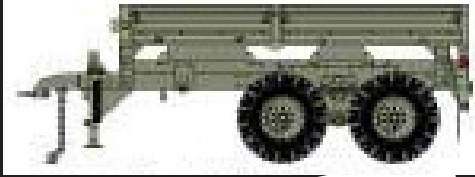


# Automotive



# Automotive

**T**he purpose of this document is to detail some of my work , interest ,hobbies and ultimately to give the reader a feel for my capabilities. The following images are iconic to the vehicle lines I have worked on in the past. In the following pages I will detail my involvement and responsibilities.

Relative to the automotive industry the most recent projects have been in the **California E-Vehicle Market.**

First of which the Tesla experience. One of the best experiences I've had working in the automotive industry. Simply put the cultural and technological experience was priceless.

Working on the **Models S refresh and later the Model X release and launch.** Within the Plastic and Composites group design and engineering assignments in the areas of Front, Rear Fascia Assemblies, Engine compartment and Exterior components were completed and delivered. Also included were drawing and GD+T releases.

Successful "Tesla Style" Model X launch included in this time frame.



# Automotive

As the E-Vehicle market warms up more and more players/countries are setting their sights on this market. Two Chinese newbies are Faraday Future (FF) and SF Motors (*initially a joint venture between the Sokon Motors and another entity which remains unnamed*).

While working for SF motors I worked in the "Integration Team" which allowed me to work in virtually every area of the vehicle. From Studio sur-



face feasibility to Occupant Packaging, Door feasibility to Exteriors, International

(German) Team Coordination meetings to Benchmarking and competitive vehicle analysis. Advance vehicle development is my comfort zone. I found the work very satisfying.

Faraday Future - this project was initiated by a Tata Team with myself joining the team in the last phase of the project. Body In White (BIW) development was led by the FF manager with assistance from the Tata team. CATIA V6 was the system of choice there. Some Plastic Exterior work was



done by myself but predominantly the work was BIW.



# Automotive

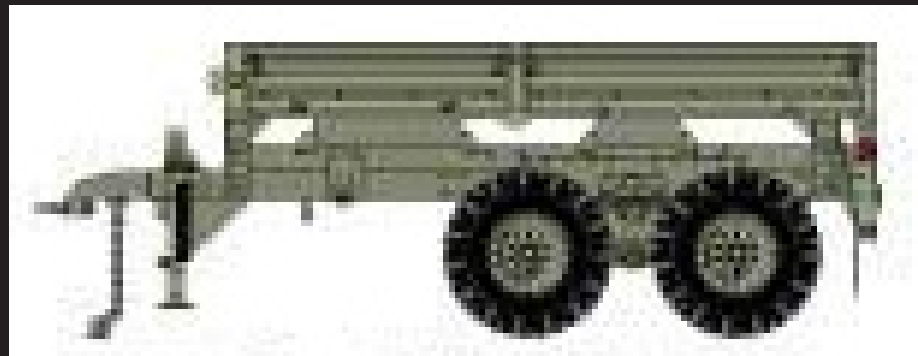
The Challenger Shaker Hood - There are kits available in the public domain which will facilitate the conversion of the production vehicle to a Shaker (Classic Design to name one).



Oshkosh, Navistar Deliver M-ATV Production Vehicles for Military Evaluation

Oshkosh Corporation and Navistar Defense LLC have delivered production-representative MRAP All Terrain Vehicles (M-ATV) to the U.S. Army's Aberdeen Proving Ground in Maryland for military evaluation.

This was a all aluminum design utilizing extrusion and break press technologies. The concept was initiated by Navistar with completion and redesigns done at Quality Metalcrafters in Detroit, MI.



# Automotive

## Honda Research and Development

One of the most impressive companies I have ever had the pleasure to work for was Honda Research and Development.

Working for them in the role of Design Engineer I was involved in a cost and weight reduction project for the Doors. Architectural changes were made to CATIA V4 data on the NEW CATIA V5 system Team Center was also used. A complete Door



Inner and Door Outer was modeled up (including some Design Studio changes) in about 2 weeks. Other door assembly components such as reinforcements and beams were also modeled up.

