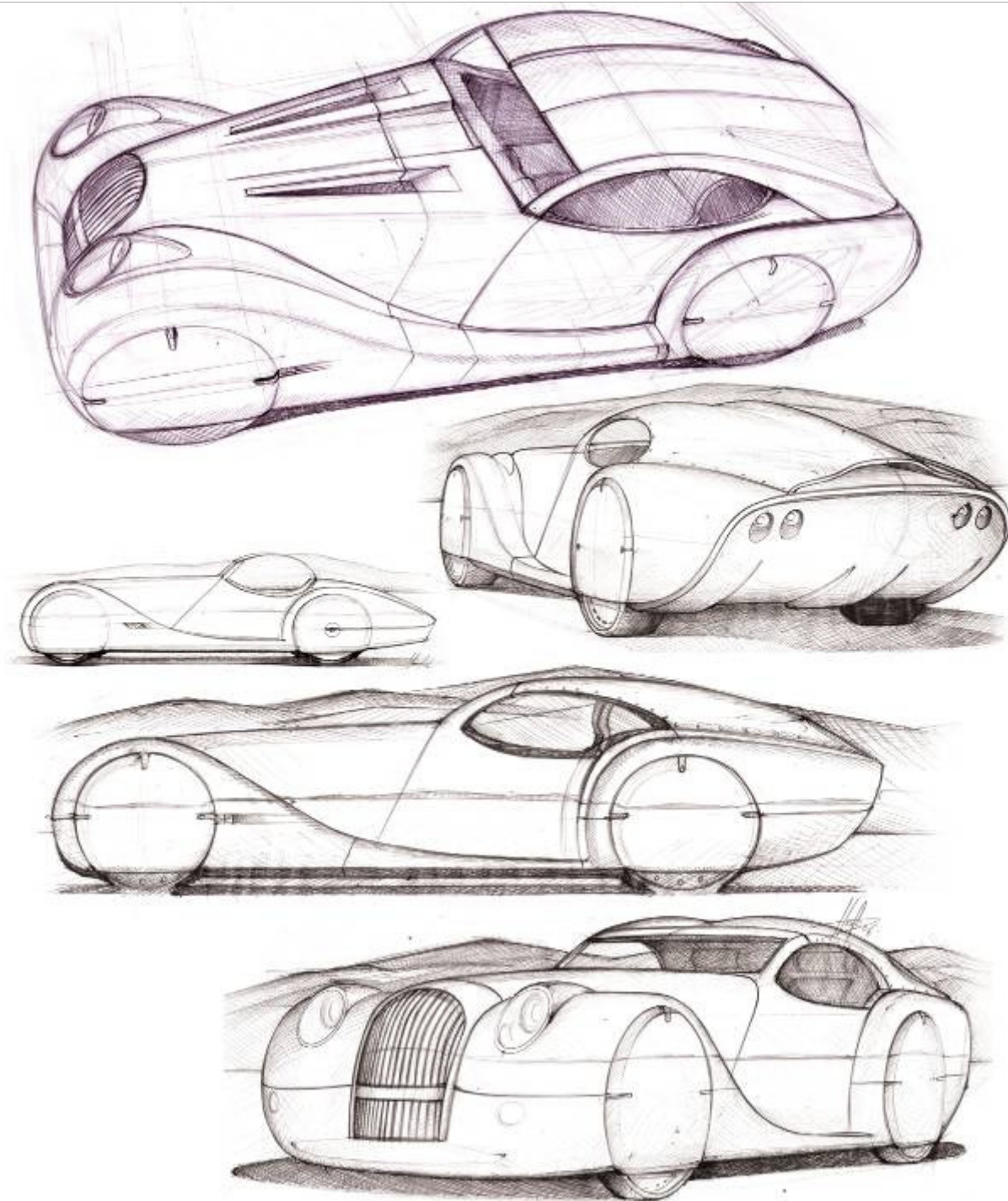
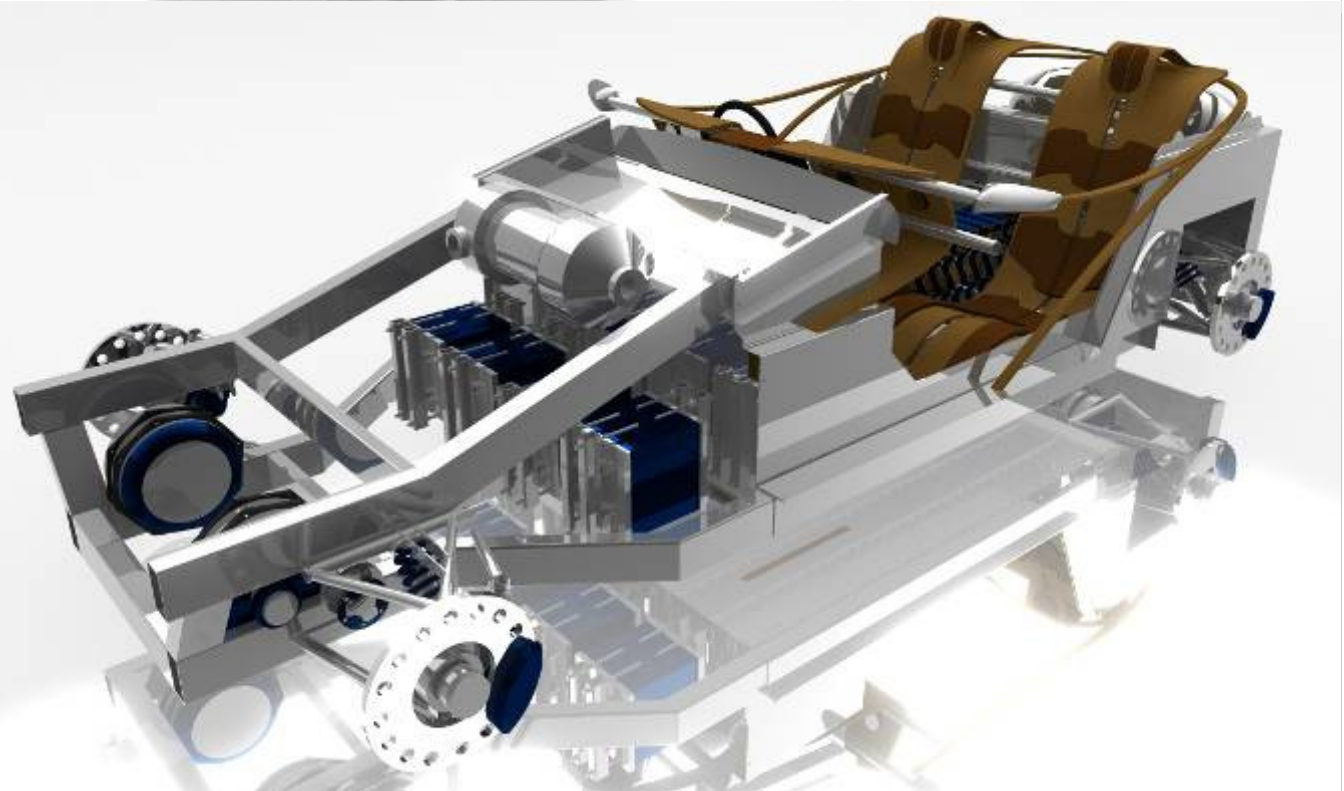
