Business Activities

Materials Handling Equipment / Logistics

Materials Handling Equipment

Logistics

Automobile

Vehicle / Engine / Car Air-Conditioning Compressor / Car Electronics

Textile Machinery

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Materials Handling Equipment / Logistics

Global Business Development Led by Toyota Material Handling Group (TMHG)

As a market leader in the materials handling equipment and logistics fields, Toyota Industries assists customers worldwide in attaining greater logistics efficiencies by delivering logistics solutions optimally tailored to their specific needs.

Under the TMHG management structure, we engage in business under the TOYOTA, BT, RAYMOND and CESAB brands. Mutually utilizing the sales and development strengths of each brand, TMHG is promoting business expansion on a global scale.

Business Activities in Fiscal 2015

The lift truck market in 2014 posted strong sales mainly in Japan, North America, Europe and China. In Japan, we worked to expand sales in the manufacturing industry, in which there has been an upswing in capital investment, as well as in such industries as transportation, warehousing and construction. In North America and Europe, we sought to respond to diverse customer needs by offering new products and services in addition to implementing a range of sales promotion initiatives. Regarding emerging countries, we strive to reinforce our sales structures in China, ASEAN countries and the Middle East, where growth remains strong, while seeking to increase the competitiveness of our locally manufactured lift trucks.

As one response to the expected continued growth in markets in emerging countries, Toyota Industries reached an agreement to acquire the lift truck business of Tailift Co., Ltd., a Taiwanese developer and manufacturer of lift trucks, and made it into a consolidated subsidiary in August 2015. Tailift mainly handles products matched to needs in emerging countries and the Middle East, where growth remains strong, while seeking to increase the competitiveness of our locally manufactured lift trucks.

In addition, with the aim of strengthening our sales finance operations for materials handling equipment, we concluded an agreement in October 2014 to acquire the materials handling equipment sales finance operations of Toyota Motor Credit Corporation (TMCC), a U.S. finance subsidiary of Toyota Motor Corporation (TMC). TMCC has long-accumulated expertise in sales finance for materials handling equipment, an excellent management and operational system and structure covering credit and residual value risks, and a broad lineup of financial products. We will leverage these strengths to bolster our sales finance business and extend our reach globally in the future.

Business Overview in Fiscal 2015

In the materials handling equipment market, growth continued globally on the back of strong sales in Japan as well as in North America, Europe and China. Based on the conditions of respective markets, Toyota Industries augmented its production and sales activities and launched new products. Sales of our mainstay lift trucks expanded in Japan, North America and Europe. As a result, unit sales for fiscal 2015 increased 23,000 units, or 12%, to a total of 222,000 units over the previous fiscal year. The increase in unit sales of lift trucks, coupled with steady sales of lift truck attachments and aerial work platforms, pushed up net sales by ¥115.7 billion, or 14%, to ¥924.9 billion.

Materials Handling Equipment Sales

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<th>Europe</th>
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<td>145%</td>
<td>140%</td>
<td>155%</td>
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Business Overview in Fiscal 2015

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- The increase in unit sales of lift trucks, coupled with steady sales of lift truck attachments and aerial work platforms, pushed up net sales by ¥115.7 billion, or 14%, to ¥924.9 billion.

Japanese Market

Launching New GENEO Mainstay Lift Trucks

In 2014, the Japanese lift truck market showed steady growth. Toyota Industries sought to increase sales in the manufacturing industry, in which there has been an upswing in capital investment, including manufacturers of transportation equipment. At the same time, we proactively promoted sales of the new GENEO internal-combustion lift trucks released in July 2014. As a result, unit sales in fiscal 2015 increased 5% year-on-year to 39,000 units. Toyota Industries achieved a record High share of 47.0% in the Japanese market, topping the previous year’s record for the third consecutive year in 2014, and maintained its top position*2 for the 49th consecutive year.

