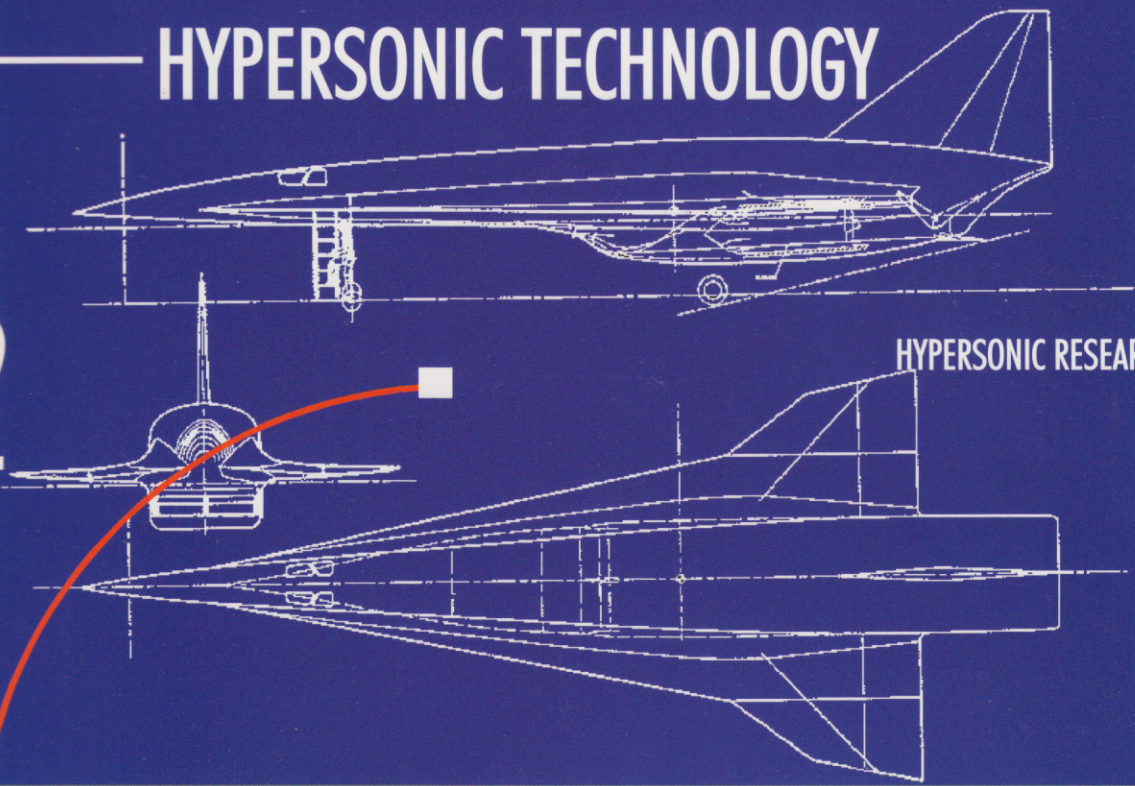


FROM HYPERSONIC TECHNOLOGY DEMONSTRATOR **TO THE** HYPERSONIC RESEARCH AIRCRAFT

HYPERSONIC TECHNOLOGY



HYPERSONIC RESEARCH AIRCRAFT

HYPERSONIC TECHNOLOGY DEMONSTRATOR
ДЕМОНСТРАТОР ГИПЕРЗВУКОВОЙ ТЕХНОЛОГИИ



BY

DHB SYSTEM

SPACE AND ENVIRONMENTAL TECHNOLOGY

