Automobile Industry Highlights

(October - December, 2014)

Competitive landscape

Japan's automobile production between August and October dropped by 5% compared to the previous year. So was the case for passenger vehicles. The competitive landscape has remained the same; Toyota retained robust 35.6% of the production of the passenger vehicles, which is still larger than the total of Mazda, Honda, and Suzuki that are No2, 3, and 4 in the market.

	Standard	Small	Mini	Total
Toyota	501,671	186,917	-	688,588
Mazda	194,983	29,283	-	224,266
Honda	41,056	74,762	88,604	204,422
Suzuki	12,517	35,162	144,375	192,054
Nissan	108,823	69,767	-	178,590
Subaru	175,848	-	-	175,848
Mitsubishi	96,266	780	49,816	146,862
Daihatsu	-	3,054	118,424	121,478
Total	1,131,164	396,671	282,795	1,932,108

Table 1: Production of passenger vehicle by manufacturer

August – October 2014 (source: JAMA)

"ARUA", "PRIUS" by Toyota and "FIT" by Honda have been the top 3 of the best selling standard-sized passenger cars most of the time since the beginning of 2013. The characteristics of the cars are:

- **Modest size:** These three models are nevertheless compact sized although they fit under the standard size. The maximum passenger capacity is 5, which grants enough room for most nuclear families.
- **Ecological/economical:** All these models adopt hybrid engines systems which claim efficient drive ranges.
- **Affordable:** The prices of the cars range between JPY1.5 million (USD12600) to JPY2.5 million (USD21000) and are subject to eco-car tax/subsidy incentive schemes.



Model	AQUA	PRIUS	FIT
Manufacturer	Toyota	Toyota	Honda
Size (mm)	4030 x 1695 x 1490	4480 x 1745 x 1490	3955 x 1695 x 1525
Gas Mileage	37.0km/L (maximum)	32.6km/L (maximum)	V36.4km/L (maximum)
Price (JPY)	From 1,761,382~	From 2,232,000~	From 1,681,714~

Table 2: Best selling standard sized passenger vehicles in Japan (Images and figures from manufacturers)

While most of the other best selling standard sized passengers have similar concept, VOXY by Toyota is distinguishable. VOXY is a flagship mini-van which targets families with active lifestyles. Nevertheless it has hybrid engine models and the price range is still moderate (from JPY2.2 million to JPY3 million).

Image 1: Toyota VOXY V (Image: Toyota)

Still, it is notable that the popularity of mini-cars is higher than standard sized cars. Six out of top 10 best selling passenger cars fitted into mini-category, which represents 60% of the passenger cars sold in November 2014.

Ranking	Manufacturer	Model	Units Sold
1	Toyota	ARUA	16,520
2	Suzuki	Wagon R	16,199
3	Daihatsu	Tanto	15,876
4	Honda	N-BOX	13,141
5	Toyota	PRIUS	13,022
6	Honda	FIT	11,027
7	Daihatsu	Mira	10,606
8	Nissan	Days	9,652
9	Suzuki	Spacia	9,546
10	Mazda	Demio	8,890

Table 3: Best selling passenger cars in November 2014 (source: JADA and JLMVMA)

Recent announcements

A number of auto related technology companies are working on the lithium ion and fuel cell batteries while the hybrid of electricity and gasoline is currently the mainstream engine system in Japan.

Advancements of lithium ion batteries

- GS Yuasa announced in November that the company developed a prototype of the lithium ion battery which had the three-fold energy density compared to the conventional products. Lithium metal oxide was replaced by sulfur for electrodes. The company expects this technology to significantly increase the driving range of electric vehicles and the samples to be to be available by 2020
- Hitachi announced the development of the underlining technology for high energy density lithium ion batteries that double the electric vehicles driving range. In the new technology, the thickness of electrodes is twice as the conventional technologies to increase the amount of lithium ions. Silicon based materials are used for anodes for more capacity. The company also optimized the distribution of lithium metal oxide through 3D visualization of electrodes movements.

Developments of fuel cell distribution

- JX Nippon Oil & Energy, the largest gasoline distributor in Japan, announced the first opening of commercial fuel cell station in December. The company intends to open eleven fuel cell stations in Kanagawa, Tokyo, Chiba, Saitama, and Aichi Prefectures by the middle of March 2015. Three among the eleven stations will be fuel cell standalone while the rest will be integrated into gasoline stations.

The company has been granted with the government subsidy to build 23 fuel cell stations in the year of 2015.

Retail price of hydrogen

- Iwatani Corporation announced the retail price of hydrogen for fuel cell vehicles. The price in 2015 will be JPY1100/kg (USD9.3 for 2.2lb) at Iwatani FC stations. The company aims to comply with the Hydrogen and Fuel Cell Strategy Roadmap by Agency for Natural Resources and Energy – which suggests the FC price be equivalent or lower than the price of gasoline cars in 2015 and the price of hybrid cars in 2020.

Policies and regulations

In this context, Ministry of Economy, Trade, and Industry announced the revision of hydrogen compression technology standard for the sake of dissemination of hydrogen fuels. The revision is effective into three parts, all of which will contribute to the cost reduction.

- Liquefied hydrogen tanks: In the new scheme, the liquefied hydrogen (supplied) can be stored as is at the station given the condition to meet the security standards
- Cooling equipment: The facilities which meet certain criteria (such as usage of inactive gas as a cooling medium) no longer need to secure certain distance from other buildings.
- Pressure accumulator: New standard allows the usage of compound materials to develop pressure accumulator. Manufacturers are

currently required to use steel or non-ferrous metals, which increases the cost burden.

Sources/References:

Competitive landscape

- Japan Automobile Manufacturers Association
- Japan Automobile Dealers Association (JADA in Japanese)
- Japan Light Motor Vehicle and Motorcycle Association (JAMVMA in Japanese)

Recent announcements

- GS Yuasa
- Hitachi
- JX Holdings (in Japanese)

Policies and regulations

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