Demonstrating Product Appeal through an Exhibition

Toyota Industries participated in Logis-Tech Tokyo 2014 held in September 2014 to showcase its advanced environmental technology and extensive product range, including the new GENEO lift trucks, fuel cell (FC) lift trucks and lithium-ion lift trucks, of which the latter two are under development. On the main stage, we presented case examples of logistics solutions to offer suggestions for increasing logistics efficiency.
**Initiative to Achieve Greater Customer Satisfaction**

To further upgrade services to customers, we held the 3rd Service Skills Contest in November 2014, in which a service representative from the 40 dealers across Japan participated. Through this contest, we aim to improve our servicing capabilities and raise awareness among service staff in order to provide services that bring even greater satisfaction to customers.

**Maintaining Top Market Share**

The North American lift truck market expanded in 2014 on the back of a strong economy. Toyota Industries remained the market share leader* in 2014 with combined unit sales of TOYOTA and RAYMOND brands of approximately 73,000 units, up 10% from the previous fiscal year. Toyota, as a full-line supplier of lift trucks, remained the market share leader* for the 13th consecutive year, and Raymond continued to hold its number one* market share position in narrow aisle electric lift trucks.

**Proactively Launching New Products**

Toyota expanded its product offering with its B-Series Stand-Up Rider delivering improved performance, reliability and ergonomics with significantly less frequent service intervals. Toyota also unveiled an extended hand pallet truck line with specialty models to provide one of the most comprehensive offerings of pallet jacks in the industry.

**Starting Feasibility Test of FC Lift Truck**

In February 2015, Toyota Industries started a feasibility test of its FC lift truck in the international cargo area of Kansai International Airport. This test is conducted as part of the “Hydrogen Grid Project,” a pilot project undertaken by New Kansai International Airport Co., Ltd. It aims to become Japan’s first airport to make extensive use of hydrogen energy at airport facilities. By participating in this feasibility project, we will promote the development of practical applications of FC lift trucks to facilitate their broader use.

Raymond also introduced the Raymond Courier Model 3010 center rider pallet truck and the Raymond Courier Model 3020 tow tractor automated lift truck. These automated lift trucks offer the flexibility to operate manually as a standard Raymond lift truck or scheduled to perform on their own depending on the customer’s needs.

**Earning Recognition for TOYOTA and RAYMOND Brands**

In fiscal 2015, Toyota Industrial Equipment Mfg., Inc. (TIEM/ Columbus, Indiana), a consolidated subsidiary that has manufactured TOYOTA-brand lift trucks since 1990, marked a manufacturing milestone with the cumulative production of its 500,000th lift truck.

For the fourth consecutive year, Toyota ranked number one in such areas as fewest safety-related incidents and most affordable to maintain in terms of safety in a study conducted by the Peerless Research Group on Lift Truck Safety. In another study by the same group, Toyota lift trucks ranked number one for the 10th year in a row for quality, safety. In another study by the same group, Toyota lift trucks ranked number one for the 10th year in a row for quality, value and lowest cost of ownership. Raymond has adopted the Toyota Production System (TPS) and continuously carried out improvement activities taking a proactive approach. In fiscal 2015, in recognition of these activities, IndustryWeek named Raymond a 2014 Best Plant Award winner for the plant and headquarters in Greene, New York. In addition, Raymond received a number of recognitions from various organizations for its efforts in job creation, human resources development, environmental commitment and other areas.

**Actively Introducing More New Products**

Toyota Industries proactively launched a series of new products to meet various customer needs. In 2014, we introduced the Toyota Toner, a 3.5- to 8.0-ton capacity diesel engine lift truck boasting high environmental performance thanks to its new engine. In addition to the conventional torque converter transmission, we added an electronically controlled hydrostatic transmission (HST) to our lineup. The Toner HST, which makes the simultaneous operations of materials handling and driving easy, received a positive response from the market. As for the BT brand, we launched the BT Levio P-series of powered pallet trucks with exceptional operational and energy efficiency as well as the BT Reflex RRE B-series of entry-level reach trucks specifically designed for straight forward applications. In the solutions area, a new edition of the Toyota I_Site system for...
Further Expanding Market Share in Europe

Toyota Industries is committed to delivering high-quality materials handling products and services. At the same time, we will strive to further expand our market share in Europe by taking measures to strengthen logistics solutions closely optimized for each customer.

