

Unit Profile

General Motors - Halol

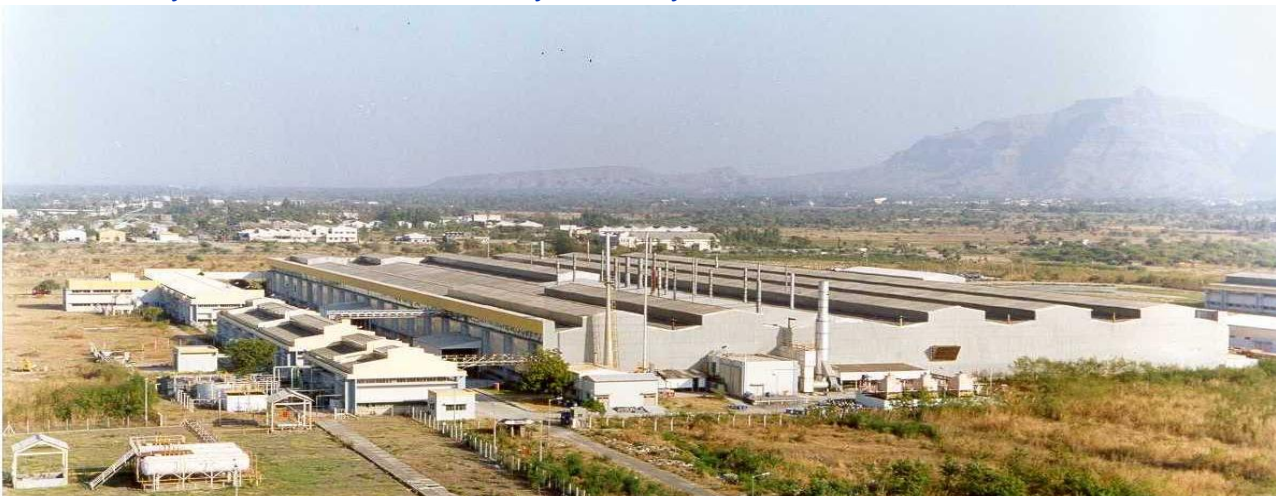
20. i.a. Unit Profile

General Motors-Halol, is having plant manufacturing capacity of 85,000 units per annum with a plant area of 65000 Sq.Mtrs. It was started into production in June'1996.GM-Halol plant is a two shift operating plant with an automation of medium level. The plant is certified for “GM Global Manufacturing System”, ISO 9001 and ISO 14001 management systems.

General Motors have bagged the “Certificate of Merit” in National Energy Conservation Award -2007 competition for Automotive sector. Conducted by Bureau of energy Efficiency , Ministry of Power.

Safety is a overriding priority in General Motors. GM is committed to promote energy efficient activities, safety, environmental protection and social welfare. GM-India is presently establishing a vehicle assembly unit in Pune. All the energy conservation ideas are captured in the design stage itself to make the facility as the most & best energy efficient facility in India and in the world as well.