HYPERSONIC TECHNOLOGY DEMONSTRATOR D2

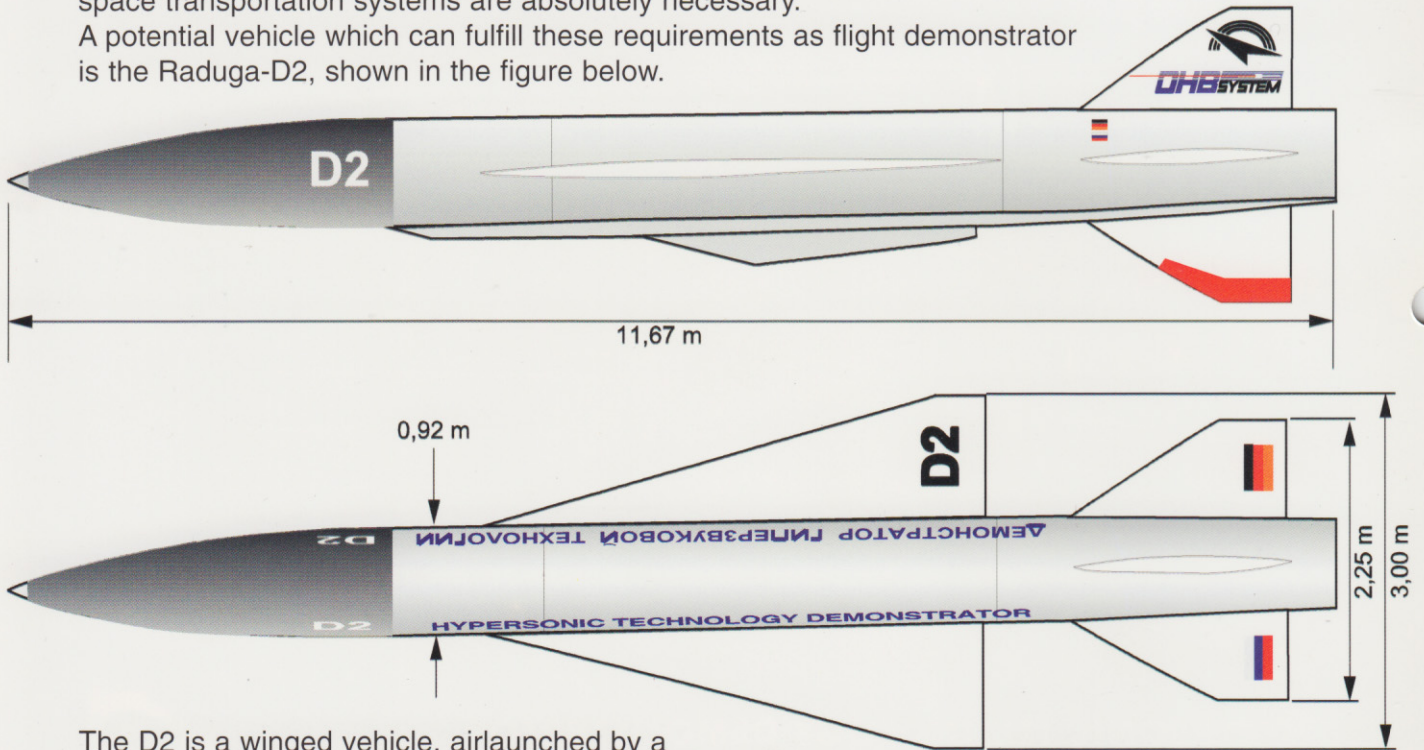


The development of a new generation of reusable space transportation systems requires the availability of new technologies in the areas of aerothermodynamics, propulsion systems, structures and materials.

