Manufacturing (Code FM) Overview
July 28, 2014

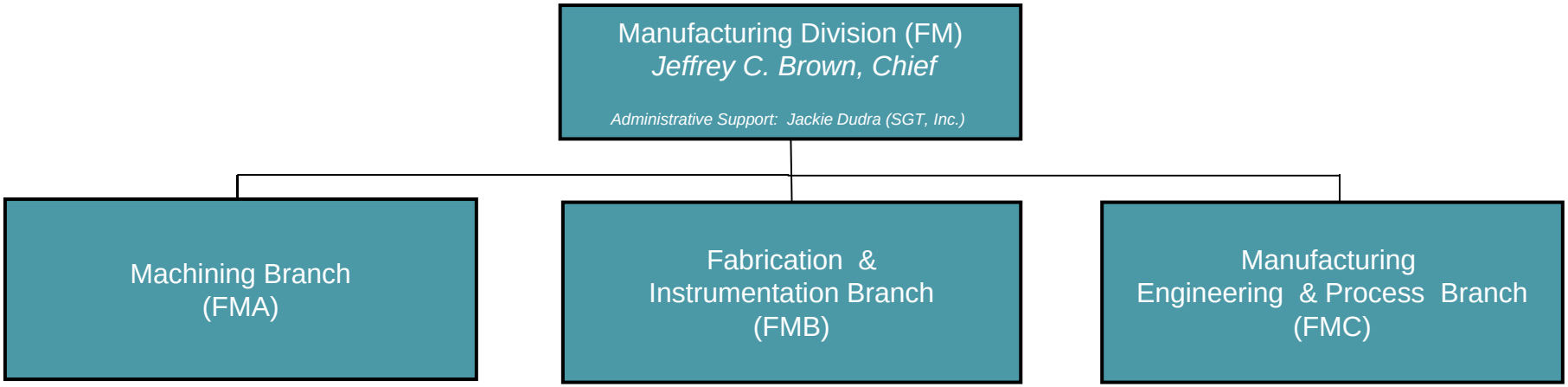
Agenda

- Snapshot of Manufacturing
- Questions
- Tour

Our Elevator Speech

- The manufacture of all hardware for projects at Glenn Research Center's Lewis Field and Plum Brook Station is the responsibility of the Manufacturing Division.
- We produce parts, assemblies, and systems from raw material and commercial components using the disciplines and techniques of machining, fabrication, and instrumentation.
- The manufacturing facility consists of a single 50,000 square foot building organized into areas for each discipline. We have 160 machine tools, and a combined civil service and contractor staff of 25 shop floor technicians, and 20 engineers, manufacturing specialists, and supervisors.
- We perform over 300 tasks per year, from a few hours for break fix, to thousands of hours for flight hardware.

GRC Manufacturing Division/Code FM



What's Our Vision?

THE WORLD ACCORDING TO US

- *The GRC Manufacturing Division will be the Agency model for providing high quality, cost effective, and customer valued products and services which enable the success of NASA projects. We do this by paying strict attention to quality assurance, customer satisfaction, and the well-being of our workforce.*
- Our organization is built around our top 3 priorities:
  - quality assurance
  - customer satisfaction
  - the well-being of our workforce
- And our top 3 success factors:
  - High quality products and services
  - Cost effective products and services
  - Customer perceived value

What's Our Mission?

HOW WE WORK OUR MAGIC

- The GRC Manufacturing Division provides services from ordinary to NASA-unique with a focus on quality, value, customer satisfaction, and employee well-being.
  - We supply a full range of manufacturing and fabrication procurement services to satisfy customers needing everything from a quick turnaround task to thousands of hours of flight hardware development.
  - We develop efficient processes and sources of supply to quickly and economically produce manufactured parts, assemblies, and systems.
  - We develop and maintain working partnerships with other NASA Centers and private industry.
  - We pursue continuous improvement in technical skills, operations, and organizational behavior

Manufacturing Division Snapshot

- The manufacturing division produces hardware for flight and ground test, aeronautics test facilities, and research projects, at Lewis Field and Plum Brook Station
- We do this with:
  - 18 CS and 9 WYE technicians (incl. apprentices)
  - 2 WYE machine repair technicians
  - 6 CS and 2 WYE manufacturing engineers
  - 2 CS manufacturing operations specialists
  - 2 CS manufacturing procurement specialists
  - 1 WYE scheduler, 1 WYE admin, 1 WYE crib attendant
  - 4 CS supervisors (DC, 3 BC)
- In FY13 we:
  - Completed 313 tasks with 36,077 floor hours (171 were QT)
  - Procured $700K in outside fab services (commercial & Fab Alliance)
- Our facility:
  - 50,000 square feet
  - >180 machine tools, replacement cost $14.2M