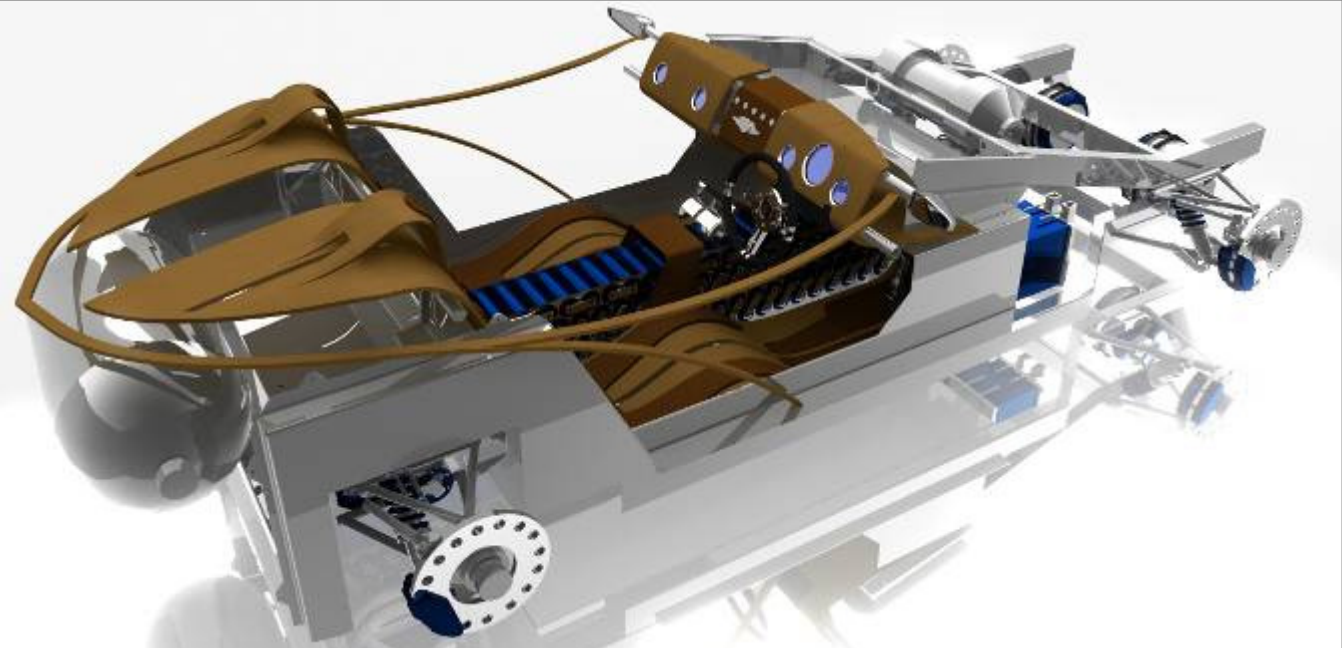