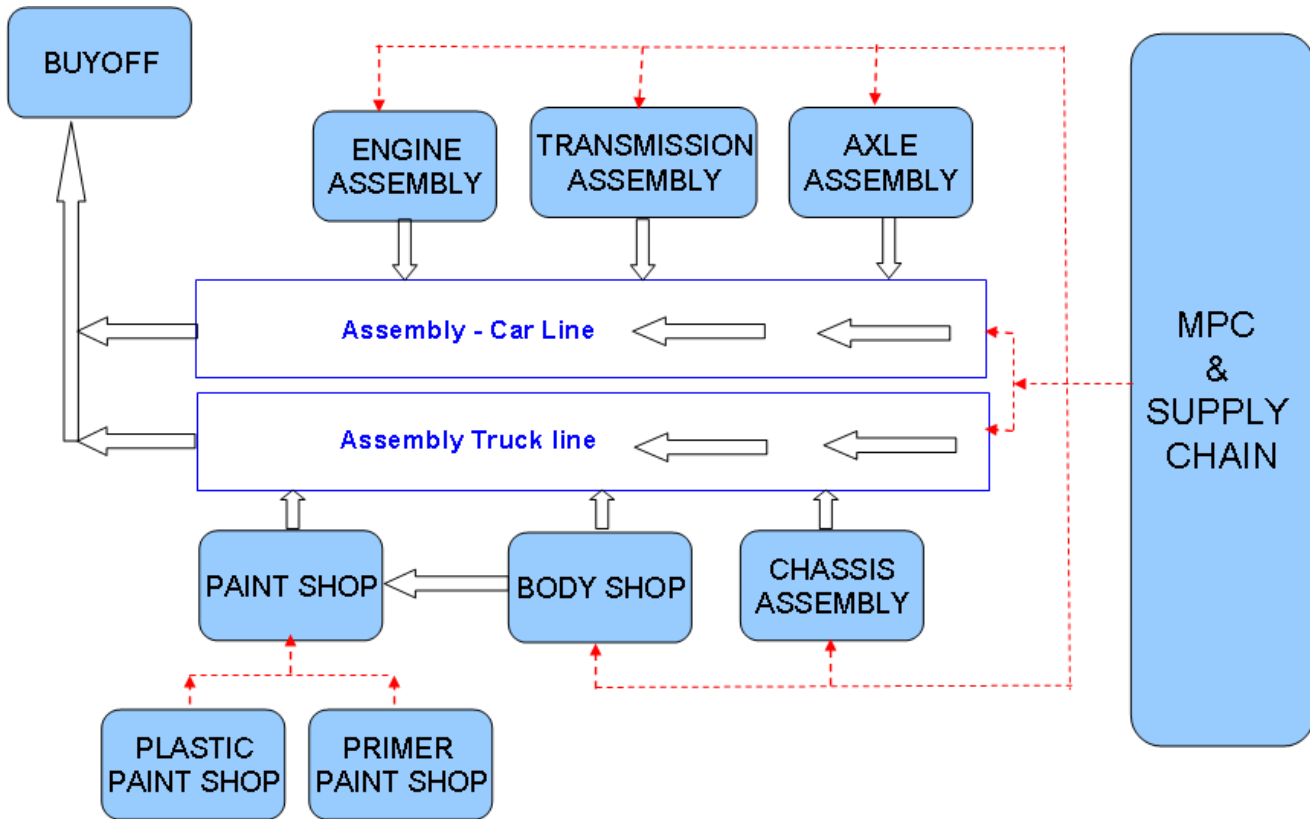
General Motors Corp. (NYSE: GM), the world's largest automaker, has been the annual global industry sales leader for 77 years. Founded in 1908, GM today employs about 280,000 people around the world. With global headquarters in Detroit, GM manufactures its cars and trucks in 33 countries. In 2007, nearly 10.2 million GM cars and trucks were sold globally under the following brands: Buick, Cadillac, Chevrolet, GMC, GM Daewoo, Holden, HUMMER, Opel, Pontiac, Saab, Saturn and Vauxhall. GM's On Star subsidiary is the industry leader in vehicle safety, security and information services.



General Motors India – Halol plant

Process layout

- Halol unit is having **Lean** production process flow. This flow is same for all models.



Vision : To be a world leader in Transportation products and related services. We will earn our customer's enthusiasm through continuous improvement driven by the integrity, teamwork & innovation of General Motors - people.

