



# LESSONS LEARNED: COMBINING SPACEFLIGHT TRAINING AND MISSION CONTROL

Flight Control Operations  
*Young Professionals Virtual Forum*  
63<sup>rd</sup> International Astronautical Congress  
Naples, Italy  
October 1, 2012



# Outline

- ◎ Background
  - Previous organization of training and flight operations
- ◎ Overview
  - Brief description of the re-organization
- ◎ Impacts of re-organization
- ◎ Lessons Learned
- ◎ Conclusion



# Background

- ◎ Previous organization
  - Division for spaceflight training
  - Division for flight operations
- ◎ Merger combined two divisions into one
  - Expedition Vehicle Division
- ◎ Resulted from in depth study of other training programs
  - Learn by doing before teaching
- ◎ Two major changes simultaneously
  - Combine training and flight control
  - Decrease number of technical disciplines
    - Operator-Specialist-Instructor

# Reorganization: Administrative

- ⦿ Staggered merger
  - Not all groups were mandated to converge simultaneously
- ⦿ Senior instructors and flight controllers involved in management decisions
- ⦿ Groups merged step-by-step
  - Combine physically
  - Operate as two distinct groups initially
  - Eventually work together when creating simulation plans, for example



# Reorganization: Technical

- ⦿ Senior members create cross training flow
  - Existing instructors and flight controllers
  - Operator training
    - Mini-sims
  - Specialist and Instructor flow
- ⦿ Staggered cross training
  - Management assigned personnel to enter appropriate cross training flow
  - Balance merger with existing duties
    - Mission Control, current crew training, office tasks, etc

# Reorganization: Today

- ⦿ Merger continues today with marked success in cross training
  - CRONUS group name and patch to reflect new group (formerly C&T/CATO and CDH/ODIN)
  - 8 instructors cross trained in last year
  - 4 flight controllers cross trained
- ⦿ Significant milestones reached most recently, in the last year

# Impacts

- Existing Employees
  - Training flow for flight controllers to instructors
  - Training flow for instructor to flight controller
  - Development parallel to maintaining current operations
    - Real time mission control support
    - Current crew training for existing missions
- New Employees
  - Training flow for Operator, Specialist, and Instructor
  - Created by existing employees in tandem with above duties



# Lessons Learned

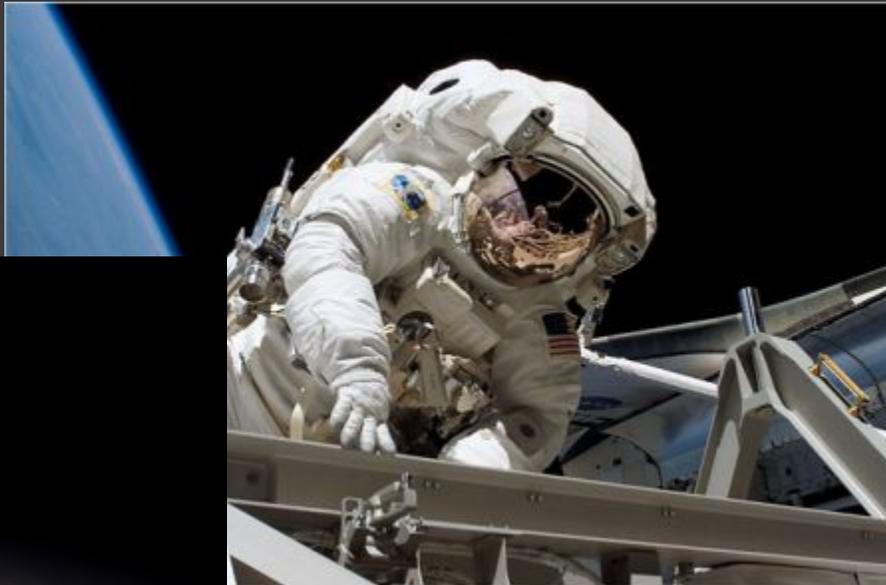
- ⦿ Staggered Merger
  - Workload still intense across new division
  - Lesson Learned: Better employee preparation
- ⦿ Resistance to Change
  - Some employees resisted cross training
  - Most were able to adjust and enjoyed new experience
  - Lesson Learned: Human nature is to resist change but the majority will support a good change
- ⦿ Simultaneous changes
  - ⦿ Combining training and flight control
  - ⦿ Decreasing number of technical disciplines
  - ⦿ Lesson Learned: Integrate changes serially
- ⦿ Mission Benefit
  - Cross trained instructors: Train crew and work real time for same mission
  - Lesson learned: Theory behind merger works in action
    - Experience in real time mission control makes a better instructor
    - Experience in teaching makes a better flight controller

# Conclusion

- Merger required intense collaboration
- Employee resistance expected but largely overcome
  - Senior and high profile employees key in positive atmosphere
- Staggered merger key in success
- Patience and time keys in success
  - Merger still ongoing



# Q&A



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