

ORBITAL COMMERCE PROJECT



**Adhering to the FAA Guidelines
for RLV Flight Crew Training**



Guidelines for Commercial Suborbital RLV Operations with Flight Crew

- RLV Pilot
 - FAA pilot certificate
 - Rated to operate aircraft with similar characteristics for as many phases of the mission as practicable.
- RLV Flight Crew
 - FAA 2nd-class medical certificate.



Guidelines for Commercial Suborbital RLV Operations with Flight Crew

- RLV Flight Crew
 - Each member of an RLV flight crew should be trained to operate the vehicle so that it will not harm the public.
 - RLV flight crew should receive vehicle and mission-specific training to cover all phases of flight including nominal and non-nominal flight conditions.



Guidelines for Commercial Suborbital RLV Operations with Flight Crew

- RLV Flight Crew
 - The training program should include training in each control and/or propulsion mode
 - The training program should be continually updated
 - The RLV operator should document the training completed by each member of the flight crew



Cost

- Training aids
 - Build and/or purchase
 - Use existing equipment
 - Wear and tear
 - Equipment is unavailable for core business or underutilized.
 - Non-nominal situations



Cyberdome flight simulator

Courtesy Cyberdome



Cost

- Time
 - Diverting of personnel
 - Disruption to schedules
 - Delay to market
 - Wasted on washouts
 - Dealing with the FAA





Solution

- Spaceflight school
 - Based on CFR part 141
 - Minimum personnel requirements
 - Aircraft and facility requirements
 - Detailed course outline
 - Documenting each student's progress
 - Operates under strict rules
 - Maintain a high student pass ratio



Benefit

- Cost
 - Capital costs passed on to school
 - Use when needed
 - Wear and tear on equipment is reduced





Benefit

- Time
 - Only qualified candidates
 - Documentation
 - Disruptions to core business is eliminated
 - Quicker to market
- Liability is shared with the school



Example

- OCP
 - Working with FAA to become certified
 - Operations similar to “part 141” schools
 - Horizontal take off vehicles
 - Initially two courses
 - Suborbital pilot
 - Payload specialist



OCP

- Flight time
 - Different modes simulated by different vehicles
 - Piston powered
 - Rocket Trainer
 - Suborbital Vehicle
 - Cost efficient



XCOR Aerospace's EZ-Rocket

Courtesy XCOR Aerospace



OCP

- Training devices
 - Nominal & Non-nominal
 - Centrifuge
 - Hypobaric chamber
 - Flight simulators
 - Ejection system simulator



G-LAB Human Centrifuge

Courtesy ETC



OCP

- Documentation
 - Available online
 - Meets all FAA regulations
 - Convenient
 - Proof flight crew was trained properly





ORBITAL COMMERCE PROJECT

More Information

- Orbital Commerce Project, Inc. (OCP)
 - www.orbitalcommerceproject.com
 - Phone: 407-579-7783
- References:
 - XCOR Aerospace www.xcor.com
 - Cyberdome www.cyberdome.com
 - Environment Tectonics Corporation (ETC)
www.etcusa.com