

Research Findings on the In-Vehicle Motor Market in Japan 2008

- Ever increasing number of electric motors used in the car, to cope with environment & safety issues, as well as to improve user comfort and convenience -

Research Outline

Yano Research Institute has conducted a study on the domestic car electronics market as described below.

1. Research period: October to December 2008
2. Research targets: Motor manufacturers and vehicle systems manufacturers
3. Research methodologies:
Face-to-face interviews with relevant personnel, supplemented by interviews via telephone and e-mail, and literature researches.

<What is in-vehicle motor?>

Researched in this report are all the electric motors used on the passenger cars manufactured in Japan, from starter/alternator, small motors used in various on-board devices and audio systems to the main drive motors used for hybrid or electric vehicles.

Key Findings

- ◆ **Electric motors installed on the passenger cars manufactured in Japan in 2008 amount to 428.4 million units (Y/y increase by 4.3%) in volume and 505.3 billion yen (Y/y increase by 4.8%) in value.**

It is expected that the in-vehicle motor market continues to grow in 2008. The total number of in-vehicle motors is expected to increase, as the number of motors used per vehicle increases, and offsetting the possible decrease of the number of passenger cars manufactured in Japan.

- ◆ **The market is driven by environment protection and safety improvement systems**

Environment and safety systems are driving the market. Especially, hybrid system is trusted to drive the market growth as it requires additional 5-6 motors per vehicle compared to the conventional gasoline engine vehicles.

- ◆ **Steady growth in the long term: in-vehicle motor shipment is expected to reach 538.57 million units in 2014.**

In 2009, the in-vehicle motor market is expected to shrink, due to the considerable decrease in the number of passenger car production. In the long run, however, steady growth can be expected as the number of motors used per vehicle will increase due to the increased use of environment protection and safety improvement systems as well as user comfort and convenience improvement systems, and the recovery of passenger car production. The in-vehicle motor market in 2014 is expected to grow to 538.57 million units in volume and 624.1 billion yen in value.

Report format:

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➤ Research Summary

1. Market overview

Until 2008, the in-vehicle motor market has been growing in volume as well as in value supported by the increase of motor driven devices and systems installed on the passenger cars. The in-vehicle motor market for the domestic production passenger cars in 2008 has been estimated to be 428.4 million units (Y/y increase by 4.3%) in volume, and 505.3 billion yen (Y/y increase by 4.8%) in value.

2. Noteworthy trends

Recently, the installation of newly developed motor driven devices and systems has been increasing in response to the increasing social demands for environment preservation (fuel economy improvement) and safety improvement. By replacing a conventional hydraulic drive system with the electronic control, motor drive system, it becomes possible to operate and control the system at the optimum efficiency. Thus, various new systems are being developed and launched into the market, such as a system to reduce energy loss, to support safety driving, and to avoid vehicle collision. This tendency will continue from now on and the number of motors used per vehicle will continue to increase.

It is especially likely that the hybrid vehicle lineup will be enhanced and the production volume increased, increasing the market size of hybrid system motors. On the hybrid system, expensive drive motors, high durability brushless motors for water and oil pumps will be required, in addition to the various devices and systems installed on the conventional vehicles, and attracting public attentions as a major driver for the growth of in-vehicle motor market in value as well as in volume.

On the conventional gasoline engine vehicles as well, increased use of motor drive devices and systems is expected regardless of the vehicle models or grades. On the luxury cars, the installation of environment and safety systems such as electronic control engine valves and active stabilizer, as well as user comfort systems such as separately control air conditioner will be increased. On SUV and middle class models, features and devices which used to be available only on luxury vehicles, such as AFS (Adaptive Front-lighting System) and Power Seat are expected to become available. On light cars and compact cars, there is a trend to offer power slide-door or power seat for differentiation, or to install motor drive turbo charger on a small engine to achieve high output power and fuel economy at the same time.