The birth of the LIFE Car



Early hand drawn design sketches show the overall goal to create a car that looks like a Morgan but has superior aero dynamics to make it slip through the air.

The car will conserve energy when it is at speed.

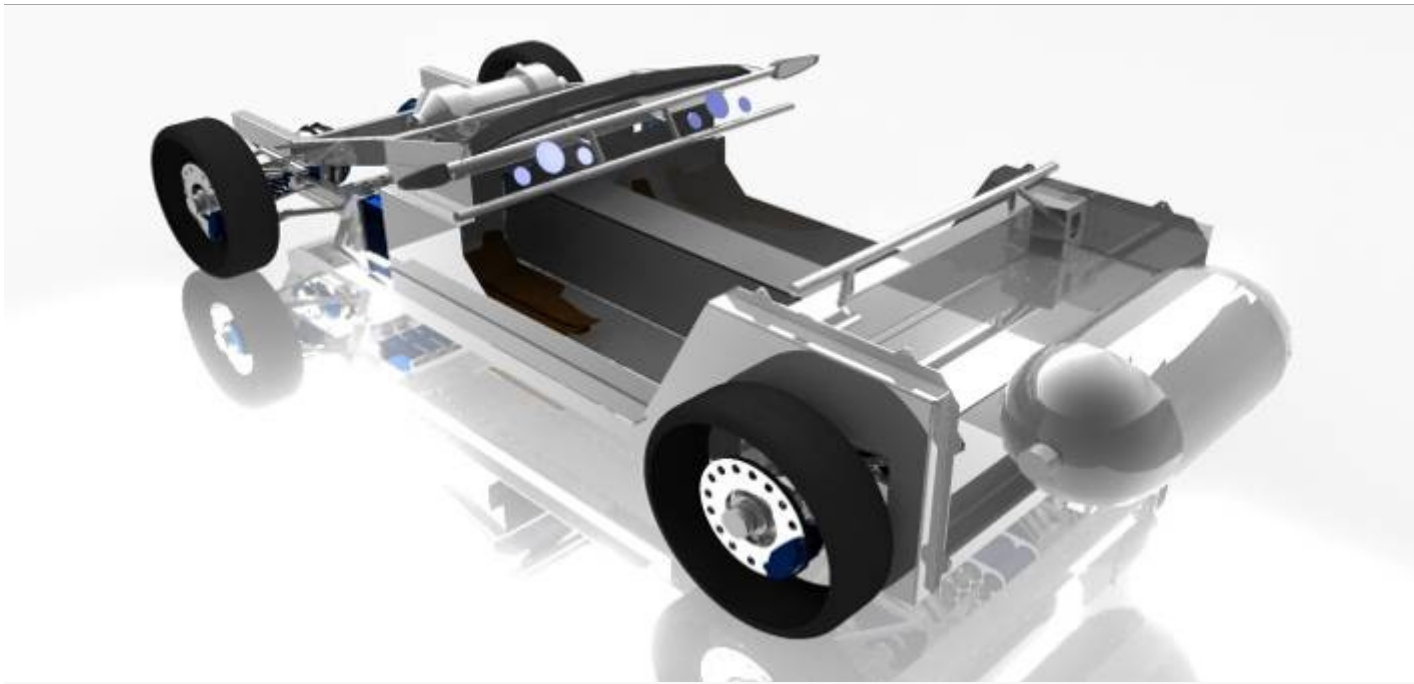


The next stage is to create an accurate computer model with precise dimensions from which parts can be made.

Morgan technologies, for example bonded aluminium and laminated wood, were incorporated in the design from the start.

The computer model contains all the independent parts of the car and can either show them separately or all together in a full scale mock up.

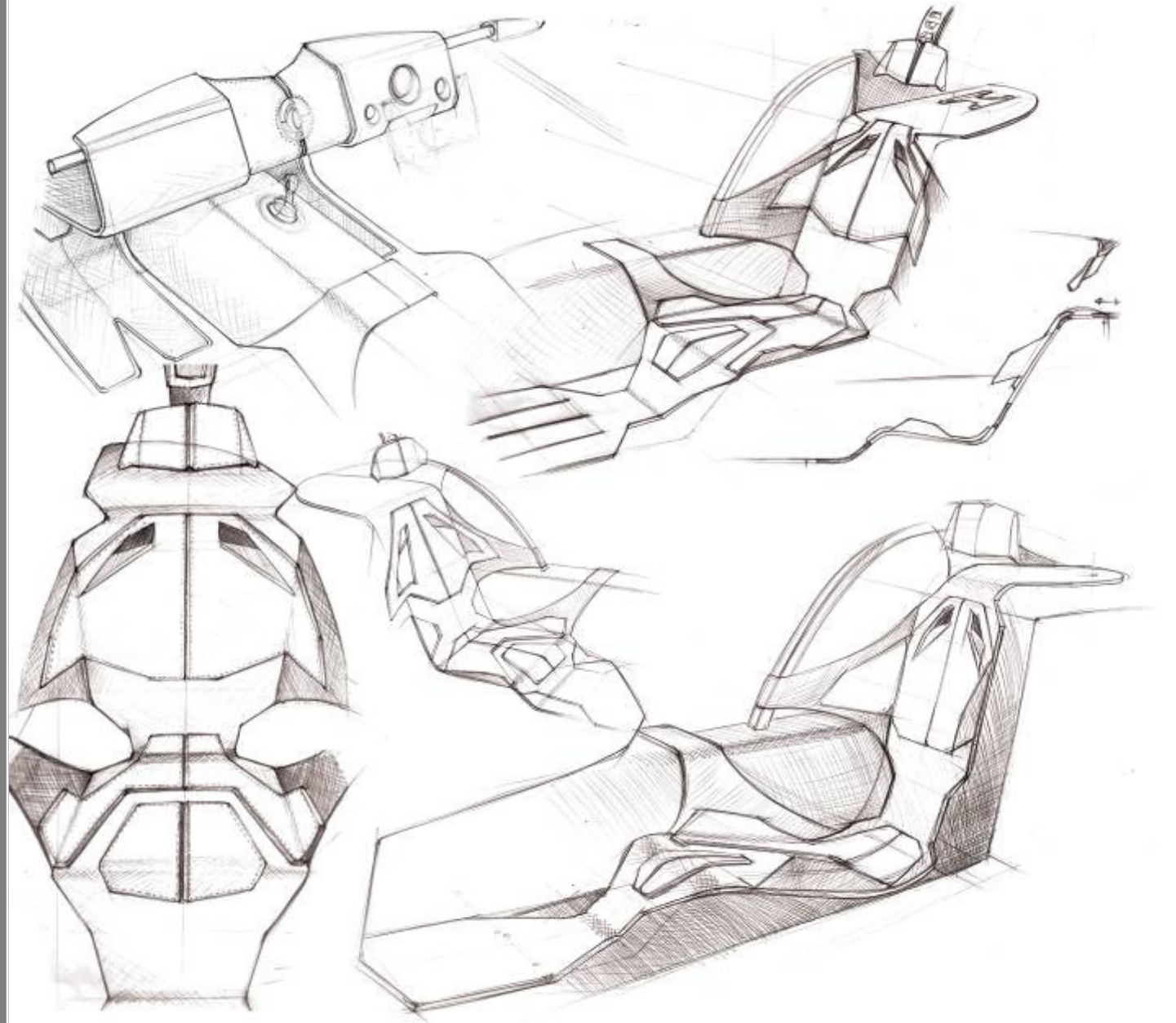




The LIFEcar had to be light with a target of 650kg for overall weight. This is less than half the weight of a conventional steel car.