Even though the time line was short it was a very productive and satisfying program.



# Automotive

## Chrysler Corporation

Although deemed as a “Launch and Deployment” project much time was spent on design challenges brought about from the switch to CATIA V5. Even the most experienced Design Engineers were sometimes challenged with the application.

Responsible for Best Practices and Methodologies within CATIA V5 I and my team supported all Engineering groups including Body, Chassis, Trim and Electrical.

I have worked in all of these groups at one time or another in the role I was now supporting.



### It worked!

Working in this support role gave me more time to focus purely on the technology of CATIA V5 and all of the various workbenches there by honing my skills for the future.

In this role problem solving was taken to a whole new level. Amplified by the hundreds of users supported I was able to experience years



# Automotive

## Chrysler Corporation con't

worth of design issues in a very condensed amount of time.

Working through Magna Steyr Corp. I worked in the advanced underbody group for the new Sebring Convertible and Coupe.

As a Design Engineer I was responsible for new underbody stamped designs, GD + T and production drawings. I worked on several problem solving teams including the Body Side Inner fuel filler drain issue which at the time had no ideal resolution. In the end my proposal was made and implemented to the great satisfaction of our management team. After project launch I went back in house to Chrysler.



# Automotive

## Chrysler Corporation con't

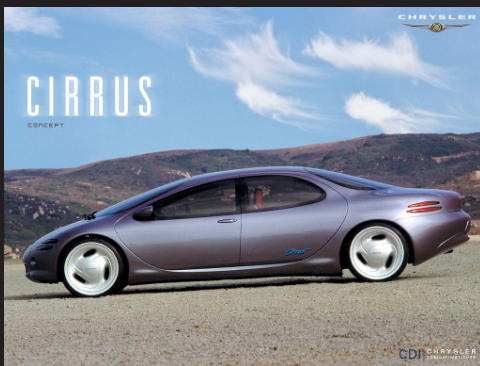
Probably the most rewarding position I ever had would have to be my Advanced Engineering role currently referred to as Knowledge Based Engineering (KBE). I worked in the Body in White Door Group.

It was here I learned the difference between a Advanced Engineering Group and a Production Group. Here I worked with some of the best in the business. Guys that had 35 years in advanced engineering! Masons and Philpot colleagues, legends in the business. It was an honor to know them and work side by side with them.

One of the first projects was the all aluminum C300. I noticed it's currently referred to as the Atlantic.



Door feasibility was our speciality. I was responsible for Hinging, Glass Drops, Impact beam packaging and all door



data going into CATIA. Stampings, Roll Forms, Extrusions and Moldings just to name a few.





# Automotive

## Chrysler Corporation con't

Working in conjunction with the Design Studio was constant. It wasn't long before I was offered a position in the Studio which I declined in order to spend more time with the masters. Possibly one of the bigger mistakes I've made, it's hard to say. It sure was some good work.

All in all I've probably spent over 12 years in advanced development positions all over the vehicle typically in Body, Underbody, Doors or Trim for various OEM's and suppliers.

### **Best Team 98LH Advanced meets Production**

After several years a consolidation of engineering resources was made. Now the newly formed "Production Group" would be responsible for advanced development. I was a member of this team. This move consolidated the absolute best management and staff into one group.



Best Bench Marking achievement I have ever seen and best translation into product development.



# Automotive

## Chrysler Corporation con't

My role was design responsibility for the Rear Door Assembly complete. From concept through production design. (Glass Drops, Cutlines, Hinging, I/Beam Package, Latch, Laser Welded Door Inner and stamped reinforcements.)

*I believe this was the height of Chrysler and the recovery effort. It wouldn't be long before Daimler would come into the picture and a merger would take place.*

After program launch the group was disbanded through promotions, transfers and many retired. I went back to contracting for Porsche, a steel consortium known as ULSAC (*Ultra Light Steel Auto Closures Consortium*) and Volvo.

