

X PRIZE TEAM TESTING CHRONOLOGY

The following is a chronology of testing milestones achieved by the X PRIZE teams. Items are listed chronologically by year and quarter, with dates (exact or approximate) given in parentheses after the testing milestone description. Items denoted with an X PRIZE logo (X) instead of a bullet are indications of X PRIZE launch attempts.

1997

Q1

- Starchaser Industries (Hyde, England, UK) successfully launches LEXX vehicle. (7 Feb)

1998

Q1

- Kelly Space & Technology (San Bernardino, CA, USA) successfully demonstrates vehicle towing. (Feb)
- Starchaser Industries (Hyde, England, UK) unsuccessfully launches Starchaser 3 vehicle. (20 March)

Q2

- Bristol Spaceplanes (Bristol, England, UK) successfully flight tests radio controlled development model. (15 May)

Q4

- Scaled Composites (Mojave, California, USA) rolls out and tests Proteus aircraft. (Fall)

1999

Q1

- The da Vinci Project (Toronto, Ontario, Canada) successfully tests single engine propulsion system. (15 Jan)
- Starchaser Industries (Hyde, England, UK) successfully launches TEMPEST vehicle. (5 Mar)

Q3

- Advent Launch Systems (Houston, Texas, USA) successfully tests aerodynamic engineering prototype model. (17 July)
- Starchaser Industries (Hyde, England, UK) successfully launches Starchaser 3a vehicle. (20 Aug)

2000

Q3

- Pablo de León (Buenos Aires, Argentina) performs sub-scale, hot fire, hybrid rocket engine tests. (August)

2001

Q1

- Advent Launch Systems (Houston, Texas, USA) completes construction of full-scale propulsion system. (3 Jan)
- The da Vinci Project (Toronto, Ontario, Canada) successfully tests double engine propulsion system configuration. (9 March)
- Pablo de León (Buenos Aires, Argentina) performs a capsule drop test out of a Hercules C-130 aircraft from 54,000 feet. (March)

Q2

- Starchaser Industries (Hyde, England, UK) successfully launches SHARP 1 vehicle. (2 May)
- ARCA (Ramnicu Valcea, Romania) successfully performs pressurization tests of fuel and oxidizer tanks, achieving maximum pressures of 30 bars. (June)

Q3

- Starchaser Industries (Hyde, England, UK) successfully launches Discovery vehicle. (6 July)

Q4

- Starchaser Industries (Hyde, England, UK) successfully launches 1-man NOVA vehicle unmanned. (22 Nov)

2002

Q2

- Canadian Arrow (London, Ontario, Canada) displays full-scale rocket mock-up in New York City's Rockefeller Center. (25 April)
- Starchaser Industries (Hyde, England, UK) successfully launches SHARP 4 and SHARP 5 investigating fairing thermal loads. (14 April)
- Pablo de León (Buenos Aires, Argentina) performs second capsule drop test from 96,000 feet. (May)
- ARCA (Ramnicu Valcea, Romania) completed rocket engine test stand construction and cold flow calibration tests. Series of successful hot-fire tests accomplished. (May)

Q3

- Canadian Arrow (London, Ontario, Canada) successfully hot fire tests first stage propulsion system injector cup. (20 July)
- Armadillo Aerospace (Mesquite, Texas, USA) successfully flight tests manned lander vehicle. (28 Sept)

Q4

- Canadian Arrow (London, Ontario, Canada) rocket engine test stand complete. (5 Oct)
- Starchaser Industries (Hyde, England, UK) tests X PRIZE vehicle hybrid and liquid propulsion systems. (8 Oct)
- Armadillo Aerospace (Mesquite, Texas, USA) unsuccessfully tests flight of their tube rocket. (16 Nov)
- Starchaser Industries (Hyde, England, UK) undergoes parafoil pilot training in Florida. (16 Dec)

2003 (January - September)

Q1

- Armadillo Aerospace (Mesquite, Texas, USA) performed full-scale drop tests of their crushable nose cone. (16 Feb)
- Armadillo Aerospace (Mesquite, Texas, USA) performed their second and third full-scale drop tests of their crushable nose cone. The third test was manned. Both tests were considered successful. (11 March)
- Armadillo Aerospace (Mesquite, Texas, USA) performed suspended hover tests of their sub-scale (two foot diameter) vehicle. Problems with electronic components and flight control software caused early termination of the tests. (15 March)

Q2

- Starchaser Industries (Hyde, England, UK) publicly unveiled the Nova mark II capsule in the UK. (3 April)
- Starchaser Industries (Hyde, England, UK) successfully tested a bi-propellant liquid rocket engine. "The liquid oxygen/kerosene powered system generated some 2,200 kilos [4.84 Klbf] of thrust for 15 seconds." The tests will continue for increasingly longer periods and will eventually reach "a full 3 tonnes of thrust". (9 April)
- Starchaser Industries (Hyde, England, UK) publicly unveils the Nova mark II capsule in Florida. The parachutes will be fitted in Florida before shipping the capsule over to Arizona for drop tests. (10-17 April)
- Scaled Composites (Mojave, California, USA) rolls out their X PRIZE vehicle, the "White Knight" and "SpaceShipOne." (18 April)
- Pablo de León (Buenos Aires, Argentina) tested his vehicle's life support systems, pressure suit, and environment controls using several high altitude glider flights to 30,000 feet using their space suit system. The suit also underwent several thermal tests in a cold chamber (-35 Centigrade) and external temperatures were sustained for more than 2 hours. (16 May)
- Scaled Composites (Mojave, California, USA) performs first captive carry flight test with mated White Knight and SpaceShipOne. (20 May)
- Starchaser Industries (Hyde, England, UK) successfully tested their bi-propellant liquid rocket engine at 2,800 kilos [6.2 Klbf] of thrust for 15 seconds. (10 June)
- Pablo de León (100 miles south of Buenos Aires, Argentina) attempts flight test of half-scale X PRIZE vehicle, but an explosion caused destruction of the vehicle before launch. (11 June)
- Advent Launch Systems (Houston, Texas, USA) performed a hot fire testing their propulsion system. Combustion downstream of the nozzle throat resulted in an explosion that did not destroy the vehicle, but caused damage to the nozzle and feed system. (13 June)

