

2000



**Annual Report**

For the Year Ended March 31, 2000

## PROFILE

Ishikawajima-Harima Heavy Industries Co., Ltd. (IHI), provides technology-oriented products and services to the industrial, private and public sectors.

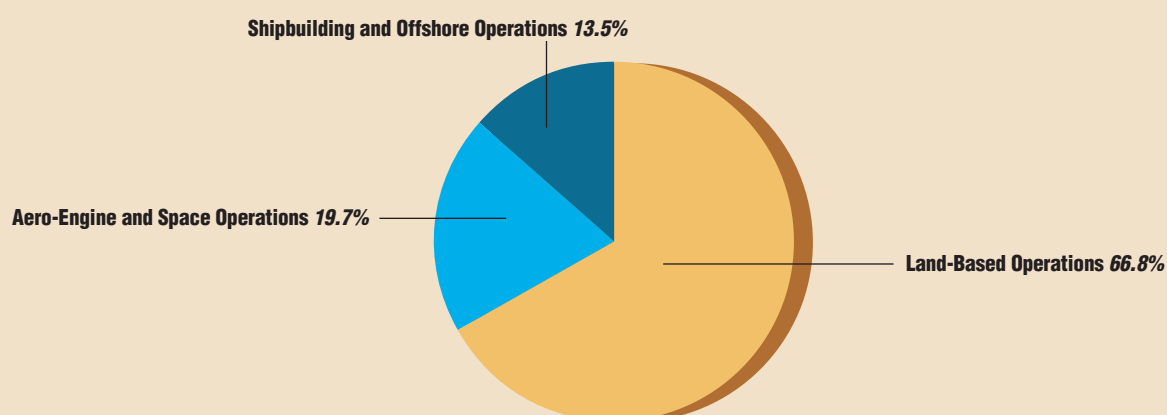
IHI researches, consults, engineers, manufactures and supplies an array of machinery, equipment, plants, structures, ships and offshore facilities.

The Company is at the forefront of manufacturing, energy, marine transportation, distribution, mechatronics, aerospace and environmental technologies.

IHI operates 17 domestic shipyards and works and maintains a domestic network of 10 branches and 24 sales offices.

The IHI Group includes 99 companies in Japan and 37 subsidiaries and joint ventures overseas.

### [ Net Sales by Segment ]



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# FINANCIAL HIGHLIGHTS

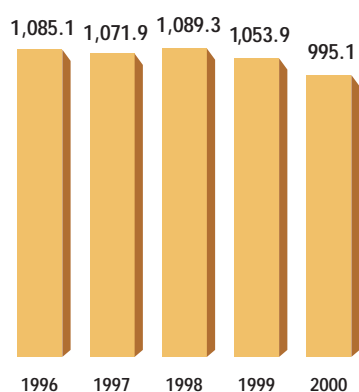
Years ended March 31, 2000, 1999 and 1998  
Ishikawajima-Harima Heavy Industries Co., Ltd., and Consolidated Subsidiaries

	2000	Millions of yen		Thousands of U.S. dollars
		1999	1998	2000
Net sales	¥ 995,063	¥1,053,896	¥1,089,321	\$ 9,374,122
Operating (loss) income	(5,825)	17,895	42,051	(54,874)
Net (loss) income	(78,998)	5,818	15,579	(744,211)
Total assets	1,413,453	1,322,216	1,334,800	13,315,619
Total shareholders' equity	162,796	210,801	212,960	1,533,641

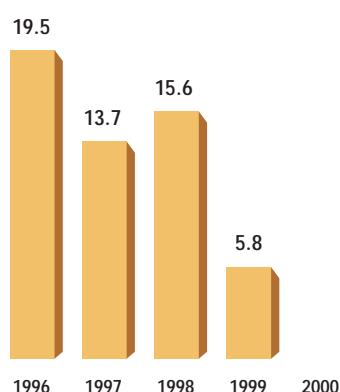
Per common share:	2000	Yen		U.S. dollars
		1999	1998	2000
Net (loss) income	¥ (60.84)	¥ 4.48	¥ 12.00	\$ (0.573)
Cash dividends	—	6.00	6.00	—

*Note: For convenience only, U.S. dollar amounts in this report have been converted from yen at the rate of ¥106.15=US\$1, the approximate rate of exchange prevailing on March 31, 2000.*

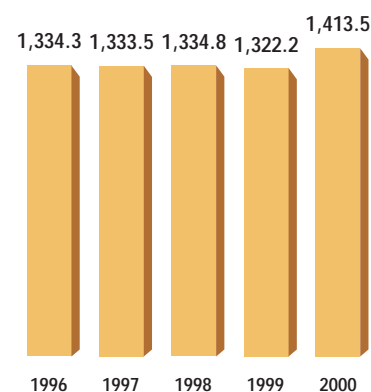
**[ Net Sales ]**  
(billions of yen)



**[ Net Income ]**  
(billions of yen)



**[ Total Assets ]**  
(billions of yen)



During the fiscal year, from April 1, 1999 to March 31, 2000, a full-fledged recovery in the Japanese economy failed to materialize due to stagnant private capital investment, despite supportive financial and fiscal measures of the government and signs of increases in consumer spending and housing investment.

The global economy continued to expand. The economies of Asian countries rallied, the European economy stabilized and the United States economy continued to grow. However, the operating environment for the shipbuilding and heavy machinery industries remained severe, owing to the prolonged slowdown in private capital investment, intensified competition for fewer projects and the sharp appreciation of the yen.

Amid this operating environment, IHI focused efforts on strengthening profitability by thoroughly reducing costs while reviewing the business structure. Despite these efforts, consolidated aggregate orders amounted to ¥936.2 billion, and consolidated net sales declined 5.6% to ¥995.1 billion.

IHI advanced measures to streamline and increase efficiency throughout management while making every effort to lower costs. Consolidated operating loss totaled ¥5.8 billion, owing to the sharp appreciation of the yen and a worsening in profitability of export projects.

A consolidated net loss of ¥79.0 billion was posted on account of a provision of ¥102.8 billion to employees' retirement allowances in consideration of insufficient reserves following the application of severance benefit accounting during the fiscal year under review.

The following is a summary of the performance in each segment. For details, please refer to the Review of Operations.

### Land-Based Operations

In Japan, private capital investment remained sluggish despite an undercurrent of expansion in public investment. The order environment for exports was harsh due to the strong yen and intensified price competition. As a result, total orders in this category amounted to ¥647.5 billion owing to a sharp decline in plant projects. Sales declined 10.7% to ¥665.1 billion on account of a substantial decline in demand for various equipment.

### Aero-Engine and Space Operations

Despite a decline in defense demand, private demand remained firm on the back of the robust economies of Europe and the United States. Sales of F110 augmented turbofan engines and T700 turboshaft engines

to the Japan Defense Agency, as well as V2500 turbofan engines and CF34 turbofan engines to the private sector, were strong. Revenues from engine maintenance also continued to be strong. As a result, orders totaled ¥188.5 billion, and sales increased 13.3% to ¥195.9 billion.

### Shipbuilding and Offshore Operations

The environment for new ship orders remained severe, as Korean shipbuilders gained momentum on the back of the weak won and strong yen. During the term under review, orders amounted to ¥100.3 billion as a result of efforts to secure orders that emphasize profitability, including orders for ten ships centered on large-scale bulk carriers. Sales were down 1.4% to ¥134.1 billion despite handing over a total of 13 ships that included four very large crude oil carriers (VLCCs).

### Outlook

The operating environment is expected to remain severe in Japan and overseas for the Company. Perceiving the fiscal year under review as a turning point to restore performance, IHI established the Management Restructuring Plan in October 1999 to reorganize management and the business structure, as well as increase revenues. The plan aims to restore profitability to Group companies and targets a consolidated to non-consolidated performance ratio of more than 1.0.

The following is the essence of the Management Restructuring Plan.

#### (1) Improve Business Structure

IHI and Group companies will aggressively promote the selection and concentration of businesses to improve profitability.

In unprofitable product lines and businesses, the Company will continue to rationalize operations of Group companies and reduce and integrate production bases while aiming to improve asset efficiency by reducing assets and restoring profits.

Our shipbuilding operations are under intense international competition. IHI is continuing to cooperate with Sumitomo Heavy Industries, Ltd. in integrating production of naval vessels. In addition, the Company is transferring its naval vessel facilities from Tokyo to Yokohama. In steel structure operations, which require an adjustment in production capacity due to lackluster construction in Japan, the Company is making progress in rationalizing domestic production bases, which will eventually be concentrated at its Kure-

Shingu Works and Aichi Works. Through tie-ups with other companies, IHI is promoting the rationalization of its large-scale industrial machinery operations, as it is difficult to sustain capital investment in a portion of large-scale industrial machinery operations in mature fields.

IHI aims to grow and expand promising fields of growth through the concentration of management resources and alliances, mergers and acquisitions. As a part of these activities, the Company agreed to accept the transfer of the Aerospace Division of Nissan Motor Co., Ltd. to a subsidiary, and is preparing to take over the business on July 1, 2000. As a result, we plan to rapidly develop and strengthen our competitiveness in the aerospace sector.

On April 1, 2000, IHI consolidated three of its construction companies into one. This will result in the more efficient use of management resources and stronger cost competitiveness. IHI established Human Asset Support Co., Ltd. to handle such personnel matters as wages and social insurance procedures for the Group. In this way, IHI and Group companies become one in their aim to increase efficiency and grow in their respective fields of business.

## **(2) Streamline Independent Management of Business Divisions and Headquarters**

IHI strives to create a functionally slimmer headquarters by promoting simplification and streamlining of the headquarters organization, while bolstering the autonomy of business divisions and establishing independent management.

## **(3) Implement Emergency Measures to Slash Fixed Costs**

During the fiscal year ended March 31, 2000, IHI conducted a review of lump sums of Directors' compensation and bonuses and management compensation. During the fiscal year under review, the Company implemented initiatives to reduce research and development expenses, capital investment and other costs. In addition, IHI is proceeding according to plan in lowering personnel by approximately 1,200 employees by the end of March 2001, through mandatory retirement, voluntary retirement, transfers and employment restrictions.

Based on the corporate philosophy of "Using technology for the benefit of society," IHI and Group companies have contributed to the creation of wealth in society by providing a diverse range of products that support industry and society, including industrial



*Seated: Kosaku Inaba  
Standing: Toshifumi Takei*

machinery, transportation equipment and social infrastructure, and by combining cutting-edge technology with basic technology in aerospace, energy and power plants, machinery and ships. By promoting the aforementioned measures, continuing to bolster technological capabilities and providing society with high-quality cost-competitive products, IHI and Group companies are in position to develop into an advanced manufacturing and engineering corporate group.

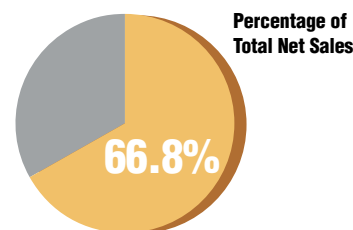
We look forward to the support of our shareholders as we work toward these goals.

June 29, 2000

*Kosaku Inaba  
Chairman and Chief Executive Officer*

*Toshifumi Takei  
President and Chief Operating Officer*

# LAND-BASED OPERATIONS



*During the current fiscal year, sales of land-based operations decreased 10.7% to ¥665.1 billion, accounting for 66.8% of net sales, compared with 70.7% during the previous term.*

## INDUSTRIAL MACHINERY

### [ Position ]

**Iron and steel manufacturing equipment:** IHI has a proven record in numerous construction projects in Japan and overseas for blast furnaces, electric arc furnaces, heat treating furnaces and related equipment. In addition, IHI, The Broken Hill Proprietary Company Limited of Australia and Nucor Corporation of the United States are jointly marketing the Thin-Strip Caster, which is able to continuously produce thin strips directly from melted steel.

**Rolling mills:** IHI provides hot and cold rolling mills for ferrous and non-ferrous metals, auxiliary equipment and systems that precisely control the products' shape.

**Paper-making machines:** As Japan's premier manufacturer of paper-making machines, IHI has an impressive worldwide performance record, particularly in coating machines.

**Transfer feed presses:** IHI is one of the world's leading manufacturers of very large transfer feed presses, which are used in forming automobile bodies and chassis.

**Calender machines:** Our calender lines, which are used in the manufacture of rubber sheets for tires and of plastic sheets and film, have achieved success mainly in Southeast Asia every year.

**New materials processing equipment:** IHI supplies such equipment as hot presses and vacuum heat treatment furnaces used in the surface treatment and processing of new material parts, including ceramics and a variety of alloys.

**Compressors, blowers and pumps:** Many years of experience are behind our custom-made compressors, blowers, fans and pumps. Our ultralow-temperature gas compressors for liquid oxygen and LNG plants have achieved high results in Japan.

**Semiconductor, LCD substrate processing and inspection equipment:** Semiconductor photomasks and liquid crystal display (LCD) substrate processing and inspection equipment make full use of our mechatronics and beam technology, and substantially contribute to the advancement of semiconductor and LCD substrate production.



Large-scale transfer feed press delivered to Honda Canada Inc.

Highlights for the term included the delivery of four large-scale transfer feed presses to General Motors Corporation (GM) of the United States and one to Honda Canada Inc. in Canada. Used in stamping automobile body panels with pressing force ranging from 4,500 tons to 6,500 tons which are among the largest in the world. A total of 33 units have been delivered to GM, with six more in production.

In iron and steel manufacturing, IHI supplied a sizing press, which shapes and rolls hot slabs into sizes suitable for products, to Kobe Steel, Ltd. and two aluminum foil mills to C.S. Aluminum Corporation of Taiwan.



Compressed natural gas quick refueling station for NGVs



Full-size Thin-Strip Caster demonstration plant at BHP's Port Kembla Works

In addition, the Company completed one LNG boil-off gas compressor for Tokyo Electric Power Company, Inc. (TEPCO), one compressed natural gas quick refueling station for natural gas vehicles (NGVs), several pumps for drainage water facilities of local government agencies in Japan, and one newly developed vacuum heat treating furnace that allows for ultra-fast cooling following thermal processing of work pieces.

IHI, The Broken Hill Proprietary Company Limited (BHP) and Nucor Corporation, the world's largest operator of thin-slab sheet steel plant, established a joint venture in the United States to initiate construction on a commercial plant for thin-strip casters that have been under joint development with BHP of Australia. Plans call for the plant to be operational in 2001 with an annual production capacity of 400,000 tons. The joint venture will license the strip-casting technology and sell strip-casting plants around the world.

IHI received an order for a sizing press from Nippon Steel Corporation. The Company also received orders for a complete line for board paper from Japan Paperboard Industries Co., Ltd., and for modifying headboxes, wire sections and press sections from various paper-making companies. Other orders included eight large-scale axial fans for vertical shafts of an expressway tunnel in Japan, and two large-scale integrally geared centrifugal compressors for a liquefied nitrogen production plant in Japan.

IHI received orders for array checkers and laser repair equipment from a leading domestic LCD panel manufacturer. Array checkers were backlogged 20 units at the end of the previous term. Annual orders for IHI's electronic equipment for LCD panel manufacturing use broke through ¥6 billion for the first time.



## GAS TURBINES AND DIESEL ENGINES

### [ Position ]

**Gas turbines:** Taking advantage of its position as a top domestic supplier of gas turbine engines for aircraft, IHI makes extensive use of its technology and facilities in the manufacture of aeroderivative gas turbines for power generation, and main engines for naval and high-speed vessels. Valued for their lightweight compact design and high reliability, demand for our power generation and cogeneration gas turbines is expanding globally.

**Diesel engines:** Through technological collaboration with Wartsila NSD Switzerland Ltd. and SEMT of France, we provide large-capacity engines for ships and land-based power generation through our subsidiary Diesel United, Ltd.

