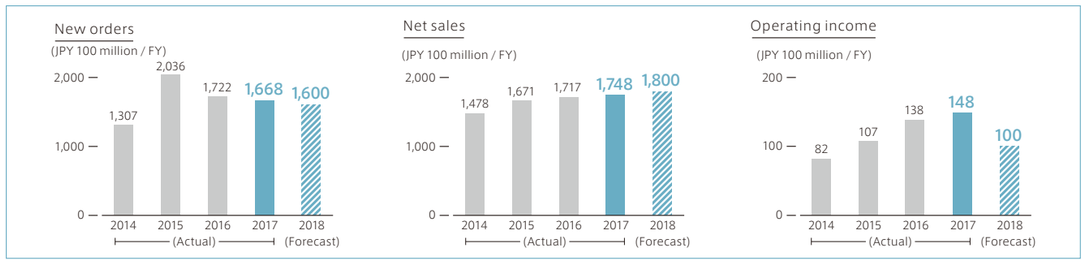
Machinery

We will increase the competitiveness of our service business with the aim of providing total solutions in growth fields.

Director and Managing Executive Officer
General Manager of Machinery & Systems Headquarters
Ryoichi Oka

Business environment and performance

With regard to marine diesel engines, we secured sufficient work volume, although orders received declined from the previous fiscal year due to the reduction in orders received for large engines. The production volume increased year on year, to 182 engines/3,780,000 horsepower due to the production of large engines. The production volume for the next fiscal year is expected to be almost equivalent to this, around 3,800,000 horsepower, due to the production of large engines. It was decided that the first commercial machine of the large, low-speed marine diesel engine, which is equipped with an Exhaust Gas Recirculation (EGR) system to conform to the IMO NOx (Nitrogen Oxides) Tire III regulation, will be adopted in Japan for the first time.
Regarding industrial machinery, the environment for receiving new orders has been tough due to a decrease in capital expenditures related to petroleum refinery, although crude oil prices are about to recover. Orders received increased year on year, but have remained in a slump.
In the midst of these conditions, we have made Kaji Technology Corporation, with which we formed a capital and business alliance in January 2015, into our consolidated subsidiary by means of a takeover bid to increase the synergy with the company further. We will work together with Kaji Technology Corporation to expand our operations, including the manufacturing and sales of the high-pressure reciprocating pump for supplying fuel gas to LNG-fueled ships, which we developed by collaborating with the company.
Orders received for cranes remained flat from the previous fiscal year, due in part to delays in capital expenditure projects that resulted from the integration of the container shipping business by three shipping lines in Japan. Demand for container cranes is expected to remain strong, with numerous inquiries having been made about the products. To respond to the demand, we have conducted large-scale capital investments at our Oita Works and increased its production capacity by 50%.
In social infrastructure, orders received increased significantly year on year because we received numerous orders for coastal structures and orders related to disaster-relief work in areas affected by the 2016 Kumamoto Earthquake and work for replacing the floor slabs of expressways, among others.
The LSS Service centered on after-sales services (Life-cycle Solution Service and Customer Oriented Service) was affected by the slowdown in the shipping market in the first half of the fiscal year. However, it recovered gradually in the second half, and orders received grew to a level close to that of the previous fiscal year, when the result was strong.
Orders received declined by 5.409 billion yen (-3.1%) year on year, to 166.829 billion yen. This was due in part to the decrease in orders received for marine diesel engines, container cranes, bridges, port structures, various industrial machinery, and after-sales services. Thanks to these products and businesses, net sales remained almost unchanged from the previous fiscal year, at 174.847 billion yen. Operating income increased by 0.965 billion yen (+7.0%) year on year, to 14.772 billion yen.



Our Action

Initiatives for innovation based on the Mid-Term Business Plan

Topics Responding to the diversification of fuels for diesel engines

● Completion of the world's first ME-GI-Ethane for liquefied ethylene gas carriers

In June 2016, we completed an ethane-fueled electronically-controlled gas injection diesel engine (ME-GI-Ethane) for the first time in the world. As with LNG, ethane is a more environmentally-friendly fuel than heavy oil. It also attracts attention for its superior economic efficiency due to the development and spread of shale gas. Following LNG, ethane is attracting attention as an alternative ship fuel to heavy oil, which is the mainstream fuel at present. We have established a system that enables us to respond to diverse fuel needs, including ME-GI (LNG and heavy oil), ME-GI-Ethane (ethane and heavy oil), and ME-LGI (methanol, etc. and heavy oil). Moving forward, we will continue to provide customers with eco-friendly propulsion systems, which are also excellent in terms of economic efficiency.
In July 2016, we received Marine Engineering of the Year 2015, an award commending excellent vessel and marine equipment technologies from the Japan Institute of Marine Engineering. We received this award for the development of a dual fuel diesel engine that uses methanol and heavy oil as fuels (ME-LGI).


ME-GI-Ethane for liquefied ethylene gas carriers

Topics Contribution to the first automation of a port terminal on the west coast of the United States

● Delivery of three automated container cranes for TraPac, LLC of the United States

We handed over three automated container cranes for railroad yards to TraPac, LLC (Wilmington, California), which is a U.S. subsidiary of Mitsui O.S.K. Lines, Ltd., via PACECO CORP., our U.S. subsidiary. Ever since the 1990s, numerous automated container terminals have been built globally, but TraPac LLC's terminal in the Port of Los Angeles is the first automated terminal on the West Coast of the United States. It is expected that the introduction of these automated container cranes will contribute to developing a consistent automated system, from the part under the quay crane to the railroad yard.


Automated container cranes for railroad yards

Topics Increasing our competitiveness in the social infrastructure domain

● Joint development of an inspection system that permits the simultaneous inspection of surface conditions and subsurface conditions of roads

● Completion of Bridge No.1 on the Ota Kitsuki Line

Recent years have seen the aging of social infrastructure come to the surface, which has resulted in the growing necessity of investigations and inspections for the maintenance of infrastructure equipment throughout Japan. This has led to demand for investigation and inspection technologies that will compensate for the shortage of engineers. We have developed a system that permits the inspection of road subsurface conditions with radar (electromagnetic waves) and the measurement of road surface conditions with laser (a hybrid inspection system), jointly with Tonox Corporation. We will continue to provide consistent services from investigations to repairs, replacement, and renewal by making use of the MES Group's diverse technologies related to bridges.


Hybrid inspection vehicle