Q3

- Scaled Composites (Mojave, California, USA) performs second captive carry flight test with mated White Knight and SpaceShipOne. This time, SS1 was manned and most systems active. (3 July)
- Armadillo Aerospace (Mesquite, Texas, USA) performs a successful full-scale drop tests of their X PRIZE vehicle from a helicopter to test the crushable nosecone system. (5 July)

- Starchaser Industries (Hyde, England, UK) conducted two manned capsule drop tests from a C-123K transport aircraft at an altitude of 14,000 feet over the Red Lake Drop Zone in Kingman, Arizona, in order to practice landing the reusable craft. The main purpose of the tests was to ensure that the parachute, navigation, and landing systems function properly. (22 and 24 July)
- Scaled Composites (Mojave, California, USA) successfully performs first glide test of SpaceShipOne. (12 August)
- Scaled Composites (Mojave, California, USA) successfully performs second glide test of SpaceShipOne, including test of re-entry (“feathered”) flight configuration. (27 August)
- Micro-Space (Denver, Colorado, USA) conducted flight testing of their low thrust, liquid fuel launch system for the 6th and 7th times. Ground support and launch systems have been perfected. (20 and 21 September)

OUTLOOK FOR REMAINDER OF 2003 (Oct. - December)

- Canadian Arrow (London, Ontario, Canada) plans to conduct a cold flow and short duration (2.5 sec), full thrust, hot firing of 57,000 pound thrust engine.
- Canadian Arrow (London, Ontario, Canada) later plans for full-duration, full-thrust, hot-fire engine tests of the V2 engine.
- ✕ Canadian Arrow (London, Ontario, Canada) in their November 2002 news conference press release announcing their search for astronaut candidates, states “In the summer of 2003, the Canadian Arrow will attempt to capture the prestigious \$10 million X PRIZE.”
- ✕ The da Vinci Project (Toronto, Ontario, Canada) in an on-line news article dated 18 December 2002 in the Town Crier, make the following announcement: “Feeney has now applied for launch approval, and once the application (with about 1,000 pages of support material) is complete Feeney’s group will be looking at launching at the end of summer 2003. The group will launch the da Vinci rocket from an old military range outside of Moose Jaw, Sask.”
- IL Aerospace Technologies (Zichron Ya’akov, Israel) plans to perform their first unmanned test flight of 1/3 scale model to test balloon and recovery systems.
- Micro-Space (Denver, Colorado, USA) will conduct flight tests of higher thrust motors using the same airframe and tank structures as used in previous tests.
- Scaled Composites (Mojave, California, USA) performs second glide test of SpaceShipOne, testing “feathered” flight. (?)
- Scaled Composites (Mojave, California, USA) performs first rocket powered flight test of SpaceShipOne, lighting the rocket engines for ?? seconds. (?)
- Scaled Composites (Mojave, California, USA) performs second rocket powered flight test of SpaceShipOne, lighting the rocket engines for ?? seconds. (?)
- Scaled Composites (Mojave, California, USA) performs third rocket powered flight test of SpaceShipOne, lighting the rocket engines for ?? seconds. (?)
- ✕ Scaled Composites (Mojave, California, USA) leader, Burt Rutan, is quoted in a 21 April 2003 Aviation Week and Space Technology article “Affordable Spaceship” by Michael Dornheim, as stating “I would like to do a manned spaceflight before the Wright Brothers’ anniversary.” (The centennial anniversary of the Wright Brothers’ first flight is 17 December 2003.)

OUTLOOK FOR 2004

- ✧ Armadillo Aerospace (Mesquite, Texas, USA) is quoted in a Space.com on-line article dated 2 October 2002 as saying “We fully expect to fly an X Prize class vehicle by the end of 2004.”
- IL Aerospace Technologies (Zichron Ya’akov, Israel) plans to perform their second unmanned test flight of a pressurized 1/3 scale model to environmental conditions at high altitude.
- IL Aerospace Technologies (Zichron Ya’akov, Israel) plans to perform their first manned test flight to the edge of the stratosphere to test maneuvering thrusters, navigation, and communication equipment.
- ✧ Starchaser Industries (Hyde, England, UK) plans to perform full scale flight tests of their X PRIZE vehicle, culminating in X PRIZE flight attempts.

OUTLOOK FOR 2005

- IL Aerospace Technologies (Zichron Ya’akov, Israel) plans to perform their third unmanned test flight with fully configured vehicle and first firing of rocket engine at altitude via remote control. Parachute system will be fully tested and qualified.
- ✧ IL Aerospace Technologies (Zichron Ya’akov, Israel) plans to perform their second manned test flight and first official attempt to win the X PRIZE.