**Cogeneration systems:** IHI has extensive experience in cogeneration systems comprising gas turbines, diesel engines and heat recovery systems.

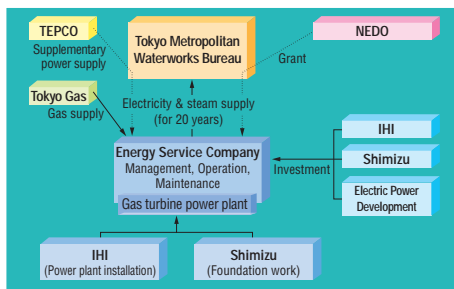
**Gears:** We manufacture a variety of step-up and reduction gearing systems for engines and other rotating machines based on our precision machine technology.



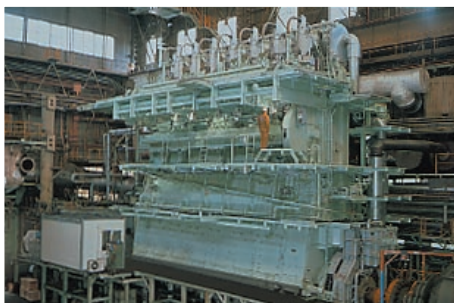
LM6000 gas turbine

IHI provides gas turbines, centering on aeroderivative gas turbines for power generation, cogeneration systems and main engines for such high-speed ships as naval vessels. Demand for our gas turbines, valued for their lightweight, compact and highly reliable design, environmental merits and short delivery time, is growing steadily in Japan and abroad. IHI aims to expand net sales in this segment 60% within three years, from ¥25 billion to ¥40 billion, by releasing new products.

During the fiscal year under review, IHI delivered 4,000–6,000-kW-class IM400-FLECS gas turbines for cogeneration systems of domestic manufacturers. We also delivered a mobile gas turbine generator featuring



Flow chart of Japan's first PFI project



DU-Sulzer RTA84T diesel engine for VLCCs

an IM400 gas turbine to a power utility company for use during an emergency. The sale of two 14,450–20,000-kW-class LM2500 gas turbines and a 8,000-kW-class LM1600 gas turbine for emergency power generation facilities for sewage treatment plants ordered by the Tokyo Metropolitan Government was recorded in accordance with the percentage-of-completion method. The gas turbines will be delivered during the current fiscal year. In main propulsion engines for naval vessels, IHI supplied LM2500 main propulsion gas turbine engines for four 4,200-ton DD-class destroyers of the Japan Maritime Self-Defense Force.

Maui Electric Company, Ltd. placed an order for one 20,000-kW-class LM2500 gas turbine. Tanir Bavi Power Pvt. Ltd., an independent power producer (IPP) in India, ordered four barge-mounted 46,500-kW-class LM6000 gas turbines through Mitsui & Co., Ltd. IHI has provided financing to a power supply company and joined the first private finance initiative (PFI) for public facilities in Japan for power generation facilities of a water purification plant in Tokyo. We will provide two IM400-FLECS-E cogeneration systems with a maximum output of 10,000 kW.

In gas turbines for naval vessels, IHI received orders for two 18,000-kW-class LM2500 main propulsion gas turbine engines for a 4,200-ton destroyer, which was ordered by the Japan Defense Agency in 1998. IHI also received an order for six 3,970-kW-class LM500 main propulsion gas turbine engines for two patrol gunboats.

In marine diesel engines, our subsidiary Diesel United, Ltd. sold 47 engines with a total output of 603,119-kW horsepower, including five 27,184-kW horsepower DU-Sulzer RTA84T diesel engines for VLCCs. Diesel United received orders for 37 engines with a total output of 492,792-kW horsepower. Diesel United is implementing measures to thoroughly reduce costs in response to intense price competition in Japan and overseas.



**[ Position ]**

**Coal and ore loading and unloading systems:** IHI is a major supplier of bulk material-handling equipment such as loaders, unloaders, stackers, reclaimers and belt conveyors. In Japan, we recently achieved top performance in unloading equipment with the introduction of a continuous unloader to meet strong demand for higher efficiency. IHI also offers comprehensive engineering services in coal and ore shipping and receiving terminals.

**Container cranes:** IHI has delivered more than 150 container crane units around the world. Our innovative anti-sway devices, combining image-processing devices and electronic controls, dramatically increase the efficiency of container-handling operations.

**Overhead traveling cranes and jib cranes:** We provide standard and economical overhead traveling cranes, jib cranes and hoists through our subsidiary Ishikawajima Transport Machinery Co., Ltd. (IUK).

**Physical distribution and factory automation systems:** In Japan, IHI pioneers physical distribution systems, including automated warehouses, picking systems, sorting systems and automated guided vehicles. We boast an overwhelming share in refrigerated and cold storage automated warehouses, automated warehouses for inflammables and fully automated automobile storage systems for car manufacturers and dealers. IHI provides complete system engineering services in addition to key devices and equipment for these systems. Factory automation (FA) systems that employ automated guided vehicles and industrial robots are expanding in sales.

**Parking systems:** IHI is a leading manufacturer and pioneer in mechanical tower parking installations in Japan. We provide a variety of mechanical parking systems and parking facilities, and boast a high share of the market with more than 7,000 mechanical tower parking systems built to date. IHI transfers design and construction technology used in these systems overseas.

IHI developed the Shuttle Parking and Welcome Parking systems for large-scale underground parking by combining its parking system and automated warehouse technologies.

**Moving walkways:** IHI has commenced sales of a new moving walkway ACCEL-LINER that features an operating speed four times that of conventional models, contributing to the smooth and safe movement of people in urban areas and transportation terminals.



*2,700-ton-per-hour continuous ship unloader for coal at Tachibana-wan coal-fired power station*



*Refrigerated storage automated warehouse system for a subsidiary of Meiji Milk Products Co., Ltd.*

IHI is the world's foremost supplier of continuous ship unloaders for ore and coal. During the fiscal year under review, IHI delivered two of the world's largest continuous ship unloaders for coal at 2,700 tons per hour and one soil conveyor system to the Tachibana-wan coal-fired thermal power station of Shikoku Electric Power Co., Inc. and Electric Power Development Corporation, respectively. The Company delivered a 1,400-ton-per-hour continuous ship unloader for coal, a 1,600-ton-per-hour reclaimer and belt conveyors to Sultan Salahuddin Abdul Aziz Power Station of Tenaga Nasional Berhad (TNB) through TNB Engineering and Consultancy Sdn. Bhd. (TNEC), a subsidiary of TNB. The Company also refurbished and upgraded an existing coal handling system. The manufacture and preassembly shipment of two sets of continuous ship unloaders for coal for the Hong Kong Electric Power Co., Ltd. are progressing smoothly.

Domestic power utilities placed orders for coal handling systems, conveyors, reclaimers and coal storage silos. IHI also received an order for a gate-type unloader from a steel manufacturer in Japan. The Company installed a larger second experimental facility for the ACCEL-LINER, a variable-speed moving walkway, and initiated marketing to airports and local government agencies.

In physical distribution systems and factory automation systems, IHI supplied several automated warehouses, including a refrigerated automated warehouse system and handling system to a distribution center of a subsidiary of Meiji Milk Products Co., Ltd., an automated warehouse system for inflammable products to a domestic chemicals company, and a number of cold storage automated warehouse systems for whole rice and horticulture products to agricultural groups in Japan.

Orders included a book-handling system for an annex of a national library, an airfreight container-handling system, and an external wall production system for a prefabricated housing company.

Integrating our physical distribution system technologies and intelligent traffic systems (ITS), we entered the business of managing the incoming and outgoing traffic of small and medium transportation companies in the Osaka area. In material-handling systems the Company developed and began marketing a large-scale flat display panel glass substrate handling system, which can change the aspect of glass from oblique to horizontal angles, and reduces required installation space in half.

In parking systems, IHI supplied 14 Elevator Parking systems for a high-rise condominium in Makuhari, Chiba Prefecture, for a combined capacity of 432 vehicles. The Company also provided a 183-vehicle Shuttle Parking system for a large-scale underground parking facility in Nagoya City.

IHI focused efforts on marketing self-driving-type parking systems for public parking facilities of local municipalities and such large-scale commercial facilities as supermarkets, as well as multistoried parking systems for residences and offices. We also released a new multistoried parking system that features increased storage capacity and efficiency. As a part of a national project, IHI and seven other companies have established a new company for the joint development of an automated parking guidance system to support intelligent transport systems (ITS). Parking information will be provided to drivers through mobile telephones and car navigation systems.



*Elevator Parking system for high-rise condominiums*

## BRIDGES, GATES, STEEL STRUCTURES AND SHIELD TUNNELING MACHINES

### [ Position ]

**Bridges:** IHI has participated in numerous construction projects of principal bridges in Japan, including the Akashi Strait Bridge. Overseas, the Company's reputation is growing with a project in Turkey for the construction of the Second Bosphorus Bridge and highways joining the bridge. IHI leads the consortium in this project.

**Gates:** IHI is Japan's top manufacturer of gates for rivers and dams, and has an extensive list of achievements in Southeast Asia and Latin America.

**Steel structures:** Our steel structure technology, evident in heavy steel frames for high-rise buildings and steel frames used in the construction of power plants and factories, and mechanical systems are combined to supply airframe maintenance equipment and sports arena movable seat systems.

**Hybrid structures:** We focused our efforts to expand the use of hybrid structures, such as caissons and pontoons, that combine the strengths of steel and concrete.

**Shield tunneling machines:** IHI has constructed a number of large-diameter shield tunneling machines, including one of the largest in the world and a number that feature automatic segment assembly systems. IHI provides every type of segment through its subsidiaries, including Ishikawajima Construction Materials Co., Ltd. (IKK). We have also developed a rotating shield machine that requires only one machine to continuously excavate from shafts to access tunnels or from straight to right angles.

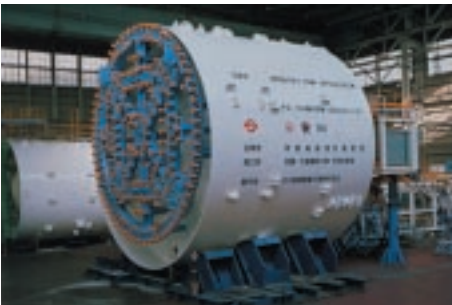
**Mass dampers and seismic isolation floors:** Our mass dampers and seismic isolation floors are the culmination of our steel structure, machine and sensor technologies. We are fostering these systems as a new growth product, supplying them for use in skyscrapers, in the construction of main towers for bridges, in large ships, in ski slope gondolas and in seismic isolation floors for computer centers and public disaster prevention centers.



*Nearly completed suspension bridge crossing the Irtysh River in Kazakhstan*



*Gates for domestic multipurpose dam*



*9.6-meter-diameter DPLEX shield tunneling machine*

In bridges, we have constructed various types of road and railway bridges in various regions of Japan. However, no large-scale projects were completed since the Shimanami Highway, the third route connecting Shikoku to the Japanese mainland, opened during the previous fiscal year. Supported by yen credit from the Japanese government, construction of the suspension bridge, with a total length of 1,100 meters and a main span of 750 meters, crossing the Irtysh River in Kazakhstan is progressing with completion of the cable and deck erection. A portion of revenue from this project was posted during the fiscal year under review in accordance with the percentage-of-completion method. The suspension bridge and approximately eight kilometers of connecting road are scheduled to be completed in October 2000. New orders were for the maintenance of transportation networks of major urban centers, such as the Arakawa Bridge ordered by the Tokyo Metropolitan Government, and projects related to the construction of the Second Tomei-Meishin Expressway. Overseas, the Company recently received an order for fabrication, assembly and delivery of bridge girders for the Carquinez Suspension Bridge near San Francisco Bay. A suspension bridge of this scale has not been constructed in the United States for 36 years.

IHI completed construction of numerous gates for hydro-power plants and multipurpose dams in various regions of Japan. In steel structures, we supplied one 40 meter by 40 meter and one 40 meter by 20 meter hybrid pontoon composed of steel and concrete to be used as a base for floating disaster prevention facilities in Nagoya Bay. Other hybrid structures included hybrid caissons and movable breakwaters delivered to two fishing ports in Japan.

Demand for our gates continued to be strong with orders higher than a year earlier. Overseas, IHI received an order for a water gate for a power plant to be built on a BOT basis in the Philippines.

To boost its concrete structure-related business, IHI has integrated PC Bridge Co., Ltd., a prestressed concrete (PC) bridge specialty manufacturer, under the umbrella of subsidiary Ishikawajima Construction Materials Co., Ltd. (IKK).

In shield tunneling machines, we supplied a 3.64-meter-diameter shield tunneling machine for construction of a sewage system in Beijing, China, and a 9.6-meter-diameter developing parallel link excavating (DPLEX) shield tunneling machine for construction of a subway line in Tokyo. IHI received an order for four Double-O Tube (DOT) shield tunneling machines to be used in the construction of a subway line in Nagoya City. In tunnel construction, we verified the practicality of simultaneous tunneling and segment assembly through the use of honeycomb segments and an automated assembly robot that were jointly developed by IHI, subsidiary IKK and Okumura Corporation during the previous fiscal year. To cope with emerging demand for hard-rock tunneling in Japan, we acquired exclusive marketing rights in Japan for hard-rock tunnel boring machines from Herrenknecht A.G. of Germany in exchange for granting a license to DOT shield tunneling machines in Europe.

### [ Position ]

**Boilers:** Based on technology accumulated in large-capacity boilers for public utility use, we provide a variety of boilers for electric power companies, IPPs and industrial use, including large-capacity boilers for power generation units that exceed 1,000 megawatts. IHI leads the industry in improving efficiency by enhancing steam conditions. We are also accumulating experience in such new boilers as heat recovery steam generators (HRSGs) for LNG-fired combined cycle power plants and pressurized fluidized-bed combustion (PFBC) boilers for coal-fired combined cycle power plants.

**IGCC and fuel cells:** We strive to increase technological capabilities at our test facilities. IHI has participated in integrated gasification combined cycle (IGCC) plant operation projects overseas, and is making steady progress toward supplying commercial facilities based on technology gained through trial operations of its own pilot plant. IHI continues to accumulate technology in fuel cells as a participant in a national project to construct a one-megawatt pilot plant.

**Components for nuclear power plants:** IHI supplies such components for nuclear power plants as reactor pressure vessels, primary containment vessels and piping systems. The Company manufactured a pressure vessel for an advanced boiling water reactor (ABWR), the first of its kind in the world. We provide various inspection and repair systems through the application of our mechatronics technology, including robots for in-service inspections and remote welding systems for reactor pressure vessels and piping systems.

**Radioactive waste management systems:** We are also participating in the development and installation of such waste disposal systems as high-level radioactive waste vitrification and storage facilities.



*Unit No. 1 of Tachibana-wan coal-fired thermal power station*

In boilers for utility power stations, IHI recorded revenue on the progress of construction of several large-scale boilers for electric power companies in Japan and overseas in accordance with the percentage-of-completion method. Overseas, these boilers include two boilers for the Phase-III 500-MW unit of SSAA Power Station of TNB of Malaysia, and three boilers for the Phase-II 600-MW unit of Beilungang Thermal Power Station in China. In Japan, these boilers include a supercritical variable pressure operation boiler for Unit No. 1 of the Tachibana-wan coal-fired thermal power station of Electric Power Development Corporation, which is Japan's largest coal-fired unit with an output of 1,050 MW, and is scheduled to enter commercial operation in 2000.



*Boiler for 145-MW-class IPP power plant*

IHI received an order for the manufacture and construction of a boiler for the 450-MW coal-fired unit of Tarong North Power Station of Tarong Energy Corporation Limited in Australia, and the manufacture of a heat recovery steam generator (HRSG) for a domestic electric company.

The Company supplied several boilers for a 145-MW-class unit to an independent power producer (IPP) in Japan.

