ZanTar-Cheetah
Transportation Technologies Ltd.

Icarus Micro-Shuttle
(converted Boeing X-37B)

Required Addons

ZTC-Daedalus-beta-V1.5 (by n0mad23)
http://www.orbithangar.com/searchid.php?ID=5377

Velcro Rockets v1.1 (by Sputnik)
http://www.orbithangar.com/searchid.php?ID=3388

(For most included scenarios)
Cayenne Rochambeau Airport (by Papyref and Jacquesmomo
http://www.orbiterfrancophone.com/index.php?disp=addons&id=89

(For future tether-sling building scenarios)
UMMUFA (by computerex)
http://www.orbithangar.com/searchid.php?ID=3509

Universal Remote Manipulator System (by Kulch)
http://www.orbithangar.com/searchid.php?ID=3373

See "recommended addons" in the ZTC-Daedalus documentation for the rest.

Thanks

To liber who gave me his 3ds and Anim8or files when I asked for permission to try to convert his mesh files into a manned version. His Boeing X-37B is a fantastic piece of work, and reminds me of a shark or a ray especially when looking at it on the mesh level. Most of the mesh work still is his original here, though I have rescaled everything. Similarly, nearly all the textures are from his originals that I've taken artistic liberty with in an old copy of Photoshop. Many of his original animations are retained, though offset entries have had to be altered.

The Castor 120, Castor 4B, and Star48B use the meshes from Sputnik's Velcro Rockets (STS107's work) – as the novel has SRBs become available via another nuclear arms reduction treaty (2015), having ready-made first stage Peacekeeper engines was actually more than I'd hoped for. The 3rd stage H202-kerosene rocket uses Sputnik's Chariot mesh.

Spacecraft3 calculations are based on my research using multiple sources, including PDF's from Boeing, NASA, and Encyclopedia Astronautica.

Thanks to Loru for early inspiration and dV help, and getting me to face the project's limitations early on. Sure wish the Prometheus could work with this platform, but it's just too large. Special thanks to Sputnik, as well for timely email response and all his help with Velcro Rockets. Thanks to the Orbiter Community at large for maintaining a demand for such an amazing spaceflight simulator.
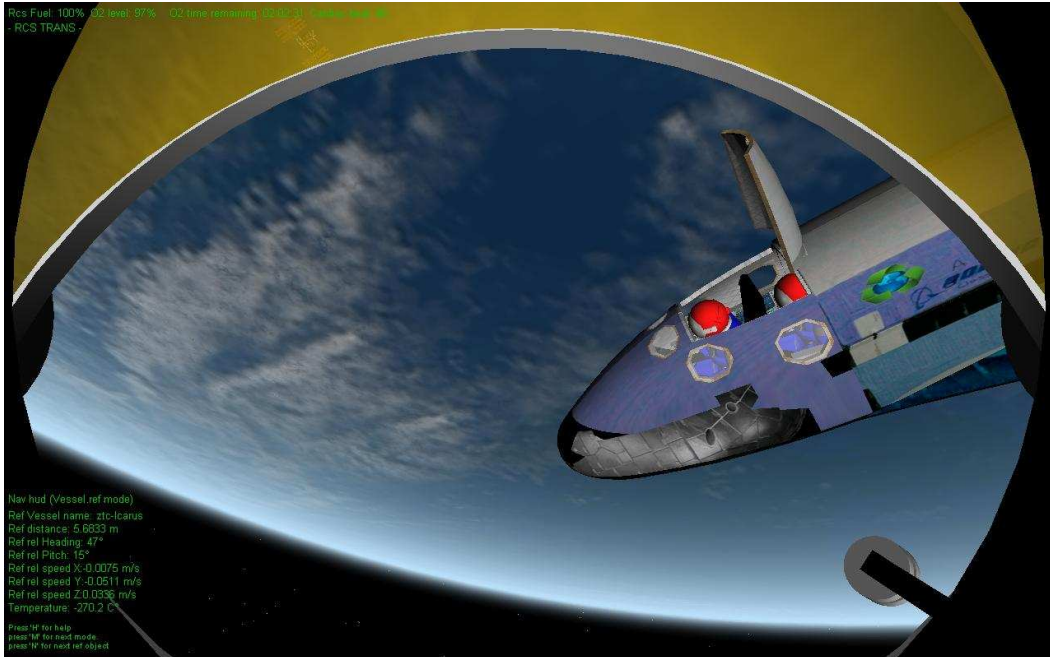
Boeing X-37B Conversion into micro-shuttle

