

Manned Commercial Space Programs

Also, Russian Wing-Ship Adventures 1993

By Burt Rutan

Oshkosh Forum building #7

11:30am, Wednesday July 24th , 2024

Definition of Manned Commercial Space, **MCS**:

Private, Non-Government Manned Space programs.

Not managed and not funded by a Government.

Space is defined as a flight above Earth's
Atmosphere. 100km (62.1 miles).

History of Manned Commercial Spaceships pg 1 of 6

The First MCS Program was Planned by Bob Truax

In 1975

Bob Truax designed the X-3 “Volksrocket” to launch Jeana Yeager to 100 km. Parachute/ocean recovery. Four LR101 liquid rocket motors from Atlas booster. A Preliminary design - It was **not built**.

Interesting,

Voyager’s Jeana might have been the First Commercial Astronaut (if she survived a Volksrocket sub-orbital space launch)

Bob Truax (1917 to 2010) had a lifetime experience with rockets.

His first was tested in 1936.

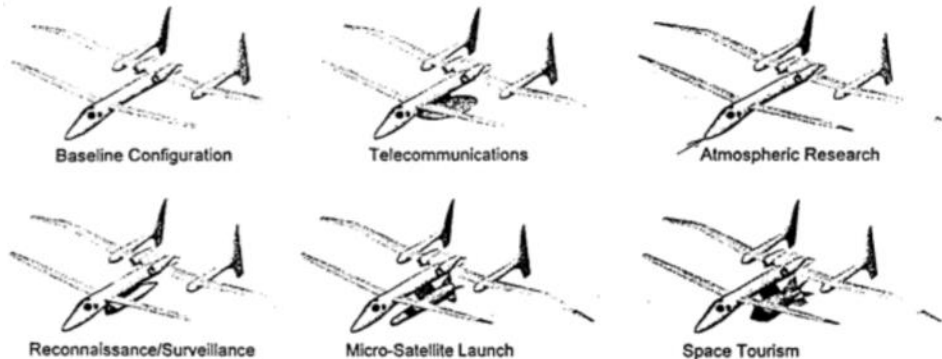
He developed many rocket motors pre-Apollo, many for Navy.

https://en.wikipedia.org/wiki/Robert_Truax

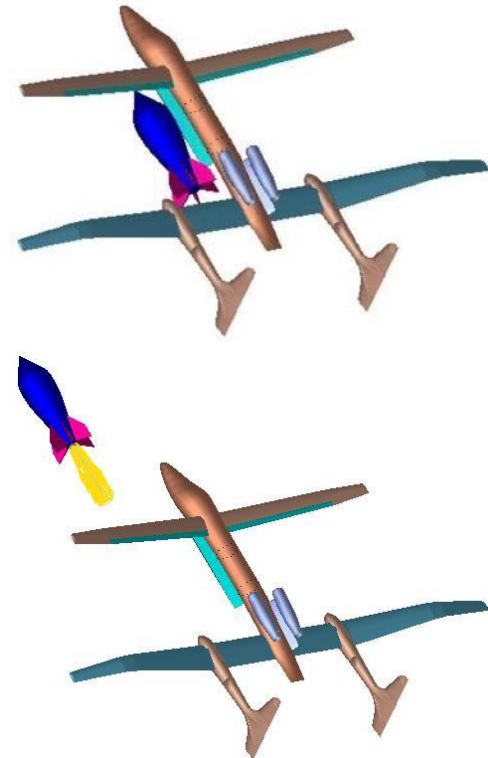
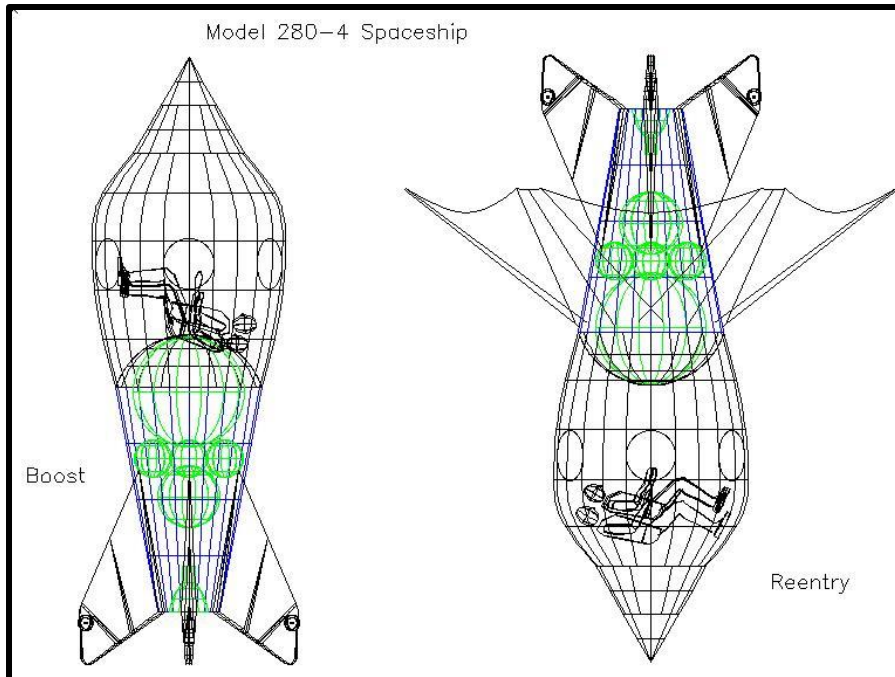
Bob developed Skycycle X2 for Evel Knievel to jump the Snake River Canyon in 1974.
It failed.



