



X PRIZE Team Summary Sheet INTERORBITAL SYSTEMS



All the information given in this document has been cleared for official release by the X PRIZE Foundation Interorbital Systems (IOS). Quotes provided by IOS are shown in *italics*. For more information about IOS, please visit their web site at www.interorbital.com.

TEAM OVERVIEW



Interorbital Systems (IOS), founded in 1996, is a privately funded aerospace corporation based in Mojave, California. The company develops, manufactures, and tests liquid rocket engines, space launch vehicles, and spacecraft. In addition, IOS provides end-to-end space launch services for its own vehicles. IOS is presently engaged in the development of its Neptune-Solaris Orbital Spaceliner, a two-stage manned orbital launch vehicle. The orbiter stage in this configuration, the Solaris X rocket plane, is the company's X Prize entry. Solaris X will become the flagship of IOS' future suborbital space tourism operations. The Interorbital Systems team possesses a broad cross-industry experience base, ranging from the academic disciplines of design, simulation, and analysis, to the hands-on skills of rocket prototyping, construction, and launch.

TEAM LEADERS BACKGROUND



Roderick Milliron is IOS' Rocket Systems Engineer, Chief Scientist, and President. With over twenty years of aerospace experience, Mr. Milliron is an expert in the design of liquid rocket engines, propellant delivery hardware, and rocket steering systems. He is also responsible for the complete launch vehicle design specifications.

Randa Relich Milliron is the IOS Chief Executive Officer. Ms. Milliron is in charge of all IOS rocket hardware component testing, as well as the coordination of promotion, sales and marketing. Randa also handles regulatory, export, and launch licensing matters with the FAA, AST (Office of Commercial Space Transportation), and State Department.



DATA AT-A-GLANCE

TEAM SPECIFICATIONS

Name: Interorbital Systems
 Leaders: Roderick and Randa Milliron
 Place: Mojave, California, USA
 Registered with X PRIZE: 16 January 2003
 Web: www.interorbital.com

VEHICLE SPECIFICATIONS

Name: Solaris X
 Wingspan/Body Diameter: Proprietary
 Height: Proprietary
 GTOW: Proprietary
 Dry Weight: Proprietary
 Crew Environment: Proprietary
 No. of Engines: Proprietary
 Propulsion System: Single Stage, Liquid Propellants
 Fuel: Proprietary
 Oxidizer: Proprietary
 Total Thrust: Proprietary
 Reaction Control System: Proprietary

MISSION SPECIFICATIONS

Launch Site: Proprietary
 Ascent Method: Vertical Takeoff
 Max. Accel. Force on Ascent: Proprietary
 Altitude at Engine Cut-off: Proprietary
 Time at Engine Cut-off: Proprietary
 Max. Speed: Proprietary
 Max. Altitude: Proprietary
 Time in Weightless Conditions: Proprietary
 Reentry Method: Proprietary
 Accel. Forces on Descent: Proprietary
 Landing Method: Horizontal Landing
 Total Duration: 25 Minutes
 Landing Distance from Take-off Location: Proprietary
 Time Between Missions: 7 Days



VEHICLE/LAUNCH SYSTEM DESCRIPTION

The IOS X PRIZE vehicle is designated Solaris X. It is a single stage vehicle using liquid propellants. All other details of the launcher are proprietary at this time.

PROPULSION SYSTEM

Information concerning the propulsion system is proprietary at this time.

MISSION DESCRIPTION

The rocket plane takes off vertically and lands horizontally. Other details of the mission are proprietary at this time.

HARDWARE & TESTS

Hardware tests include main engine components, steering system, ACS, inertial guidance, and telemetry.

PUBLICITY

PERSONAL APPEARANCES

- Space Frontier Foundation 1999-2002 Speakers
- Space Access 2002, Speakers
- Pasadena Art Center College of Design, Guest Lecturers, "Digital Dialogues" Series
- Return to the Moon Speakers 2002
- CSDC Bakersfield
- Vandenberg Space Day
- International Liquid Propulsion Symposium, JPL
- Numerous other appearances at educational institutions and conferences

TELEVISION AND RADIO

- The Space Show with David Livingston
- CNN Moneyline
- Art Bell (two appearances)
- Australian Radio
- PBS (All Things Considered)
- Planet (French Discovery Channel)
- Tech TV
- Inside Space (Science Fiction Channel)
- Beyond 2000 (Discovery)
- Real TV
- Next Step (Discovery Channel)

- Paul Garson (Cyberradiotv)

PRINT MEDIA

- Fortune
- Scientific American
- Independent On Sunday (British Newspaper)
- Matangi Tonga (Magazine)
- Blue (Magazine)
- Travel and Leisure (Magazine)
- Details (Magazine)
- Space News (Industry Periodical)
- Aero-News.net
- Los Angeles Daily News
- Aerotech News (Industry Periodical)
- Final Frontier (Magazine)
- CNN.com
- UniverseToday.com
- SpaceDaily.com
- CAUS.com

TEAM BACKGROUND

TEAM MEMBERS

Eric Gullichsen: Guidance and Control, Telemetry

Dave Silsbee: Electronics Hardware Engineer

David Miller: Software Engineer

Andre Lavoie, PhD.: Stress Analyst

Max Pinkerton: Avionics Specialist

Wally Funk: Rocket Pilot

X PRIZE QUOTE

"The X Prize is 'High Noon' for the new commercial space movement. It provides a very public venue for companies to prove the worth of their space launch systems. It's a technology shoot-out, from which only those with pure focus and true scientific talent will emerge victorious"

– Randa Milliron

PHILOSOPHY

"Interorbital Systems follows the philosophies of minimum cost design and of complete self-reliance in developing and manufacturing its rocket engines and space launch vehicles. We use proven rocket technology and update it with microelectronics and modern materials, employing standard manufacturing methods whenever possible. All engines and vehicle components, including software and guidance, are produced in-house. By remaining



completely independent, we have the power to bring the cost of space launch down”

– Roderick Milliron

MISSION AND GOALS

“We intend to begin suborbital manned space flight services with our X Prize flights. These suborbital launches are a prelude to the establishment of our orbital and lunar transportation systems. Interorbital Systems’ goal is to carry both cargo and humans between Earth and Moon and eventually to the rest of the Solar System.”

– Randa Milliron

X PRIZE FOUNDATION

Below is contact information for the X PRIZE Foundation.

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