Sales Promotion Initiatives

Toyota Industries proactively attends various exhibitions to pitch its full-line products and excellent servicing capabilities directly to customers. In June 2014, we exhibited our rich lineup of products and logistics solutions at CeMAT Hannover in Germany.

Despite an unstable market situation in 2014, Toyota Material Handling Russia (TMH-RUS), Toyota Industries’ wholly owned sales subsidiary, carried out an array of efforts in implementing sales and marketing activities, unit sales in the ALOMA lift truck market as a whole were on par with the previous year. The Chinese lift truck market, however, registered growth. Through our efforts in implementing sales and marketing activities, annual sales in fiscal 2015 reached 42,000 units, an increase of 17% compared with the previous fiscal year.

In January 2015, to create added value for our Asian customers, the Asia Regional Office in Singapore, which had engaged in market surveys and supported marketing activities for distributors in Asia, was replaced with an officially established company, Toyota Material Handling Marketing Asia Pacific Pte., Ltd. (TMH-Map). TMH-Map will continue the functions of the regional office but also reinforce sales and marketing support to distributors in Asia, for example, by holding product training, supporting global key account business and helping with value chain enhancement.

In the Middle East, the regional office in Dubai has been supporting distributors in Africa and the Middle East from a warehouse truck perspective. In April 2014, the regional office began providing support for counterbalanced lift trucks as well. Through this expansion of functions, the regional office will serve as a stronger hub for distributors in the region, carrying out various tasks such as collecting market information and organizing regional conferences and training programs.

ALOMA* and Chinese Markets

Increasing Unit Sales through Proactive Sales and Marketing Activities

Toyota Industries covers the ALOMA markets of Asia, Latin America, Oceania, the Middle East and Africa as well as the Chinese market. We are serving these markets with a lineup consisting of TOYOTA, BT and Raymond brands.

Even though there were disparities among countries and regions in 2014, unit sales in the ALOMA lift truck market as a whole were on par with the previous year. The Chinese lift truck market, however, registered growth. Through our efforts in implementing sales and marketing activities, annual sales in fiscal 2015 reached 42,000 units, an increase of 17% compared with the previous fiscal year.

* ALOMA is a Toyota Industries term for Asia, Latin America, Oceania, Middle East and Africa.

Initiatives in Growing Markets

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Carrying Out Sales Expansion Activities in Markets with Potential for Sustainable Growth

The ALOMA and Chinese markets are expected to sustain growth for the foreseeable future. In this market climate, we will continue to promote sales expansion activities by providing products closely matched to local market needs, further improving after-sales services, creating an even more enhanced sales network and pursuing economic competitiveness in terms of product lifecycle.

In China, Toyota Industry (Kunshan) Co., Ltd. (TIK) commenced production of 3.5- to 8.0-ton capacity 8-Series lift trucks in June 2014. These new internal-combustion lift trucks are not only sold in China but also exported to the ALOMA and European markets. TIK will further expand its role as a crucial supply base of TOYOTA-brand lift trucks. On the sales side, Toyota Industries will continue to enhance the sales structure of Toyota Material Handling (Shanghai) Co., Ltd. (TMHS) in its efforts to further strengthen sales and service networks in key regions.

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Materials Handling Equipment / Logistics

Logistics

Toyota Industries offers customers highly advanced, efficient logistics services to respond to their diverse needs, including consigned operation of distribution centers; land transportation services; cash collection and delivery and cash proceeds management services; and data storage, management, collection and delivery services.

Business Overview in Fiscal 2015

Both the logistics services business and the land transportation services business for automotive parts increased. As a result, net sales in fiscal 2015 increased ¥2.7 billion, or 3%, over the previous fiscal year to ¥98.0 billion.

