

SUPERCAR

for Microsoft Flight Simulator X



Supercar is a multi-purpose vehicle from the Gerry Anderson TV show which was first broadcast in 1960. Supercar is a vertical take-off and landing craft. As well as its ability to fly, Supercar can travel on and under water, on land with a ground effect cushion from its vertical boosters, and even go into space.

The Flight Simulator craft is a test model of Supercar which provides limited capabilities. The avionics have been updated to modern 21st Century jet standards. The test programme is still continuing, adjustments are being made, and the operational envelope is still to be established. Join the test programme now... Fly your own Supercar!

Supercar design by Reg Hill.

3D models by Austin Tate, Mick Imrie, Mateen Greenway and Brian Douglas.

Flight dynamics by Austin Tate and Shane Pickering.

Black Rock scenery by Iain Murray and Austin Tate.

Material on Supercar is copyright by Carlton International Media Ltd.

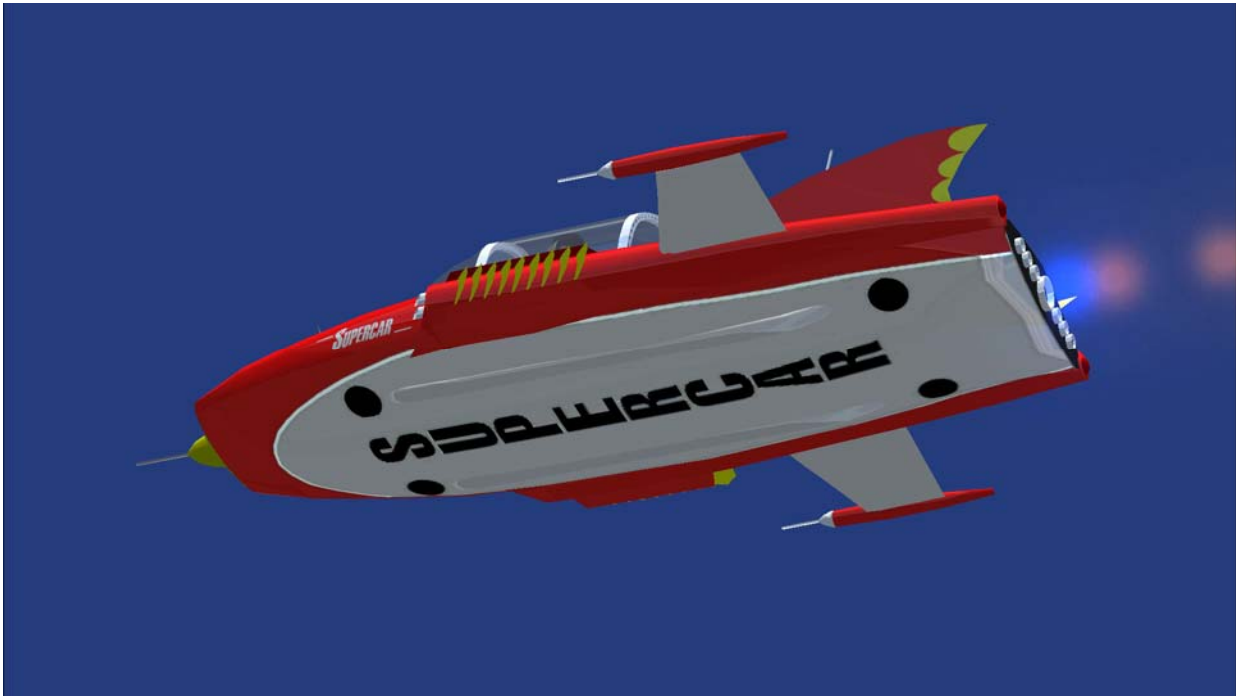
This is a fan maintained page intended to promote the shows of Gerry Anderson.

No infringement of any commercial rights is intended. The author wishes to promote a favourite TV show via this offering. No commercial use allowed.

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<http://www.aiai.ed.ac.uk/~bat/GA/supercar-msfs.html> or <http://atate.org/ga/>





Installation

1. Unzip the archive to a temporary folder, with option “use folder names” checked. The main airplane contents are in folder “Supercar for FSX”.
2. Copy the subfolder SimObjects\airplane\Supercar and all its contents into the FSX SimObjects\airplane folder.
3. Copy the contents of the Effects folder into the FSX Effects folder.
4. Copy the Flights files provided into your Documents FSX folder if you wish.
5. If you want to install the Black Rock Laboratory and Desert scenery, copy the Scenery\Black Rock files into the appropriate FSX Addon Scenery folders.

Features of the Test Flight Model

- Extendible/retractable wings (“G”)
- Opening cockpit canopy (“Ctrl+E”)
- Moving pilot’s head and steering columns (stick movements)
- Front and rear lights at night (“L”)
- Rear fin strobe lights (“O”)
- Smoke effects (“I”)
- Main jet effects when engine revs. rise (throttle)
- Supercar specific panels including Clear-vu
- Keyboard Checklists and useful reminders are available

Panels

As well as the main panel, there are a number of other sub-panels available. They can be toggled on and off using the Shift and a number key.

- Shift+1 Main Panel
- Shift+2 GPS
- Shift+3 Radio Stack
- Shift+4 Mini-compass
- Shift+5 Clear-vu Status Display
- Shift+6 Clear-vu cowling

Position the GPS or Clear-vu on the right hand side of the dash sitting just above the main dashboard. The Clear-vu is for display purposes only and is not functional. Note that you can see through the Clear-vu screen. Position the Supercar status display on the Clear-vu screen. You can position the mini-compass and/or mini-controls to be in this area if you wish. You can bring up a map display and size it so that it sits behind the Clear-vu screen cut-out area. The default start-up situation positions the panels in approximately the positions indicated above.