Lightweight aluminium material is used for the chassis.

The tank for the hydrogen storage seen at the back of the chassis is made from carbon fibre wound round a drum. This tank can withstand being dropped from an aircraft to the ground.



Although the car is very light the driver has to be comfortable.

The design must also satisfy the Department of Transport that it surpasses all safety tests.

The eventual seat design combines practicality with aesthetics.

Made from laminated ash the design will protect the driver and passenger as well as look pleasing.



SEAT CONCEPT

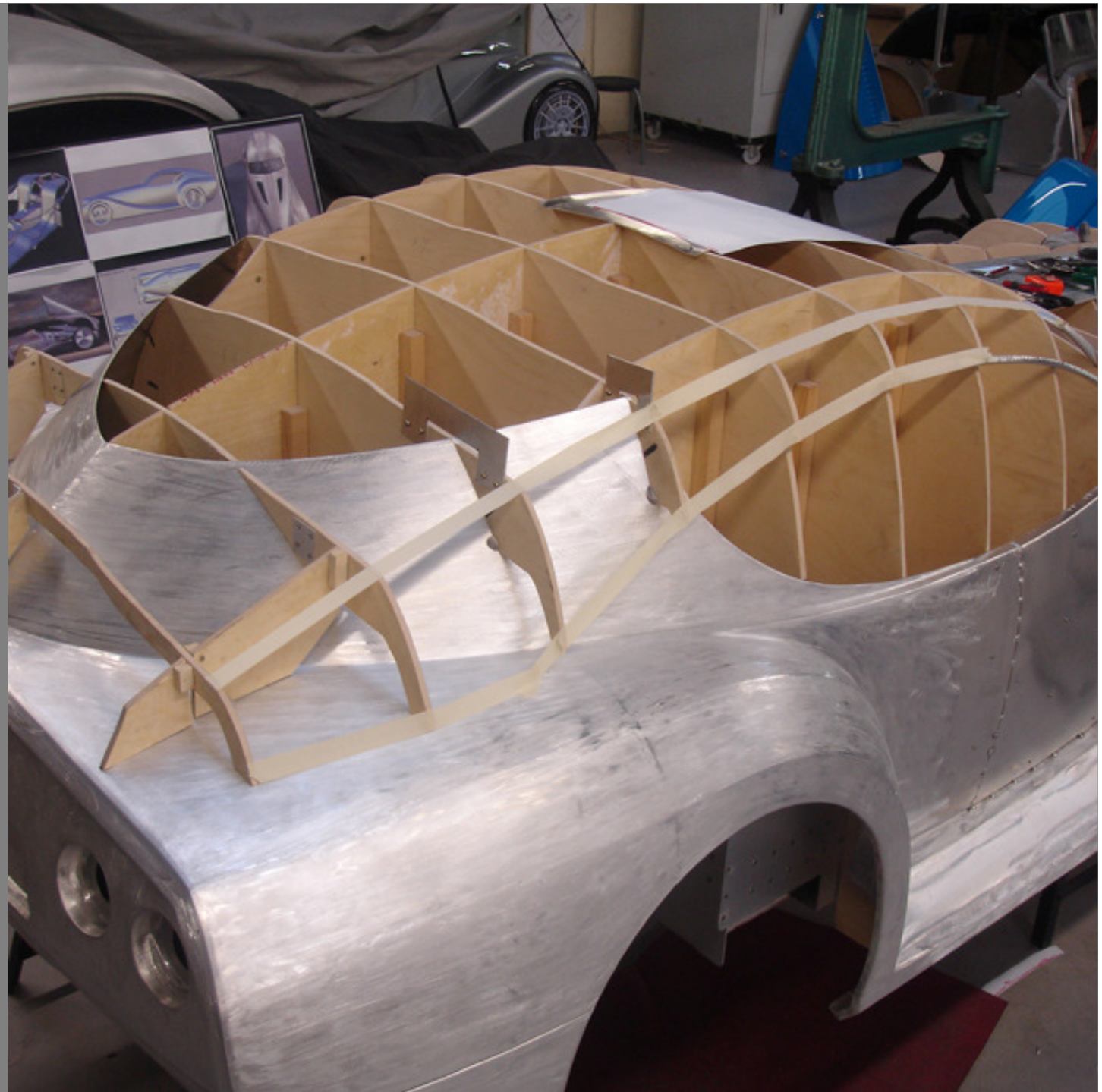




Controls are different to a conventional car, instead of mechanical linkages to the throttle and brakes, electronic signals make the car stop and go.

This allows the seat to be fixed and the pedals to move to accommodate taller drivers.





Once the chassis and cockpit are designed the outer skin can be formed.

The computer model is used to make an "egg box" out of wood.

Where the wood crosses is the exact point in space where the body should fit.

Aluminium is then rolled and cut to fit the "egg box".



The aluminium body is made in sections.