Glenn Research Center - Manufacturing Competencies/Capabilities

Machining

- CNC Turning and Milling
- Ultra Precision Machining
- Wire, Die Sink, and Micro EDM

Services

- Manufacturing Engineering
- Assembly & Inspection
- Flight Hardware Development
- Art-To-Part with CAD

Glenn Research Center is ISO9001/AS9100 Rev C Certified

Fabrication

- Abrasive Water Jet Cutting
- Welding and Plasma Cutting
- Sheet Metal Fabrication
- Rolling to 10 ft. Wide

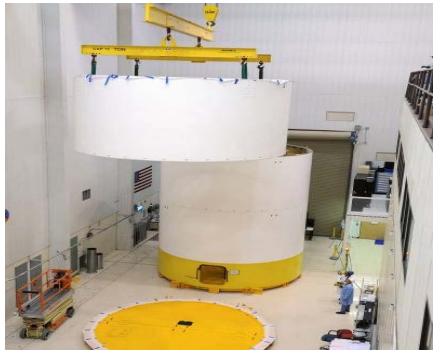
Instrumentation

- Intricate Custom Installations
- Electron Beam Welding
- Laser Welding & Cutting
- Micro Brazing

Avionics

- Flight qualified technicians
- Custom Card, Cable and Harness Fabrication
- Partnership with FT

SCaN Testbed Flight Hardware



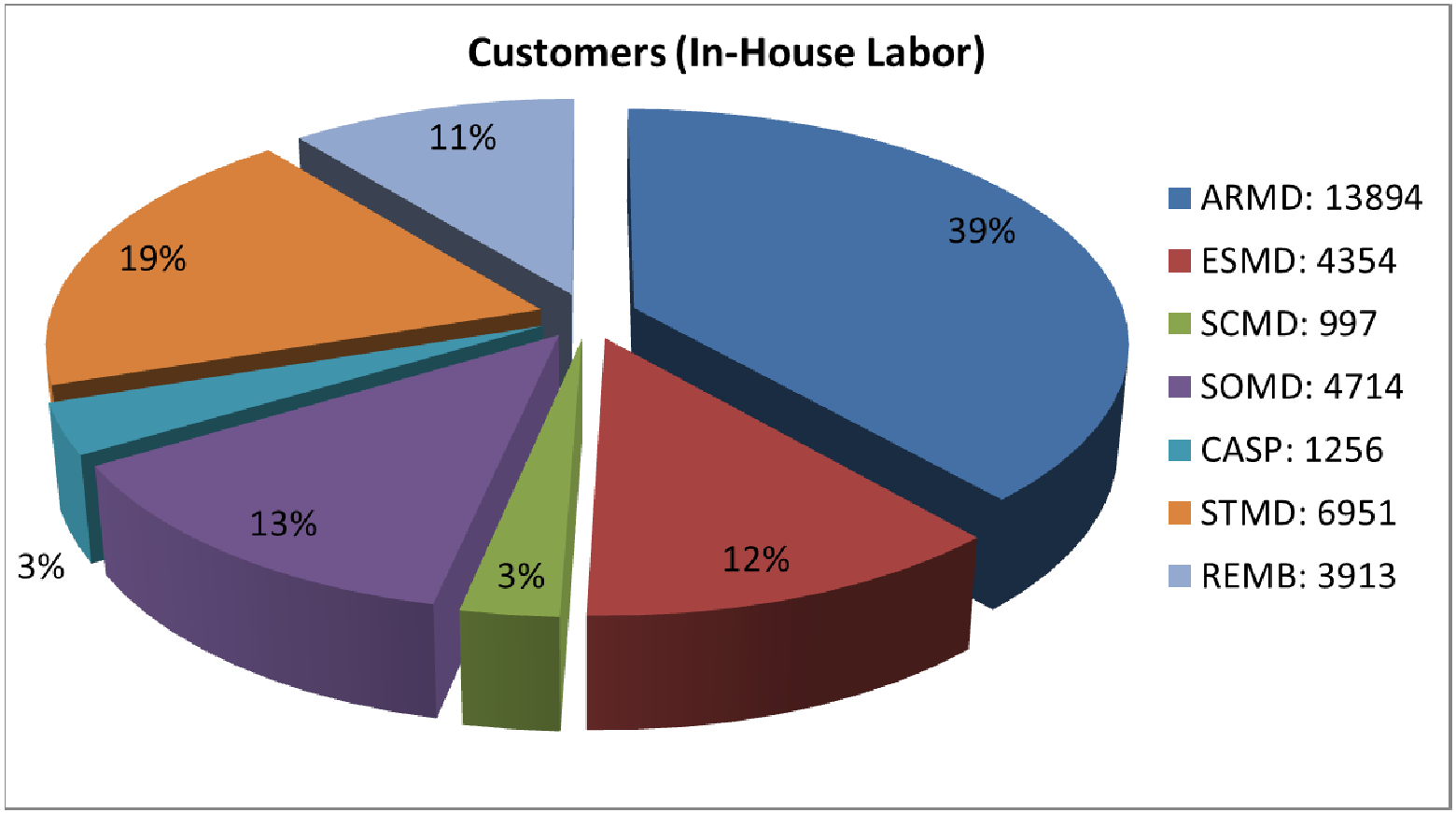
Ares Super Segment

Round to Rect. (Nozzle)