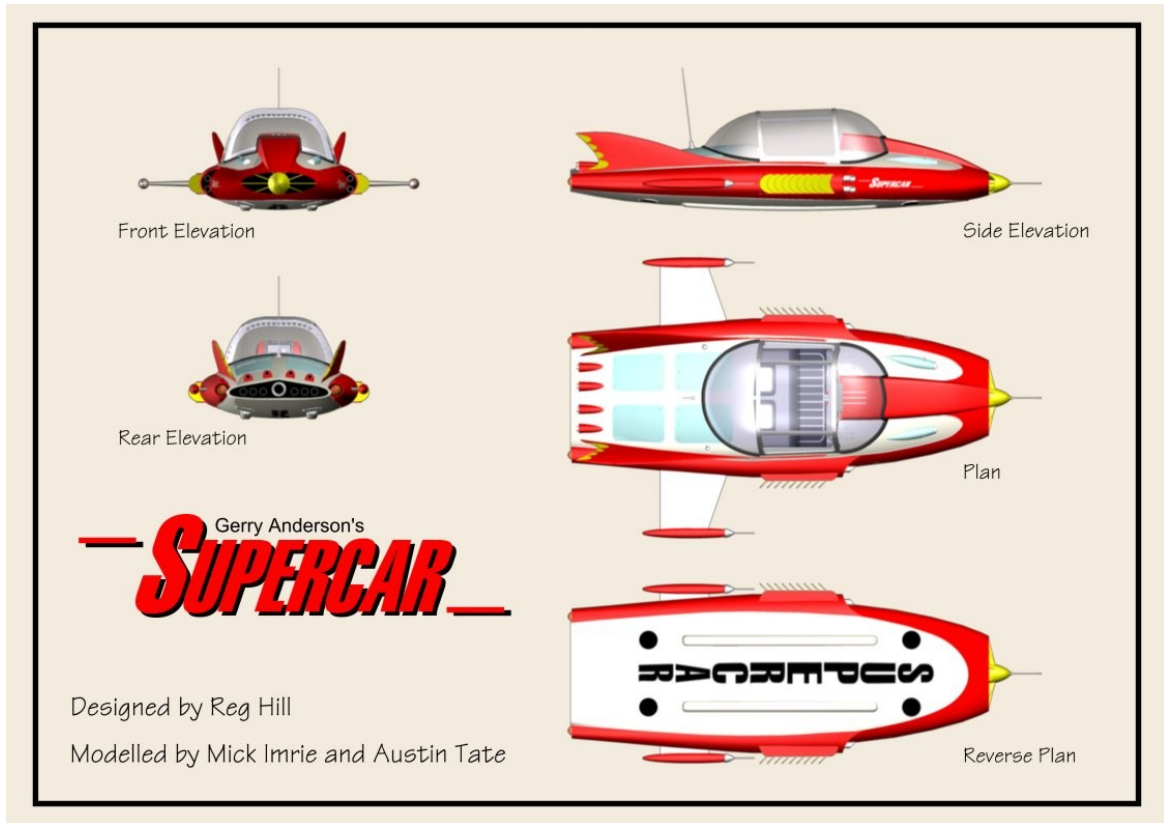
Supercar Start-up Situation

The Supercar startup situation is at Black Rock Laboratory at Black Rock Desert, Nevada, USA at approximately N41 00.00 W119 00.00, alt. 4050ft.



Supercar Blueprints

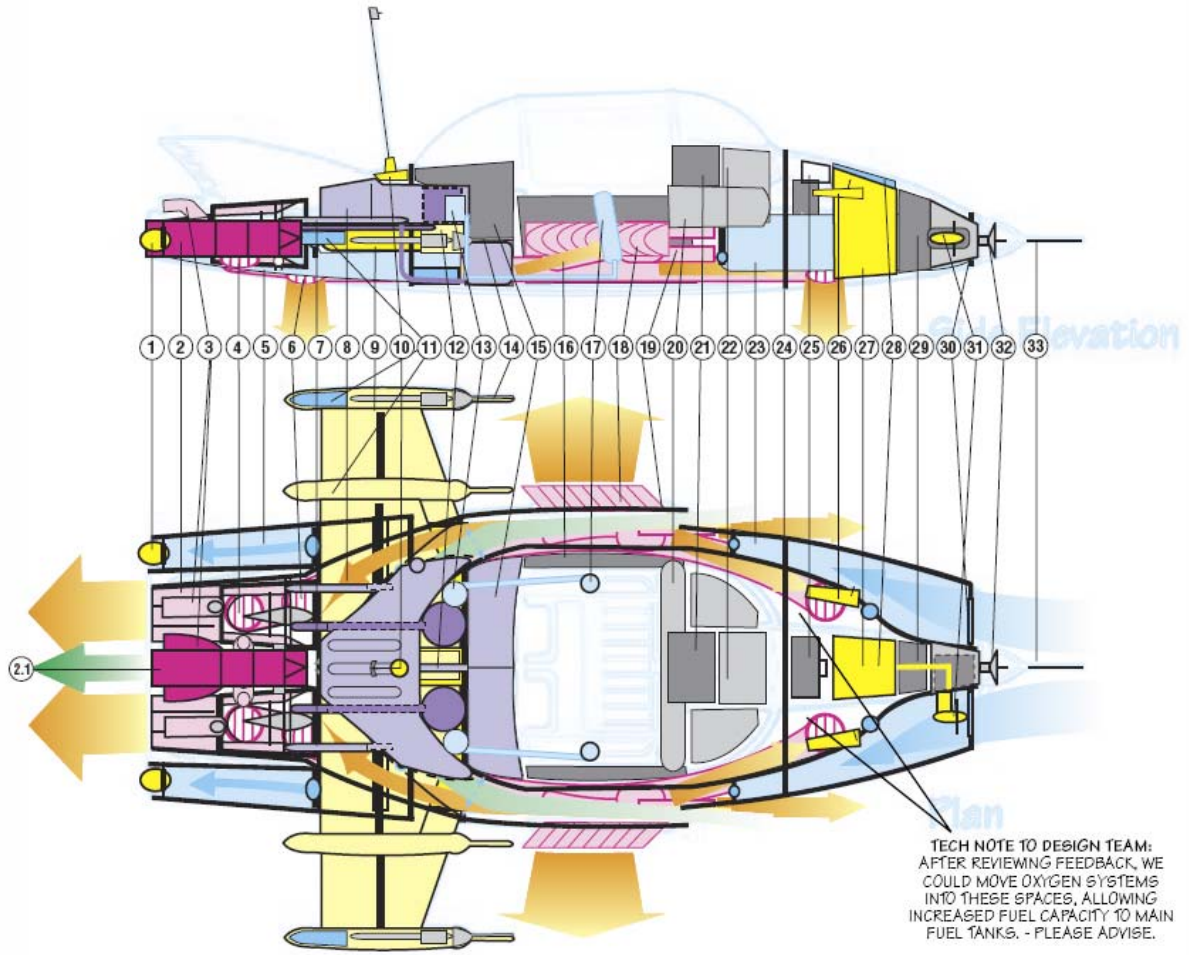
From <http://www.aiai.ed.ac.uk/~bat/GA/supercar-3d-bp.html>