Land Transportation Services

The Taikoh Transportation Group provides land transportation services under consignment from many automotive parts manufacturers. The group collects finished parts from manufacturers, compiles them by their destination and delivers to automakers “what is needed, when it is needed and in the quantity needed.”

Planning, Design and Operation of Distribution Centers

Toyota Industries operates distribution centers for various industries and customers. During fiscal 2015, operation of existing distribution centers generated a relatively steady logistics volume. In this environment, we strive to strengthen our profit structure through cost improvement activities undertaken at logistics sites based on the thinking embodied in TPS and simultaneously worked to enhance the level of services to customers.

With an aim of optimizing the entire supply chain of each customer’s logistics, we continue our proactive sales activities by making proposals that leverage the maximum use of the Toyota Industries Group’s resources in collaboration with the Materials Handling Engineering Business. In fiscal 2015, we started operating five additional distribution centers for customers mainly in the medical and pharmaceutical industries. In total, we now operate 18 distribution centers under consignment.

Looking ahead, we will continue to facilitate our proactive sales activities for both increasing orders from existing customers and acquiring new customers in industries having high growth potential.

High Value-Added Services Including Cash Collection and Delivery and Cash Proceeds Management and Data Storage, Management, Collection and Delivery

Cash Collection and Delivery and Cash Proceeds Management

Asahi Security Co., Ltd. provides cash collection and delivery and cash proceeds management services throughout Japan on a 24/7 basis to about 2,900 customers mainly in the retail sector, service industries, post offices and financial institutions.

In addition to cash collection and delivery services tailored to each customer’s specific needs, Asahi Security offers comprehensive services that include management of gift certificates and accounting operations at customers’ retail outlets. Furthermore, the company provides security services integrating the monitoring by security devices and dispatch of security guards on a 24/7 basis. By providing these comprehensive services, Asahi Security aims to become a unique, distinctive company in the primary field of cash collection and delivery and cash proceeds management services.

Asahi Security operates 19 cash collection and delivery centers and 14 logistics sites from Hokkaido to Okinawa Prefecture, thereby setting up a system to respond to customer needs throughout Japan. In fiscal 2015, the company reinforced its network by establishing new logistics centers and 14 logistics sites from Hokkaido to Okinawa Prefecture, thereby setting up a system to respond to customer needs throughout Japan. In fiscal 2015, the company reinforced its network by establishing new logistics

Data Storage, Management, Collection and Delivery

Wanbishi Archives Co., Ltd. provides support to about 4,000 companies and organizations, including large financial institutions and government agencies, to ensure the security and efficient use of their information assets. Under its robust security structure, Wanbishi Archives offers a comprehensive range of services covering the entire lifecycle of critical information assets in electronic, paper or other forms, from storage and utilization to destruction. These services allow customers to reduce risks, achieve higher business efficiency, and ultimately, to focus on their core businesses.

In the wake of the Great East Japan Earthquake, there has been an ever increasing awareness toward placing importance on effective business continuity management (BCM), and Wanbishi Archives has undertaken various initiatives tailored to such needs. With the use of so-called big data beginning to become more pervasive and companies and organizations now becoming more conscious in terms of compliance and litigation, the volume of data handled by them has been growing at an explosive pace. While cloud services are gaining impetus owing to low initial costs, ease of use and flexibility as a means to protect such data, there has been a renewed interest in the use of fault-tolerant, cost-effective magnetic tapes for long-term data storage. Wanbishi Archives is responding to the need for ensuring the security of their information assets by adopting various data storage forms and technologies.

Outside Japan, Wanbishi Archives’ subsidiary in China provides services to local companies as well as Japanese companies doing business in China. Capitalizing on its experience and know-how accumulated in Japan, Wanbishi Archives will continue to accelerate its efforts to capture business opportunities in growth markets.

At each business base, Asahi Security conducts regular training on its own as well as emergency training jointly with local police departments in order to provide safe and trusted services to customers.
Automobile

In the fields ranging from vehicle assembly to engines, car air-conditioning compressors and car electronics, Toyota Industries continues to meet the expectations and trust of its customers.