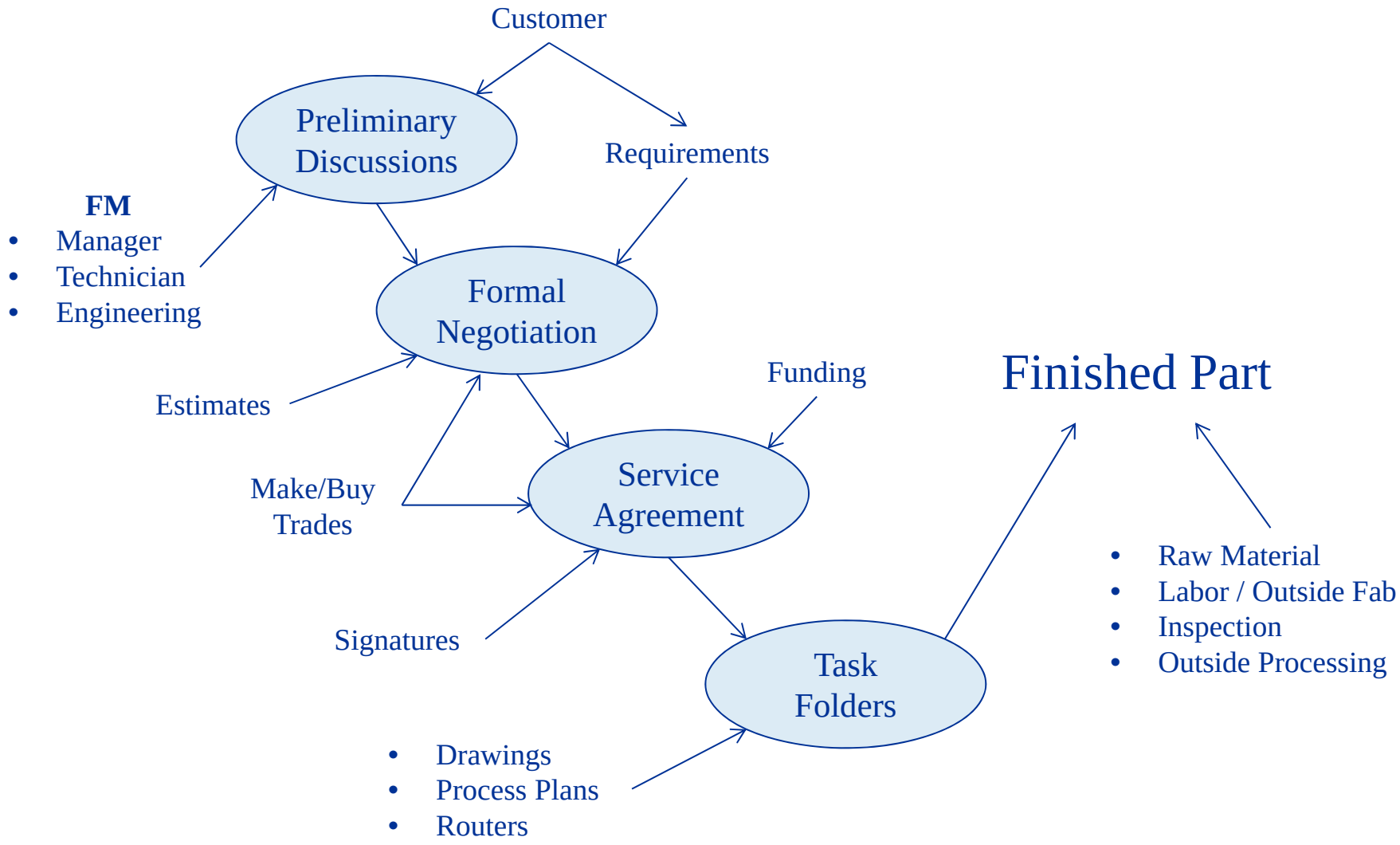
Instrumented Aero Hardware

Our Customers

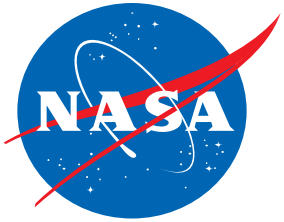
- In FY 13: 36077 hours
- In FY 14 expect 40787 hours



Workflow from 50k Ft



TOUR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