Supercar Plans – Mick Imrie and Austin Tate 7-Oct-1998 – After Phil Rae Blueprints



Supercar Dashboard – Shane Pickering and Austin Tate – 6-Sep-2001



1. Rear Navigation Lights (2) Port & Starboard, with rear ballast eject through valve surround.
2. Twin Hybrid, Vectored Thrust, Stratified Turbine Ramjets with Afterburners (Turbo Boost), each developing in excess of 18,000 lbs static thrust (total power output classified). Ceramic Vectored Exhaust Nozzles (rotatable) and interconnected via thrustcraft "Interlock" transverse drive shafts, gearbox and wastegates in the event of engine failure. Contains oil injectors for Smoke Screen deployment.
- 2.1 APU (Auxiliary Power Unit) & Highly Classified EMH[®] (Electro-Magneto-Hydrodynamic) 0.5 Megawatt Capacity Powerplant between Ramjets (dark red central unit) which cross feeds and "boosts" the Ramjets for Space Flight, and is a fully self-contained Water Propulsion Unit. Also used to electrically charge Supercar's hull plating or send electrostatic charges via the Hi-Band Antenna - see 70.
3. Vectored Flight Altitude Nozzles controlling pitch and yaw movement (4).
4. Ramjet Vectored Thrust Outlet Nozzle from Ramjet Engines ducted through to Retro Jets and Adjustable VTOL Nozzles (4).
5. Rear Ballast Tanks with Ram Intake Valves (2), Port & Starboard.
6. Rear Vectored VTOL Jet Nozzles (2) Interconnected to Peri. VTOL Jet Nozzles (2), featuring CAD (Cushion Augmentation Devices) for added Roll, Pitch control and Ground Effect

7. Main Fuel Feed Injector lines (8), Port & Starboard, to Ramjets with Emergency Cutoff Valves.
8. Main Fuel Tank containing Classified AvGas[®] and tapered to air flow ducting. Separate Liquid Oxygen & Hydrogen Tanks (Circular units) with built in refrigeration units for Spaceflight & Marine operation. Auxiliary Fuel Tank under Luggage Compartment - see also 15
9. Retractable Wing Box Surround & hydraulics.
10. Combined Hi-Band UHF/VHF Antennae and ClearVie[®] Periscope Receptor (detachable at top of aerial), with Electrostatic discharge coil from EMH[®] unit.
11. Rear Ballistic Parachute Recovery Pack (2), Port & Starboard, housed in wing nacelle cones (fired in unison with front mounted unit - see also 28).
12. Wing Extensuator Engine Pump & Backup.
13. Oxygen Regenerators, Pressurisation & Air-conditioning Pumps (2), Port & Starboard, tied to main pressurised cabin through Rear Bulkhead "Firewall".
14. Wing Nacelle Multi-mode Avionics & Marine Sensor Probes (2), Port & Starboard, connected to ClearVie[®] Read outs. Includes INS (Inertial Navigation System) aeriats for position fixing and ground terrain sensors for moving map

15. Split Luggage/Equipment Storage Bay behind rear folding seats. (Auxiliary Fuel Tank under Luggage Compartment - see 8)
16. Electrically operated Flatglass[®] Canopy Storage & Lifters. (Top Canopy splits into two halves and slides down tracks "inside" side windows).
17. Oxygen Bottles and Pressurisation outlet & recirculation systems embedded into Front Seats, fed directly from Oxygen, Pressurisation and Air-conditioning Units in rear - see also 13.
18. Retro Jet Heat Extractor Vanes (2) Port & Starboard, containing vectored thrust vents for sideways movement.
19. Twin Retro Jets (2), Port & Starboard, fed from main VTOL ducts with EMH[®] (Electro-Magneto-Hydrodynamic) accelerators giving enormous braking power.
20. Main Flight Avionics Bay and Marine Instruments including triplicated Flight Computer Backups with built in Communication Array. Microphone is simply voice actuated from pilot. Multi-mode ClearVie[®] CRT Instrumentation, flight data, and systems status read-out.
22. Main Computer Core Processor Unit.
23. Fwd. Ballast Tanks (2), Port & Starboard with Ram Intake valves (front), and bleed pumps into main duct inlets. Closed at front when Ballast Tanks are operational allowing them to be

24. "flooded", drained and trimmed.
25. Fwd. Pressure Bulkhead "Firewall". Fwd. Mounted Multi-Purpose Optional Equipment Bay, (which can contain Removable Rocket Gun Mount and armament unit (under), additional Oxygen Supply for Space Flight, etc.).
26. Navigation/Landing/Search Lights (2), Port & Starboard, with ILS (Instrument Landing System) sensor antennae.
27. Main 24-volt Batteries (2) with backup, insulated electronics and power coil. Used to initially start APU (which charges each engine).
28. Fwd. Ballistic Parachute Recovery Pack (hidden under flush panel).
29. Main Sensor Probe Circuitry and "Remote" Receiver.
30. Fwd. Ram Intake Valvegate (for air or water feed) can be regulated (opened or closed) for ballast operation. Also cools Avionics Bay.
31. Emergency Generator, wind/water driven with rotating turbine blades (retractable - shown in extended position, normally housed in centre unit). Used only if other electrical systems completely fail and if Supercar has forward motion in atmosphere or water.
32. Main Radar/Sonar/Sensor Array and "Remote" pick-up connected to ClearVie[®] Read-out.
33. Fwd. Flight Instrument and ClearVie[®] Pilot Boom Antenna.