Installation of a reactor pressure vessel (RPV), a primary containment vessel (PCV), heat exchangers and a piping system for Unit No. 3 of Onagawa Nuclear Power Station of Tohoku Electric Power Co., Inc. has been finished, and the unit entered the final stage of construction.



*Installation of RPV for Unit No. 3 of Onagawa Nuclear Power Station*

IHI, with the cooperation of subsidiary Ishikawajima Inspection & Instrumentation Co., Ltd. (IIC), purchased the nuclear power generation facility inspection division of Southwest Research Institute (SwRI) of the United States, which had participated in technological exchange with IHI, and established IHI Southwest Technologies, Inc. in Texas, U.S.A. Southwest Technologies will engage in nuclear-power-related inspections, and plans to advance into the fields of petrochemicals and natural gas, and expand operations to South America and Europe. Constructed and operated based on the New Sunshine Project promoted by the Ministry of International Trade and Industry (MITI) and the New Energy and Industrial Technology Development Organization (NEDO), our 1-MW

molten carbonate fuel cell (MCFC) power plant achieved 4,916 hours of continuous operation with power generation efficiency of 46.1%, completing this phase of testing. Experiments will continue toward commercialization and prolonging the lifespan of cells to create a system for on-site power generation in urban and rural regions.

Integrated gasification combined cycle (IGCC) power plants have attracted attention as a next-generation power plant. IHI is making concerted efforts to secure orders related to the large-scale demonstration facility construction project in Japan, which will be fueled by either residue oil, petroleum coke or coal. The facility was made possible through the Company's experience and know-how gained through various experiments at test facilities in Aioi Works, and by participating in a large-scale verification experiment project in the United States.

## CHEMICAL PLANTS AND STORAGE FACILITIES

### [ Position ]

**Process plants:** IHI has an impressive record in the construction of oil refineries and petrochemical and liquefied petroleum gas (LPG) plants on a full turnkey basis. Making full use of our comprehensive capabilities, we construct barge-mounted plants and use modular construction methods to build plants.

**Equipment for plants:** IHI supplies a wide range of components for plant structures, including vessels and cooling towers.

**Cement plants:** IHI leads the world in the development of the new SF and NSF processes that improve kiln productivity and dramatically reduce fuel consumption. IHI constructs plants around the world incorporating this process and transfers this technology overseas.

**Vertical mills:** IHI has a strong record in vertical mills that are used to pulverize coal, cement, metal and ceramics. The range of applications is also expanding for our ultrafine grinding mill, which contributed to the development of vertical mills.

**Low-temperature storage tanks:** With a world-class track record, IHI has a significant share of the domestic market in above and in-ground low-temperature storage tanks, especially in LNG operations. IHI is also an EPC contractor in LNG receiving terminals, including piping systems, operational support and monitoring systems.

**Pharmaceutical plants:** In this field, IHI has combined its process-plant engineering, material-handling systems and distribution-system technologies to provide complete plant systems.



*Cosmetics production plant for FANCL Corporation*

In storage systems, IHI completed a 140,000-kL LNG storage tank for Ohita LNG Co., Ltd. and LNG satellite base in two locations in Japan. The Company recorded revenues on the partial completion of an in-ground 200,000-kL LNG storage tank for Tokyo Gas Co., Ltd. and two 125,000-kL LNG storage tanks for TEPCO in accordance with the percentage-of-completion method.

In process plants, IHI completed a pharmaceutical plant for Takeda Ireland Ltd., an eye drop pharmaceutical plant, and a distribution center for Rohto Pharmaceutical Co., Ltd. and a cosmetics production plant for FANCL Corporation, one of the largest domestic mail-order cosmetics company, as well as a modernization project for a cement plant in Al Ain, Abu Dhabi, United Arab Emirates (UAE). This modernization project involved increasing the daily production capacity of existing plants from 1,800 tons to 2,085 tons, reducing fuel consumption, and such environmental improvements as enhancing dust collection equipment.



Modernization project completed for cement plant in Al Ain, Abu Dhabi, UAE

An engineering company in Italy, Snamprogetti S.p.A., placed an order for a 58,000-cubic-meter liquefied petroleum gas (LPG) storage tank for Qatar General Petroleum Corporation.

IHI also received an order from Sharjah Cement & Industrial Development Company, Sharjah, UAE, to expand production capacity of a cement plant by 3,400 tons per day.

Backed by the world's foremost record for providing low-temperature storage tanks for LNG and LPG, IHI aims to aggressively expand overseas operations.



## ENVIRONMENTAL CONTROL SYSTEMS

### [ Position ]

**Flue gas deSO<sub>x</sub> and deNO<sub>x</sub> systems:** IHI supplies flue gas deSO<sub>x</sub> and deNO<sub>x</sub> systems for power plants and industrial plants. We are currently constructing an integrated flue gas treatment system for a 1,000-megawatt coal-fired power plant.

**Waste incinerators:** IHI licenses technology to American and European companies for fluidized-bed waste incinerators, which cleanly burn municipal waste containing a mixture of refuse, for small and medium facilities. We also supply large facilities with water-cooled rotary combustors that minimize damage to a furnace even when high-calorie refuse is incinerated. Water-cooled rotary combustors are also advantageous in waste heat recovery.

**Pyrolysis gasification systems:** IHI established a development center within the Company where it develops new technologies related to environmental preservation and constructs pilot plants to test operations. We have constructed and operated a pilot plant for the development of such volume-reducing technologies as pyrolysis gasification, achieving a substantial reduction in dioxin emissions.

**Recycling systems:** IHI offers a lineup of recycling systems including home electronics recycling facilities, shredder dust treatment facilities, glass and plastic bottle recycling facilities, refuse-derived fuel (RDF) and refuse paper and plastic fuel (RPF) production systems that use municipal waste.

**Sewage and industrial wastewater treatment facilities:** IHI is expanding its prowess in industrial wastewater treatment facilities centering on the brewing and distilling industry. Our advanced industrial wastewater treatment facilities minimize pollution with anaerobes and use gas produced during the treatment process as fuel.



Toshima Incineration Plant in Tokyo

During the term, IHI completed the Toshima Incineration Plant project in Tokyo, as well as four projects for the advanced processing of flue gas from waste incineration facilities of domestic local government agencies.

The Toshima Incineration Plant is a state-of-the-art incineration facility featuring two 200-ton-per-day fluidized-bed incinerators. The facility was methodically designed to minimize environmental impact.

In sewage treatment projects, IHI, as a leader of the consortium with Mitsubishi Corporation and Jurong Engineering Limited (JEL) of Singapore, completed the Bedok Sewage Treatment Works expansion project ordered by the Ministry of the Environment of Singapore, expanding capacity by 58,000 cubic meters per day. In addition, IHI posted revenue based on the progress made on the Ulu Pandan Sewage Treatment Works expansion project in Singapore and on the installation of flue gas desulfurization systems for the Hsinta Power Station No. 3 and No. 4 Units of Taiwan Power Company.



*RPF production plant of Chita E&M Co., Ltd.*



*Demonstration plant for RDF-fired external circulating fluidized-bed boiler*



*Continual organic waste decomposition equipment*

IHI received orders for a replacement project from the Tokyo Metropolitan Government for the Tamagawa Incineration Plant, and projects for the advanced processing of flue gas from local government agencies.

The incineration facility of the Tamagawa Incineration Plant will incorporate two 150-ton-per-day water-cooled rotary combustors. This marks the first time IHI has received an order for this type of incinerator from the Tokyo Metropolitan Government, which influences other government agencies throughout Japan on their selection of incinerator.

A major paper-making company in Japan placed an order for one of the world's largest internal circulation (IC) reactors for industrial wastewater processing that utilizes anaerobic microorganisms to process industrial wastewater.

Established to spearhead our first thrust into the industrial waste processing business, Chita E&M Co., Ltd. initiated operation of a refuse paper & plastics derived fuel (RPF) production plant in September 1999. Chita E&M turns plastic collected from manufacturing companies in the area into RPF at a rate of 1,000 tons per month and sells it as fuel to steel and cement companies.

IHI, in cooperation with local home appliance manufacturers and waste disposal companies, participates in the financing and transfer of technology and personnel for waste processing companies in Nagoya. These businesses reduce, package and store such plastic as food trays and bottles found in general waste generated from households. IHI is also advancing into the recycling business of various materials from discarded home appliances, and plans to start operations during 2000.

In technological development, IHI received technological appraisals, which are prerequisites to operation by users, from a public institution. The appraisals approved the pyrolysis gasification melting system, which was undergoing trial operations at a 20-ton-per-day demonstration plant, and the anaerobic digestion system for organic waste gasification system under joint development by IHI and six other companies.

Installations of refuse-derived fuel (RDF) and RPF manufacturing facilities are expected to increase as they replace small-volume incinerators. In response, IHI established and began trial operations of a demonstration plant, which features an RDF-fired external circulating fluidized-bed boiler, that can efficiently burn RDF. In addition, the Company has installed a trial facility and promoted research for the commercialization of hydrothermal reaction equipment that decomposes organic industrial waste, dioxins, polychlorinated biphenyl (PCB) and other substances by applying the hydrothermal reaction of supercritical water. As the result of our commercialization efforts, we have developed continual organic waste decomposition equipment that can break down large volumes of raw waste generated by supermarkets and hotels into water and carbon dioxide gas.

[ Position ]

**Packaged compressors, centrifuges, filters and packaged boilers:** IHI provides packaged and series versions of machinery and devices based on technology cultivated from its vast production achievements, including packaged compressors used at various factories to supply compressed air, packaged boilers used for supplying heat and steam, and centrifuges and filters used to separate solids and liquids.

**Turbochargers:** IHI and Turbo Systems United Co., Ltd. (TSU) supply a series of turbochargers for engines used in a broad spectrum of applications ranging from large ships to compact automobiles. IHI has manufactured more than seven million turbochargers for automobiles and operates production and sales bases in the United States, Europe and China.

**Construction and agricultural machinery:** IHI meets demand for a variety of standardized construction and agricultural machinery through mass production at IHI Construction Machinery Ltd. (IK) and Ishikawajima Shibaura Machinery Co., Ltd. (ISM).

**Ozone-related equipment:** IHI developed sterilization and odor-removing equipment based on ozone, and initiated full-scale marketing to food processing centers, medical facilities and other service facilities.

**Laser equipment:** IHI commenced marketing of industrial and medical laser equipment that take advantage of the special characteristics of the YAG laser, which made possible optical fiber transmissions.

**Wind turbine generators:** Our wind turbine generators meet increasing domestic demand for power generation that utilizes the power of nature.

**Equipment for research and experiment facilities:** Utilizing our precision welding technology for aluminum alloys, we delivered a vacuum system for the accelerator ring of the world's largest particle accelerator. IHI is also constructing Japan's first jet engine altitude test facility.



Eight-millionth automotive turbocharger

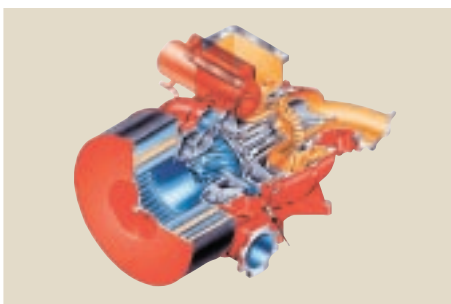
Standardized Machinery operations were established as a new business unit for the development, engineering, manufacture and sale of standardized machinery and equipment, as well as various parking systems, strengthening the Company's structure in this field. Plans call for increasing orders 60% within three years.

Annual shipments of turbochargers for automobiles amounted to approximately 900,000 units for the fiscal year under review, with total production exceeding eight million units. In addition to the order from DaimlerChrysler Corporation in the previous term, IHI secured a supplier contract with Toyota Motor Corporation during the term under review. The Company forecasts annual shipments of 20,000 units for the current fiscal year and 40,000 units during the next fiscal year.

Subsidiary Turbo Systems United Co., Ltd. (TSU), which sells turbochargers for large-scale engines used in ships and power generators, began sales of ABB Turbo Systems Ltd.'s new TPL series model. The first unit of the series produced in Japan will be installed on the main engine of a VLCC of Mitsui O.S.K. Lines, Ltd.

Demand is growing steadily for ozone-related equipment, including humidity-type odor-removal systems for sewage and drainage water treatment facilities in addition to sterilization and odor-removal equipment for such commercial facilities as medical centers, food processing plants and hotels. During the term under review, we released a new model with adjustable ozone concentration to match densities of offensive smells, reducing energy consumption as much as one-eighth.

Subsidiary Ishikawajima Shibaura Machinery Co., Ltd. (ISM) released new disinfectant equipment for used slippers for medical facilities, and expanded orders for compact purification equipment that can completely purify seawater and underground water.



TPL series turbocharger for large-scale engines





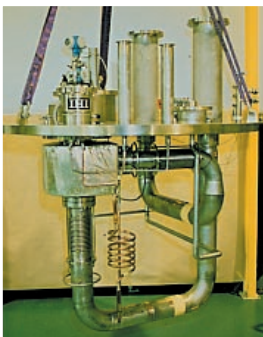
*Seawater purification equipment*



*New compact excavator model clears emission standards*



*Portable digital clinometer Pisa-II with greater angles of measurement*



*Helium compressors for helium-cooling facilities*

IHI secured several orders from medical facilities in three locations in Japan for the yttrium-aluminum-garnet-Optical Parametric Oscillator (YAG-OPO) Laser System for the photodynamic therapy of cancer, which the Company began marketing in the previous term. IHI also released a new high-output YAG laser for industrial use that emits a beam three times the quality of previous models and performs high-precision processing with virtually no occurrences of thermal warping or defects during laser processing. The Company also introduced a welding monitoring system that allows for instantaneous feedback on a monitor of the condition of the welding spot during welding or cutting.

As an example of commercialized beam technology, the Company has developed multiple-application disinfectant equipment that uses electron beams, and began to test market the new product.

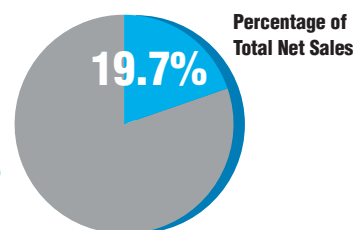
Subsidiary IHI Construction Machinery Ltd. (IK) introduced to market 40NX, 45NX and 70Z, three models of excavators each equipped with an engine that clears the second round of emission standards in Japan and Environmental Protection Agency (EPA) emission standards in the United States. The Company also introduced the small-body CCH30T crawler crane, which, with 2.93-ton lifting capacity, is easy to manipulate in narrow work sites. In the United States, IK also released the 30NX series of mini excavators, which had already cleared EPA standards. IHI plans to boost sales with the establishment of a distributor, Compact Excavator Sales, LLC, through a joint venture. In addition, we initiated original equipment manufacturer (OEM) supply of three medium-sized crawler crane models to Terex Crane Inc., a major construction machinery manufacturer in the United States.

Subsidiary Ishikawajima Inspection & Instrumentation Co., Ltd. (IIC) precisely responds to present-day demands from all industrial fields with accumulated experience and excellent inspection and instrumentation technology. Formerly, IIC had marketed the portable multifunction digital clinometer Pisa-II, which can easily and accurately measure levelness, perpendicularity and obliqueness of the set-up angle of parts when installing structures and facilities. During the term under review, IIC unveiled a new model that further improves functions, including a greater angle of possible measurements and connection to a PC.

Formerly organized with a manufacturing company and a sales company, the Packaged Boiler Division was integrated into IHI Packaged Boiler Co., Ltd. (IBK) in an aim to improve cost competitiveness, strengthen the sales structure and accelerate new product development.