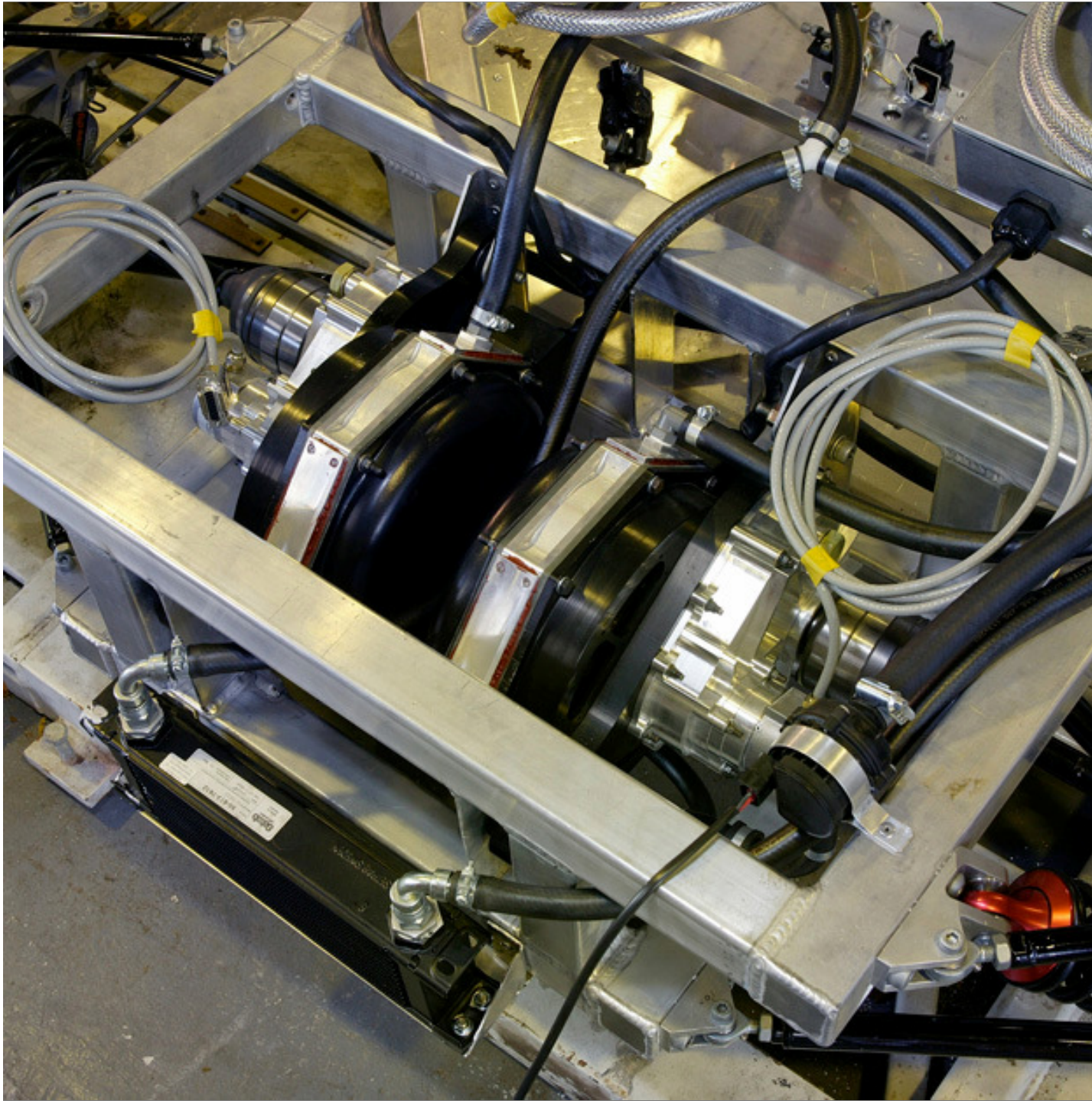
A skilled metal worker then carefully welds each section together.

The suspension of the car follows race car design with long wishbones to give good geometrical precision. In this picture the combined spring and shock absorber unit can be seen together with the cast aluminium upright which contains the wheel bearing.

At speed the polarity of the magnets in the electric motor generators is reversed to give powerful braking.