Supercar Schematics and Technical Details

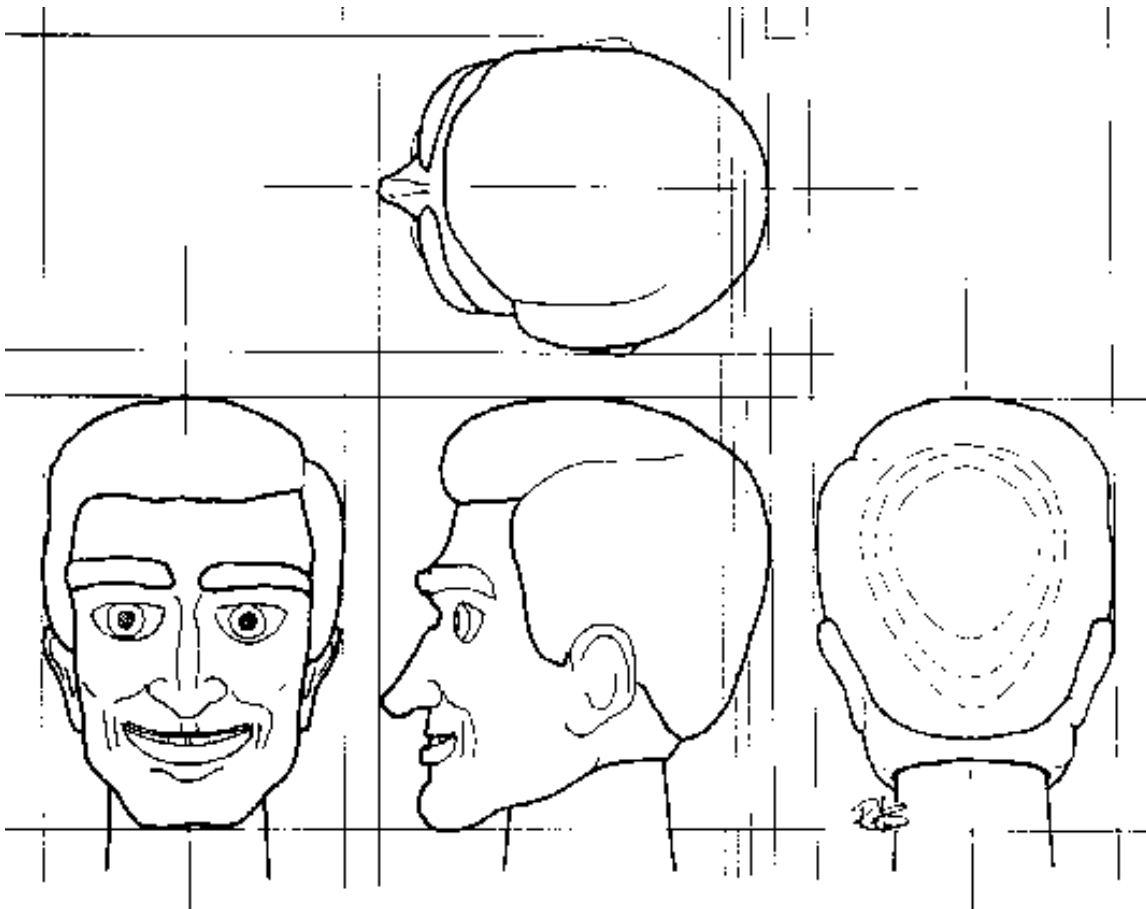
Created by Shane Pickering with technical assistance from Austin Tate – 7-Nov-1999

Full details at <http://www.aiai.ed.ac.uk/~bat/GA/supercar-cutaway.html>

Supercar Dimensions

- Length: 27ft 3in
- Height: 5ft 7in
- Wing Span Extended: 18ft 9in
- Wing Span Retracted: 11ft 6in
- Weight with fuel: 6945lbs