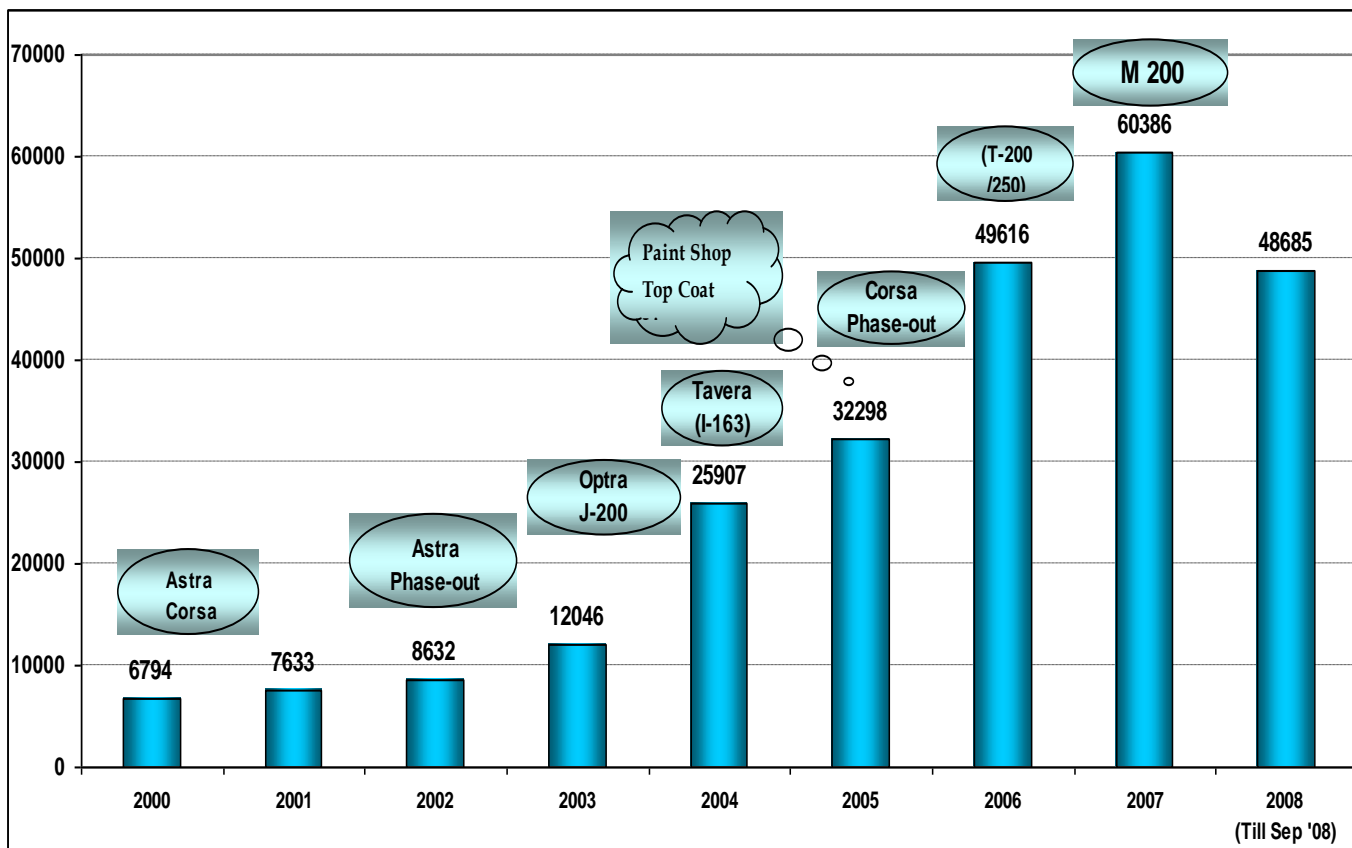
Core Values : Customer Enthusiasm, Integrity, Team Work, Innovation, Continuous Improvement, Individual Respect & Responsibility.

Cultural Priorities : Enhance our products and customer Focus , Act as One company, Embrace Stretch Targets, Move with a sense of Urgency.