## On time and On Budget

It would be a few years before I would work for Chrysler again. When I did it was at the Jeep Truck facility on the 04 Durango where I managed the mule build which was quite an accomplishment involving the Design, Coordination, Sourcing, follow-up, managing of multiple engineers and down stream activities. Afterwards I joined the Design group as a Design Engineer and worked on the development of the production design for the D Pillar Assembly.



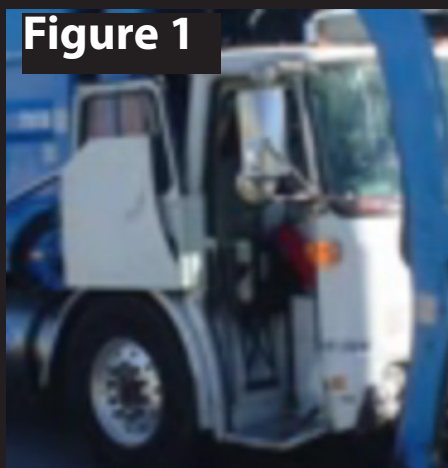
# Automotive

## Volvo Truck The Folding Door

Located in Greensboro, North Carolina Volvo maintained a very well equipped engineering team capable and proven. Many of which came from the North. I to came to see what things were possible in this corporation. The challenges were interesting and design provoking. Based off the previous generation door in very short time we designed and built a Folding Door Design ref. fig. 1.



Although the vehicle and door itself is still in use today it was very quickly identified and proven that various aspects of the design had issues in regards to durability.



**Figure 1**

A alternate design proposal was developed and presented which incorporated a forward swinging bi-fold door. The proposal was never implemented due to time constraints.



# Automotive

## Ultra Light Steel Auto Closures Consortium (ULSAC)

In 1999 I worked a contract through Porche for the steel consortium ULSAC. This was another very fortunate position I found myself in. Working for one of the most advance steel architectural studies every made. It's still being referenced today by many architectural and material usage savvy engineers.



My role was to finish up most of the work that had already be done. Door and Closure Studies times 10 was the order of the day. Structural improving form and CAE studies on a daily bases were the order of the day. Combined with the experience of working for Porsche what more can a young man ask for? Great experience!



# Automotive

## Saturn Corporation Body

My entry into Body design was made at Saturn Corporation. What began as a tag along interview turned into my entry point into the Body in White department.

The original Saturn team had already built some mules along with limited prototype vehicles. The issues with the composite panels were numerous, warping and door swing interferences to name a couple.

The nature of the work was mainly production driven changes. The highlight of the contract was a trouble shooting trip to the Springhill Tenn. assembly plant.

Amazing was the sight of painting fixtures stacked to the ceiling for all those plastic panels!



# Automotive

## Chrysler Corporation Chassis / Drivetrain

Having acquired a foundation in tooling and manufacturing through apprenticeship I was able to cross over into product engineering in the late 1980's . Learning the tools of the trade such as CATIA/CAD and the powers and techniques of descriptive geometry I worked in production groups grinding out 3D data and 2D drawings. *(CAD was in it's infancy)*

Some notable milestones for me was the first recovery of Chrysler fueled by the re-birth of the T300 Ram Pickup and K car. During this time I worked at Jeep Truck in the Chassis Drivetrain group as a Detailer on CATIA.