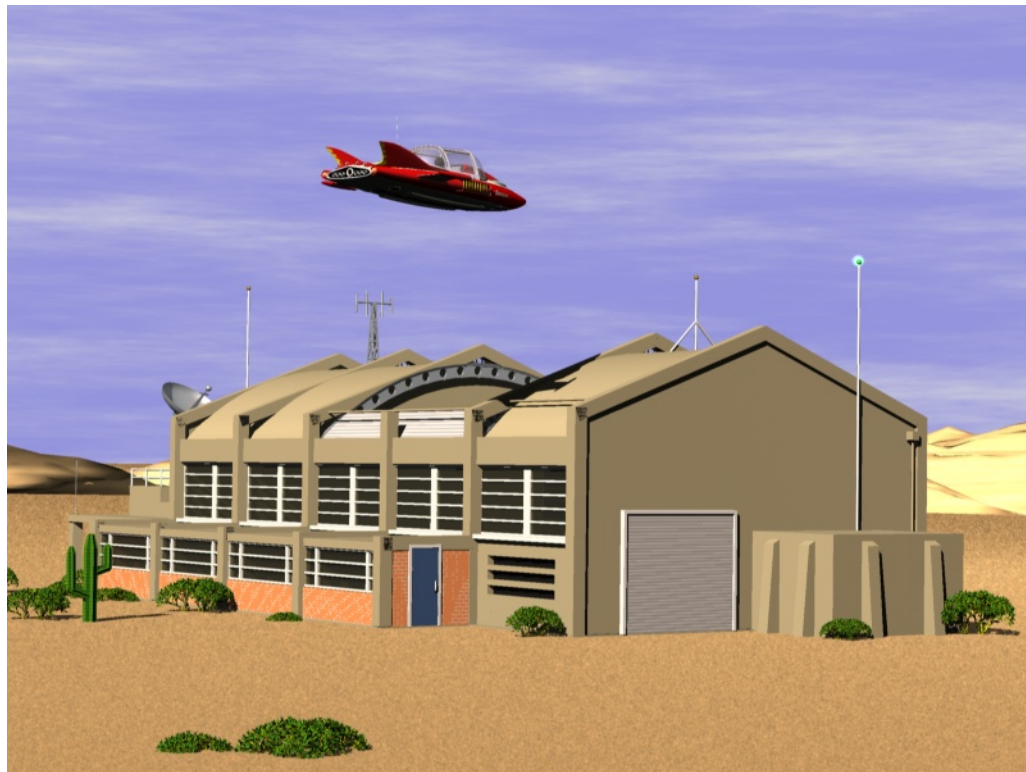
Mike Mercury – Supercar Pilot



Mike Mercury – Supercar Pilot – Drawn by Richard Shires – 7-Feb-2000



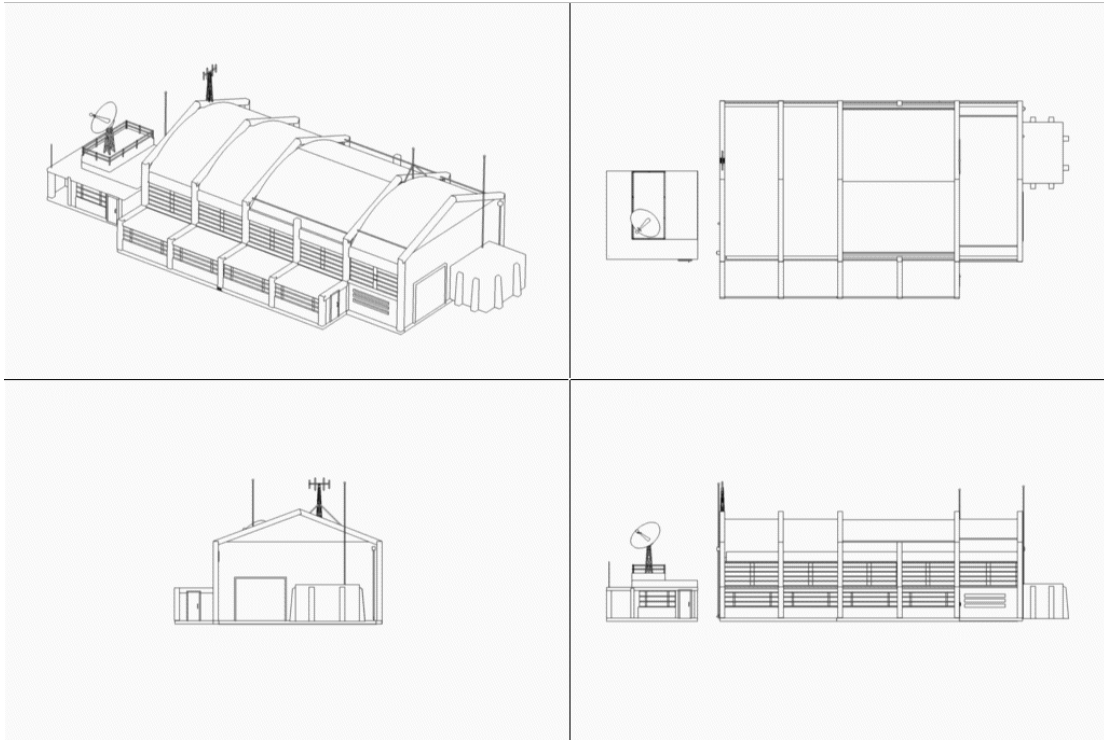
Supercar inside Black Rock Laboratory



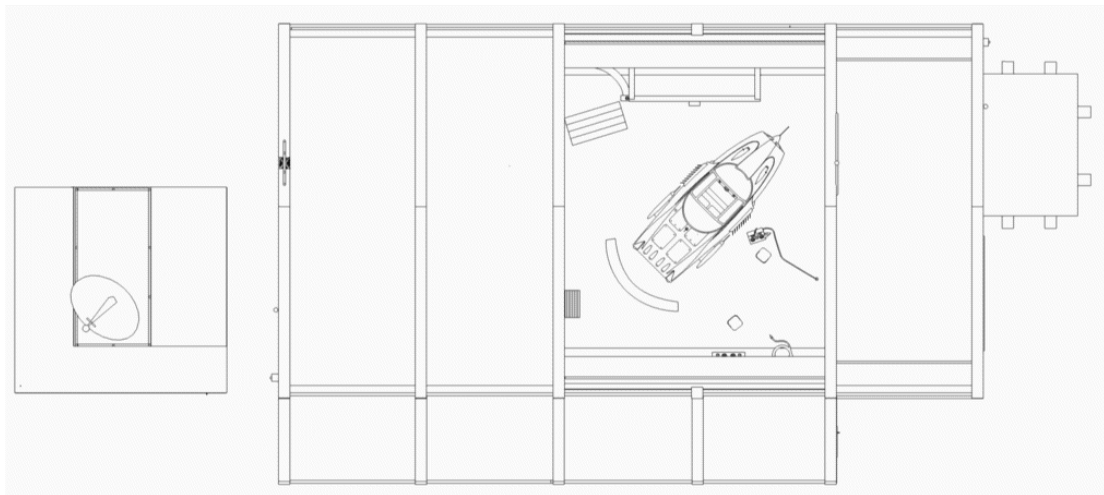
Supercar over Back Rock Laboratory

Black Rock Laboratory

The Supercar Team's base is at Black Rock Laboratory in the Black Rock Desert, North of Gerlach, Nevada, USA at approximately N41 00.00 W119 00.00, alt. 4050ft.

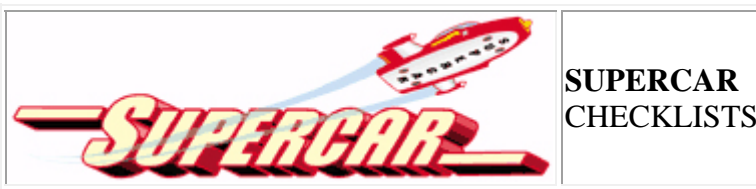


Black Rock Laboratory Plans – Austin Tate – 24-Feb-1999



Black Rock Laboratory Plan with Supercar in Position

Supercar Pilot's Checklists



Special Key Reminders

- [G] Ground Effect On/Off and Retract/Extend Wings
- [F5 F6 F7 F8] Vertical Boost Control
- [/] Retro-rockets On/Off
- [E 1] or [E 2] Select Engine
- [E 1 2] Select Both Engines
- [ctrl+shift+F4] Start Jet Fuel Flow
- [M +] Magnetos On/Off for selected engines
- [J +][+] Cycle Fire/Off, Gen, Charge/Start selected engines
- [ctrl+shift+F1] Shut down selected engines
- [L] Lights on/off
- [O] Strobes on/off
- [I] Smoke on/off
- [ctrl+E] Open/Close canopy

Engine Start Checklist

1. Check parking brakes are on [ctrl+.] and all switches are in the "off" position
2. Select port (no.1) engine [E 1], start fuel flow [ctrl+shift+F4], turn on magnetos [M +], set starter to "charge" [J +], wait for turbine speed (N2) to reach 60% (~15,000 rpm), call out "fire one"
3. Repeat for starboard (no.2) engine [E 2 ctrl+shift+F4 M + J +], call out "fire two"
4. It is possible to "start and fire" both engines together [E 1 2 ctrl+shift+F4 M + J +] in an emergency

