

L57 + Solstice = Excitement!
The GM Performance Division
Builds a HOT ROD Test Car



HOT ROD Solstice Buildup: The Kick OFF

The start of a project as spectacular as the L57-powered HOT ROD Solstice is usually shrouded in secrecy and often not seen by the world but in this case, this project was fully documented so you could see the action. That action should interest you, as this performance vehicle buildup will showcase the capability of the General Motors engineering and fabrication teams. Activities like creating the entire car in math data, computer modeling and using that math data to run a CNC machining station to whittle revised components from blocks of metal are the future of hot rodding that GM uses today in their production car development activities.

To start the project right, there was a kickoff meeting that was attended by then HOT ROD Magazine Detroit Editor, Matt King (he has since moved on to work for Harley-Davidson). King set out the performance parameters HOT ROD wanted the vehicle to exhibit. These lofty goals included: running 10.99 seconds or faster in the 1/4 mile, 0-60 mph in the 4 second range, braking distances of 120 feet or less, road race track capable with the best performance cars in the world and looking like a 'hot rod'.

The meeting attendees, which included GM team members John Heinrichy Jim Minneker, Vince Muniga, John De Witt, Tom Conneally Mike McCann, Al Butlin and Nick Kayfaz all agreed these were stretch goals but would be the targets the team shot for in the buildup and integration phases. John Dewitt and Mike McCann presented various math data representations they had created with an LS7 in a Solstice chassis for the team to review and Jim Minneker discussed horsepower and weight requirements to meet the goals.

The team then met in the Concept Vehicle Integration build shops to look over the stock Solstice 'donor car' before the CVI team began tearing the production Solstice apart. A few issues were discussed, like exhaust packaging (side exhausts were considered but a rear-exit exhaust was eventually settled on), before the team broke up and the heavy lifting was begun by the CVI crew. All parts removed from the donor Solstice were weighed and recorded so the math data team could factor weight savings and gains to have a good idea of the final weight of the vehicle. Early computer simulations pointed to the vehicle needing to weigh less than 2900 lbs. to be able to attain it's performance goals - a tough goal when bolting a big engine, transmission, rollcage and other items into a 3000 lb car!

Check out the photos detail all the action here and look for more updates in the future showing how the GM Performance Division created this impressive hot rod.



1.

The HOT ROD Solstice ended up as a 2900 lb, 600+ hp, 10 second car that looks great and is at home on the street, road race track or dragstrip.



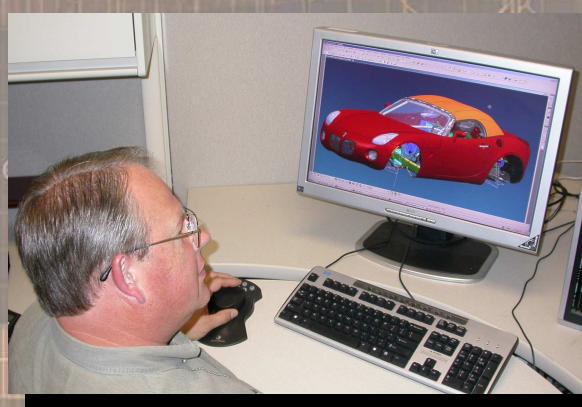
2.

The kickoff meeting included a presentation on what the GM Performance Division teams thought they could use out of the GM parts bin to create the HOT ROD Solstice. This slide shows that the initial discussions revolved around the LS7 V8 engine, a modified T56 six-speed transmission, Corvette Z06 tires and as much of the Solstice (code named GMXQ20 in GM Engineering) components as possible.



3.

John Dewitt, one of the math data engineers on the team (which would eventually include Mike McCann, James Popiel, brothers Craig and Matt Adams and a few others), helped to create some of the early 'study' models of the Solstice with the LS7 roll cage and exhaust in it.





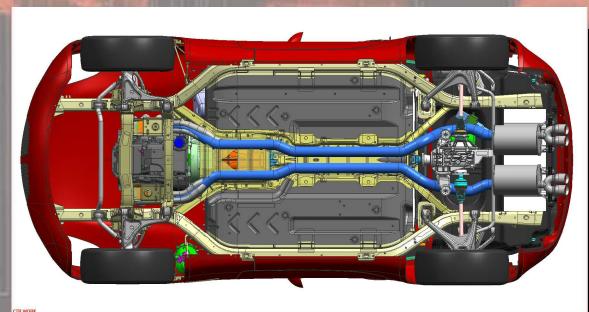
4.

Here Mike Copeland, project build leader, and De Witt look at an early math data representation of the rollcage and exhaust system proposed for the Solstice. The rollcage ended up looking very close to De Witt's innovative math data design (the front downbars tie into the cowl structure instead of the floor for increased rigidity and safety), and the exhaust went through many twists and turns but the headers are very close to the math data design.



5, 6, 7, & 8.

The exhaust system was mocked up in multiple formats via math data design. Unlike the normal 'cut and paste' method used in most hot rod buildups, using math data is very quick and allows full 3D views, cutaways and usage simulations to be run. The sidepipes were considered but the full exhaust was selected for packaging and utility reasons (nobody wanted to burn their legs on those pipes!).





9, 10, & 11.

The 'walkaround' the black donor car included some spirited discussions on component selection, weight savings ideas and where the vehicle could remain mostly stock here Mike Copeland is leading the discussion on the interior, which remained almost entirely stock Solstice.



12.

With the talking over, the GM Concept Vehicle Integration (CVI) team of Tom Ebi, Tom Wszowaty and Jim Ostrand swept into action and had the entire vehicle down to the bare tub in less than two days.

**13.**

Part of the teardown process was the meticulous weighing of everything that came off the Solstice. From the beginning, it was agreed by everyone involved that to achieve the performance targets, weight needed to be shaved wherever and whenever possible, so weight removed and weight added were tracked very closely.





14.

Part of removing weight was to scrape every glob, pad and patch of sound deadener off the sheetmetal panels of the Solstice. It wouldn't make sense to drown out the beautiful bellows of that LS7 and these all netted weight savings.



15.

Various frame brackets situated around the vehicle, like this combination battery and jack-point, were cut off the frame and weighed. The battery will be relocated to the trunk and the vehicle will be low enough the frame will be used to lift it.



16.

Even the stock wiring system was removed from the vehicle and weighed. A 'light-weight' wiring system will be custom-built eventually resulting in a weight savings of over 18 pounds!