Research and Development Facilities, in cooperation with the Swiss engineering company Linde Kryotechnik AG, received an order from the European Laboratory for Particle Physics (CERN) for four of the world's largest-capacity helium-cooling facilities. The facilities are used to cool the superconducting magnets of a particle accelerator to 1.8 degrees K, or minus 271.3°C. Fulfilling an order from CERN, IHI had supplied 27 helium compressors, which are central to these facilities, to the Fermi National Accelerator Laboratory in the United States in 1992. In Japan, the National Aerospace Laboratory placed an order for exhaust suppressing equipment for testing a supersonic engine under development.

# AERO-ENGINE AND SPACE OPERATIONS



*Sales of aero-engine and space operations advanced 13.3% to ¥195.9 billion, or 19.7% of net sales, compared with 16.4% during the previous term.*

## AERO-ENGINE & SPACE OPERATIONS

### [ Position ]

**Jet engines:** IHI is in charge of production as the main contractor of most aircraft engines used by the Japan Defense Agency. IHI participates in international cooperative business in a variety of civil aircraft engines by developing and supplying primary components. IHI is the top manufacturer of jet engines in Japan with a 60% to 70% share of the market.

**Engine maintenance:** IHI performs maintenance on a variety of engines based on its technological strength as an engine manufacturer. Our engine repair center is showing positive results in overseas markets.

**Engine components:** We expanded production facilities for such core components as gear boxes, power takeoff shafts and turbine blades and vanes, completing a structure with Ishikawajima Precision Castings Co., Ltd. (ICC) to provide blades and vanes for a variety of gas turbines around the world.

**Engine test cells:** IHI provides clients with engine test cells constructed with technology gained from years of assembling and test operating engines.

**Rocket and satellite propulsion systems:** IHI is one of Japan's first companies to participate in space development, including the development and production of solid and liquid fuel propulsion systems and gas jet systems that control rocket and satellite positioning. As an extension of this technology, we also supply satellite propulsion systems. IHI, in a partnership with Nissan Motor Co., Ltd., was designated the primary contractor for the development of Japan's next-generation small-size rocket capable of lifting a one-ton payload into orbit.

**Space utilization systems:** IHI is solidifying its position in space utilization systems, which are expected to reach practical application. We develop and manufacture space experimental systems for material processing and life science, which are used in Japan's space experiment and in joint international experiments.

**Space station:** IHI plays an important role in the development, engineering and production of exposed facilities, experiment support systems and thermal control systems of the Japanese Experiment Module (JEM) in the construction of the International Space Station (ISS).

**Ground support facilities:** IHI also has experience in facilities for ground-based tests of rocket motors, equipment for launching systems and facilities for ground-based tests in microgravity environments.

IHI delivered four F100 augmented turbofan engines used in F-15 fighters for the Japan Defense Agency, 17 F110 augmented turbofan engines for F-2 support fighters, 26 F3 turbofan engines for T-4 jet trainer aircraft, and 43 T700 turboshaft engines for SH60J and UH60J antisubmarine and rescue helicopters. IHI continued to provide spare parts and maintain and overhaul these engines.

IHI received orders for 12 F110 augmented turbofan engines, 20 F3 turbofan engines, 35 T700 turboshaft engines and spare parts for these engines.



*V2500 turbofan engine*



*CF34-8C turbofan engine*



*Shaft production line at Kure Aero-Engine & Turbo Machinery Plant*



*Tomioka Plant of IHI Aerospace Co., Ltd.*

Sales of engines for civil aircraft were down compared with the previous fiscal year. However, orders were strong for engines and engine maintenance.

IHI is participating in the international cooperative development of the V2500 turbofan engine, headed by the Japanese Aeroengines Corporation (JAEC) consortium in Japan, and has supplied 196 sets of fan modules. We are a risk- and revenue-sharing partner in the supply of components for the GE 90 ultralarge-scale turbofan engine for the General Electric Company (GE) and Rolls-Royce plc RB211 and Trent 700 and 800 turbofan engines. During the term under review, we delivered more than 200 components for these engines.

IHI received orders through JAEC for 352 sets of V2500 modules and 75 CF 34-8C. The Company supplies components for the GE 90 ultralarge-scale turbofan engine and Trent 500 and 800 turbofan engines as a risk- and revenue-sharing partner in the project. Additional orders included a long-term maintenance contract for the V2500 turbofan engine from Delta Air Lines, Inc. and a maintenance contract for the CFM-56-3 turbofan engine from Garuda Indonesia. We have received orders for the CF34 turbofan engine, which will power the Canadair CRJ-700, the Fairchild-Dornier 728JET and 928JET, as well as the Embraer ERJ-170 and ERJ-190 aircraft. IHI has decided to participate in the joint development of a new CF34-10 turbofan engine that features stronger thrust. A substantial market is anticipated for the CF34 series to power jet commuter planes and small jet aircraft. The CF received Federal Aviation Administration (FAA) type certification in November 1999 to power the CRJ-700 aircraft.

The Company also supplies shafts for United Technologies Corporation's Pratt & Whitney turbofan engines. Total shaft production at Kure Works, including shafts for our own engines, has surpassed 10,000 units. Approximately 1,800 shafts are produced annually.

Subsidiary Ishikawajima Precision Castings Co., Ltd. (ICC) markets precision-cast turbine blades and vanes for industrial gas turbine and aircraft engines worldwide. GE Energy Products France S.A. placed an order for heavy-duty gas turbine blades, in addition to the order placed by the Alstom Power Group.

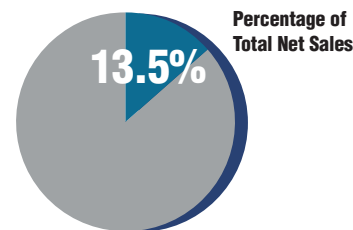
IHI, GE and All Nippon Airways Co., Ltd. (ANA) started a new joint venture, GE Engine Services Japan, Corp., for the repair and maintenance of engines for civil aircraft. As a result, the joint venture between IHI and ANA will be consolidated into the new company.

IHI received business rights to Nissan Motor Co., Ltd.'s aerospace and defense device division, established IHI Aerospace Co., Ltd., a wholly owned subsidiary, and commenced operations on July 1, 2000.

Formerly, in the aerospace division, IHI developed and produced liquid fuel rocket propulsion systems, while Nissan Motor centered on solid fuel rocket propulsion systems. Integrating both companies' aerospace divisions will result in higher efficiency for research and development of National Space Development Agency of Japan (NASDA)'s advanced technology experimental rocket. In defense equipment, IHI centered on products for the Air Self-Defense Force and the Maritime Self-Defense Force, and Nissan Motor centered on products for the Ground Self-Defense Force. The merger enables IHI to strike an excellent balance in the defense equipment business.

During the term under review, IHI recorded sales in space development equipment with the manufacture of preflight modules (PFM) for control systems used in the thermal control system and the pressurized module of the Japan Experiment Module (JEM) *Kibou* as part of the construction of the International Space Station (ISS). We continued to construct preflight modules for exposed facilities. IHI received orders for the next phase of development for the Life Science Glove Box.

# SHIPBUILDING AND OFFSHORE OPERATIONS



Shipbuilding and offshore operations posted sales of ¥134.1 billion, a decrease of 1.4%, and represented 13.5% of net sales, compared with 12.9% during the previous term.

## SHIPBUILDING AND REPAIRS

### [ Position ]

**VLCCs:** IHI has been building VLCCs since its inception in the industry, and has always challenged technological advancements. IHI leads in large ship construction technology for VLCCs and ultralarge crude oil carriers (ULCCs).

**Bulk carriers and F series:** IHI provides large bulk carriers and ore carriers, such as the recently designed 170,000-deadweight-ton Cape-size bulkers. IHI made new waves in the global shipbuilding industry with mass production of the standard F series ships, realizing shortened delivery periods and superior cost performance.

**Container ships:** IHI builds approximately 10% of the world's supply of large container ships. We also construct very large container ships with a capacity of more than 6,600 containers.

**LNG carriers:** Through proprietary technology, IHI developed the SPB model LNG carrier that excels in safety, reliability and economic operation.

**Naval vessels:** We operate one of the leading yards for naval vessels. We also supply gas turbines, the main engines of naval vessels.

**Cruise ships and ferries:** IHI has a substantial record in cruise ships and large ferries. We construct large ocean-going ferries, super-slender twin hull (SSTH) high-speed ferries and large cruise ships.



Double-hull 280,000-deadweight-ton VLCC



Shinrei 170,000-deadweight-ton bulk carrier

During the term under review, IHI delivered four double-hull 280,000-deadweight-ton VLCCs. This marks the completion of seven ships of 14 employing the new design series, and the completion of 114 large-scale tankers since IHI began constructing VLCCs. IHI handed over two large-scale 170,000-deadweight-ton bulk carriers, and six Handy-max 48,000-deadweight-ton Future-48 bulk carriers. The Company also delivered a 4,200-displacement-ton large-scale destroyer, to the Japan Defense Agency, bringing the total number of completed ships to 13.

Formosa Plastics Group of Taiwan placed an additional order for two large-scale bulk carriers with load capacities of 170,000 tons. Other orders received included four Handy-max Future-48 bulk carriers, a 4,200-displacement-ton large-scale destroyer and three other ships, bringing the total number of orders to 10 ships.

At Kure Shipyard, the principal shipyard for building large-scale ships, IHI is upgrading its continuous production line of large-scale blocks to improve productivity in large-scale shipbuilding. To automate the work process of forming 3-D curved shell plates of ship hulls, which was previously done



*Future-48 48,000-deadweight-ton bulk carrier*



*4,200-displacement-ton large scale destroyer*

by hand, IHI introduced its second NC automated line heating machine, IHI- $\alpha$ . The machine takes production information from *Ajisai* the 3-D computer-aided design/computer-aided manufacturing (CAD/CAM) system, and controls the heat applied by high-frequency induction heaters, automatically forming the steel plates to desired shapes. Combined with the first machine already in operation on the production line, the Company aims to increase efficiency in the production process.

The Tokyo Shipyard is our primary facility for constructing naval vessels. Due to a redevelopment project in the surrounding area, there are concerns that ships will not be able to leave or enter the shipyard. As a result, IHI decided to move operations to Yokohama. The Company will upgrade the Yokohama Shipyard and commence operations in fiscal 2001. Current orders include four ships, including one destroyer, which are already scheduled for construction in Yokohama.



## OFFSHORE STRUCTURES AND WORK VESSELS

### [ Position ]

**Oil drilling rigs:** With a record of being the first in Japan to construct oil drilling rigs, IHI builds mobile caisson-type rigs for the Arctic Ocean and has constructed one of the world's largest semi-submersible rigs.

**Plant barges:** IHI constructs plant barges through integration of its shipbuilding and plant engineering technologies.

**FSO and FPSO facilities:** In response to the development of offshore natural resources, we are accumulating experience in the construction of floating storage and off-loading (FSO) and floating production, storage and off-loading (FPSO) facilities for petroleum and natural gas. Also, basic designs of FPSO and floating receiving, regasification and off-loading (FSRU) facilities for LNG have already been completed.

**Work vessels:** With the subsidiary shipyards of IHI Amtech and Ishikawajima Ship & Chemical Plant Co., Ltd. (ISC), we build a variety of work vessels including floating cranes, piling barges and concrete plant barges.



*Mega-Float facility for airport use*

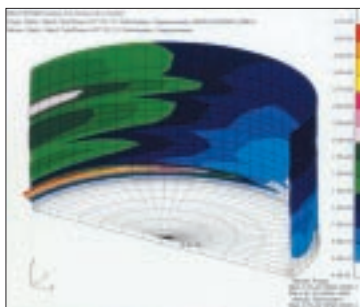
In marine structures, IHI completed at Aichi Works a 383 meter (length) x 60 meter (width) x 3 meter (depth) floating unit of the Mega-Float project, a large-scale floating-structure experiment facility. The floating unit will be attached to five other units for a combined length of 1,000 meters and width of 60–121 meters. The experimental facility, intended for airport use, is located in Yokosuka Port and is supported by the Technological Research Association of Mega-Float. Experiments involving the takeoff and landing of aircraft are scheduled to begin in fiscal 2000. Since fiscal 1995, IHI has participated in research and development related to Mega-Float through the Technological Research Association of Mega-Float.

IHI delivered a ship maneuvering simulator, which is able to create controls through interlocking with other navigation equipment, and provides a 3-D monitor for use in school education and maneuvering exercises. Utilizing technology of large-scale ship maneuvering training equipment for government agencies and shipping companies, the compact ship maneuvering simulator was developed for officer training schools in Japan.

*IHI places the highest priority on research and development (R&D) to maintain its technological leadership position in a wide array of fields.*

*Our R&D program is among the most extensive in the industry, and activities are coordinated closely with marketing divisions to accelerate commercialization.*

*Outlined in this section are some of the successes of our R&D program during the term.*



*Seismic response analysis example for aboveground cylindrical LNG storage tank*

### **Seismic Response Analysis for Aboveground Cylindrical LNG Storage Tanks**

Since the occurrence of the Southern Hyogo Prefecture Earthquake in 1995, improving the earthquake resistance of aboveground cylindrical LNG storage tanks against severe earthquakes has become a priority for levels of seismic loading greater than previous engineering specifications allowed. When LNG storage tanks receive a high-level seismic wave, there is a possibility that nonlinear phenomena will occur, including inner tank slippage, which has very little chance of happening at currently engineered levels for seismic loading, as well as elephant foot bulge (EFB), or plastic buckling, of the side wall. Until recently, examination of these phenomena was largely not performed, for to do so would have required the development of advanced time history response nonlinear analysis of coupled vibration of the liquid and shell plate, material nonlinearity, geometrical nonlinearity and uplifting. Through research, IHI made possible the analysis of these nonlinear phenomena using general-purpose finite element method (FEM) analysis codes, and established a method for analyzing nonlinear phenomena of aboveground cylindrical LNG storage tanks. We then substantiated the seismic resistance of existing aboveground cylindrical LNG storage tanks against high-level seismic loading. IHI led the research in the Seismic Proving Test of Equipment and Structures in the Thermal Conventional Power Plant established by the Japan Power Engineering and Inspection Corporation, and projected by the Ministry of International Trade and Industry (MITI).



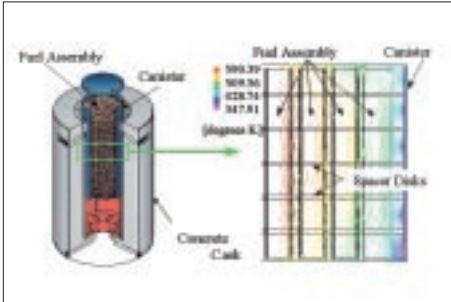
### **Development of Regenerative Thermal Deodorizer**

Chemical irrigation, activated carbon absorption and thermal oxidation are methods for deodorizing odorous gases emitted from large-scale plant facilities. In particular, thermal oxidation is effective in eliminating a diverse range of odorous components. However, this method has the drawback of high fuel consumption and drives up running costs. The regenerative thermal oxidizer, however, is a low-running-cost model of the thermal oxidation method. IHI designed an innovative regenerative thermal oxidizer and constructed an experimental furnace that can process odorous gases at a rate of 500 Nm<sup>3</sup>/h. Experiments have been performed for acetaldehyde, emitted mainly from scrap-melting furnaces, and ammonia, emitted mainly from RDF production facilities—two of 22 odorous compounds regulated under the Offensive Odor Control Law. With the IHI regenerative deodorization furnace, a deodorization rate of as high as 99.8% can be achieved, running at a furnace temperature of 850°C. IHI conducted a series of odorous gas leakage tests on such essential elements as valves, and achieved a nearly 100% seal efficiency through air sealing techniques.