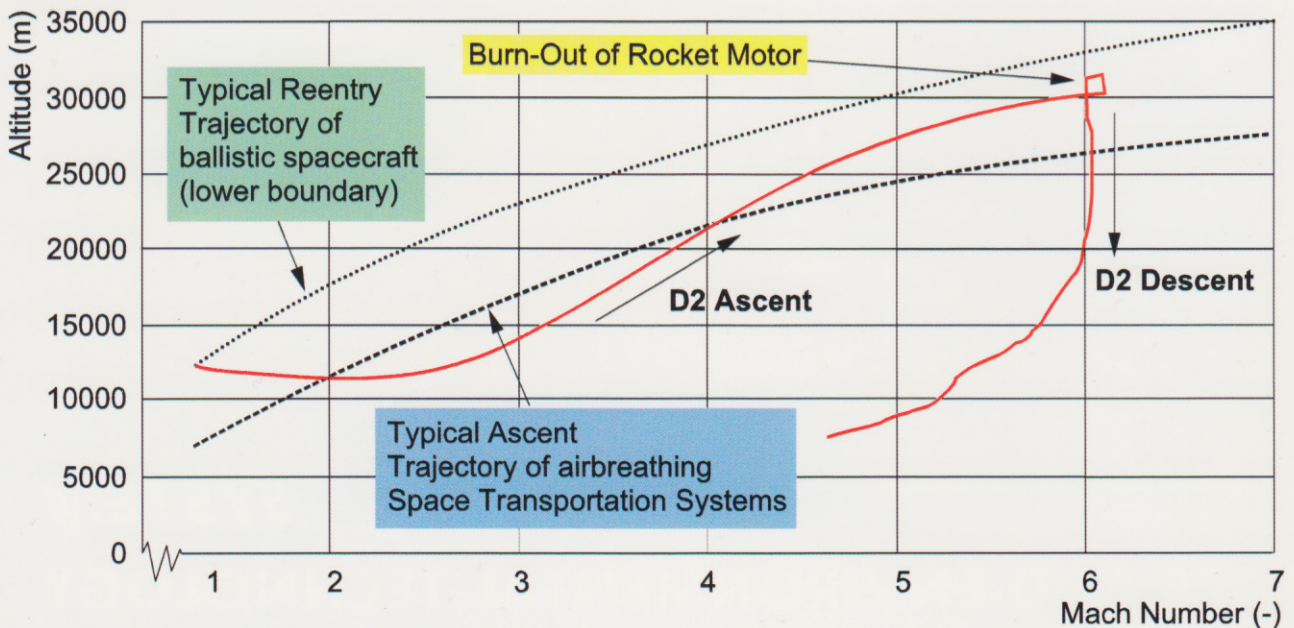
These technologies are presently not available in Europe. Conventional design tools like wind tunnel measurements or numerical simulation techniques are not sufficient for the development of these new technologies, since they can either not fulfill the similarity laws in the whole flight regime (e.g. wind tunnels) or are not yet validated (e.g. Computational Fluid Dynamics).

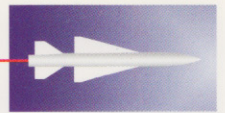
For that reason, free-flight experiments within a flight regime relevant for the new space transportation systems are absolutely necessary.

A potential vehicle which can fulfill these requirements as flight demonstrator is the Raduga-D2, shown in the figure below.



The D2 is a winged vehicle, airlaunched by a Tupolev TU 22M at supersonic velocity and equipped with a liquid propellant rocket engine. This vehicle was designed and developed by the Russian company MKB RADUGA and has a record of more than 500 successful launches. It has amongst others been used as target for anti-aircraft missiles and as hypersonic experimental vehicle. The vehicle is not recoverable in its present configuration. The flight envelop is shown below.





HYPERSONIC TECHNOLOGY DEMONSTRATOR D2

It is intended to use this vehicle in a German-Russian cooperation as a demonstrator for hypersonic technologies in the area of:

- Validation of numerical and experimental techniques to investigate hypersonic flows
- Technology demonstration for advanced measurement systems
- Material testing
- Investigation of subsonic and supersonic combustion ramjet engines (at a later stage)
- The flight demonstrator model in and outside the OHB-System integration hall is shown below.



- Max. Mach Number 6.3
- Max. Altitude 90 km
- Max. Range 570 km
- Max. Thrust 70 kN
- Total length 11.67 m
- Wing Span 3.00 m
- Fuselage diameter 0.92 m
- Maximum mass 5800 kg
- Propellant mass 3045 kg (fuel and oxidiser)
- Payload mass up to 800 kg



For more information please contact



OHB - Orbital- und Hydrotechnologie Bremen-System GmbH
Universitätsallee 27-29 D-28359 Bremen
Tel: 49(0)421/ 2020-8 Fax: 49(0)421/ 2020-700



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