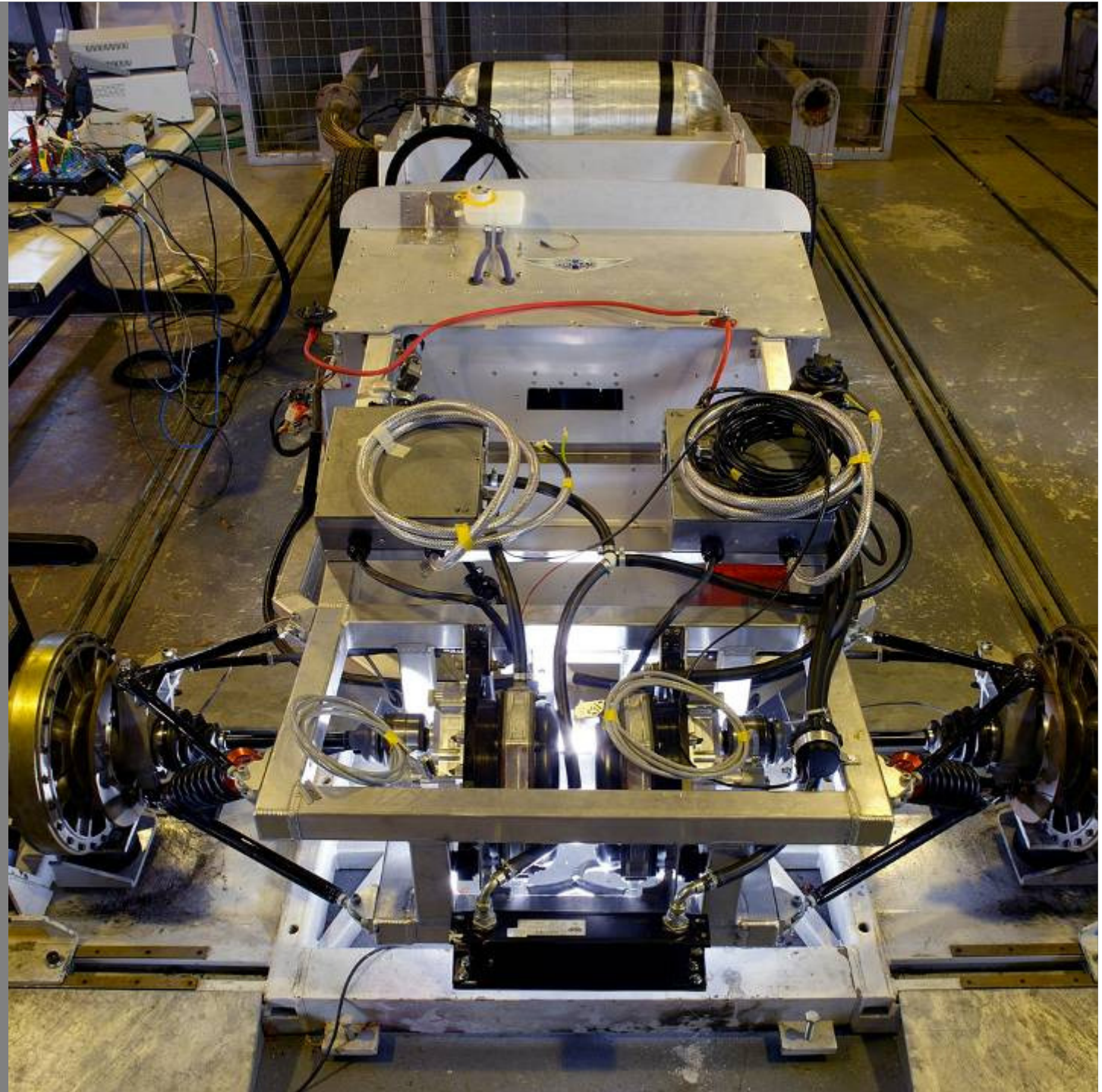
A small conventional brake is fitted to bring the car to a complete stop.





The four 95% efficient electric motor generators are mounted on the chassis to make sure the un-sprung weight of the wheel is as low as possible .

This will improve the ride and handling and give the car a more sporting feel.

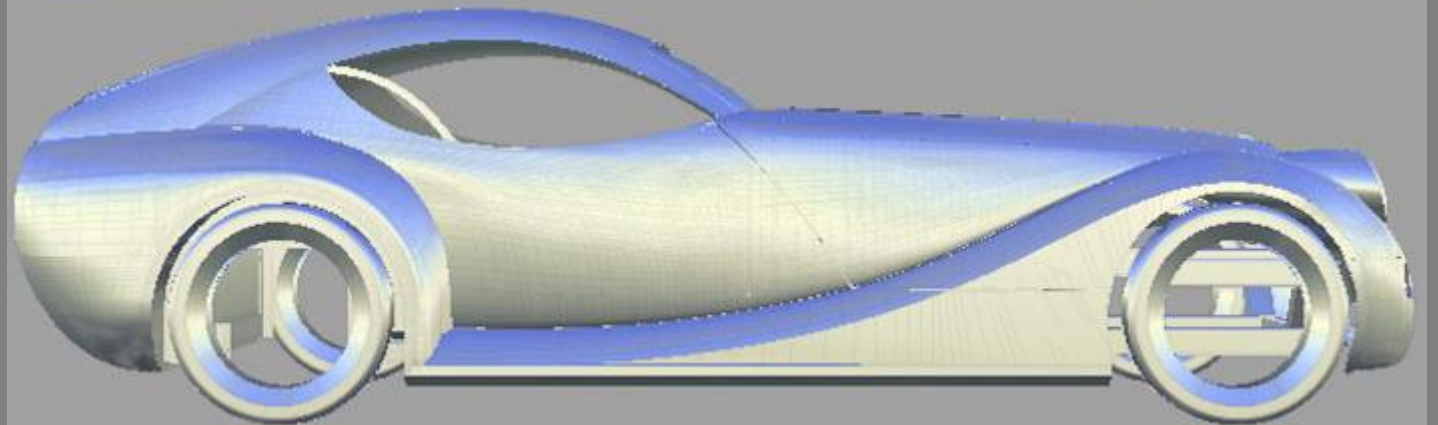


The motors are connected to the wheels by drive shafts through four small gearboxes to maximise the efficiency of the motors.

In this picture the two oil coolers for the electric motors can also be seen on top of the chassis.