### Actively Controlled Bridge Damper Using Connecting Actuator

Three towers of a high-rise building scheduled to be completed in the Harumi 1-chome Redevelopment Area in 2001 are adjacent to each other. Two new vibration control devices installed on bridges connecting the towers reduce oscillations with internal actuators during strong winds. This marks the world's first application of active vibration control to connecting-type bridge dampers. The devices feature a two-layer construction comprising an inner and outer bridge structure that permits equally relative motions. When vibrations occur, both layers are connected with a clamping device and the controlling forces are imparted to each building through ball screws and AC servomotors. When the devices are normally not in operation and during large earthquakes, the clamps are released to let the buildings stand freely. Following the manufacture and basic performance testing of the first and second units at its plant, IHI confirmed that the devices have fulfilled expected performance levels.

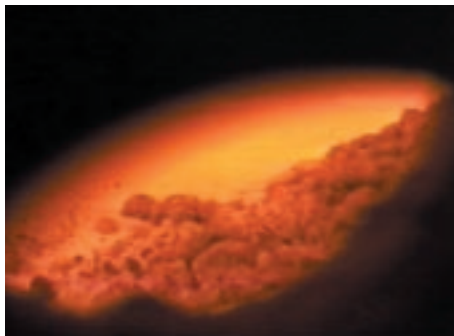


Cross-section of a concrete cask and an example of internal temperature distribution analysis

### Spent Fuel Interim Storage Module: Heat Dispersion Analysis Technology

Spent fuel generated by nuclear power plants is received in sealed containers called canisters and stored until reprocessing. The spent fuel releases thermal energy, requiring cooling to specified temperatures for the fuel and sealed container. The concrete cask dry storage method proposed by IHI envelops the canisters in inexpensive concrete for a radiation shield, and cools the canisters by natural convection, which does not require electric power.

The concrete casks are of a cylindrical construction measuring approximately four meters in diameter and six meters in height. The internal construction is extremely complicated, making it difficult to conduct experiments at actual sizes. Predicting the temperature during storage requires numerical analysis of the entire canister based on element test results. IHI made a simple homogenous model that closely resembles fuel assembly with complex internal construction, and developed analysis technology that can be used as an engineering tool. This technology makes possible the evaluation of the maximum permissible amount of fuel in the module and the maximum amount of heat generated. IHI is advancing activities to secure orders for concrete interim storage facilities.



Inside the ash-melting furnace

### Ash-Melting Furnace Using Residual Carbon Combustion

The ash-melting furnace that uses residual carbon combustion represents innovative IHI technology that reduces the amount of external heat input necessary for melting by burning ash, including residual carbon, inside the furnace. Leftover ash following incineration of municipal solid waste and industrial waste is heated to more than 1300°C and melted, reducing its volume. A commercial furnace is already in operation. However, IHI is developing a better furnace, aiming for more compactness and improvements in slag quality to increase market competitiveness.

The furnace features a construction that steadily melts even large ash in the slag pool formed at the bottom of the furnace, and increases the heat transfer efficiency of ash with a high-temperature, high-speed swirling flow. IHI fabricated a trial furnace with processing capacity of six tons per day and carried out performance tests. The results of the tests concluded that a new construction would be effective in increasing compactness, lowering fuel consumption and improving slag quality. IHI aims to market an incinerator/melting system that combines a rotary-stoker waste incinerator with the furnace, boosting its product lineup for industrial waste processing.



### FRP Pedestrian Bridge

Fiber-Reinforced Plastic (FRP) was employed in the construction of the pedestrian bridge in the road park of Ikeitairagawa, Okinawa Prefecture, due to strong resistance to salt and corrosion damage of FRP compared with steel. Completed in April 2000, the pedestrian bridge is a double-spanned Glass-Fiber-Reinforced Plastic (GFRP) girder bridge with effective spans of 19.7 meters and 17.2 meters, for a total length of 37.8 meters and a road width of 3.5 meters. This marks the first application of FRP in Japan for a primary structure used in such civil engineering projects as bridges. At IHI's Technical Research Laboratory, the Company confirmed the soundness of the structure by conducting evaluations of bolt-connection strength, main-girder-joint strength, stiffness through load experiments and the bridge's natural vibration frequency.



### Large-Area Ion Shower Doping Equipment

Ion shower doping (ISD) equipment is a part of the manufacturing process for thin-film transistors (TFTs) used in liquid crystal displays (LCDs) of notebook computers, digital cameras and digital video cameras. IHI developed large-scale ion source technology, realizing performance that excels in stability and controllability. In addition, thanks to technology that adapts the equipment to production lines, the ISD equipment is supplied to the research and development facilities and production lines of LCD manufacturers in Japan and around the world. IHI boasts a significant share of the market for ISD equipment. In response to a trend toward increasing sizes of glass substrates in accordance with larger displays, IHI developed a device compatible with large glass substrates measuring 680 mm x 880 mm, gaining the upper hand in the market.



### Electron Beam Sterilization Equipment

Electron beam sterilization equipment is gaining attention for application with medical products and foodstuffs. The gas sterilization method widely used leaves behind trace amounts of gas after sterilization, prompting restrictions on its use worldwide. Electron beam sterilization is attracting attention as a technology to replace gas sterilization, as it eradicates bacteria with electron beams and leaves no residuals after sterilization. IHI is developing a 1-MeV electron beam energy device that can be employed as in-line sterilization equipment on production lines for medical products and foodstuffs. Aiming to make the equipment more compact, IHI developed its own shielding structure that allows it to be operated on the production line. In sample sterilization tests, the equipment afforded complete testing and evaluation of the irradiation method and sterilization evaluation against applicable substances. IHI boasts an extensive record for developing high-frequency electron accelerators and constructing pharmaceutical plants, meeting a variety of customer needs, from large- to small-scale equipment.

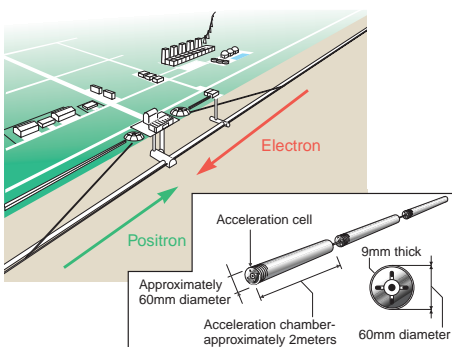


### Visual Monitoring System for Laser Welding (iL Viewer)

Formerly, when observing phenomena under such powerful illumination as laser welding, after adjusting for the intensity of laser light, it was impossible to examine areas around the point of laser illumination due to insufficient light intensity. Consequently, it was only possible to determine whether a weld was good or bad after the welding had finished.

The iL Viewer developed by IHI uses a powerful pulse laser light as a source of illumination. This enables the projection of the molten pool and surrounding areas during welding and cutting. As a result, the welding conditions, shape of the weld bead, molten pool and action of filler wire can be observed in real time.

With this technology, IHI aims to accelerate selection of welding conditions and improve welding technology and weld products control. IHI will provide YAG laser welding equipment with optional iL Viewer to research facilities at universities and industries.

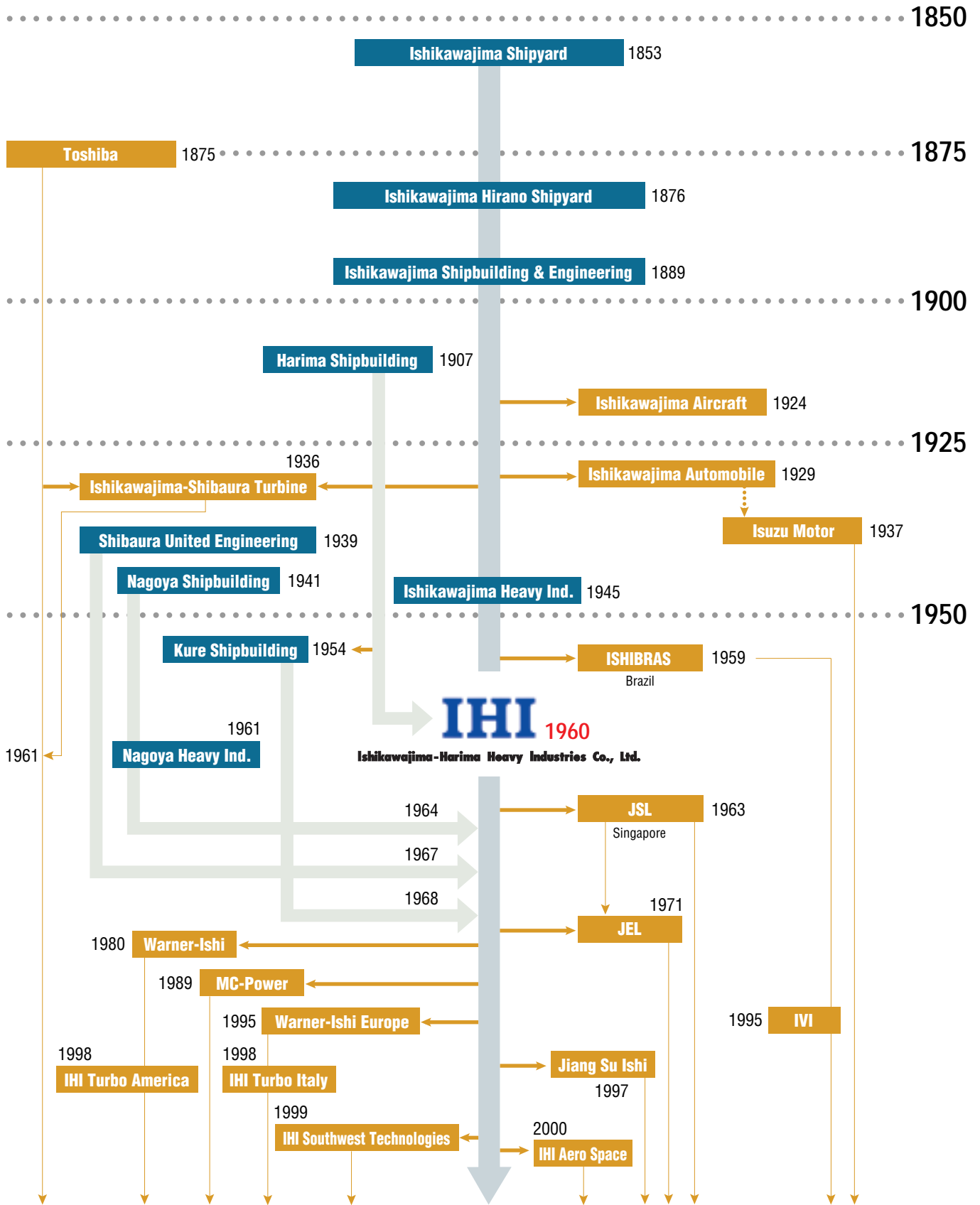


### Ultraprecision Machining, Assembly and Measurement Technology for Accelerators of Large-Scale Linear Accelerators

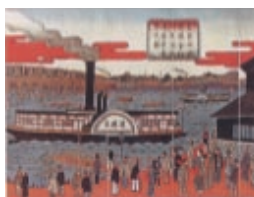
The Japan Linear Collider (JLC) project promoted by the High Energy Accelerator Research Organization (KEK) is a next-generation linear collider scheduled for completion in 2005. The facility comprises two opposing large-scale linear accelerators for a total length of 30 kilometers. Experiments in elementary particle physics are conducted by colliding electron and positron beams head-on. The JLC project promotes cooperative research and development between Japan and the United States. IHI made vigorous efforts to establish technology for the manufacture of accelerators. A primary component, ultraprecision is essential in the fabrication of accelerators. No competing company in Japan or overseas has experience in their fabrication. The completed accelerator has received high praise from KEK for satisfying the stringent requirements for precision. To realize high precision in fabrication, IHI developed specialized jigs, measuring devices and other equipment in addition to closely monitoring temperature fluctuations, which must be heeded in ultraprecision technology. IHI will relentlessly pursue improvements in precision technology while aiming to reduce costs for quantity production.



# HISTORY OF IHI



# TIMELINE OF IHI



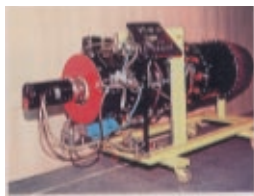
*The Tsu-un Maru*



*Tokyo Central Station*



*Asia's largest steam turbine*



*Ne-20 turbojet engine*



*The Idemitsu Maru*



*Japan's first LNG tanks*

<b>1853</b>	<p>1853 Established Ishikawajima Shipyard</p> <p>76 Established Ishikawajima Hirano Shipyard</p> <p>77 Built the <i>Tsu-un Maru</i>, Japan's first steamship built by a private company</p> <p>78 Supplied a boiler to Japan's first silk mill</p> <p>83 Constructed the <i>Miyako Bridge</i>, the first iron bridge erected by a private company</p> <p>85 Provided Japan's first crusher to a domestic copper mine</p> <p>87 Built the <i>Azuma Bridge</i> in Tokyo, Japan's largest iron bridge</p> <p>88 Constructed Japan's first steel gunboat, the <i>Chokai</i></p> <p>89 Founded Ishikawajima Shipyard, Ltd.</p> <p>92 Supplied Japan's first steam engine-driven electric generator</p> <p>92 Provided Japan's first large-scale Pelton waterwheel</p> <p>93 Changed Company name to The Ishikawajima Shipbuilding &amp; Engineering Co., Ltd., Tokyo (Ishikawajima S&amp;E)</p> <p>96 Supplied Japan's first large-scale thermal power generation facility</p> <p>98 Manufactured and delivered Japan's first 10 electric trains for light railways</p>
<b>1900s</b>	<p>1901 Manufactured and delivered Japan's first large-scale caisson</p> <p>03 Produced Japan's first bridge girders for railroad bridges</p> <p>07 Established Harima Shipbuilding &amp; Engineering Co., Ltd. (Harima S&amp;E); later merged with the Company</p> <p>11 Completed business agreement with Shibaura Works (now Toshiba Corp.)</p> <p>11 Completed construction of steel structures for Tokyo Central Station (now Tokyo Station)</p> <p>18 Launched automobile production in cooperation with Woosley Motors of the United Kingdom</p> <p>22 Manufactured Japan's first steam turbine for naval vessels</p> <p>24 Established Ishikawajima Aircraft Manufacturing Co., Ltd. (which later became New Tachikawa Aircraft Co., Ltd.)</p> <p>29 Established Ishikawajima Automobile Co. (later Isuzu Motors Ltd.) by spinning off the automobile manufacturing section</p> <p>33 Manufactured Asia's largest steam turbine for power generation plant</p> <p>35 Supplied a hammerhead crane, one of the world's largest, to the navy arsenal</p> <p>36 Established Ishikawajima-Shibaura Turbine Co., Ltd. (IST) as a joint venture with Toshiba in the production of land-based steam turbines</p> <p>37 Produced the world's largest steam turbine-driven blower</p> <p>39 Founded Shibaura United Engineering Co., Ltd. (SUECO), to produce rolling mills, through a joint venture with Toshiba and United Engineering &amp; Foundry in the United States</p> <p>41 Established Nagoya Shipbuilding Co., Ltd. (Nagoya Shipbuilding)</p> <p>45 Manufactured Japan's first jet engine, the <i>Ne-20</i></p> <p>45 Changed Company name to Ishikawajima Heavy Industries Co., Ltd. (Ishikawajima Heavy Ind.)</p>
<b>1950s</b>	<p>1950 Inaugurated Toshio Doko as Company president</p> <p>53 Produced Japan's largest slabbing mill</p> <p>54 Founded Kure Shipbuilding &amp; Engineering Co., Ltd. (Kure S&amp;E); later merged with the Company</p> <p>56 Constructed the world's largest spherical city gas storage tank</p> <p>57 Launched full-scale production of jet engines with the establishment of a specialized factory in Tokyo</p> <p>58 Constructed Japan's first offshore jack-up-type oil drilling rig</p> <p>59 Established ISHIBRAS in a joint venture in Brazil</p> <p>59 Produced the <i>J3</i>, a domestically developed turbojet engine</p> <p>59 Constructed largest Japanese-made blast furnace</p>
<b>1960s</b>	<p>1960 Merged Ishikawajima Heavy Ind. and Harima S&amp;E; inaugurated Ishikawajima-Harima Heavy Industries Co., Ltd. (IHI)</p> <p>61 Developed <i>IN</i> steel, which features excellent welding properties and high durability at low temperature, and granted a license as a steelmaker in Japan and the United States</p> <p>61 Completed the first <i>Keizai Senkei</i> (Economical Hull Form), the <i>Asia Maru</i></p> <p>62 Manufactured the <i>J79</i> turbojet engine (under license from General Electric Company)</p> <p>63 Established Jurong Shipyard Ltd. (JSL) in a joint venture with the government of Singapore</p> <p>64 Founded Heavy Machinery Works in Yokohama</p> <p>64 Merged Nagoya Heavy Ind. and Nagoya Shipbuilding</p> <p>64 Produced Japan's first mechanical excavation shield tunneling machine</p> <p>64 Established Yokohama Shipyard for large-scale shipbuilding</p> <p>66 Constructed world's largest LPG storage tanks (45,000 kl)</p> <p>66 Constructed the world's first very large crude oil carrier (VLCC), the <i>Idemitsu Maru</i></p> <p>67 Merged with SUECO</p> <p>67 Completed the first <i>Freedom</i>, a mass-produced multipurpose freighter</p> <p>68 Merged with Kure S&amp;E</p> <p>68 Established Yokohama Nuclear &amp; Chemical Components Works</p> <p>68 Constructed the world's largest seawater desalination facility for Kuwait</p> <p>69 Completed Japan's first LNG above-ground storage tanks</p> <p>69 Completed Japan's first computer on-line automated warehouse</p>
<b>1970s</b>	<p>1971 Established Jurong Engineering Private Ltd. (JEL) in Singapore in a joint venture with JSL</p> <p>71 Completed the world's first full continuous tandem cold strip mill</p> <p>71 Produced the world's largest ore unloader (2,500 tons/hour)</p> <p>71 Founded IHI Engineering Australia Pty. Ltd. (IEA)</p> <p>71 Furnished Japan's first in-ground LNG storage tank</p>