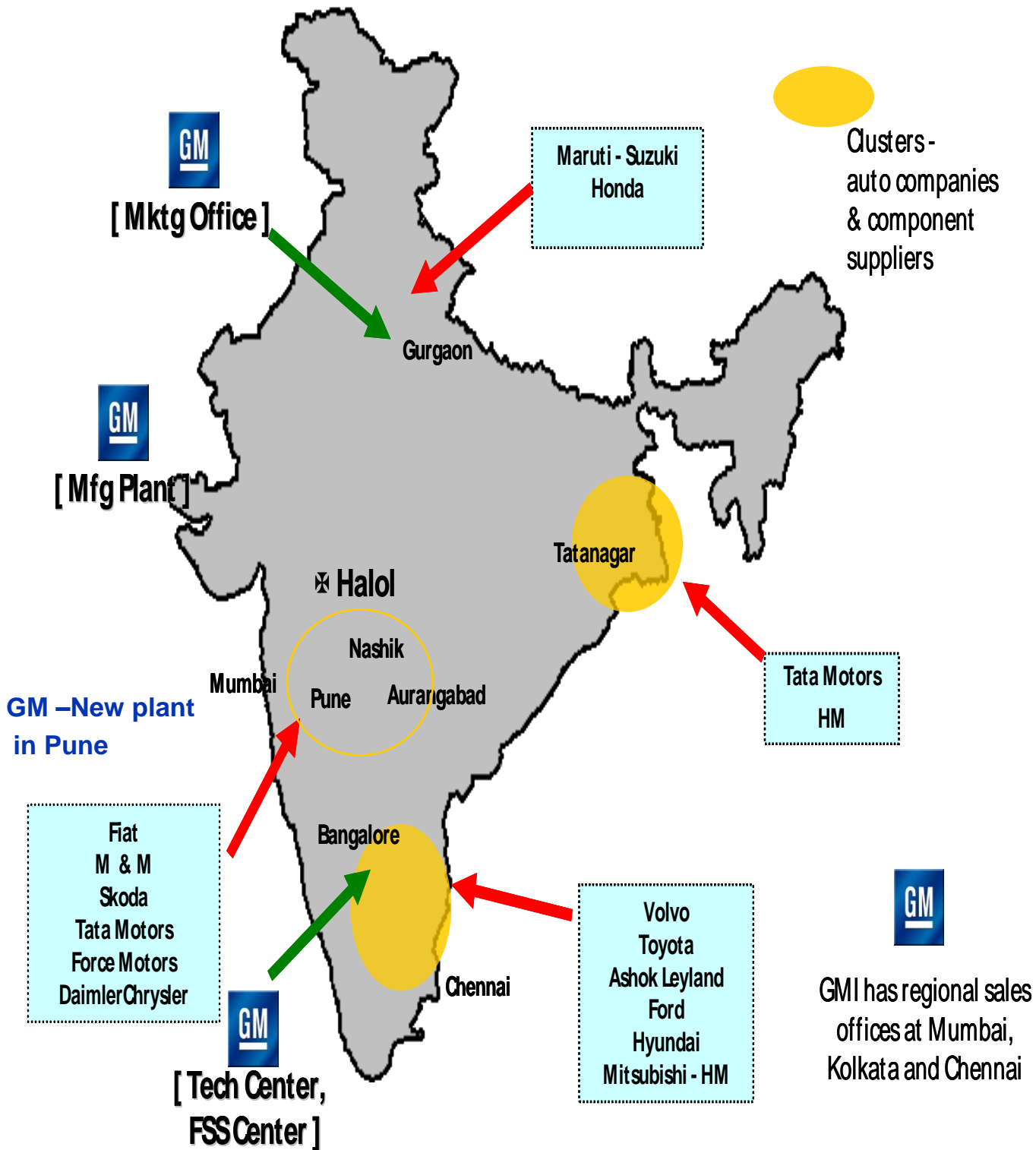
Journey of General Motors India :

- **1928 GM enters India. Produces Chevrolet and Vauxhall cars and Bedford trucks in Bombay plant**
- **1954 GM exits India due to unfavorable business climate. 386,000 vehicles produced**
- **1988 Hindustan Motors manufactures 3-5 ton Isuzu trucks at Halol plant.**
- **1992 Facility closed after producing 700 vehicles due to unfavorable exch. rate**
- **1993 Hughes launches software and communications business**
- **1994 GM re-enters Indian automobile market**
50/50 JV with Hindustan Motors Purchases shutdown Halol facility
Launches Opel Astra model
- **1997 GMAC launches Automotive financing venture**
- **1997 SPO launches all-makes "AC/Delco" brand**
- **1998 GM Electromotive Division establishes presence**
- **1999 GM acquires 100% stake in GM India**

Production Volume trend :



Auto manufacturer locations





GM India Current Product Portfolio

WORLD'S NO. 1

Lower Med Segment



Chevrolet Aveo

Lower Luxury Segment



Chevrolet Optra

Multi-Utility Segment



Chevrolet Tavera

Luxury Segment



CBU from Opel

Sports-Utility Segment



Launches in 2006 / 2007.....