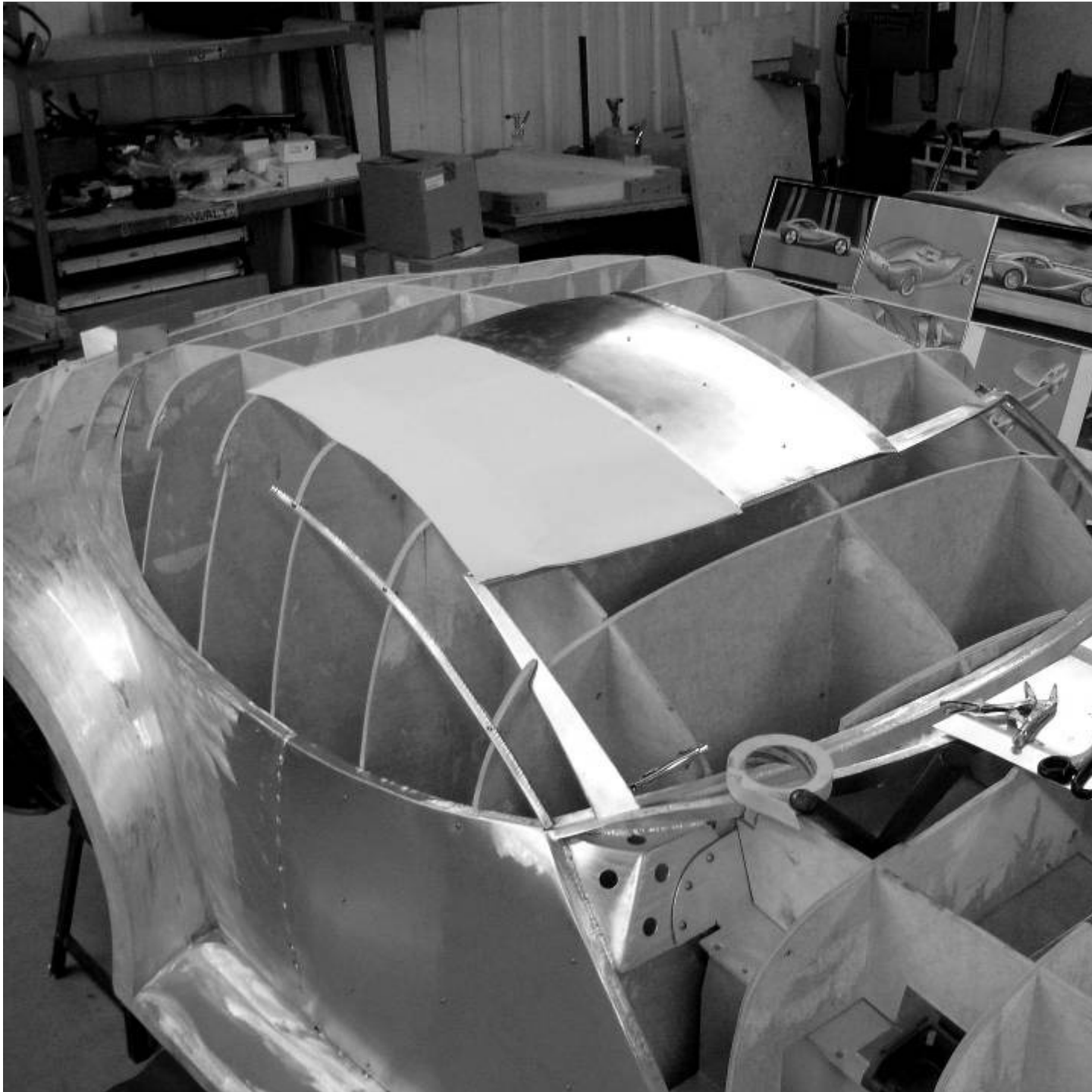


The aluminium body must incorporate lighting that meets the of EEC standards for passenger cars.



Once finished the prototype exactly matches the computer model made at the start of the project.

Showing here the rendered, computer and final images.