Barge-mounted pulp plant



Variable-pressure operated boiler



LPG plant for Algeria



V2500 turbofan engine



The Second Bosphorus Bridge



Ore/coal continuous unloader

## 1970s

- 1972 Established Ishikawajima Europe BV (IE) in the United Kingdom
- 72 Developed the new SF cement clinker burning process
- 73 Completed the world's largest cement plant
- 73 Founded Chita Shipyard (now Aichi Works)
- 73 Constructed the world's largest tanker, the *Globtik Tokyo*, at 480,000 deadweight tons
- 74 Established IHI Marine BV (IMBV) in the Netherlands
- 75 Established Felguera-IHI SA (FI) in Spain
- 76 Initiated production of low-speed diesel engines for ships exceeding 10 million horsepower
- 76 Erected the world's largest blast furnace (inner volume 5,050 m<sup>3</sup>)
- 77 Completed the world's first automated warehouse for new cars
- 77 Established IHI Marine Engineering Singapore Private Ltd.
- 77 Established IHI Inc. in the United States
- 78 Completed the world's first barge-mounted pulp plant for Brazil
- 79 Constructed Japan's first variable-pressure operated supercritical pressure boiler
- 79 Supplied the world's first full-scale NOx remover to a thermal power plant

## 1980s

- 1980 Established Warner-Ishi Corp. (WI) in a joint venture with Borg-Warner Automotive Inc. in the United States
- 82 Established IHI (HK) Limited (IHL) in Hong Kong
- 83 Participated in the establishment of International Aero Engines A.G. (IAE) to develop and market the V2500 turbofan engine
- 84 Constructed the world's largest LPG plant for Algeria (four million tons/year)
- 84 Completed the world's first caisson rig for Arctic Ocean petroleum development
- 86 Constructed the *Zane Barnes*, one of the world's largest semi-submersible oil drilling rigs
- 86 Successful launch of the *H-1* rocket equipped with IHI-made LOx, LH2 turbopumps
- 86 Supplied the domestically developed first F3 engine for the JDA's T4 jet trainer
- 87 Delivered our 10th 600 MW boiler for electric power generation plants in Australia
- 88 Completed the *Second Bosphorus Bridge*
- 88 Manufactured and installed the main bridge towers and girders for the *Seto Ohashi Bridge*
- 88 Delivered the world's first segment assembly robot for shield tunneling machines
- 88 Supplied 21 ultralarge-scale transfer presses to General Motors Corp. (U.S.A.)
- 88 Developed the world's first contra-rotating propellers for large oceangoing ships
- 88 Established Diesel United, Ltd. in a joint venture with Sumitomo Heavy Industries Ltd. (SHI)
- 88 Installed a V2500 engine in the Airbus A320, which began commercial operation
- 89 Participated in the capitalization of M-C Power Corp. (MCP) in the United States

## 1990s

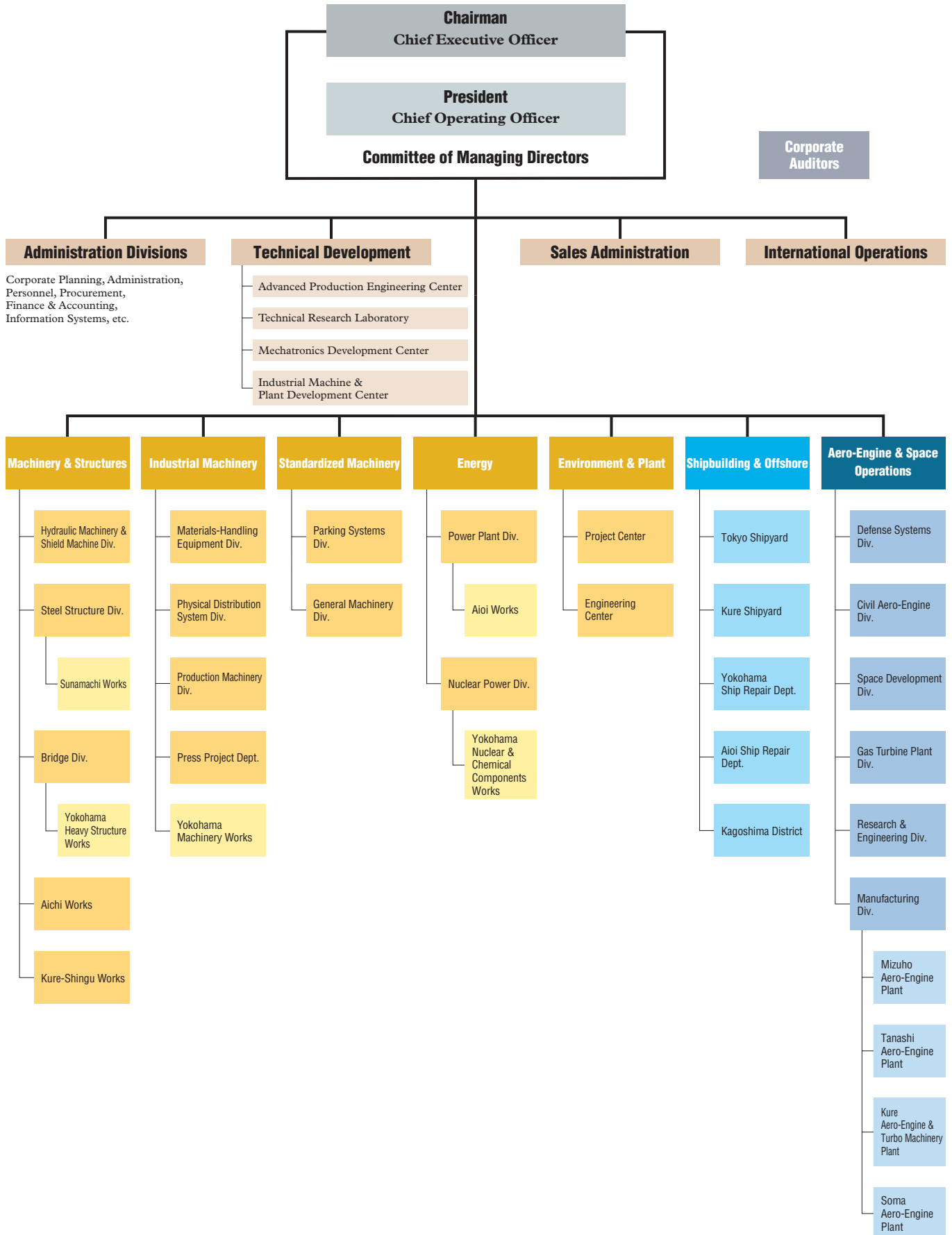
- 1992 Established IHI Europe Ltd. (IEL) in the United Kingdom
- 92 Full-scale entry into the real estate business with the construction of the *Toyosu Center Building*
- 93 Completed the world's largest continuous ore unloader (3,000 tons/hour)
- 93 Constructed the first SPB-type LNG carrier
- 93 Successful launch of the *H-2* rocket equipped with IHI-manufactured LOx, LH2 turbopumps
- 93 Completed the world's largest shield tunneling machine (14.14 m diameter)
- 93 Completed the world's largest above-ground LNG tank (140,000 kl)
- 93 Completed the world's first rotating shield tunneling machine
- 94 Completed the world's first reactor pressure vessel for use in an ABWR nuclear power plant
- 95 Established IHI Technical Consulting Co., Ltd. (ITECH) in Taiwan
- 95 Participated in the development of the CF34-8C turbofan engine with GE
- 95 Founded Marine United Inc. (MU), which performs engineering for ships and naval vessels with SHI
- 95 Inaugurated Industrias Verolme-Ishibras S.A. (IVI) in a joint venture between ISHIBRAS and Emaq-Verolme Estaleiros
- 95 Founded Warner-Ishi Europe S.p.A. (WIE) in Italy
- 96 Founded Environment & Plant operations
- 96 Established IHI Philippines Inc. (IPD) in the Philippines
- 96 Completed a floating storage and off-loading unit (FSO) for LPG
- 97 Established Jiang Su Ishi Turbo Company Ltd. (JIT) in China
- 98 Completed the *Chokai Aegis* destroyer
- 98 Established the Environmental Technical Center
- 98 Completed the *Ocean Arrow* SSTH ultrafast car ferry
- 98 Constructed one of the world's largest 6,674-TEU container ships
- 98 Established a jet engine and gas turbine component factory in Soma
- 98 Completed the world's largest frozen food distribution center
- 98 Completed the world's largest container crane for Oman
- 98 Constructed the world's largest continuous ore unloader (4,000 tons/hour)
- 98 Completed *Akashi Kaikyo Bridge*, the world's longest suspension bridge, as a member of a consortium
- 99 Founded Standardized Machinery operations
- 99 Established IHI Southwest Technologies, Inc. in the United States to undertake nondestructive inspections
- 99 Produced the Company's eighth-millionth turbocharger for automobiles
- 99 Developed automated robot for forming 3-D curved shell plates of ship hulls
- 99 Decided to move shipyard for building naval vessels from Tokyo to Yokohama
- 99 Established two subsidiaries to engage in industrial waste processing business
- 99 Completed trial operation of world's largest one-MW MCFC power plant

## 2000s

- 2000 Established joint venture with The Broken Hill Proprietary Company Limited (BHP) of Australia and Nucor Corporation of the United States to license strip-casting technology
- 00 Purchased Nissan Motor's Aerospace and Defense Divisions and established new company
- 00 Integrated three construction companies into Ishikawajima Plant Construction Co., Ltd.

# ORGANIZATION

(As of July 1, 2000)



# Land-Based Operations



Boilers for power plants



LNG storage tanks



Urban waste incinerators



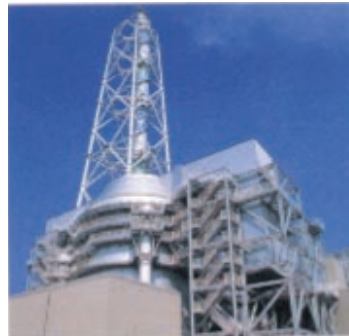
Container cranes



Reactor pressure vessels



LPG plants



Air pollution prevention systems



Continuous unloaders



Gas turbine cogeneration systems



Cement plants



Sewage treatment systems



Automated warehousing systems

## Power Plants

Boilers for power plants  
 Industrial boilers  
 Fluidized-bed combustion boilers  
 Waste-heat recovery boilers  
 Components for nuclear power plants  
 Radioactive waste management systems  
 Gas turbine power generation systems  
 Diesel power generation systems  
 Cogeneration systems  
 Wind power generation systems  
 Fuel cells

## Storage Facilities

LNG and LPG storage tanks  
 Low-temperature storage tanks  
 Spherical tanks  
 Floating roof tanks

## Process Plants

Oil and gas processing plants  
 Chemical plants  
 Pharmaceutical plants  
 Cement plants  
 Equipment for chemical plants  
 Cooling towers  
 Vertical pulverizing mills

## Environmental Control and Disaster Prevention

Solid waste treatment systems  
 Air pollution prevention systems  
 Sewage treatment systems  
 Noise reduction systems  
 Pollution prevention ships  
 Mass damper systems  
 Seismic isolation floors

## Material-Handling Equipment

Container cranes  
 Unloaders  
 Stackers  
 Reclaimers  
 Ship loaders  
 Bulk material-handling systems  
 Overhead traveling cranes

## Physical Distribution Systems

Automated warehousing systems  
 Conveyor transfer systems  
 Sorting systems  
 Picking systems  
 Automated guided vehicles

## Bridges and Steel Structures

Bridges  
 Gates and penstock  
 Hangar dock systems  
 Boarding bridges  
 Floating breakwaters  
 Steel structures for buildings  
 Stone for buildings

## Construction Machinery

Shield tunneling machines  
 Segment assembly robots  
 Jib climbing cranes  
 Batcher plants  
 Hydraulic power shovels  
 Mobile concrete pumps  
 Truck and crawler cranes



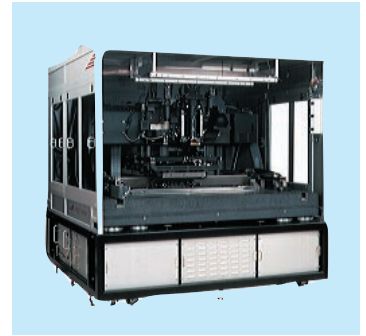
Bridges



Jib climbing cranes



Transfer feed presses



TFT array checkers



Gates



Hot strip mills



Automotive turbochargers



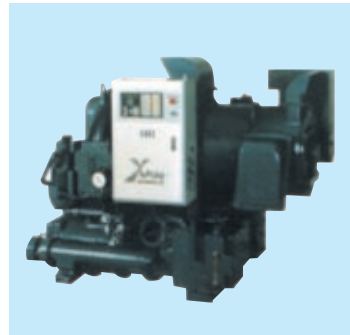
Parking systems



Shield tunneling machines



Paper-making machines



Turbo compressors



Real estate

### Industrial Machinery

Iron and steelmaking plants  
 Electric arc furnaces  
 Pulp- and paper-making machines  
 Transfer feed presses  
 Hot presses  
 Rubber and plastic calender machines  
 Vacuum heat treatment furnaces  
 High-pressure food processing equipment  
 Thin-film forming equipment  
 Pumps  
 Compressors  
 Blowers  
 Industrial robots  
 Semiconductor photomask, LCD processing & inspection equipment

### Mass-Produced Machinery

Turbochargers  
 Separators  
 Filters  
 Packaged compressors  
 Refrigerators  
 Tunnel ventilation fans  
 Stepping motors  
 Stepping cylinders  
 Rotary encoders  
 Ozonizers

### Facilities & Products for Civic Use

Air conditioning and heating equipment  
 Agricultural machinery  
 Packaged boilers  
 Hoists  
 Parking systems  
 Moving walkways and footbridges  
 Movable stadium seats and retractable domes  
 Gondola and boat mass dampers  
 Ozone-based deodorizing and disinfecting equipment  
 Dish and utensil washers  
 Wave pools and flow-generating equipment  
 Fire fighting pumps and emergency water-purifying equipment