Rutan's 1995 concept for what later became Proteus & SpaceShipOne (before the X-Prize). Proteus launches spaceship. Parachute recovery.



One of six planned Proteus applications:
Single-Seat Manned
Sub-orbital spaceflight.



History of Manned Commercial Spaceships

The Peter Diamandis 10M\$ X-Prize

pg 3 of 6

Entered X-Prize 1996 to 2004,
but no flight testing

Arcadia Aerospace

Astronautics Corporation of America

Bristol Spacelines Limited

Da Vinci Project Wildfire

Discraft Corporation

Flight Exploration

High Altitude Research Corporation

IL Aerospace Technologies

Interorbital Systems Mojave

Kelly Space & Technology

Micro-Space, Inc.

PanAero SabreRocket

Pioneer Rocketplane

Entered X-Prize 1996 to 2004
and did flight testing

ARCA Romania
Demonstrator 2B

Canadian Arrow

Armadillo Aerospace Pixel

Scaled Composites SpaceShipOne

Space Transport Corporation

Starchaser Industries

Twenty-six teams signed up to
win the X-Prize, 1996 to 2003

Some of the X-Prize entrants' projects 1996 to 2004

pg 4 of 6

Armadillo Aerospace Pixel



Da Vinci Project Wildfire



Scaled Composites SS1/WK



Bristol Spacelines Limited



Pablo De Leon
Buenos Aires, Gauchito



Pioneer Rocket Plane



Canadian Arrow



Starchaser Industries



Space Transport Corporation



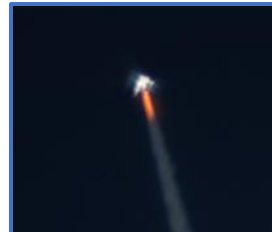
History of Manned Commercial Spaceships

Those that have flown MCS flights pg 5 of 6

Only Three Manned Commercial Designs
have flown to space (above 100KM)

2004

Rutan Scaled Composites
SpaceShipOne



2021

Jeff Bezos Blue Origin
New Shepard



2022

Elon Musk SpaceX
Falcon 9/Dragon?
1st Non-Gov flight, **but**
developed with Gov \$



Schedules for the Three Successful Manned Commercial Spaceship Programs

pg 6 of 6

Elon Musk Falcon 9/Dragon

Program start to 1st orbital
Commercial Manned Space
flight = 20 years



Elon Musk at Mojave in 2004 (before Tesla & SpaceX)
At that time Burt had more employees than Elon

Jeff Bezos New Shepard

Non-Piloted, sub-orbital
Program start to 1st
Commercial Manned space
flight = 21 years



Rutan Scaled Composites Sub-orbital SpaceShipOne

Program start to 1st
Commercial Manned Space
flight = 3 years + 2 months



How to do a Manned Space program in 3.5 years ?

