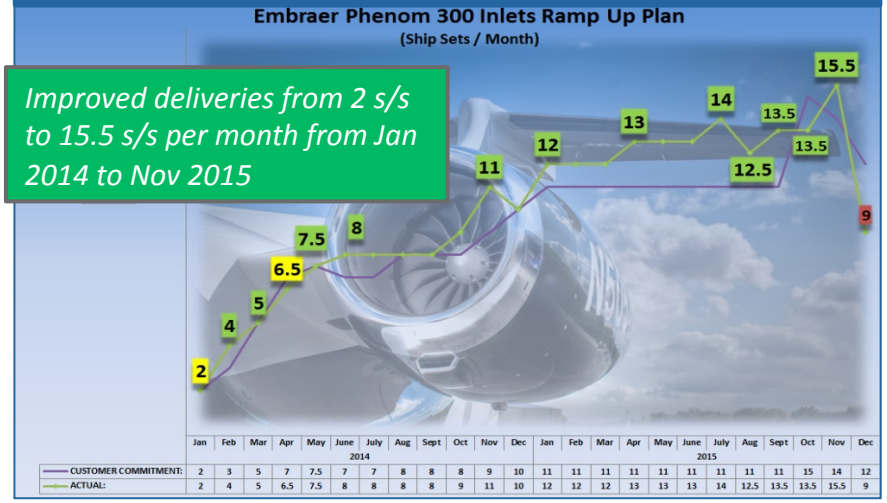
Teaming Efforts

- Sharing successes encourages performance
  - Banners
  - Shirts
  - Breakfasts
  - **Employee Recognition**

Sharing of Successes

Results

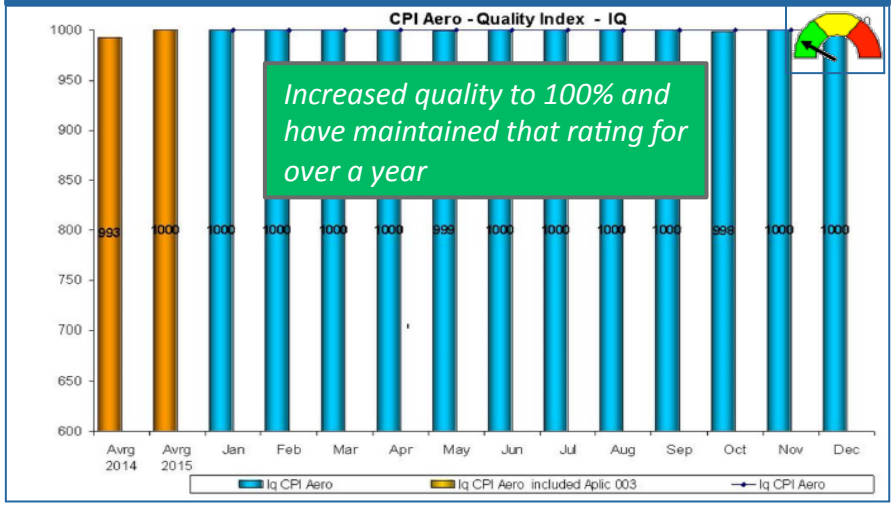
Ramp Up



	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
	2014												2015											
CUSTOMER COMMITMENT:	2	3	5	7	7.5	7	7	8	8	8	9	10	11	11	11	11	11	11	11	11	11	15	14	12
ACTUAL:	2	4	5	6.5	7.5	8	8	8	8	9	11	10	12	12	12	13	13	13	14	12.5	13.5	13.5	15.5	9

Improved deliveries from 2 s/s to 15.5 s/s per month from Jan 2014 to Nov 2015

Quality



Increased quality to 100% and have maintained that rating for over a year

Sharing Successes

Increased morale in the program and manufacturing teams

Customer Feedback – June 2015

"Since the onset of the program, CPI entered into Embraer's business looking for a long term relationship and has demonstrated over the years what Embraer strives for in its supply chain.

Committed to results, communication, relationship and quality to product, CPI Aero shows willingness to be one of the best suppliers for Embraer.

The shared values between the companies generates value to the business, as any challenge taken in place is overcome with team work and collaboration."

-Embraer Supply Chain Team

Restored customer confidence in CPI Aero's abilities to perform and adjust to a high-rate, dynamic program


CPI
AERO