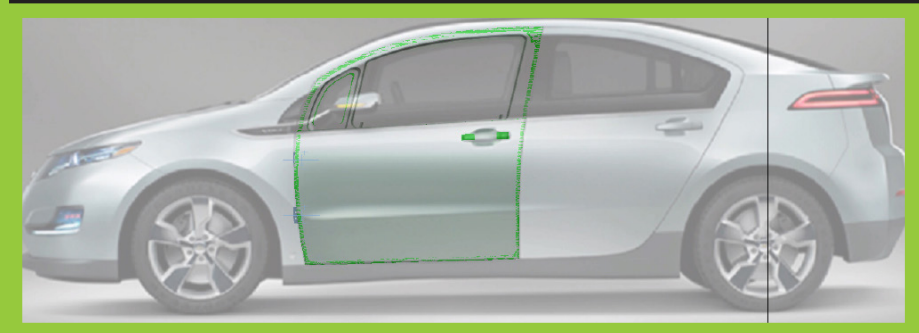
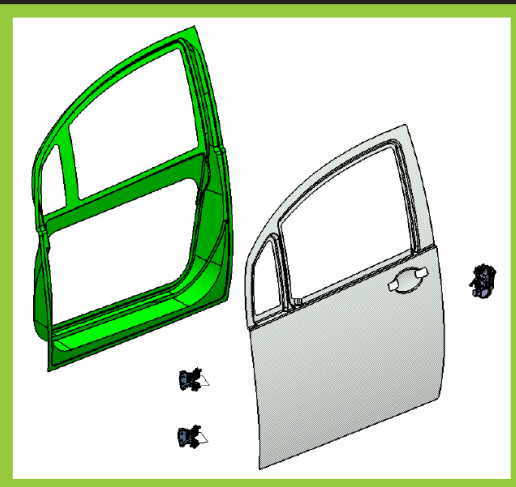
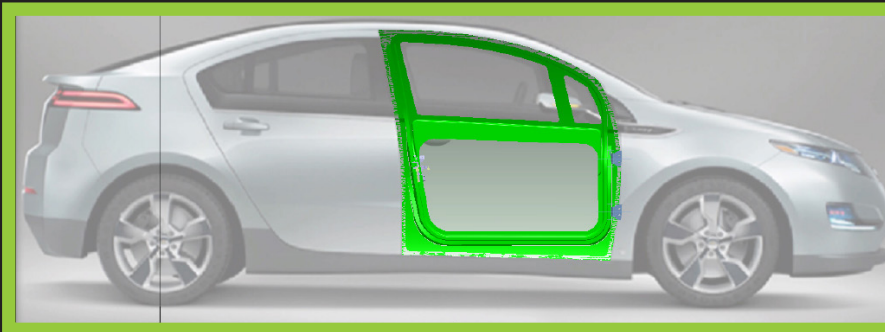
Due to the nature of the position I got to see a lot of other peoples work. It's amazing that at that time Designers were still drawing in 3D using manual drawing descriptive techniques!



# Automotive

## Reverse Engineering Today

**P** primary views and shots are defined and critical dimensions are taken. The images are compiled and imported into a very powerful CAD software system where electronic geometry creation can be initiated. Sheet metal panel development base from the Chevy Volt. (Reverse Engineering of Door in progress.)