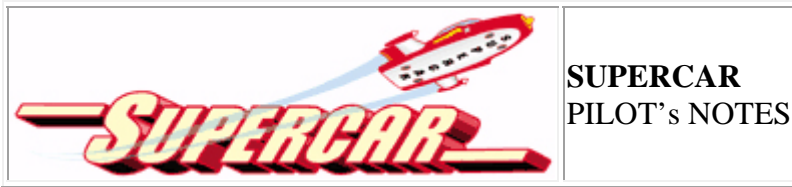
Vertical Takeoff Checklist

1. Select vertical boost (full flaps) [F8]
2. When all is clear, and all status lights are green, set to max. thrust [F4]
3. Release parking brakes [.]
4. Briefly pull gently on the stick until lift-off, then adjust pitch attitude to around 10 deg. nose-up
5. Select horizontal flight (flaps 0 deg.) [F5]
6. Reduce N1 power on engines to 70%. Adjust thrust down [F2] or up [F3]
7. Disable Ground Effect and extend wings (gear up) [G]

Horizontal Flight Checklist

1. Climb to desired cruise altitude and establish level flight
2. Set thrust to maintain a cruise of about Mach 0.8.
Adjust thrust down [F2] or up [F3]
3. Adjust elevator trim [NUMPAD 7 = nose down,
NUMPAD 1 = nose up]
4. Note that speeds of almost Mach 3 are possible if required

Supercar Pilot's Notes



PREFLIGHT CHECKLIST AND TAKEOFF CHECKLIST

1. Check parking brakes are ON (Ctrl+.) and retros are ON (spoilers extended with /) and Vertical Flight Mode (Flaps - F8) are fully DOWN.
2. Check all switches are in the "off" position.
3. Check all instruments and set all controls in the neutral position.
4. Check fuel gauges for the amount of fuel in all tanks.
5. To start port engine (left engine - number one), ensure throttle is set to idle (F1), select engine one (E 1) on the keyboard, start fuel flow (Ctrl+Shift+F4), turn on magnetos (M +), followed by the starter (J +). Port Engine will start. Start starboard engine (right engine - number two) with (E 2), fuel flow (Ctrl+Shift+F4), magnetos (M +) and starter (J +). Reselect both engines (E 1 & 2) on keyboard. Ensure all status lights remain green.

ALTERNATIVE STARTUP: You can select engine one (E 1) on the keyboard, start fuel flow (Ctrl+Shift+F4), then start (Ctrl+E). Port Engine will start. Start starboard engine (right engine - number two) with (E 2), fuel flow (Ctrl+Shift+F4) and starboard engine 2 will start automatically. Reselect both engines (E 1 & 2) on keyboard.

CAUTION: In an emergency both engines may be started simultaneously. However, if both engines are started together in this configuration, Supercar is so powerful it may leap off the ground momentarily or thrust forward. Ensure there are no obstacles immediately in front of Supercar if you decide to do this or a crash may be inevitable.

6. Make sure that everything is clear of Supercar before take-off. If ground taxiing is required first, simply release the Parking Brake and turn the Retro's OFF (spoilers extended - /). Use a combination of both rudder and differential braking (F11-Left, F12-right) to turn. Supercar has sufficient power to move forward on idle power at about 5kts with Flaps and Spoilers (/). If more taxiing speed is required, select horizontal Flight (F5), retract spoilers (/) and speed will increase to approx 20kts at idle.

CAUTION: In either of these modes, use too much power and Supercar will become airborne. Taxi with caution.

7. Select vertical take-off (F8) if you have not already done so, open the throttles to half power and pitch the nose down slightly to maintain a level or slightly nose-up attitude. (full boost on take-off is only necessary for a short period when fully loaded or in tight surroundings). Turns in all Vertical or semi-vertical modes should be gently made with rudder.
8. When clear of any obstructions, gradually change to horizontal flight in the following sequence: Retros OFF (spoilers extended /). Sequence through Vertical to Horizontal flight by tapping F6 progressively. F5 is full horizontal flight. Ground Effect (Gear - G) OFF or up.

NOTE: Supercar will surge forward and pitch down once the final Horizontal Flight Mode (F5) is selected; be ready to pitch the nose up slightly and reduce power if required. She will also accelerate very quickly once Ground Effect is disabled (Gear retracted). Alternatively, do an "elevator" vertical climb by selecting Flaps fully DOWN (F8) gear and spoilers extended straight after takeoff, and apply full power. Supercar will climb vertically like a helicopter. For a high speed "rocket" climb, as for normal takeoff, but select full horizontal mode and pitch the nose STRAIGHT UP and apply full power after liftoff. Supercar will climb like a rocket, straight up to well over 100,000ft msl.

FLYING SUPERCAR

Supercar has incredible performance, capable of Mach 2.93 (1,680 kts) at altitude and transcontinental range (in excess of 9000 nm non-stop) with a maximum recommended altitude ceiling of 100,000 ft msl (although test flights have exceeded 230,000 ft, this is not recommended). Her most efficient cruising altitude for long distance is 80-90,000 ft at Mach 2.9.

It is recommended that the autopilot be used for speeds over Mach 1 as she is very responsive and sensitive to flight movements as speeds increase. With autopilot OFF, Supercar will achieve 1,200+ kts at Sea Level and literally stop on a dime when the retros are ON (spoilers extended /). It is also recommended that speeds below Mach 1 are selected in rough or highly turbulent weather. Fuel burn will decrease with altitude. For example, at Mach 2.9 at 60,000 ft, Supercar consumes almost twice the amount of fuel as she does at 80,000 ft.

HOVERING (almost!)

When F8 is selected, Supercar only requires a small amount of power to hover - slightly above idle power. If retros are ON (spoilers are extended /), she will start to slowly descend. Lowering the gear will further increase the rate of descent. In "dirty" mode (ie, F8, gear and spoilers extended), Supercar will require almost 1/3 to half power to maintain a hover. In actual fact, you will be creeping forward at around 18-25kts.

