

Leaving General Motors

By Musafir

For some individuals cars are objects of desire, for some they are a mere means of transportation. For some a car is an obsession that fuels passion and for some it is a means of livelihood. Cars have images of being family friendly, submissive, subliminal, sexy and racy. I have seen cars from all the above angles and have driven them from all the above aspects.

I was fortunate to work for General Motors Corporation, the largest automotive company on earth. Our company celebrated its 100th birthday on September 16, 2008. It was my privilege to be a part of that celebration, a few months before retiring from active duties when I will turn 62.

It was my childhood dream to work for the greatest General of all. I tried several times but was rejected until I got a chance to work for its Advanced Manufacturing Engineering Department in 1985. The US car manufacturers were losing their manufacturing superiority and labor cost advantage to the Japanese who were coming forth with new manufacturing concepts and innovations such as 'Kanban (Just in time),' Kaizan (continuous improvement),' 'TPS (Toyota Production System),' "Heizunka (Production smoothing)," "5S (Standardized Cleanup)," "Muda (Waste Reduction)," and "Pull System (Replacing only what has been consumed)." For us, the manufacturing engineers, it was another space race reminiscent of early 60s when then Soviet Union had left America scrambling to win the space race. Speaking frankly, we were intimidated by the Japanese manufacturing prowess and especially by the Toyota Production System (TPS). As a result, Roger Smith, at that time chairman and CEO of GM decided to form a joint venture with Toyota called NUMMI (New United Motor Manufacturing Inc) where Toyota built cars for both the companies (Toyota and GM).

So far, the world had known only two kinds of car manufacturing, the *craft manufacturing* perfected by the Europeans and *mass manufacturing* invented by Henry Ford I and perfected by GM, Ford and Chrysler. The Japanese were still learning prior to the 1980s. Their manufacturing quality was so bad that Datsun had to reinvent and rename itself as Nissan. However, in the 1980s, the Japanese finally put their acts together and came up with the concept of *lean manufacturing*. The Japanese hoped to achieve the craftsmanship of the Europeans by applying the *mass manufacturing* practiced by the Americans. They named their divisions and cars *Infiniti*, *Accura*, *Maxima*, *Lexus*, and *Altima* to bring their message to the consumers while the American companies settled with names like *Cordoba*, *Corsica*, *Expedition* and *Tornado*.

GM has long considered people as its greatest asset; therefore, despite criticism from Wall Street, it protects and treats its employees with respect. Back in mid 1980s, GM hired the best manufacturing engineers to turn its manufacturing around. I was fortunate enough to work with

the brightest manufacturing engineers and great visionaries that included Jerry Elson, Gary Cowger, Tom Lasorda and Bob Eaton to name a few. They were all my directors at one time or the other. Roger Smith may have neglected the product, but he poured \$20 billion in new technologies. We, the new breed of manufacturing engineers, were given the full freedom to invent new manufacturing technologies and learn from our mistakes. We worked on the application of artificial intelligence in predicting failures, DFM (Design for Manufacturability) tools, reliability and maintainability (R&M) techniques for machinery and equipment, quick tool changeover, application of RF (radio frequency) for material handling, real-time production monitoring systems, information mapping tools and various other manufacturing engineering tools. We were provided a factory of the future in Saginaw, Michigan to put our ideas to practice.

Today, in 2008, General Motors has four of the 10 most productive assembly plants in North America. According to the latest Harbour Report, for the second time in the last four years GM's Toledo plant led all plants producing rear-wheel drive transmissions (2.54 hours per transmission) and was the No. 1 plant overall. GM's Spring Hill 4-cylinder engine lines turned in the best performance by an engine plant at 2.27 hours per engine, edging out Toyota's Buffalo, W.Va., plant (2.29 HPE), which had captured the top spot for five straight years. Similar honors go to the stamping plants also.

Now is the time for GM to regain its place in product and related technologies. It already has a notable list of past contributions such as the Lunar Roving Vehicle, catalytic converter, front wheel drive, air conditioning, tilt and telescopic steering wheel, turbo-charged engine, electronic ignition, fuel-injection, automatic transmission, plastic body car (Corvette), automatic headlamp-dimming system, sealed-beam headlamp, electric windows, independent suspension, air bag, head-up display, ABS and traction control, power sliding doors, electric vehicle (EV1), OnStar, night vision system, Fuel Cell Vehicle (FCV) to name a few.

As I am leaving General Motors, it is time to turn around the product and product technology. GM has once again hired the best product engineers who have a passion for product and related technologies. They are relentlessly working on Volt's E-flex electric propulsion system, fuel cell technology, homogeneous-charge compression ignition (HCCI), the new generation of hybrid and the most efficient engines and transmissions. These new engineers will beat the world in product and product technology. This is another space race to beat the Asians and the Europeans in product innovation. Unlike the manufacturing team of mid 1980s, this time the team is global with obvious tinge of diversity. With such talented men and women working for GM, I am sure that it will be the most innovative and dominant automotive company for the next 100 years.