- 1- First 2 years Covert. Avoids “help”, especially from USG. Everyone participates – so they can tell grandkids “I built it.”
- 2- Smallest possible team. Photo shows entire team for the last 1.5 years (flight testing and 3 space flights).



If its going to be historic, let the kids touch it.



I have always wondered why did America
build the Space Shuttle system?

A Theory - “To Win the Cold War” – Their
attempt to copy our Shuttle would cause
economic collapse of the Soviet Union.....

America's Shuttle 1972

A short-term Space Station

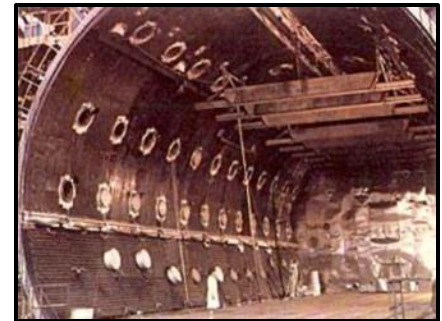


Russia's Buran 1980

Theory Vindicated



Buran Full-Scale
Load/Heat/Vacuum
Test chamber



Russian Wing-ship (Ekranoplan) trips An ARPA Program (Later DARPA)

Aug & Sept 1993

BRAB Chapter 69

The ARPA Team

A group of 12 US experts

Response to Congressional
Direction to accomplish
experimental studies on Russian
Wing-in-Ground Effect vehicles.

ARPA reports to Sec of Defense
then **reports to Congress.**

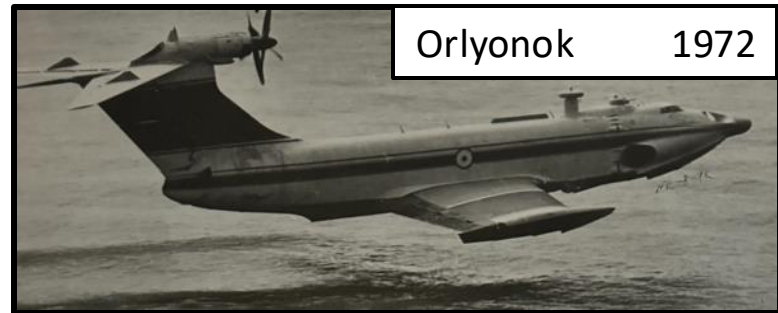
Justification

Plan a Joint wing-ship program plan
for Russia to build the huge
WingShip. That might prevent their
technologists fleeing to North Korea.

In 1993, to survive, Russian top
engineers were selling watermelons
on the street.



KM Caspian Sea Monster 500T 1966
Plan for a nuclear-powered 1,000T



Orlyonok 1972



LUN 1980s
To destroy US Navy ships

On Moscow streets in 1993

Women line up to sell one or two items each, so they could buy food.