T200- 15th Jul 2006

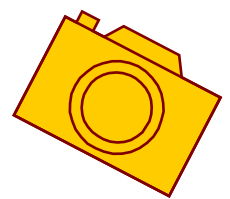
SPARK

J 200 HB - 19th June 2006

M200 - 1st Mar 2007



Body Shop Snap Shot



Door panel welding



LH door welding

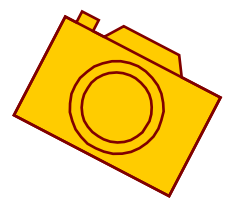


Fender panel welding



Under body welding

Paint Shop Snap Shot



Under body painting



Primer coat - Utility cabin painting



ELPO Oven

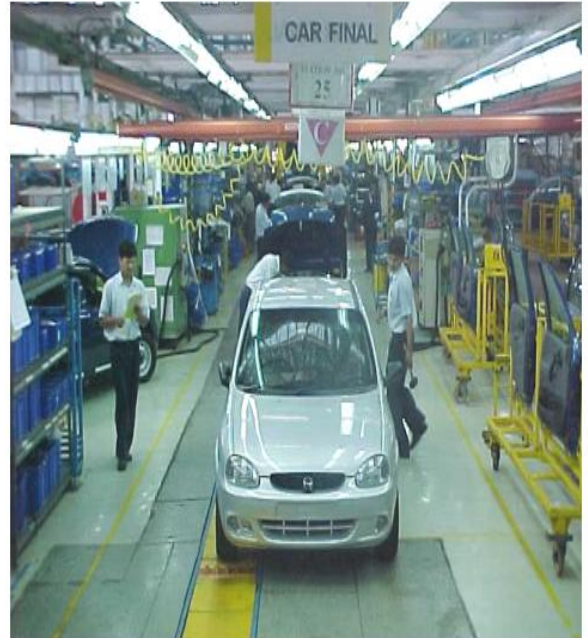
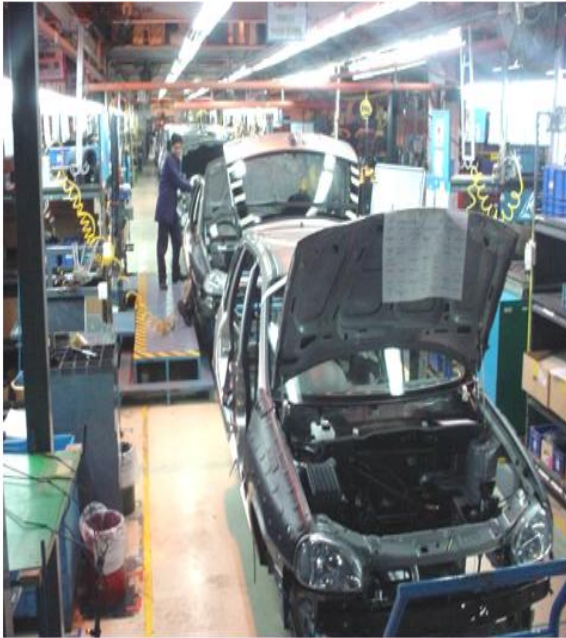
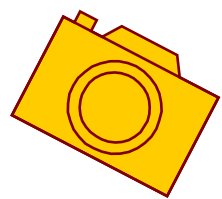


Paint booth



WORLD'S NO. 1

General Assembly Snap Shot



Corsa and Optra assembly line



Tavera assembly line

Environmental initiatives

A. Process & Equipment Related

- Replaced chrome based passivation process (pre-treatment) by chrome free zirconium process to eliminate chrome-bearing waste.
- Used highly efficient electrostatic bell painting system for primer line & Robotic painting for top coat painting of exterior car body. This has resulted in overall reduction in paint consumption besides a proportionate reduction in VOC emission & paint sludge generation.



- Introduce Robotic Flame treatment for plastic parts painting in place of conventional chemical cleaning process.
- LPG, being a cleaner fuel, is only used for all baking & combustion applications.
- Environment Friendly biodegradable solution is used for degreasing process in the pre-treatment.

- Installed an oil separator unit in the degreasing system to separate oil from the main bath resulting significant reduction in chemical consumption, effluent generation & energy consumption.
- Replaced R-12 (CFC) gas with refrigerant for all water coolers.
- Water- cooled air compressors were replaced by air-cooled & Oil Free high efficiency compressors resulted in reduction of water usage & oil consumption.

B. Product Related

- All Our Products are compliant to BS-II Emission norms. Gasoline Vehicles produced for all Indian Markets are compliant to BS-III Emission norms.
- Asbestos free break pads and friction liners
- Maximizing usage of recyclable plastic
- Employing latest technologies for making vehicle more fuel efficient (to reduce global warming) and environment friendly such as VGIS, Knock sensor, DOHC with HLA(for automatic tappet adjustments), Closed loop EGR & DIS.
- All Gasoline products have closed loop evaporative emission control systems.
- Use CFC free refrigerants (R-134A) since their launches. Use environment friendly 'Pollen Filters'