Business Overview in Fiscal 2015

In the automobile industry, despite the sluggish Japanese market, increased sales in China and North America and a recovery in Europe served to drive continued growth in the global market.

In fiscal 2015, an increase in sales of the RAV4 was offset by a drop in sales of the Vitz (Yaris outside Japan), and unit sales declined by 20,000 units, or 6%, from the previous fiscal year to 308,000 units. Net sales were down ¥8.0 billion, or 2%, to ¥459.0 billion.

Unit sales in fiscal 2015 declined 58,000 units, or 9%, from the previous fiscal year to 568,000 units due mainly to decreases in sales of KD diesel engines and AR gasoline engines. Net sales dropped ¥10.5 billion, or 5%, from the previous fiscal year to ¥192.0 billion.

Toyota Industries’ Diesel Engines Highly Acclaimed by Customers Worldwide

Toyota Industries’ diesel engines, fitted in a variety of Toyota vehicles sold around the world, have gained high market recognition for their cleaner emissions, greater fuel efficiency and higher performance. The V-type 8-cylinder VD diesel engine is installed in the Land Cruiser selling particularly well in Australia, Russia and the Middle East. As a successor model of KD diesel engines, we commenced production of GD diesel engines in June 2015. These engines, which are installed in TMC’s Land Cruiser Prado and other vehicles, are equipped with a turbocharger, for which we participated in the development and started production in-house, and boast significantly higher performance.

Development of Electric Vehicles (EVs)
Integrating Energy-Saving, Electrification and Lighter-Weight Technologies

Toyota Industries also undertakes development of next-generation EVs based on the 3Es (Energy, Environmental protection and Ecological thinking). Rather than converting internal-combustion vehicles into EVs, which has been a widespread practice among automakers, we have created a dedicated platform that makes the most of the distinctive characteristics of EVs and have been conducting feasibility tests on prototype vehicles.

In the future, we will accelerate the development of EVs and propose new, EV-specific vehicle packages.

Highest-Level SEQCD to Contribute to Production of Attractive Toyota Cars

In recognition of Toyota Industries’ comprehensive strengths in vehicle quality, delivery, cost and safety as the highest among all Toyota-affiliated automobile body manufacturers, from Toyota Motor Corporation (TMC) we have received an award for excellence under the Toyota Quality Control Award program for three consecutive years. In the face of the shrinking automobile market in Japan, we are further strengthening our already superior level of safety, the environment, quality, cost and delivery (SEQCD). We also are working to leverage our ability to quickly start up production and a flexible structure in terms of vehicle models and production volume to contribute to production in Japan of Toyota vehicles.

Plastic Glazing Panoramic Roof for the Prius α (Prius α in North America and Prius + in Europe)

Toyota Industries engages in production of a panoramic roof made of plastic glazing for the Prius α, a hybrid vehicle released by TMC in May 2011. The roof is currently a standard feature of Prius + vehicles marketed in Europe. This product retains the beautiful surface quality typical of a glass roof yet is approximately 40%* lighter than its glass counterpart, improving vehicle fuel efficiency and thus contributing to the reduction of CO2 emissions.

Toyota Industries will continue to develop attractive new products that leverage the distinctive characteristics of plastic glazing.

“We Our Vitz and RAV4” Initiative for Enhancing Appeal of the Two Car Models

As the sole producer of the Vitz in Japan and with the aim of turning the vehicle into a long-selling series, Toyota Industries collaborates with TMC and its dealers to make various suggestions under the banner “Taking the Lead in Making Our Cars More Attractive.” Similarly, to boost the appeal of the RAV4, we plan and develop special-edition vehicles that directly reflect the voice of our customers.

Through these endeavors, we seek ways to create more appealing and satisfying vehicles for customers worldwide. At the same time, we also undertake activities to expand our customer base by enhancing the appeal of the Vitz through our support to motorsports events.