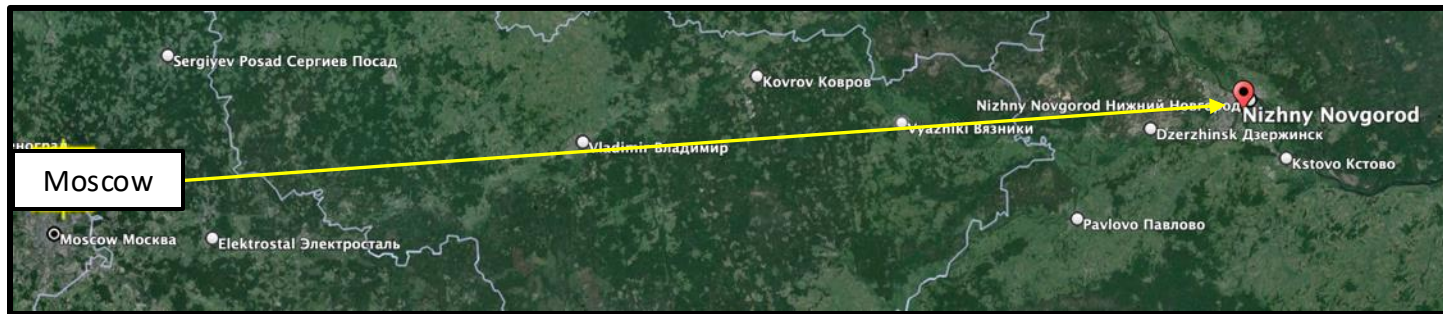


Before our first trip, our group of 12 Americans for the WingShip evaluation were advised to bring wet wipes, towels, toilet paper and granola bars.

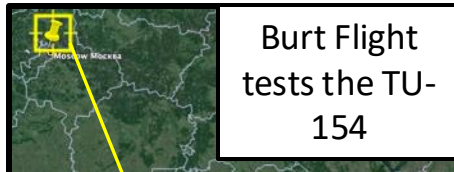
In Nizhny Novgorod, Makhachkala and Kaspiysk, our typical lunch was dark bread and cold cucumbers sliced vertically. For dinner we had the same, except the cucumbers were hot and sliced horizontally. They always had lots of vodka to drink.

Toilet paper in our hotel in Makhachkala was a half sheet of newspaper in a wood box. The tub and shower water was brown mud.

Train to Nizhny Novgorod (was Gorky, 1932 to 1990)



Aeroflot TU-154 to Kaspiysk



Burt Flight
tests the TU-
154



Two DARPA Russian WingShip Trips
12 Americans - mainly US grey-beard Seaplane experts.

Moscow & Nizhny Novgorod. August 1993
Moscow & Kaspiysk on Caspian Sea. September 1993

1950s Hydrofoil ship to a WingShip
test area on the Volga River



Kaspiysk Navy base, on the west
shoreline of the Caspian Sea.



Lower right – the Orlyonok being
prepared for our flight demonstration.
Lower left – the huge Lun in drydock.



Burt chats with the Russian
Wing-Ship Test Pilots

Orlyonok was flown
for us at Kaspiysk.
Photo signed by the
Wing Ship and engine
designers



Our last day in Russia – A day off

Witnessed a historic event at Russia's White House
Got lost in a huge, unfamiliar city



Why Burt & Stephan Hooker were arrested

Russian Crisis June 1993 to October 1993
Boris Yeltsin Self-Coup.

Water & Elect Turned Off.
Then Artillery Attack on House of Soviets.
Just Days After Our WingShip Group Went Home.

TV Media Here

Burt & Stephan
Jumped Barrier Here

White House

Russian Federation Government

Moskva River

Presnya

Driver parked car here

Highway Blocked Here

Climbed Stairs Here

Walked Quickly Toward Artillery
on the Blocked Highway

Artillery Aimed
at White House

Burt & Stephan Hooker Arrested Here

Bubna

The Stairs

On 4 October, just after we went home, the Russian army, which had remained neutral, on Yeltsin's orders shelled the White House using tanks and stormed the building with special forces, arresting the surviving leaders of the resistance. All of those involved in the events were later granted amnesty by the State Duma in February 1994 and then released from jail.

After Arrest we had an evening off, before going home

What is War?

During battles – you destroy
the enemy's buildings and kill people.

The Cold War was different
The first war without much killing.

After you win a war– you help them
build back their buildings and you rape
their women.

My failed attempt at rape.

Questions?