# Automotive

## Reverse Engineering

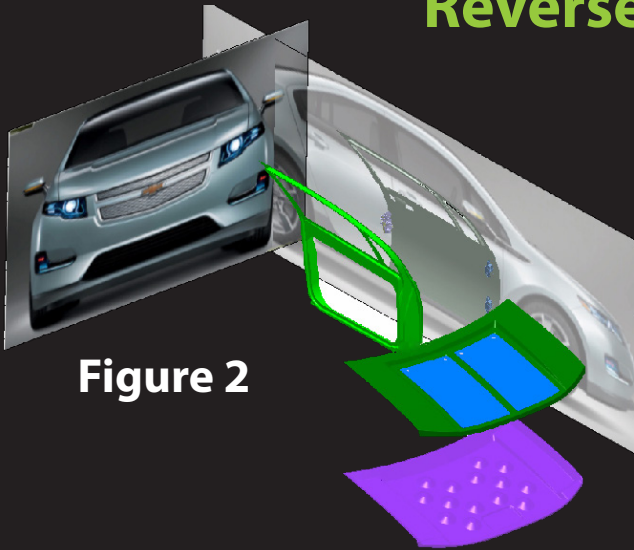


Figure 2

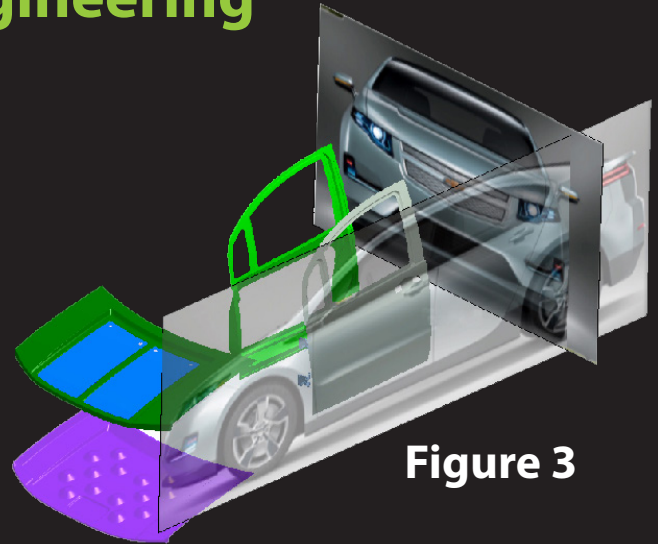
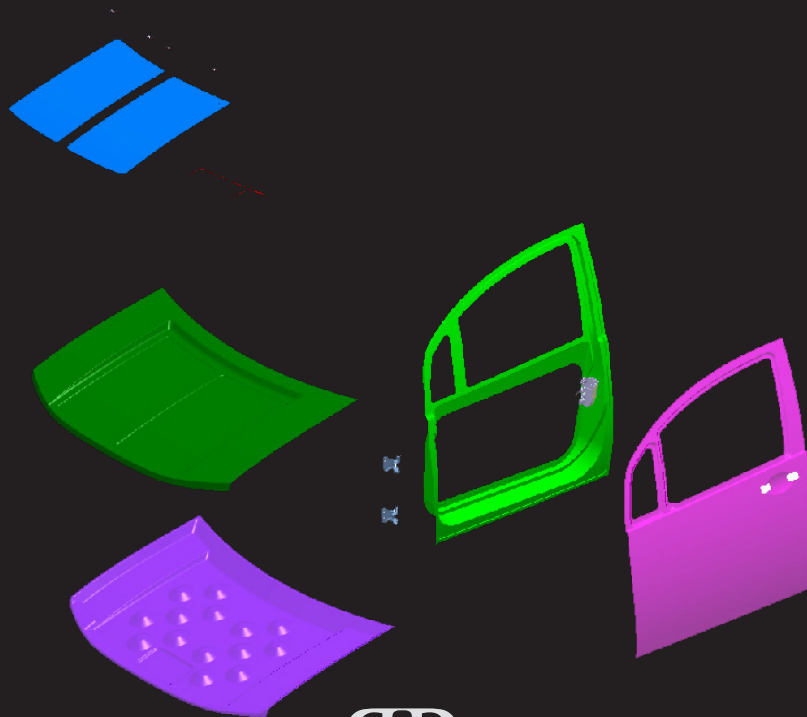


Figure 3

Fig.2 / Fig.3 The images are of the 3D model space. Note the 2D starting image. (Chevy Volt)

Below: only the final data is shown.

