

Luxury VTOL Gran Touring Aircraft 2050

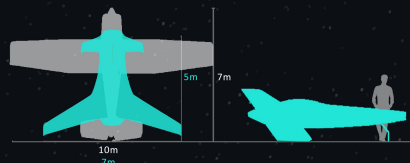
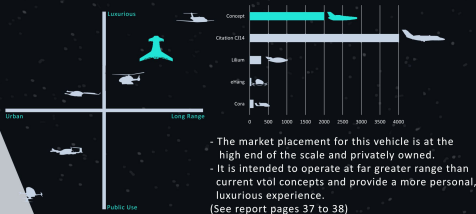
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Grand Tour: A historical term denoting a cultural exploration of Europe undertaken from England, often as part of one's education in upper class 18th century society.

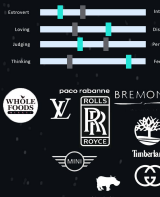
In 2050, this vehicle is intended to allow its users the freedom of flight with the convenience of a car to bring them the ultimate adventure in a 2000 Kilometre range, bringing back

Grand Touring

WHAT IF you could travel by air, anywhere, any time right from your doorstep?



User



Jordan

"Getting to work takes longer than I'd like, but where I live is perfect"

BeLen

"I don't get time off work often, when we do go away, I find us spending a lot of time travelling, not relaxing"

Jordan and Belen

Entrepreneur couple with a lavish lifestyle

- Both work frequently

- Belen's family from Italian Riviera who they visit once a year

- They want to travel more but weekends pass too quickly

Age 32/28

Occupation Technology Entrepreneur/
Fashion Designer

Status Married

Archetype Eccentric/Lifestyle influencer

Location Notting Hill, London



Direct from Home

Virtual Concierge

Personal to You

- As a result of its VTOL capabilities, the vehicle is able to take off in an area equivalent to its footprint.
- This means the aircraft can take off right from a typical driveway

- All flight preparation and calculations done by the vehicle
- This means, the flight planning, passport checks, and authority communications are all taken care of

Vehicle to be privately purchased and owned by an individual and manufactured uniquely to their specification

Lift

Wings used for lift in lateral flight

- Wings increase range as the engines are only required to propel craft, not keep it aloft when cruising.

Thrust vectoring incorporated for VTOL flight

- This reduces complexity as engines can be used for both lateral and vertical flight.

Power

Liquid Hydrogen

- Sustainable energy source
- Zero emissions from combustion
- More energy dense than fossil fuels per unit mass.

Battery Electricity

- Electricity generated by turbine in main engines and stored in small, lightweight battery.

Configuration

Rear mounted main wing

- Leaves space for easy ingress to vehicle.

Front mounted canards

- Aids low speed manoeuvres.
- Ideal placement of fans to provide balanced centre of thrust for vtol flight.

Construction

Primary Material: Carbon Fibre

- High strength to weight ratio
- Reduced maintenance due to low fatigue
- Reduced weight = increased range and payload

Highly Stressed components: Titanium

- Stressed areas such as the jet exhaust or landing gear require the heat resistance and strength of titanium
- Titanium is also corrosion resistant and lightweight

Structure

Monocoque Shell

Unlike conventional aircraft where a separate frame supports skin, this vehicle's body is the structure

(Ref: See report pages 10 to 28)

Thrust

Primary thrust

2x hydrogen jet turbine engines

- Situated in rear of craft
- High thrust output
- Efficient at cruise speeds

Secondary Thrust (VTOL only)

4x horizontal electric ducted fans

- Inside forward canards with doors to allow airflow when operating
- Instant torque
- low noise
- most efficient at max thrust ie, vtol flight

Fully Automated

Current requirements for an international private flight:

- Valid pilot's license
- Aircraft documents
- Flight plan
- Emergency equipment
- Airfield with correct certification and facilities to handle international flights
- Completed general aviation report (GAR)

Through use of advanced autonomous technology, the aircraft will be able to communicate with the relevant authorities prior to each flight to gain certification to fly (see report page 36-37)

Sustainable

Primary power - Hydrogen from sustainable source
zero pollutant emissions

H₂

Electricity generated by turbine in hydrogen engine reducing battery size required and impact of production (see report page 30)

Cost Effective

Ancillary costs of private aviation negated as a result of advanced technology

No Hangar rental needed
No operating crew needed
Pilot's license not required (see report page 32)

Safe

Advanced Autonomous technology enables full mitigation of safety risks

High severity incidents caused by pilot error are significantly reduced (see report pages 18 to 19)

VIP Lifestyle

In buying the vehicle, the owners gain access to a wealth of lifestyle destinations at which their aircraft is looked after and they can enjoy the luxury and hospitality of the destination

This can range from a cafe to a resort in the ocean to spend a holiday (see report page 33)

Fly Directly from home, all security taken care of virtually no added stress of going to an airport

Travel in complete privacy, luxury and style within an immediate range of 2000KM

Arrive immediately at your final destination, no further travel needed from landing (see report page 34)

With its 2000km range, this vehicle puts the whole of Europe on its doorstep. Various destinations can be covered in a single day. Or, a single trip can be taken to spend more time there (See report page 38 - 39)



WHY?

With the ever increasing desire for speed and convenience when travelling from one place to another. A vehicle such as this will dramatically streamline the processes involved and provide a private, luxurious and rapid form of point to point transportation for the user in utmost safety. It comes at a cost and will be exclusively for those with the means to afford it