LANDING

Visually aim for your intended landing site, decreasing altitude to approx 1000-1500 ft above ground level and approach as with any normal aircraft. Speed should be in the vicinity of 120-200 kts. Fly almost right up to your landing site, extend spoilers (/) and gear (G) and select idle power with nose slightly down to ensure you can see your landing site. (Turning the dash panel off; Shift+1) is most helpful at this point. Supercar will almost immediately come to a standstill in mid-air and begin to sink quite rapidly. Immediately lower flaps to 1 notch (F7) and increase power to half or more to reduce sink rate or maintain altitude. Use tiny amounts of rudder to steer and try NOT to roll or she may sideslip. As you slowly descend and move forward, gradually decrease power and select the next flap notch down. Supercar will pitch up slightly; keep the nose slightly down. At approximately 2-300 ft off the ground, select full Vertical mode (Flaps fully down F8), and slowly reduce power, keeping the nose level or slightly raised.

If you find you are creeping forward too quickly, cut power completely and Supercar will drop almost vertically. Be ready to give a small burst of power just before she touches down, then kill the power and engage the brakes.

NOTE: Supercar can sustain a power-off vertical landing in F8 mode (in the event of engine failure for example), with gear and spoilers extended, but it will be a bit hard, rough and bouncy. As with a conventional landing, a near vertical landing requires a great deal of practice.

SPECIAL TAKEOFF AND LANDING MODE SITUATIONS

Although it may "feel" as if there is not much difference between full vertical and in between modes, there is! Experiment in these modes, both with gear and spoilers retracted or extended. For example, In moderate to strong winds DO NOT select full vertical modes for takeoff or landing and do NOT use the spoilers except to slow down; Supercar will be flipped on its back from the wind. Therefore, if on the ground, taxi into the wind with Flaps fully up, then engage only the first notch of flaps for a vertical takeoff. Likewise, for landing, determine the wind direction, point Supercar into the wind, select the first notch DOWN on the flaps, point the nose down and land by carefully adjusting the power. The minute you touch down select FULL horizontal mode (F5), select the brakes, and perhaps fire the retros (extend the spoilers /).

RECOMMENDED SPEEDS vs ALTITUDES

In manual flight mode (i.e. Auto Pilot OFF), Supercar can be flown at maximum power from sea level although maximum speed at sea level will be around 12-1300 kts. As altitude increases, so will the max speed up to 1680 kts.

Due to certain instabilities when the auto pilot is engaged, these recommended speeds and altitudes should be used:

For ease of manoeuvring after takeoff, or for landing approach, maintain a speed of around Mach 0.25 - Mach 0.4.

0 - 1000 ft Mach 1.1 Max
1000 - 10,000 ft Mach 1.1 - 1.3 Max
10 - 20,000 ft Mach 1.3 - 1.7 Max
20 - 30,000 ft Mach 1.7 - 2.1 Max
30 - 40,000 ft Mach 2.05 - 2.4 Max
40 - 50,000 ft Mach 2.4 - 2.92 Max
50,000 ft+ Mach - 2.9 Cruise, Mach 2.93 Max

For high-speed, high-G turns over Mach 1, roll Supercar almost 90 degrees on to its side, and pull back (up) on the stick.

Supercar can also be flown at very low speeds with gear down in full Horizontal mode at around 70-80 kts but requires a very nose-high attitude. She will stall at around 50 kts.

NOTE: If altitudes over 60,000 ft are selected on autopilot, you will have to manually stop Supercar climbing by selecting "0" Rate of Climb in the VSI once the desired altitude is reached. For example: If your target altitude is 80,000 ft, enter this into the Altitude setting of the autopilot. Maximum VSI can be set to 7000 ft per min. As you approach 75,000 ft, gradually reduce the rate of climb in the VSI selector on the dash panel. Suddenly going from 7000 fpm to "0" fpm is a bit severe and may cause Supercar to porpoise all over the sky at high speed. If this occurs, reduce power or extend the spoilers briefly to reduce speed until buffeting desists, then bring full power back up.

Likewise, you will have to manually manage an autopilot descent with both speed and rate of descent. At 6000 fpm descent from 80,000 ft altitude and at Mach 2.9, it's going to take quite a while to come down to a landing altitude and you will have travelled several hundred miles! Technique I use is to disengage all but the heading on the autopilot at about 200 nm from touchdown point, and gently trim the nose nose down and reduce power to maintain a high speed descent. When the target landing site is visually seen, you can fly in manually.

Supercar Challenge - GPS Routing

The following GPS routing can be loaded into the Flight Planner to use with the GPS panel.

```
[flightplan]
title=Supercar-Challenge
description=NV05, NV05
type=VFR
routetype=0
cruising_altitude=15000
departure_id=NV05, N41* 7.70', W119* 8.19', +004149.99
departure_position=18
destination_id=NV05, N41* 7.70', W119* 8.19', +004149.99
departure_name=Black Rock Desert
destination_name=Black Rock Desert
alternate_name=
waypoint.0=NV05, A, N41* 7.70', W119* 8.19', +004149.99,
waypoint.1=K2FMG, V+LOCWAY, N39* 31.88', W119* 39.36', +000000.00,
waypoint.2=KRNO, A, N39* 30.80', W119* 46.15', +004410.99,
waypoint.3=K2OAK, V+LOCWAY, N37* 43.56', W122* 13.41', +000000.00,
waypoint.4=KSFO, A, N37* 36.82', W122* 21.46', +000011.00,
waypoint.5=K2SAU, V+LOCWAY, N37* 51.32', W122* 31.37', +000000.00,
waypoint.6=KHAF, A, N37* 31.11', W122* 30.39', +000067.00,
waypoint.7=KMRY, A, N36* 35.46', W121* 51.37', +000254.00,
waypoint.8=K2BSR, V+LOCWAY, N36* 10.88', W121* 38.53', +000000.00,
waypoint.9=KLAS, A, N36* 4.54', W115* 10.19', +002179.00,
waypoint.10=K2GCN, V+LOCWAY, N35* 57.62', W112* 8.76', +000000.00,
waypoint.11=KGCN, A, N35* 56.60', W112* 9.39', +006604.99,
waypoint.12=KLAS, A, N36* 4.54', W115* 10.19', +002179.00,
waypoint.13=MCY, N, N36* 37.65', W116* 1.65', +000000.00,
waypoint.14=NV05, N41* 7.70', W119* 8.19', +004149.99,
```

Supercar Challenge

Supercar Challenge

<http://www.aiai.ed.ac.uk/~bat/GA/supercar-msfs-challenge.html>

Supercar Area 51 Challenge

<http://www.aiai.ed.ac.uk/~bat/GA/SC-MODEL/MSFS/Supercar-Area-51.txt>

It is 15-Oct-97. As a challenge try the following:

1. Take off from Black Rock Desert, Nevada, USA
2. Watch out for [Thrust SSC](#) achieving the first supersonic world land speed record at the Black Rock Desert on 15-Oct-97.
3. Head roughly South (heading approximately 180 degrees).
4. Acquire the VOR at Mustang to head towards Reno.
5. Land at Reno/Tahoe International. Try an ILS approach perhaps.
6. Take off and head SW (heading approximately 225 degrees).
7. Acquire the VOR at Oakland (OAK) and head towards it.