Toyota Industries’ Gasoline Engines in Non-Automotive Fields

Toyota Industries’ engines are highly renowned for their excellent environmental performance in non-automotive fields as well. These engines are used for a wide variety of applications, including our lift trucks, and adopted by GHP*1 manufacturers in Japan and GHP** manufacturers worldwide.

We expanded our lineup of industrial engines with the addition of the Toyota 1KD industrial diesel engine, which is equipped with a turbocharger developed in-house, and the Toyota 1FS gas/gasoline engine in March 2013, followed in December 2013 by the Toyota 1ZS also equipped with a turbocharger developed in-house. These three new engines offer downsized displacement compared with conventional models with equivalent output, which results in higher fuel efficiency, cleaner emissions and a reduction in size.

In June 2014, the Toyota 1KD received a Logistics

Overall victory in the Japanese Rally Championship

Business Activities

Engine Sales

Toyota Industries Report 2015
Environmental Technology Development Award in the 15th Logistics Environmental Awards program sponsored by the Japan Federation of Freight Industries. In January 2015, GENEO lift trucks equipped with either the Toyota 1KD or Toyota 12S engine won a Best 10 New Products Award for 2014 sponsored by The Nikkan Kogyo Shimbun, Ltd. These awards reflect the high recognition given to the environmental performance of our engines.

*1: Short for gas heat pump; air conditioner driven by a gas engine
*2: Short for combined heat and power; co-generation system
*3: Award program to promote environmental conservation and environmental awareness in the Freight Industry and recognize organizations/companies and individuals who have contributed to achieving sound industrial growth.

Business Overview in Fiscal 2015

In fiscal 2015, unit sales of car air-conditioning compressors rose 3.84 million units, or 15%, over the previous fiscal year to 29.32 million units as a result of an increase in sales in North America and China despite a decline in sales in Japan. In January 2015, cumulative production in Japan exceeded 300 million units. Net sales rose ¥448.9 billion, or 18%, over the previous fiscal year to ¥324.6 billion.

Development Efforts Based on 3E's (Energy, Environmental Protection and Ecological Thinking)

More stringent fuel efficiency standards have been enforced in North America, Europe, Japan and China, requiring automobiles to provide extremely high fuel efficiency performance.

Against this backdrop, in the field of car air-conditioning compressors to be fitted in internal-combustion vehicles, the need for fuel-efficient models is growing for both fixed- and variable-displacement type compressors. In North America, in particular, the shift from a fixed-displacement type to a variable-displacement type gained further momentum.

In response, we are concentrating on development of a variable-displacement type compressor with considerably greater fuel efficiency while also focusing on an optimum balance between performance and prices of fixed-displacement type products targeting emerging countries.

In the field of variable-displacement type compressors, we developed the SES series that simultaneously offers greater fuel efficiency and a reduction in weight, and it has been adopted by TMC in its Corolla, as well as by Daimler AG, General Motors Company (GM), Volkswagen AG and Hyundai Motor Company.

As for fixed-displacement type scroll compressors for light and compact vehicles, we developed the SCSE series and started supplying the product to Daihatsu Motor Co., Ltd. and GM. We reduced the number of parts used and increased the precision of functional components, thereby successfully attaining lighter weight and quieter operation.

Creating Experimental Facilities In-House That Replicate More Realistic Vehicle Environment

In the conventional way of simply developing and evaluating car air-conditioning compressors alone, we can only capture certain properties and may not be able to meet customer needs sufficiently. To counter the situation, we started creating our own experimental facilities in-house that can replicate a more realistic vehicle environment. By doing so, we can respond to customer needs more precisely and quickly while clearly clarifying our outstanding product strengths through more accurate product evaluation. The creation of experimental facilities internally also enables us to place our original technologies in a "black box" and prevent external leaks of our know-how and expertise. To further...
Business Activities

Increase our competitive edge, we will launch this initiative on a full scale at our bases in and outside Japan.

Augmenting Technical Support Capabilities

We station our sales engineers in the United States, Germany, Italy, China and Brazil and provide technical support locally. Through these technical support efforts, we promote sales expansion and activities to prevent quality issues from occurring.