### Mechatronics Products and R&D Facilities

Robots  
 Simulators  
 Control systems  
 Failure diagnosis and preventative maintenance systems  
 Optical and beam technology equipment  
 R&D and experiment facilities

### Business Development

Real estate  
 Marinas  
 Biotechnology  
 Management of leisure and sports facilities  
 Systems engineering

# Aero-Engine and Space Operations

## Shipbuilding and Offshore Operations



Production of jet engines



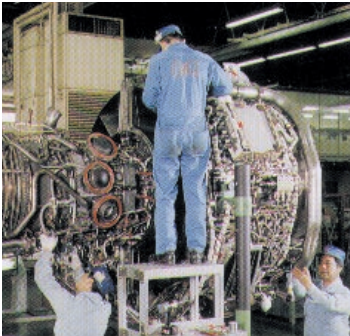
Materials testing systems for space environments



Very large crude oil carriers



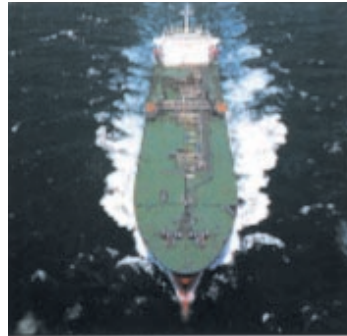
Passenger ships



Maintenance of jet engines



Exposed facilities for JEM



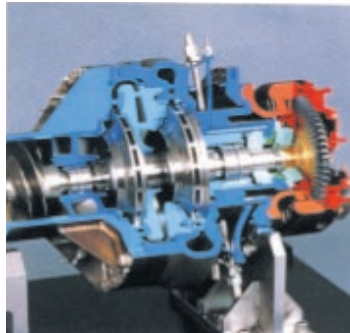
SPB-type LNG carriers



Destroyers



Parts for jet engines



Liquid hydrogen turbopumps



Container ships



Diesel engines

### Jet Engines

- Turbofan engines
- Turboprop engines
- Turboshaft engines
- Turbojet engines
- Jet engine parts
- Precision casting products
- Maintenance of jet engines
- Jet engine test cells

### Space Development

- Rocket propulsion systems
- Rocket control systems
- Satellite propulsion systems
- Satellite control systems
- Equipment for utilization of space environments
- Space station-related equipment
- Ground test facilities
- Ground support facilities

### Shipbuilding and Offshore Development

- Ships
- Floating cranes
- Dredgers
- On-board machinery and equipment
- Offshore development systems and equipment
- Ship electronic control systems

## FACILITIES



### **Soma Aero-Engine Plant**

Site area: 226,185 m<sup>2</sup>; Floor space: 24,519 m<sup>2</sup>  
 Products & services: Parts of jet engines and gas turbines  
 Certificate: ISO 9001  
 Location: 2-1, Onodai 1-chome, Soma-shi, Fukushima 976-0001, Japan  
 Tel. +81-244-37-3712



### **Tanashi Aero-Engine Plant**

Site area: 93,402 m<sup>2</sup>; Floor space: 56,624 m<sup>2</sup>  
 Products & services: Parts of jet engines, gas turbines and space development equipment  
 Certificates: ISO 9001 and ISO 14001  
 Location: 5-1, Mukodai-cho 3-chome, Tanashi-shi, Tokyo 188-8555, Japan  
 Tel. +81-424-60-1111



### **Mizuho Aero-Engine Plant**

Site area: 154,280 m<sup>2</sup>; Floor space: 55,467 m<sup>2</sup>  
 Products & services: Assembly and overhauling of jet engines, gas turbines and space development equipment  
 Certificates: ISO 9001, ISO 14001, Air Agency Certificate (Repair Station) (FAA) (JAA) and Air Agency Certificate (Production) (FAA)  
 Location: 229, Tonogaya, Mizuho-cho, Nishi-Tama-gun, Tokyo 190-1297, Japan  
 Tel. +81-425-68-7000



### **Tokyo Shipyard**

Site area: 169,130 m<sup>2</sup>; Floor space: 72,687 m<sup>2</sup>  
 Products & services: Naval vessels, cruise ships and special cargo vessels  
 Certificates: ISO 9001, CERTIFICATE OF APPROVAL OF MANUFACTURERS (NK)  
 Location: 1-1, Toyosu 2-chome, Koto-ku, Tokyo 135-8731, Japan  
 Tel. +81-3-3534-2607



### **Sunamachi Works**

Site area: 42,405 m<sup>2</sup>; Floor space: 18,341 m<sup>2</sup>  
 Products & services: Bridges, gates, steel structures, offshore structures and airport facilities  
 Certificate: ISO 9001  
 Location: 3-43, Shinsuna 2-chome, Koto-ku, Tokyo 136-0075, Japan  
 Tel. +81-3-3648-1511



### **Yokohama Nuclear & Chemical Components Works**

Site area: 173,664 m<sup>2</sup>; Floor space: 70,321 m<sup>2</sup>  
 Products & services: Reactor pressure vessels, containment vessels and heat exchangers for nuclear power plants  
 Certificates: N, NPT, U, U2, NA, S (ASME) ISO 9001, ISO 14001  
 Location: 1, Shin-Nakahara-cho, Isogo-ku, Yokohama-shi, Kanagawa 235-8501, Japan  
 Tel. +81-45-759-2704

### **Yokohama Machinery Works**

Site area: 111,198 m<sup>2</sup>; Floor space: 64,857 m<sup>2</sup>  
 Products & services: Rolling mills, presses, pulp, paper and plastic machinery and rotating machinery  
 Certificates: ISO 9001, ISO 14001  
 Location: 1, Shin-Nakahara-cho, Isogo-ku, Yokohama-shi, Kanagawa 235-8501, Japan  
 Tel. +81-45-759-2410





### Yokohama Heavy Structure Works

Site area: 160,263 m<sup>2</sup>; Floor space: 67,488 m<sup>2</sup>  
 Products & services: Bridges, gates and steel structures  
 Certificates: ISO 9002, ISO 14001  
 Location: 1, Shin-Nakahara-cho, Isogo-ku, Yokohama-shi, Kanagawa 235-8501, Japan  
 Tel. +81-45-751-1774

### Yokohama Shipyard

Site area: 104,700 m<sup>2</sup>; Floor space: 13,300 m<sup>2</sup>  
 Products & services: Ship conversion and repairing  
 Location: 1, Shin-Nakahara-cho, Isogo-ku, Yokohama-shi, Kanagawa 235-8501, Japan  
 Tel. +81-45-759-2803



### Aichi Works

Site area: 748,765 m<sup>2</sup>; Floor space: 152,907 m<sup>2</sup>  
 Products & services: Deck machinery, steel structures and shield tunneling machines  
 Certificates: ISO 9001, ISO 14001 and DECK CRANES MANUFACTURERS (NK)  
 Location: 11-1, Kitahama-cho, Chita-shi, Aichi 478-8650, Japan  
 Tel. +81-562-31-8000



### Aioi Works

Site area: 134,139 m<sup>2</sup>; Floor space: 115,600 m<sup>2</sup>  
 Products & services: Boilers, pressure vessels for chemical plants and prefabricated piping systems  
 Certificates: ISO 9001, ISO 14001 and S, U, U2 (ASME)  
 Location: 5292, Aioi, Aioi-shi, Hyogo 678-0041, Japan  
 Tel. +81-791-24-2206

### Aioi Ship Repair Shop

Site area: 285,600 m<sup>2</sup>; Floor space: 83,800 m<sup>2</sup>  
 Products & services: Ship conversion and repairing  
 Certificate: ISO 9001  
 Location: 5292, Aioi, Aioi-shi, Hyogo 678-0041, Japan  
 Tel. +81-791-24-2402

### Aioi Casting Workshop

Site area: 22,916 m<sup>2</sup>; Floor space: 22,147 m<sup>2</sup>  
 Products & services: Casting products for machinery  
 Certificates: Casting products manufacturer (LRS, NK, DNV, CR)  
 Location: 5292, Aioi, Aioi-shi, Hyogo 678-0041, Japan  
 Tel. +81-791-24-2701



### Kure Shipyard

Site area: 370,746 m<sup>2</sup>; Floor space: 155,206 m<sup>2</sup>  
 Products & services: Ship building, conversion and repairing  
 Certificate: ISO 9001, CERTIFICATE OF APPROVAL OF MANUFACTURERS (NK)  
 Location: 2-1, Showa-cho, Kure-shi, Hiroshima 737-0027, Japan  
 Tel. +81-823-26-2105

### Kure Aero-Engine & Turbo Machinery Plant

Site area: 36,427 m<sup>2</sup>; Floor space: 38,992 m<sup>2</sup>  
 Products & services: Parts of gas turbine power plants, jet engines and gas turbines  
 Certificates: ISO 9001, ISO 14001 and Air Agency Certificate (Repair Station) (FAA)  
 Location: 2-1, Showa-cho, Kure-shi, Hiroshima 737-0027, Japan  
 Tel. +81-823-26-2105



### Kure-Shingu Works

Site area: 115,894 m<sup>2</sup>; Floor space: 45,671 m<sup>2</sup>  
 Products & services: Bridges, gates, steel structures and equipment for chemical plants  
 Certificates: ISO 9002  
 Location: 5-17, Hikari-machi, Kure-shi, Hiroshima 737-0831, Japan  
 Tel. +81-823-26-1228



### Kagoshima District

Site area: 203,500 m<sup>2</sup>; Floor space: 30,912 m<sup>2</sup>  
 Products & services: Steel structures, bridges, material-handling equipment and industrial machinery  
 Certificates: ISO 9002  
 Location: 2-1, Nanatsu-shima, Kagoshima-shi, Kagoshima 891-0132, Japan  
 Tel. +81-99-284-6111

# BOARD OF DIRECTORS

(As of June 29, 2000)

## Chairman and Chief Executive Officer



Kosaku Inaba

## President and Chief Operating Officer



Toshifumi Takei

## Executive Vice Presidents



Shozo Ojimi



Eiji Inoue



Eiichiro Iwamoto

## Senior Managing Directors



Arihiko Yabashi



Mototsugu Ito

## Managing Directors



Katsuji Minato



Koichi Kyo



Dogi So



Tadaaki Yamazaki



Nobuhiro Shimizu



Mitsuhiro Kodama



Akira Ohuchi

## Directors

Koki Kinoshita  
Sachio Fujimoto  
Fumio Sato

Kazuo Kanaya  
Yoshikazu Kobayashi

Naoteru Tsuda  
Susumu Nagano

Reiji Ishimoto  
Isao Nakao

Jyunichi Hamanaka  
Yasuo Shinohara

Hiroshi Katayama  
Teiichi Tamaki

## Corporate Auditors

Koichi Ichida

Hideaki Kobayashi

Shoichi Saba

Koichiro Ejiri

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## **FINANCIAL SECTION**

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## Operating Results

During the fiscal year under review, consolidated net sales for IHI declined 5.6% to ¥995.1 billion owing to lower sales in land-based operations and shipbuilding and offshore operations. Domestic sales decreased 0.9% to ¥772.0 billion, accounting for 77.6% of consolidated net sales, compared with 73.9% last term.

Cost of sales as a percentage of net sales was 88.2%, compared with 86.3% a year earlier, leading to a 19.0% drop in gross profit to ¥117.0 billion. Selling, general and administrative expenses were down 3.0% to ¥122.8 billion, which was 12.3% of net sales, compared with 12.0% in the previous term. As a result of the above factors, an operating loss of ¥5.8 billion was recorded, compared with operating income of ¥17.9 billion a year earlier.

Results by segment were as follows. Sales of land-based operations were ¥665.1 billion, accounting for 66.8% of net sales. Operating loss for this segment was ¥11.5 billion. Sales of aero-engine and space operations were ¥195.9 billion, or 19.7% of net sales. Operating income for the segment was ¥10.8 billion. For shipbuilding and offshore operations, sales were ¥134.1 billion, comprising 13.5% of net sales. However, the segment posted an operating loss of ¥5.5 billion.

After the close of the fiscal year, IHI signed an agreement for the transfer of Nissan Motor Co., Ltd.'s

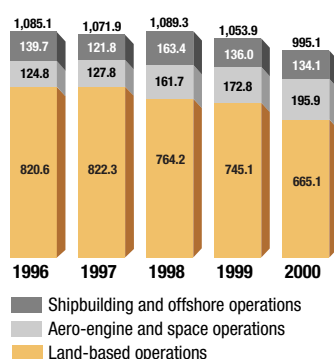
Aerospace Division to a wholly owned subsidiary of IHI. As part of IHI's management policy to select and concentrate businesses, the agreement provides IHI with Nissan's aerospace business, a field of potential growth. With very little overlap, management believes that the operations to be transferred, valued at ¥30.6 billion, are highly complementary to IHI's current operations.

Interest expense in excess of interest and dividend income was ¥1.8 billion, compared with ¥1.0 billion during the previous fiscal year. Other, net expenses soared to ¥120.0 billion, compared with ¥2.7 billion in the previous term. The largest factors in the increase were the effect of a change in accounting that incurred a provision for employees' retirement allowances of ¥102.8 billion and a provision for reserve for loss on orders received of ¥9.9 billion. As a result, loss before income taxes and minority interests amounted to ¥127.6 billion, compared with income before income taxes and minority interests of ¥14.2 billion during the previous fiscal year.

Current income taxes fell 49.4% to ¥4.0 billion, while deferred income taxes of ¥51.5 billion were recorded in accordance with the adoption of tax-effect accounting during the fiscal year under review. A net loss of ¥79.0 billion was posted, compared with net income of ¥5.8 billion last year. Net loss per share was

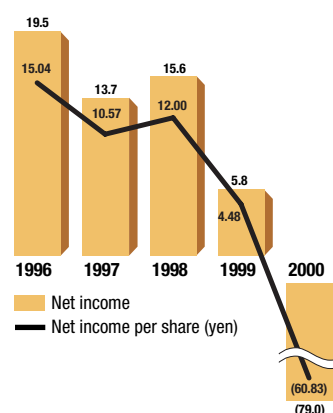
**[ Net Sales by Segment ]**

(billions of yen)



**[ Net Income and Net Income per Share ]**

(billions of yen/yen)



¥60.84, compared with net income per share of ¥4.48 a year earlier. As a result, management decided to temporarily suspend cash dividends.

### Cash Flows

Net cash provided by operating activities was ¥27.5 billion. Despite a net loss before income taxes of ¥127.6 billion, major non-cash expenses included depreciation and amortization of ¥35.5 billion and an increase in employees' retirement allowances of ¥102.0 billion. In addition, Companywide efforts to streamline inventories resulted in a ¥51.0 billion decrease in inventories.

Net cash used in investing activities amounted to ¥30.5 billion. The largest use of cash was purchases of tangible and intangible fixed assets of ¥37.1 billion.

Net cash provided by financing activities totaled ¥40.7 billion. The largest source of cash was proceeds from issue of debentures of ¥30.0 billion.

As a result of these activities, cash and cash equivalents, end of year totaled ¥119.1 billion.

### Financial Position

IHI maintains a sound financial position. The Company's strategy is to cover investments with funds from operating activities, supported by external financing as needed.

During the fiscal year under review, IHI made cap-

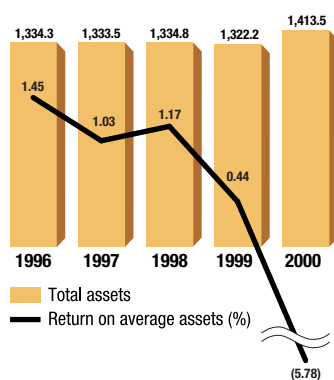
ital expenditures of ¥41.3 billion, and depreciation expense was ¥35.3 billion. Interest-bearing debt (defined as short-term loans and current portion of long-term loans and debentures, and long-term loans and debentures) rose 12.3% to ¥408.5 billion.