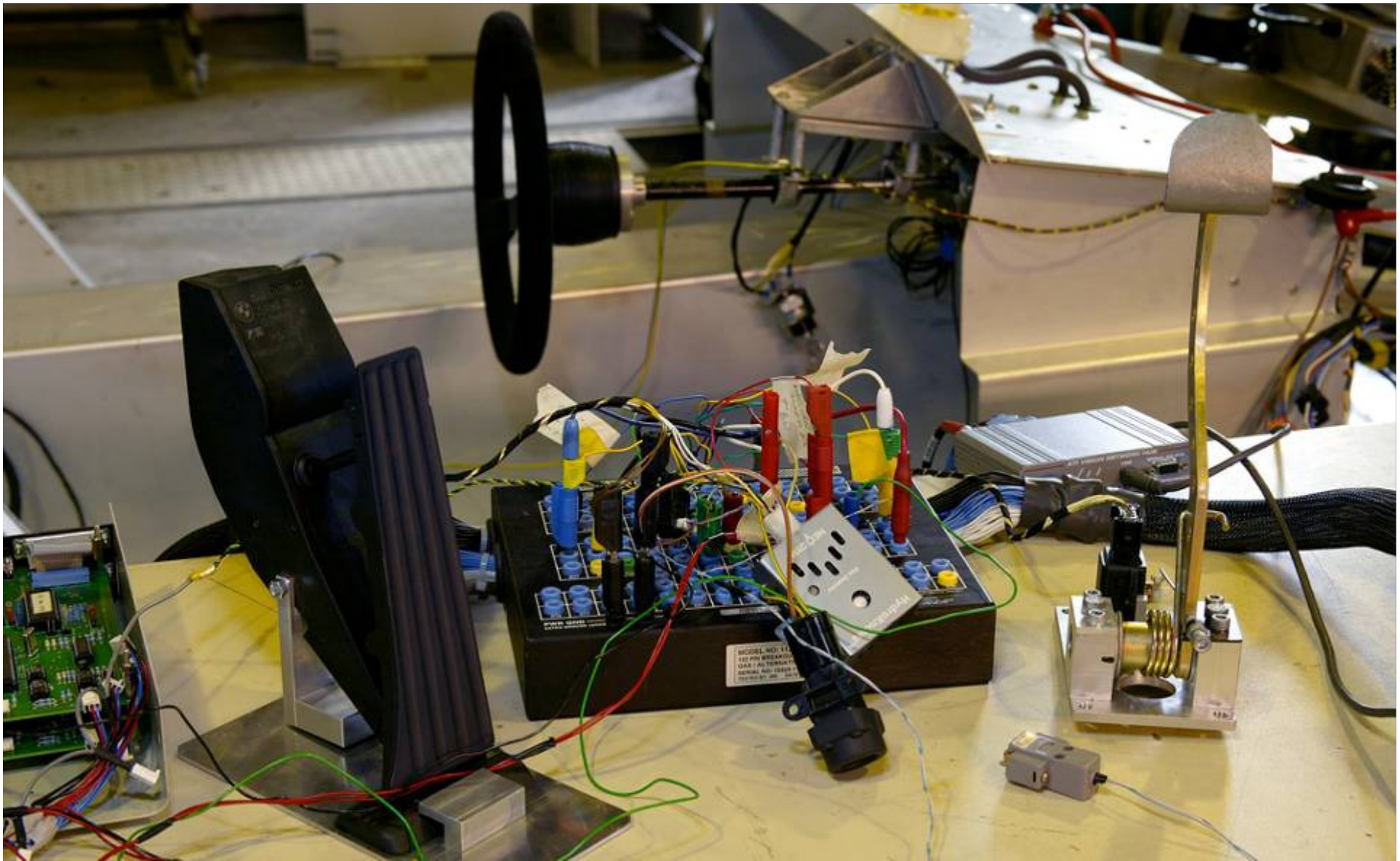


The windscreen incorporating the wipers is as aerodynamic as possible while offering a good view of the road ahead.



The chassis is tested on a dynamometer. This allows the engineers to check the operation of the software that makes the car stop, start and go.





Many hours are required on the dynamometer to programme this software. The “drive by wire” brake and accelerator pedal are seen here on the right and left.





The finished prototype is ready for testing on a track.

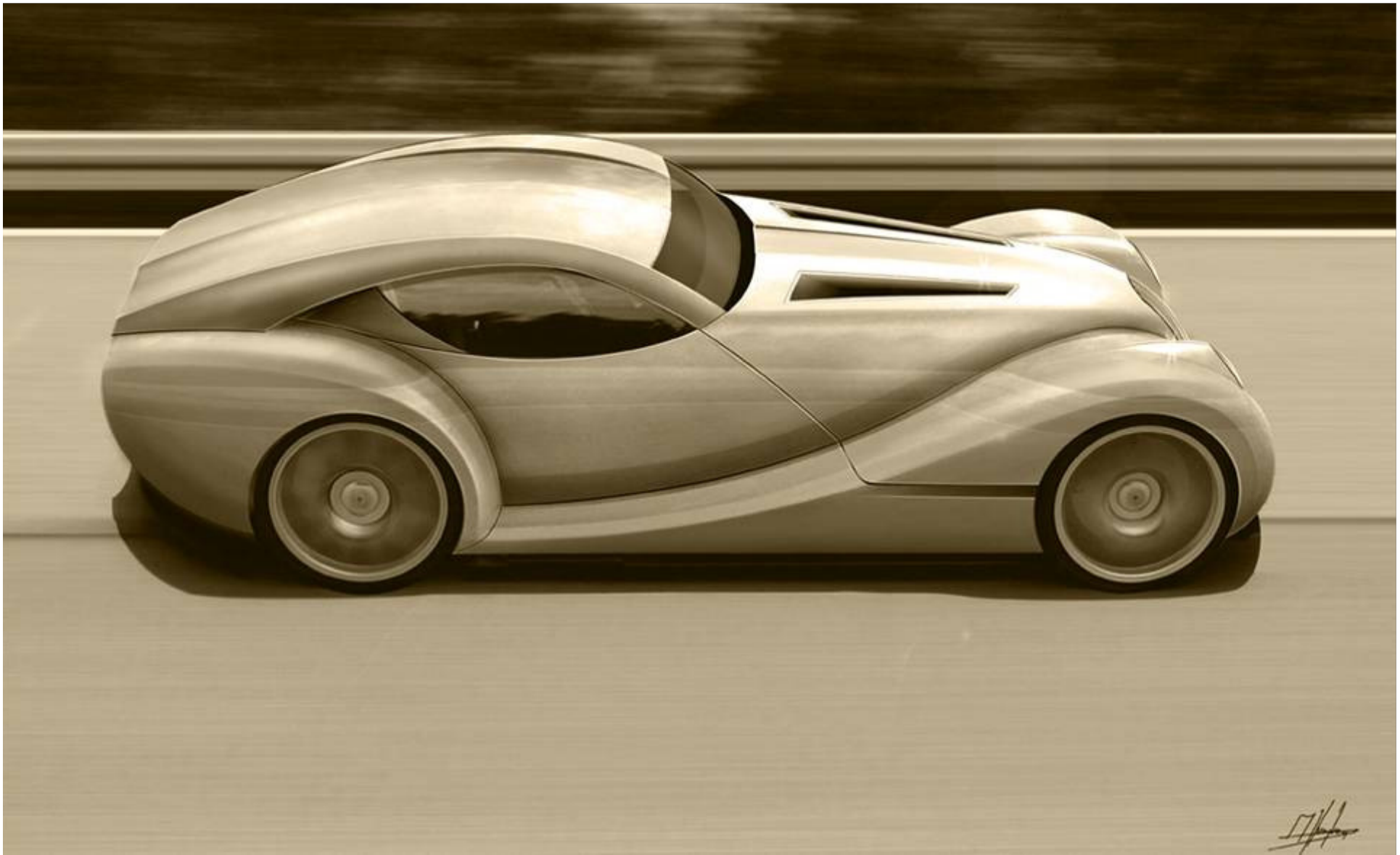
Many hours on a test track are necessary before the prototype is allowed on the open road.



Prototypes will then accumulate thousands of miles on the open road to mirror all the different climates and road surfaces real cars will encounter in the hands of their owners.

Finally the finished production car is ready with its lightweight chassis and aerodynamic body work.





The performance figures are measured. A 250 mile range,  
0 – 60 in 7 seconds and 150 miles to every gallon of fuel consumed.  
Zero emission of toxic waste with all the fun of a sports car.



The prototype shown at the Geneva Auto show March 2008