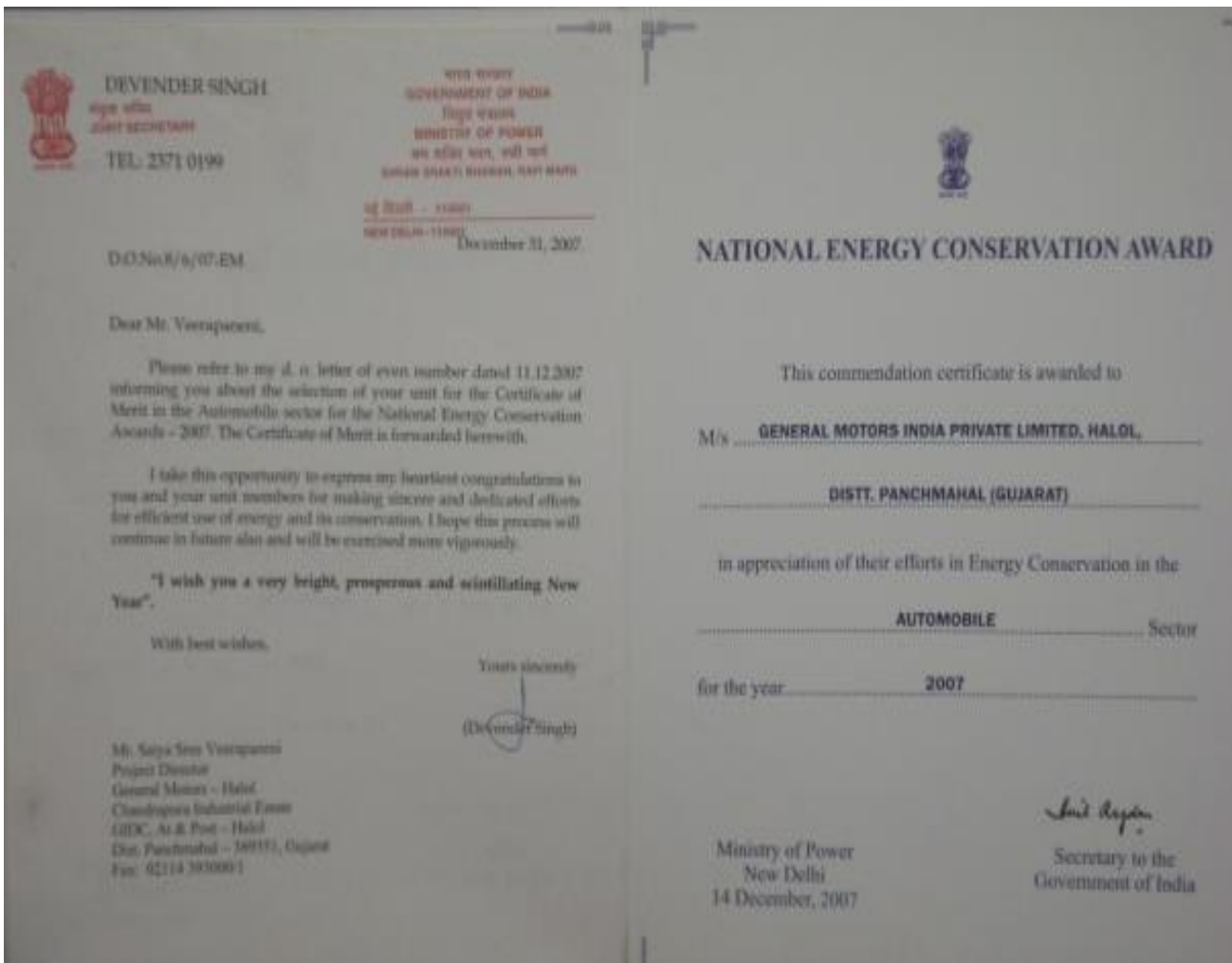
General Motors Wins

"Certificate of Merit "