In fiscal 2014, two of our consolidated subsidiaries, namely, Michigan Automotive Compressor, Inc. (MAC) in the United States and TD Deutsche Klimakompressor GmbH (TDDK) in Germany, began to conduct design operations locally. By designing products locally, we help automakers reduce development lead time.

Establishing Optimum Global Production and Supply Structures

To respond to growing demand for variable-displacement type compressors triggered by the anticipated enforcement of more stringent fuel efficiency standards, we are proceeding with augmentation of corresponding production capacities and commenced local production of key functional parts at our production bases in North America.

In Europe, the ASEAN countries and China as well, we are expanding production capacities and increasing the ratio of locally procured parts to accommodate growing demand for car air-conditioning compressors.

In increasing our production capacities at these bases, we have introduced more compact production lines and established an efficient production structure that can flexibly respond to production volume fluctuations. In the future, we will use these compact production lines as a model and gradually install them in other production bases in and outside Japan.

Business Overview in Fiscal 2015

Net sales of car electronics products grew steadily due primarily to solid sales of products for the Toyota Prius, Aqua (Prius c in North America and Yaris Hybrid in Europe) and other HVs.

Expanding Experience and Role in Electric-Powered Vehicle Field

Toyota Industries develops and produces electronic components and devices for electric-powered vehicles, including HVs, plug-in hybrid vehicles (PHVs), EVs and fuel cell vehicles (FCVs). In addition to TMC, we are pursuing business expansion to other automakers in and outside Japan.

Auxiliary Power Source Devices

A DC-DC converter converts the high voltage of HV batteries to a lower voltage level suitable for operating lights, wipers, horns and other auxiliary devices. Since being first fitted in the first-generation Prius, we have been constantly working to reduce the product size and weight.

Leveraging our technologies accumulated in the field of DC-DC converters for HVs, we successfully developed and commenced sales of a DC-DC converter for use with stop-start systems, which can suppress a voltage drop at the time of engine restart, and have been promoting its sales to automakers.

A DC-AC inverter is equipped to use home electric appliances in a vehicle, and has drawn a great deal of public recognition for its use as an emergency power source following the Great East Japan Earthquake. Since commencing production in 1995, we have achieved cumulative production of 14 million units in March 2015.

We have developed an on-board charger based on our technologies and cultivated know-how regarding EV chargers developed since the 1990s. The resulting on-board charger is fitted in the Prius Plug-in Hybrid.

In addition, we develop and produce inverters for electric car air-conditioning compressors for HVs and other electric-powered vehicles. These inverters have been contributing to increasing the product appeal of our car air-conditioning compressors.

We have also leveraged our inverter technologies related to electric car air-conditioning compressors and successfully developed a highly efficient, low-cost inverter for hydrogen circulation pumps. The new inverter has been adopted in TMC’s Mirai FCV.

See Special Feature 1 on pages 26–29 for details.

Core Components for Drive Systems

Since 1967, we have been providing inverters for materials handling equipment and accumulating a pool of power electronics technologies.

Utilizing such technologies, Toyota Industries applied its proprietary direct-cooling method to develop a device with significantly higher cooling performance in 2009. We have entered the field of core components for drive systems such as power control units (PCUs) for the third-generation Prius.

In addition to inverters for drive systems utilizing this direct-cooling method, we have developed a powertrain unit for EVs and other core components. For the powertrain unit for EVs, we integrated designs of functional components, such as an inverter, motor and reduction gears, into one package and successfully reduced the size and weight. By integrating hardware with an electronic control unit (ECU), including control software, we are working to increase the added value as an entire system.

We have introduced a new charging stand for PHVs and EVs. In May 2015, we announced the release of a new public-use charging stand and exhibited the product at Automotive Engineering Exhibition 2015. The new charging stand consists of one parent unit that offers charging functionality as well as such features as communication, IC card-based user authentication and billing, and multiple low-cost, charging-only child units. Besides the existing model’s features, the parent unit has an additional capability to control up to 10 child units, thereby reducing the initial costs of installing multiple charging stands.