ZTC is currently converting their small fleet of used X-37B's procured from the USAF as part of the current US Arms Reduction Domestic Agreement into 2 and 3 crew manned micro-shuttles. Early tests used X-37B drones with increased fuel capacity and hybrid rocket motors developed in Brazil in the last decade, and have been incorporated into the Icarus. In typical ZTC style, life support systems being added to the converted manned micro-shuttles are taken from Italian and Chinese Midget Submarines (purchased from Iran in late 2020) and support of crew of two for up to 120 hours

Icarus Class Micro-Shuttle (remodeled 10 year old Boeing X-37B)

Crew 2 or 3 depending on model
Length 29 ft (8.9 m)
Wingspan 14 ft 11 in (4.5 m)
Height 9 ft 6 in (2.9 m)
Loaded weight 13,205 lb (5,990 kg)
Payload Bay 3.28 x 4 ft (1 x 1.22 m)
Engine H202/Kerosene variant
Fuel capacity 2500 kg.

Launch Platforms

Variant 1:
First stage – Castor 120 core with 4 Castor 4B boosters.
      Thrust – 3029.9 kN

Second stage – Castor 120.
      Thrust – 1850 kN

Third stage – ZTC hybrid engine made from Chariot and Black Arrow components.
(H_2O_2/Kerosene (w/paraffin & Al)
      Thrust – 234.8 kN

Length – 39.32 m.
Weight – 139, 182 kg.

Variant 2:
First stage – Castor 120 core with 4 Castor 4B boosters.
      Thrust – 3029.9 kN

Second stage – Castor 120.
      Thrust – 1850 kN

Third stage – Thiokol Star 48Bs
      Thrust – 77.1 kN

Fourth stage - ZTC hybrid engine made from Chariot and Black Arrow components.
(H_2O_2/Kerosene (w/paraffin & Al)
      Thrust – 234.8 kN

Length - 41.62 m.
Weight – 167,568 kg.

Use (Created in Orbiter 2006 and tested in 2010)

Note: See Scenario descriptions for instructions as well. Follow launch instructions from Daedalus doc.

The ZTC-Icarus uses Spacecraft3 Virtual Cockpit and has limited functional VC MFD support. For a limited but immersive experience, switch to VC while flying the Daedalus to altitude! Just in case you were wondering what the view from the Icarus would be like….

Animations

"K" – Opens/closes cockpit hatch.

"Shift+NumPad 1" – Opens/closes payload bay hatch.

"Shift+NumPad 2" – Opens/stows solar panel.

"Shift+NumPad 6" – Opens/closes air-brake.

Due to its light mass (after using the bulk of its fuel), the Icarus is able to do amazing aerobraking and upper atmosphere course changes. In early tests of the Icarus, several ZTC-Astronuts were able to skip across the upper atmosphere for 2 entire orbits and land back at Rochambeau without flaming out once. When committing to reentry, don't forget to use your air-brake.

Known Issues:

Bug with Velcro rockets in Orbiter 2010 causes no smoke to appear with JATO rockets.

SC3's payload/attachment approach doesn't allow the ability to attach Universal RMS to the Icarus until the Icarus is no longer a payload. To use URMS, scenarios must already have the Icarus in orbit.

The ZanTar-Cheetah Fleet mid 2022

V – 0.1
Bug reports, suggestions, comments, etc. welcome.

- n0mad23

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