in National Energy Conservation Award – 2007

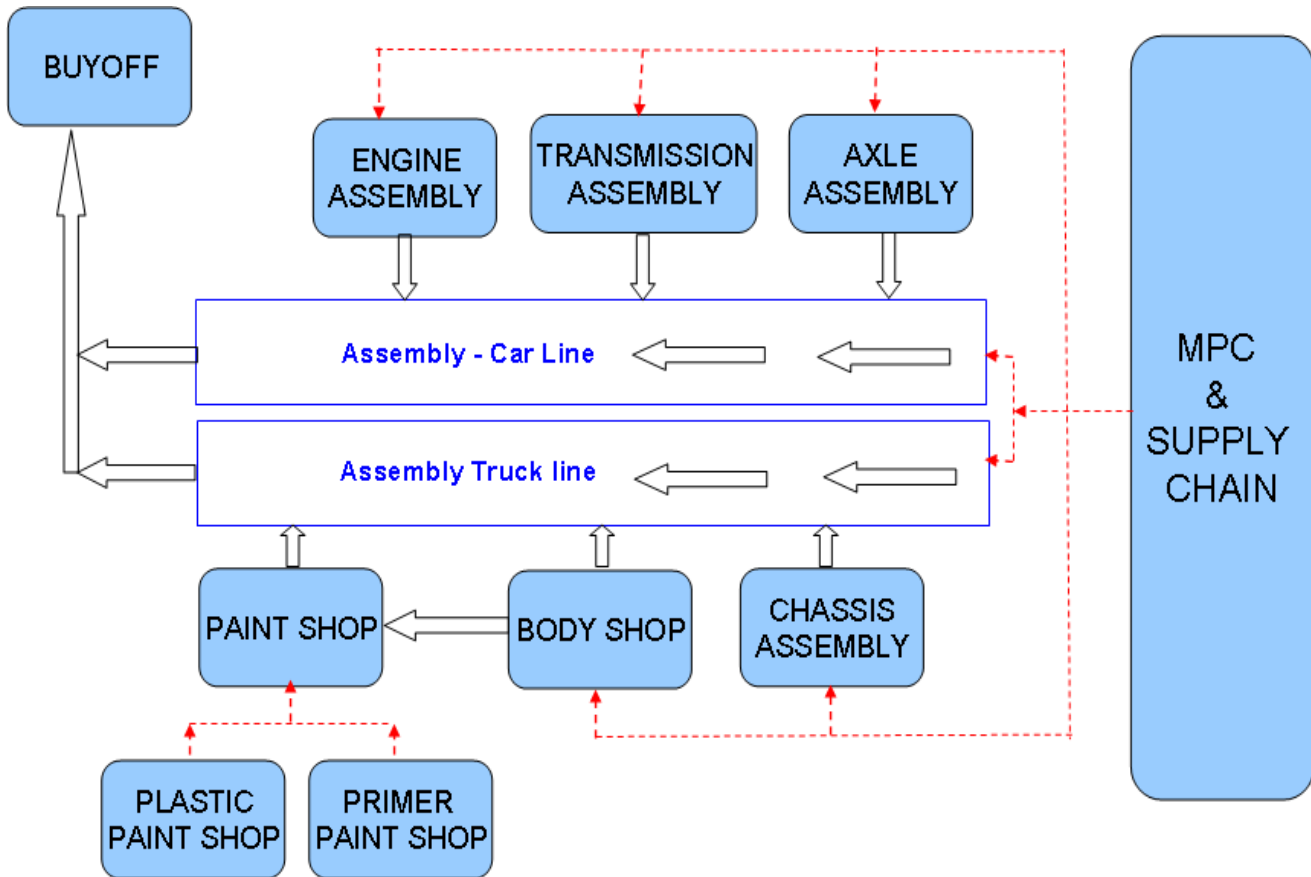
GM recognized for leadership in energy efficiency and renewable energy use.

Delhi December,14, 2007 — General Motors (GM) received the Certificate of Merit in the National Energy Conservation Award-2007 (NECA-2007) competition conducted by Bureau of Energy Efficiency, Ministry of Mower, Govt. of India.



20. i.b. Process layout

- Halol unit is having **Lean** production process flow. This flow is same for all models.