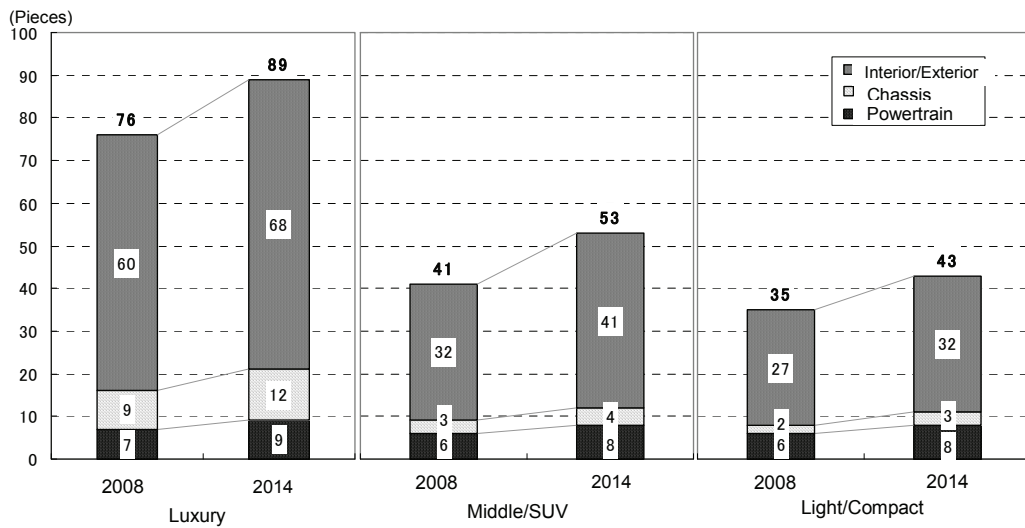
In addition, automakers are reviewing the possibility to install further motor drive systems such as EGR (Exhaust Gas Recirculation) for fuel economy improvement and motor drive steering locking system coupled with keyless push start system on all models and grades. Thus, it is estimated that the increase of the number of in-vehicle motors will continue in the future.

3. Future forecast

In 2009, the in-vehicle motor market is expected to shrink, by 7-8 percent against the preceding year, due to the considerable decrease of domestic passenger car production, especially big impact on the luxury models, which use many in-vehicle motors.

In the meantime, the movement such as a series of new hybrid vehicle model launches and increase of sales, increased use of motor drive systems for environment and safety issues is likely to continue in the future as well. Based on these market conditions, the in-vehicle motor market in 2014 is estimated to be 538.57 million units in volume and 624.1 billion yen in value.

Graph 1: Forecast on the Number of Motors Installed per Passenger Car Made in Japan



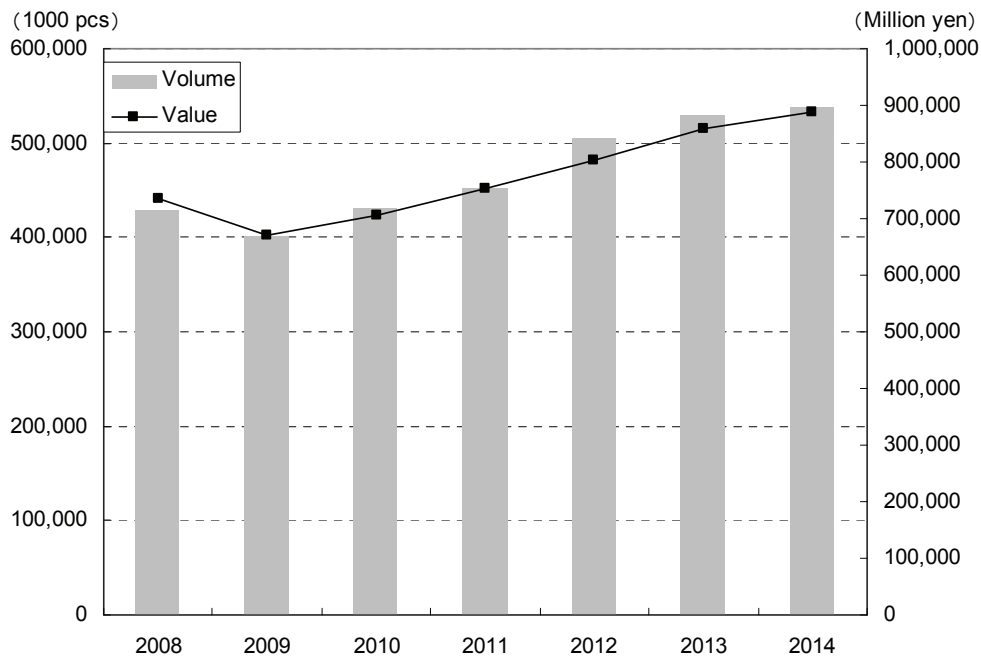
Estimated by Yano Research Institute

Note 1: Based on the passenger cars manufactured in Japan

Note 2: Average number of motors installed on one passenger car is worked-out and estimated by car rank.

Note 3: Motors for hybrid system are not included.

Graph/Table 1: Forecast of the In-Vehicle Motor Market Size



	2008	2009	2010	2011	2012	2013	2014
Volume (1000 pcs)	428,404	400,859	429,939	452,504	503,977	528,978	538,570
(Year/year)	—	93.6%	107.3%	105.2%	111.4%	105.0%	101.8%
Value (Million yen)	736,372	669,941	706,750	752,124	803,865	859,511	886,951
(Year/year)	—	91.0%	105.5%	106.4%	106.9%	106.9%	103.2%

Estimated by Yano Research Institute

Note 4: Based on the total quantity of motors installed on passenger cars manufactured in Japan, and the value based on the shipment from the manufacturers.

Note 5: Projection for 2008 and forecast for 2009 and after.