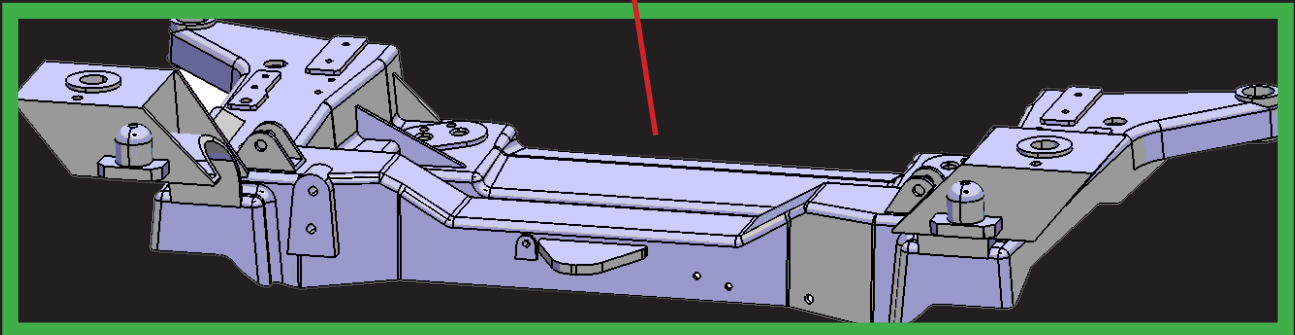
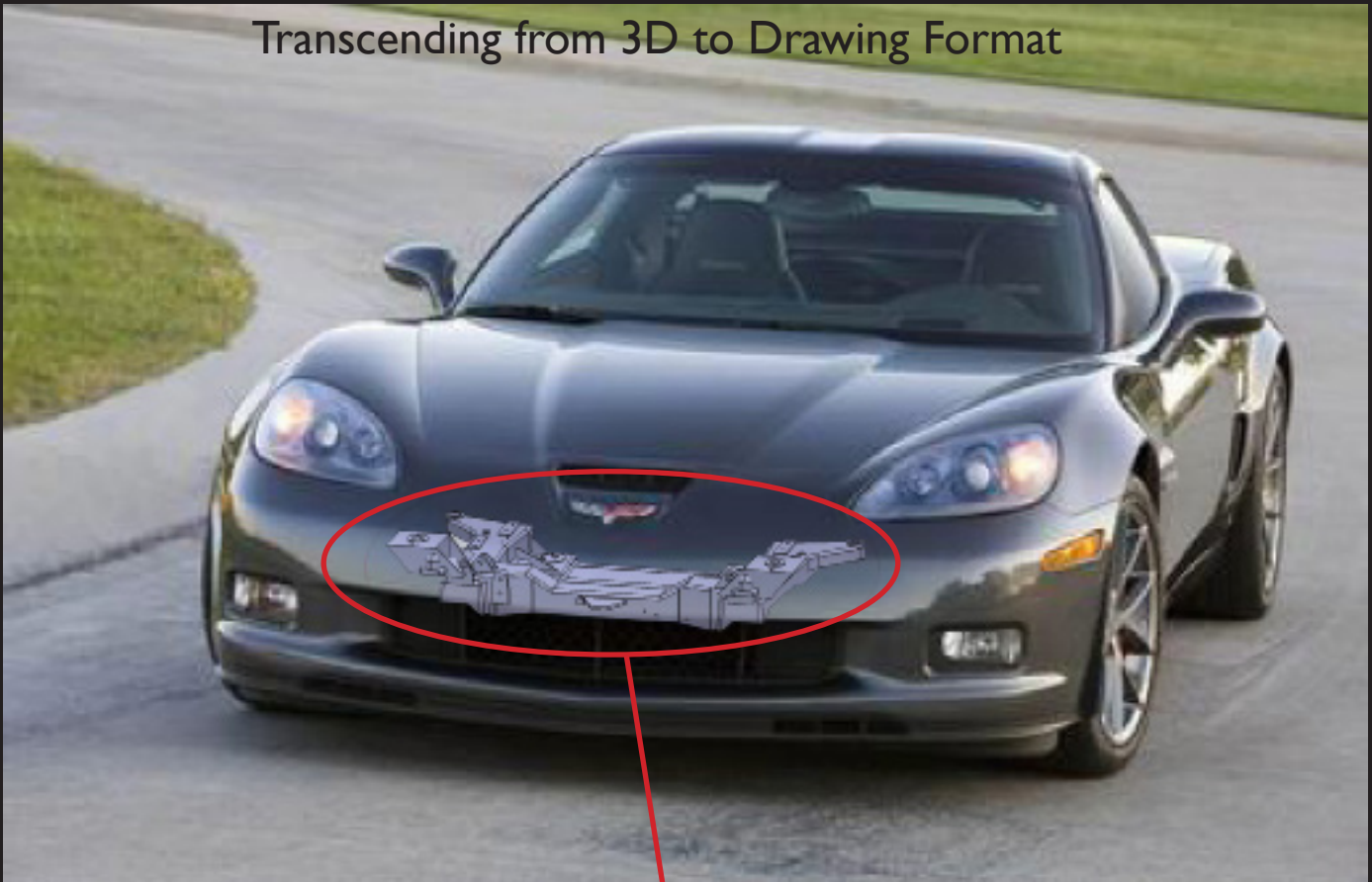