8. Land at San Francisco International - possibly on runway 28R. Good instrument landing and runway lighting aids are available on this runway, so perhaps try a low visibility approach. Set up for 5 miles visibility.
9. Set the weather to clear again, take off, and take a spin over San Francisco.
10. Fly over Alcatraz and under the Golden Gate Bridge.
11. Fly to the South along the Pacific coastline past Santa Cruz and across the bay to Monterey.
12. Acquire the VOR at Big Sur and fly down the coastline to approximately latitude N36 degrees.
13. Head East (heading 90 degrees) towards Las Vegas. This is a long trip, so you may want to speed up the simulation rate when you have the course set.
14. Tune in to the VOR at Las Vegas and head there.
15. It should be getting late now, so set up for night flying.
16. Fly down the strip from the Stratosphere tower in the North to the Luxor Hotel pyramid.
17. Land at Las Vegas and take a well earned overnight break - possibly at the [Hard Rock Las Vegas Hotel](#)
18. Side Trip - if you have extra time, try this side trip...
 - o Take off from Las Vegas and head SE.
 - o Fly over the Hoover Dam.
 - o Travel East along Lake Mead.
 - o Acquire the VOR at Grand Canyon and head there.
 - o Land at Grand Canyon National Park Airport, Arizona.
 - o Fly the Grand Canyon... Take off from Runway 03, turn to a heading of 10 degrees and head for the gap in the mountains. This is the mouth of the Grand Canyon. Fly in at approximately 10,000 ft. altitude until you get your bearings. Then try a (now illegal to normal traffic) flight below the height of the rim.
 - o Return to the Las Vegas area, for another overnight stay and refuelling.
19. Take off from Las Vegas, and see the Strip from the air in daylight.
20. Heading approximately NW, acquire and fly over the NDB station at Mercury, Nevada. You are not far from the fabled Area 51 around Groom Lake here. See the additional [Supercar Area 51 Challenge](#). Some of the folks on the ground may report Supercar as an UFO!
21. Continue to head in a NE direction, towards Reno at first. Another long trip, so set the autopilot for this leg.
22. Land back at Black Rock Laboratory, Black Rock Desert.

Supercar for Microsoft Flight Simulator – Version History

17-Mar-96	Version 1.0	Original release by Austin Tate.
2-Jan-97	Version 1.1	FS for W95 ready to fly version added.
16-Apr-97	Version 1.1a	Instructions for FS for W95 corrected.
17-May-98	Version 1.1b	FS98 ready to fly version added.
31-Mar-99	Version 1.1c	For FS98. Improved textures. Added checklists. Added Clear-Vu and experimental panels. Altered copyright for Supercar from Polygram to Carlton.
22-Apr-99	Version 1.1d	For FS98 and CFS. Added features for Combat Flight Simulator. Improved Panels. Added Internal View Dash.
4-May-99	Version 1.1e	For FS98 and CFS. Improved Combat Flight Simulator Damage Profile.
6-Jun-99	Version 2.0a	Aircraft Factory 99 model.
23-Jun-99	Version 2.0b	Aircraft Animator - Added landing lights.
14-Nov-99	Version 2.0c	Improved 3D visual model. GPS panel for FS2000.
16-Nov-99	Version 2.0d	Improved 3D visual model.
24-Nov-99	Version 2.0e	Final releases of Flight Shop Aircraft Factory 5, Flight Simulator 5.1 and Flight Simulator for Windows 95 versions of Supercar.
14-Dec-99	Version 2.1a	Improved 3D visual model. Internal cockpit details.
30-Jan-2000	Version 2.1b	Improved 3D visual model. New sound configuration. Improved flight dynamics.
30-May-2000	Version 2.2	Final releases of Aircraft Factory 99, Flight Simulator 98 and Combat Flight Simulator versions of Supercar. Corrected a problem with the FS98 startup situation. Improved flight dynamics. New Black Rock scenery. Improved panel bitmaps.
31-May-2000	Version 3.0	FS2000 only. New FS Design Studio model. New Black Rock scenery with FSDS Lab. Original simple sound configuration.
5-Sep-2000	Version 3.1	FS2000/CFS2 only. Improved visual model. CFS2 damage profile included.

28-Apr-2001	Version 3.2	FS2000/CFS2 only. Improved visual model. Cockpit and pilot details improved. Turbo flight dynamics option. CFS2 instructions.
5-Jul-2002	Version 3.3	FS2000/FS2002/CFS2 only. Amended FS2002 instructions. Amended CFS2 usage instructions and panel documentation. Main Fuselage bitmap altered to have two fuel filler caps.
8-Sep-2003	Version 4.0	FS2004/FS2002 only. Completely new version for FS2004 using Gmax visual model by Brian Douglas, Mateen Greenway, Mick Imrie and Austin Tate. New FS2002/4 flight dynamics by Brian Douglas. Flame effects by Rob Barendregt. New Flight Simulator Splash Screens.
5-Oct-2003	Version 4.1	FS2004/FS2002 only. Small improvements to flight dynamics.
31-Mar-2012	Version 4.2	FSX only. Based on version 4.1 for FS2004 using same Gmax visual model by Brian Douglas, Mateen Greenway, Mick Imrie and Austin Tate. Adjustments to some text files and file locations.
16-Apr-2012	Version 4.3	FSX Only. Corrections to pilot's eye view point, smoke emission position, and filename/craft name changes. Included Black Rock Desert scenery by Iain Murray. Included Supercar documentation.
17-Apr-2012	Version 5.0	FSX Only. Tested and refined version.