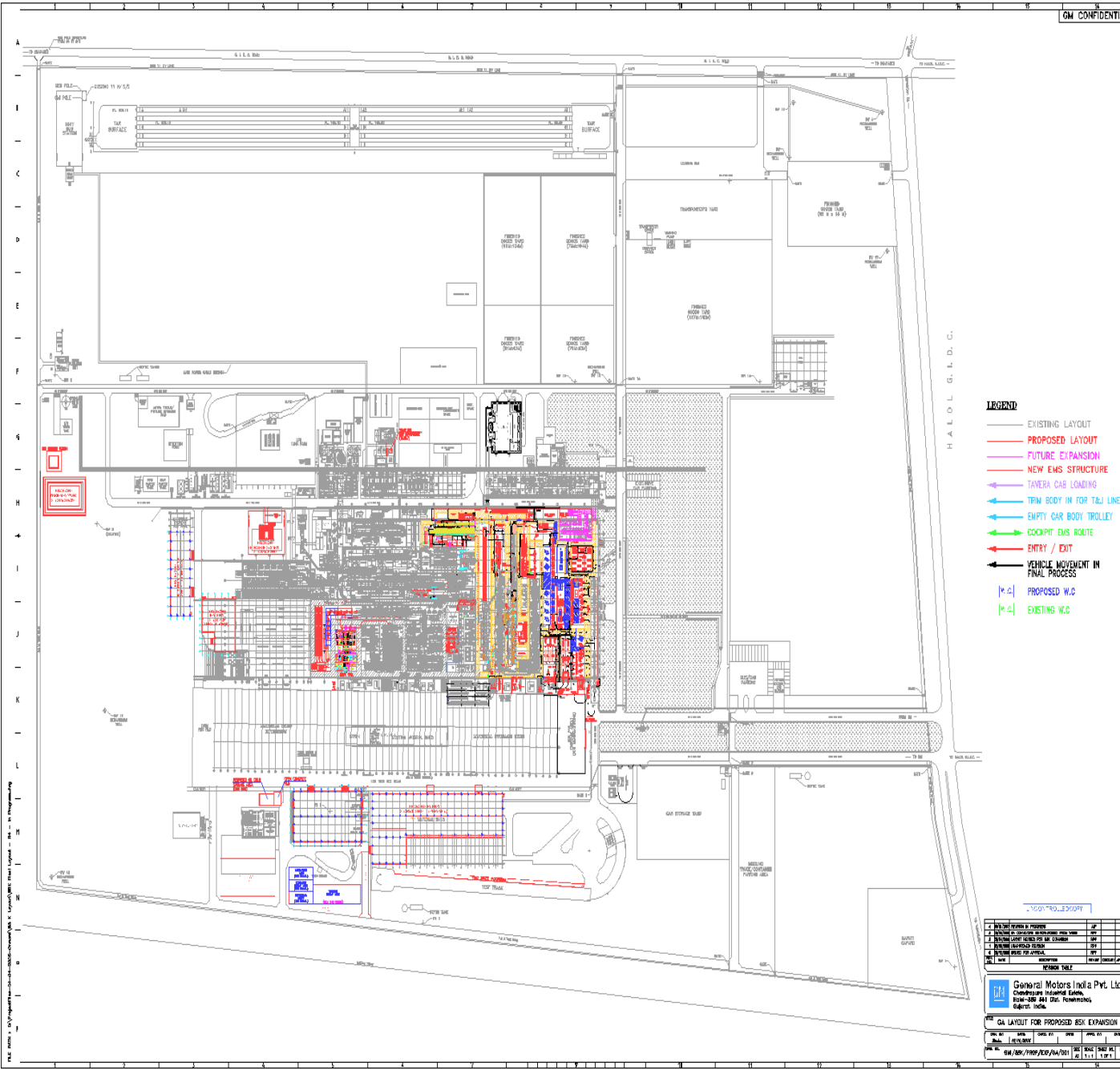




20. i.c. Plant Layout :

WORLD'S NO. 1

GM CONFIDENTIAL



- LEGEND**
- EXISTING LAYOUT
 - PROPOSED LAYOUT
 - FUTURE EXPANSION
 - NEW EMS STRUCTURE
 - TAVERA CAB LOADING
 - TRIM BODY IN FOR T&J LINE
 - EMPTY CAR BODY TROLLEY
 - COCKPIT EMS ROUTE
 - ENTRY / EXIT
 - VEHICLE MOVEMENT IN FINAL PROCESS
 - [P.C.] PROPOSED W.C.
 - [E.C.] EXISTING W.C.

— 100% PRO-DESIGN

REVISION TABLE	
1	ISSUE FOR REVIEW & APPROVAL
2	ISSUE FOR CONSTRUCTION
3	ISSUE FOR AS-BUILT
4	ISSUE FOR FINAL AS-BUILT
5	ISSUE FOR ARCHIVE
6	ISSUE FOR ARCHIVE
7	ISSUE FOR ARCHIVE
8	ISSUE FOR ARCHIVE
9	ISSUE FOR ARCHIVE
10	ISSUE FOR ARCHIVE

General Motors India Pvt. Ltd.
 Chakan Road, Pune, Maharashtra
 India

GA LAYOUT FOR PROPOSED BSK EXPANSION

REV.	DATE	BY	CHKD.	APPD.
01	15/08/2011	...	...	...
02	15/08/2011	...	...	...
03	15/08/2011	...	...	...
04	15/08/2011	...	...	...