# Automotive

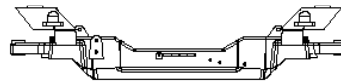
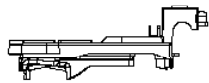
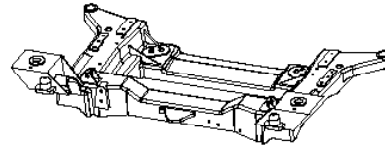
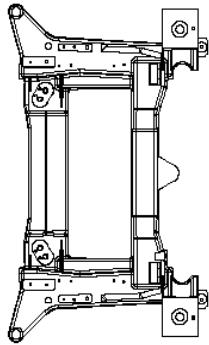
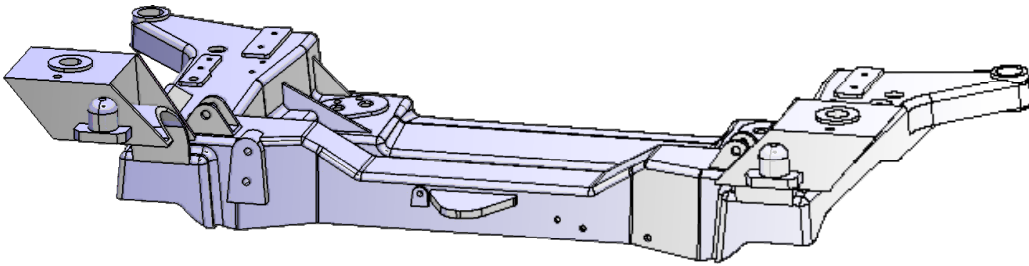
## Castings

Transcending from 3D to Drawing Format



# Automotive

## Castings con't



Robert Morin

REV	BY	DATE	DESCRIPTION
1	RM	01/20/09	Initial Release
2	RM	02/10/09	Material
3	RM	03/10/09	Direction
4	RM	04/10/09	Thickness
5	RM	05/10/09	Segmentation
6	RM	06/10/09	Drawn By: Robert Morin



# Automotive

## New Greener Ideas

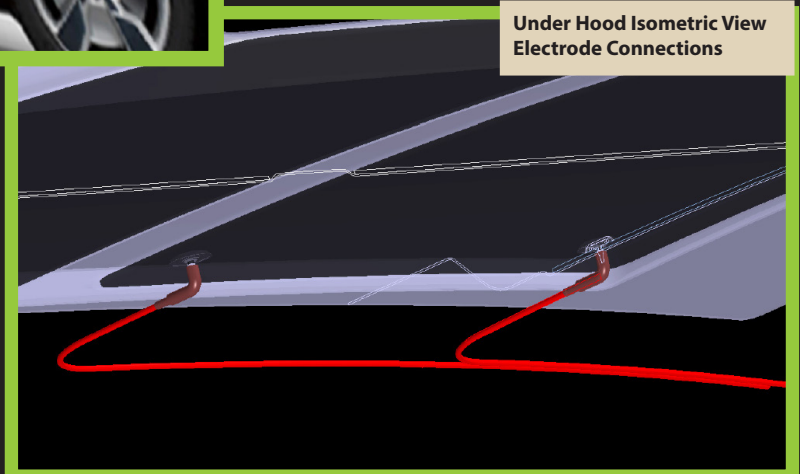
### Sheet metal automotive architecture with integrated thin solar panels.

“Lead follow or get the hell out of the way” was the recovery cry of the previous Chrysler I am proud to say I was there and participated.

Only time will tell if the current culture has what it takes to make it.



Under Hood Isometric View  
Electrode Connections



***For more information please feel free to contact me at:***

***RPM3DDesign@gmail.com***