We are positioning this new charging stand as a standard model of the charging infrastructure and will strive to enhance its functionality and our service lineup to ensure that we continue to satisfy customer needs.

Charging Infrastructure

Jointly with Nitto Kogyo Corporation, we developed public-use charging stands and home-use charging units for PHVs and EVs. These chargers are being sold in the market.

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Accelerating Development Activities to Contribute to Low-Carbon Society

As many countries adopt regulations requiring high energy efficiency, electrification is expected to become more widespread not only for automobiles but also for materials handling equipment and other non-automotive products. Targeting the high-growth, electric-powered vehicle market, we will accelerate our development efforts to enhance our products in the fields of HVs, EVs, PHVs and FCVs while working to reinforce our production structure, thereby contributing to a low-carbon society.
Textile Machinery

Based on the philosophy of founder Sakichi Toyoda, which reflects his strong commitment to manufacturing, Toyota Industries responds to a broad range of needs with its extensive product lineup, from air-jet looms, for which we enjoy the world-leading market share\(^1\) in unit sales, to ring spinning frames and roving frames.

\(^1\) Survey by Toyota Industries Corporation

Business Overview in Fiscal 2015

The textile machinery market remained stagnant as economic growth slowed down in China and emerging countries in Asia. Despite an increase in sales of yarn quality measurement instruments, unit sales of air-jet looms declined 3,500 units, or 38% year-on-year, to 5,800 units. Net sales were down ¥5.0 billion, or 7%, from the previous fiscal year to ¥68.1 billion.

Business Development of Weaving and Spinning Machinery

In the field of weaving machinery, we introduced an improved electronic shedding device to our JAT810 air-jet loom, for which we enjoy the world’s top market share. This shedding device serves to increase textile variations by enabling the weaving of fabrics with complex patterns.

In the field of spinning machinery, Kirloskar Toyota Textile Machinery Pvt. Ltd. (KTTM), a consolidated subsidiary in India, commenced in October 2014 production of the RX300 ring spinning frame to be exported throughout the world. Producing the RX300 in India, which is one of the two largest spinning machinery markets in the world, enables us to be closer to our customers, thereby contributing to enhancing our services and improving logistics efficiency.

Participation in ITMA ASIA + CITME 2014

In June 2014, Toyota Industries participated in ITMA ASIA + CITME 2014, one of the largest textile machinery trade shows in Asia. The event was held in Shanghai, China, one of the world’s largest textile markets, with 1,556 companies participating from 28 countries, including China, India and Bangladesh, and the attendance of more than 100,000 visitors. At this exhibition, we displayed our JAT810 air-jet loom, the TCO12 combing and various other products and appealed the excellence of these products’ basic performance and reliability. We also demonstrated the capability of the RX300 high-speed ring spinning frame to produce a new spun yarn called mosaic yarn\(^2\) and received favorable feedback from many visitors.

Through participation in these exhibitions, we will continue to appeal our excellent technological capabilities and environmental performance in our efforts to earn a higher level of customer trust. We also aim to meet customer expectations by developing textile machinery that produces even higher value-added textile products through the pursuit of advanced technologies and continuous creativity and ingenuity as well as by providing meticulous after-sales services via an enhanced service structure.

\(^2\): A new type of yarn developed by Toyota Industries, which is made by joining normal roving yarns and chopped roving yarns, offering a considerable degree of freedom in color and design choices

Acquisition of Jossi Systems AG to Reinforce Product Appeal

Uster Technologies AG, a Swiss-based consolidated subsidiary producing yarn quality measurement instruments, acquired Jossi Systems AG, a Swiss company developing and producing systems for cleaning cotton and removing contaminating materials in the spinning process. By making Jossi Systems into its subsidiary, USTER has become the world’s only manufacturer capable of managing cotton cleaning and contaminant removal throughout the entire spinning process. In the future, USTER will leverage the strengths of Jossi Systems to further strengthen its position as the world-leading manufacturer of yarn quality measurement instruments.