Cash and time deposits advanced 36.4% to ¥100.5 billion and marketable securities rose 33.7% to ¥80.8 billion. Deferred income taxes of ¥20.2 billion in current assets were recorded in accordance with the adoption of tax-effect accounting. These positive factors were partially offset by a lower level of inventories, which decreased 9.6% to ¥430.6 billion. Total current assets edged up 2.8% to ¥985.3 billion. Net property, plant and equipment increased 2.6% to ¥275.7 billion. Total investments climbed 53.0% to ¥136.4 billion, owing to the recording of deferred income taxes of ¥59.4 billion. Total assets grew 6.9% to ¥1,413.5 billion.

Total current liabilities were ¥848.4 billion, an increase of 3.0% owing to higher levels of trade payables, short-term loans and current portion of long-term loans and debentures. Total long-term liabilities rose 42.6% to ¥386.2 billion, owing primarily to an increase in employees' retirement allowances. Total shareholders' equity was ¥162.8 billion, a decrease of 22.8%.

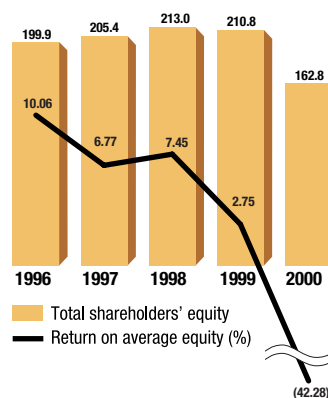
[ Total Assets and Return on Average Assets ]

(billions of yen/%)



[ Total Shareholders' Equity and Return on Average Equity ]

(billions of yen/%)



# CONSOLIDATED BALANCE SHEETS

March 31, 2000 and 1999  
Ishikawajima-Harima Heavy Industries Co., Ltd., and Consolidated Subsidiaries

	March 31		
	2000	1999	2000
	Millions of yen		Thousands of U.S. dollars (Note 1)
<b>ASSETS</b>			
<b>Current assets:</b>			
Cash and time deposits	¥ 100,507	¥ 73,670	\$ 946,839
Marketable securities (Notes 4 and 8)	80,833	60,439	761,498
Trade receivables (Note 8)	302,194	292,031	2,846,858
Less allowance for doubtful receivables	(3,799)	(3,289)	(35,789)
Inventories (Notes 5 and 11)	430,587	476,334	4,056,401
Deferred income taxes (Note 10)	20,209	—	190,382
Other current assets	54,775	59,206	516,015
Total current assets	985,306	958,391	9,282,204
<b>Property, plant and equipment (Notes 6 and 8):</b>			
Buildings and structures	270,607	267,466	2,549,289
Machinery and equipment	372,594	360,167	3,510,071
Land (Note 14)	75,235	64,079	708,761
Construction in progress	2,768	2,323	26,076
Less accumulated depreciation	(445,466)	(425,324)	(4,196,571)
Net property, plant and equipment	275,738	268,711	2,597,626
<b>Intangible assets</b>	15,138	5,415	142,610
<b>Investments:</b>			
Investment securities (Note 4)	30,725	31,286	289,449
Deferred income taxes (Note 10)	59,402	—	559,604
Other investments	59,720	79,067	562,600
Less allowance for doubtful receivables	(13,368)	(21,145)	(125,935)
Less allowance for valuation of investment securities	(50)	(50)	(471)
Total investments	136,429	89,158	1,285,247
<b>Other:</b>			
Foreign exchange translation adjustments	842	541	7,932
Total other	842	541	7,932
<b>Total assets</b>	<b>¥1,413,453</b>	<b>¥1,322,216</b>	<b>\$13,315,619</b>

The accompanying notes to the consolidated financial statements are an integral part of these statements.

	March 31		
	2000	1999	2000
	Millions of yen		Thousands of U.S. dollars (Note 1)
<b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>			
<b>Current liabilities:</b>			
Trade payables	¥ 291,626	¥ 276,921	\$ 2,747,301
Short-term loans (Notes 7 and 8)	180,364	167,802	1,699,143
Current portion of long-term loans and debentures (Notes 7 and 8)	43,447	19,060	409,298
Advances from customers	253,660	285,319	2,389,637
Accrued income taxes	3,872	5,028	36,477
Accrued expenses (Note 9)	45,724	48,119	430,749
Accrued losses on sales contracts	9,949	—	93,726
Other current liabilities	19,755	21,560	186,104
Total current liabilities	848,397	823,809	7,992,435
<b>Long-term liabilities:</b>			
Long-term loans and debentures (Notes 7 and 8)	184,719	176,894	1,740,169
Employees' retirement allowances	177,001	74,175	1,667,461
Other long-term liabilities	24,501	19,746	230,815
Total long-term liabilities	386,221	270,815	3,638,445
<b>Contingent liabilities</b> (Note 12)			
<b>Minority interests in consolidated subsidiaries</b> (Note 14)			
	16,039	16,791	151,098
<b>Shareholders' equity:</b>			
Common stock, par value ¥50 per share:			
Authorized: 3,300,000,000 shares			
Issued: 1,298,495,152 shares	64,925	64,925	611,634
Capital surplus (Note 14)	14,861	10,359	140,000
Retained earnings	83,010	135,517	782,007
Less treasury stock, at cost	(0)	(0)	(0)
Total shareholders' equity	162,796	210,801	1,533,641
<b>Total liabilities, minority interests and shareholders' equity</b>			
	¥1,413,453	¥1,322,216	\$13,315,619

# CONSOLIDATED STATEMENTS OF OPERATIONS

Years ended March 31, 2000 and 1999  
Ishikawajima-Harima Heavy Industries Co., Ltd., and Consolidated Subsidiaries

	March 31		
	2000	1999	2000
	Millions of yen		Thousands of U.S. dollars (Note 1)
<b>Net sales</b>	¥ 995,063	¥1,053,896	\$9,374,122
<b>Cost of sales</b> (Note 11)	878,067	909,376	8,271,945
Gross profit	116,996	144,520	1,102,177
<b>Selling, general and administrative expenses</b> (Note 11)	122,821	126,625	1,157,051
Operating (loss) income	(5,825)	17,895	(54,874)
<b>Other income (expense):</b>			
Interest and dividend income	3,603	4,631	33,943
Interest expense	(5,396)	(5,639)	(50,834)
Other, net (Note 13)	(120,012)	(2,651)	(1,130,589)
(Loss) income before income taxes and minority interests	(127,630)	14,236	(1,202,354)
<b>Income taxes:</b>			
Current	(3,974)	(7,853)	(37,438)
Deferred	51,502	—	485,181
(Loss) income before minority interests	(80,102)	6,383	(754,611)
<b>Minority interests in loss (income) of consolidated subsidiaries</b>	1,104	(565)	10,400
Net (loss) income	¥ (78,998)	¥ 5,818	\$ (744,211)

	March 31		
	2000	1999	2000
	Yen		U.S. dollars (Note 1)
<b>Amounts per share:</b>			
Net (loss) income	¥ (60.84)	¥ 4.48	\$ (0.573)
Cash dividends	—	6.00	—

*The accompanying notes to the consolidated financial statements are an integral part of these statements.*



# CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

Years ended March 31, 2000 and 1999  
Ishikawajima-Harima Heavy Industries Co., Ltd., and Consolidated Subsidiaries

	(Thousands)	(Millions of yen)		
	Number of shares of common stock	Common stock	Capital surplus	Retained earnings
<b>Balance as of March 31, 1998</b>	1,298,495	¥64,925	¥10,359	¥137,676
Net income for the year	—	—	—	5,818
Cash dividends	—	—	—	(7,791)
Increase resulting from inclusion of subsidiaries in consolidation	—	—	—	19
Bonuses to directors and corporate auditors	—	—	—	(205)
<b>Balance as of March 31, 1999</b>	1,298,495	64,925	10,359	135,517
Net income for the year	—	—	—	(78,998)
Prior period adjustments for tax-effect accounting	—	—	—	26,635
Gain on revaluation of land, net of income tax effect	—	—	4,502	—
Bonuses to directors and corporate auditors	—	—	—	(144)
<b>Balance as of March 31, 2000</b>	1,298,495	¥64,925	¥14,861	¥ 83,010

(Thousands of U.S. dollars) (Note 1)

<b>Balance as of March 31, 1999</b>	\$611,634	\$ 97,588	\$1,276,656	
Net income for the year	—	—	(744,211)	
Prior period adjustments for tax-effect accounting	—	—	250,919	
Gain on revaluation of land, net of income tax effect	—	42,412	—	
Bonuses to directors and corporate auditors	—	—	(1,357)	
<b>Balance as of March 31, 2000</b>	\$611,634	\$140,000	\$ 782,007	

The accompanying notes to the consolidated financial statements are an integral part of these statements.

# CONSOLIDATED STATEMENT OF CASH FLOWS

Year ended March 31, 2000  
Ishikawajima-Harima Heavy Industries Co., Ltd., and Consolidated Subsidiaries

March 31

	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
<b>Operating Activities:</b>		
Net loss before income taxes	¥(127,630)	\$(1,202,355)
Depreciation and amortization	35,505	334,480
Amortization of long-term prepaid expenses	3,155	29,722
Increase in allowance for bad debts	519	4,889
Decrease in allowance for employees' bonuses	(3,655)	(34,432)
Increase in accrued losses on sales contracts	9,949	93,726
Increase in employees' retirement allowances	102,045	961,328
Interest and dividends income	(3,603)	(33,943)
Interest expense	5,396	50,834
Gain on foreign exchange	(499)	(4,701)
Loss on disposal of property, plant and equipment	2,010	18,935
Gain on sale of marketable and investment securities	(12,219)	(115,111)
Loss on valuation of marketable and investment securities	2,337	22,016
Equity in earnings of unconsolidated subsidiaries and affiliates	(586)	(5,520)
Increase in notes and accounts receivable	(2,810)	(26,472)
Decrease in advances received	(35,725)	(336,552)
Decrease in inventories	51,064	481,055
Increase in notes and accounts payable	5,995	56,477
Decrease in other current assets	1,222	11,512
Increase in other current liabilities	1,339	12,614
Decrease in accrued consumption taxes	2,024	19,067
Directors' bonuses	(195)	(1,837)
Others	(373)	(3,514)
<b>Subtotal</b>	<b>35,265</b>	<b>332,218</b>
Interest and dividends received	3,461	32,605
Interest paid	(5,334)	(50,250)
Income taxes paid	(5,855)	(55,158)
<b>Net cash provided by operating activities</b>	<b>27,537</b>	<b>259,415</b>
<b>Investing Activities:</b>		
Net increase in time deposits due more than three months	(199)	(1,875)
Purchases of marketable and investment securities	(17,358)	(163,523)
Proceeds from sale of marketable and investment securities	18,936	178,389
Proceeds from consolidation of new subsidiary due to aquisition	948	8,931
Purchases of property, plant and equipment and intangible fixed assets	(37,074)	(349,260)
Proceeds from sale of property, plant and equipment	2,297	21,639
Net decrease in short-term loans	601	5,662
Increase in long-term loans	(209)	(1,969)
Decrease in loans	804	7,574
Increase in other non-current assets	(437)	(4,117)
Increase in other fixed liabilities	1,202	11,324
<b>Net cash used in investing activities</b>	<b>(30,489)</b>	<b>(287,225)</b>
<b>Financing Activities:</b>		
Net increase in short-term debt	12,523	117,975
Proceeds from issuance of long-term debt	23,510	221,479
Repayment of long-term debt	(21,135)	(199,105)
Proceeds from issuance of debentures	30,000	282,619
Dividends paid	(3,895)	(36,693)
Dividends paid to minority interests	(334)	(3,146)
<b>Net cash provided by financing activities</b>	<b>40,669</b>	<b>383,129</b>

	March 31	
	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
Effect of Exchange Rate Changes on Cash and Cash Equivalents	¥ 356	\$ 3,354
Net Increase in Cash and Cash Equivalents	38,073	358,671
Cash and Cash Equivalents, Beginning of Year	80,597	759,275
Increase in Cash and Cash Equivalents from Consolidation of Nonconsolidated Subsidiary	422	3,976
Cash and Cash Equivalents, End of Year	¥ 119,092	\$ 1,121,922

Note: A reconciliation of cash and cash equivalents to the amounts shown in the consolidated balance sheets are as follows:

	March 31	
	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
<b>Cash and Cash Equivalents, Beginning of Year</b>		
Cash and time deposits	¥ 73,670	\$ 694,018
Time deposits due more than three months	(676)	(6,368)
Investment trust included in marketable securities	5,905	55,629
Sales under agreement to repurchase included in marketable securities	1,698	15,996
Cash and cash equivalents	¥ 80,597	\$ 759,275
<b>Cash and Cash Equivalents, End of Year</b>		
Cash and time deposits	¥ 100,507	\$ 946,839
Time deposits due more than three months	(875)	(8,243)
Commercial paper included in marketable securities	300	2,826
Investment trust included in marketable securities	19,160	180,500
Cash and cash equivalents	¥ 119,092	\$ 1,121,922

On March 31, 2000, the Companies acquired a majority of the shares of PC Bridge Co., Ltd., which then became a consolidated subsidiary. A summary of the subsidiary's balance sheet and the cash flows from the acquisition are presented as follows:

	March 31	
	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
Current assets	¥ 15,049	\$ 141,771
Non-current assets	4,608	43,410
Current liabilities	(14,964)	(140,970)
Non-current liabilities	(781)	(7,358)
Difference between cost of acquisition and fair value of acquired equity	(150)	(1,413)
Minority interests	(873)	(8,224)
Acquisition cost	2,889	27,216
Cash and cash equivalents held by subsidiary	(3,837)	(36,147)
Proceeds from consolidation of new subsidiary due to acquisition	¥ (948)	\$ (8,931)

# NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Ishikawajima-Harima Heavy Industries Co., Ltd., and Consolidated Subsidiaries

## 1. Basis of financial statements

The accompanying consolidated financial statements of Ishikawajima-Harima Heavy Industries Co., Ltd. (the "Company") and consolidated subsidiaries (together the "Companies") have been prepared from the financial statements filed with the Director General of the Kanto Local Finance Bureau as required by the Japanese Securities and Exchange Law in accordance with accounting principles and practices generally accepted in Japan. Certain reclassifications have been made in the accompanying consolidated financial statements to facilitate understanding by readers outside Japan.

The accounting standards applicable to consolidated financial statements were revised and, effective April 1, 1999, a new accounting standard for tax-effect accounting was enacted and the accounting treatment of research and development expenses was amended.

The consolidated financial statement for the year ended March 31, 2000 have been presented in accordance with the revised accounting principles and standards.

A consolidated statement of cash flows has been adopted as a part of basic consolidated financial statements and tax-effect accounting has been adopted under

the new accounting standards. Notes on "Marketable securities and investment securities," "Assets pledged as collateral," "Derivatives" and "Short-term bank loans and long-term loans and debentures" are presented for the consolidated financial statements for the first term.

The consolidated financial statements for the year ended March 31, 1999, however, were prepared in accordance with the former accounting principles and have not been restated to conform to the revised accounting principles and standards.

The Company has prepared the consolidated statements of shareholders' equity for the purpose of inclusion in this report, although such statements are not customarily prepared in Japan.

The U.S. dollar amounts are included solely for convenience and are stated, as a matter of arithmetical computation only, at the rate of U.S.\$1=¥106.15, the rate of exchange prevailing on March 31, 2000. These translations should not be construed as representations that the Japanese yen amounts actually represent, or have been or could be converted into U.S. dollars at that or any other rate.

## 2. Significant accounting policies

### (a) Scope of consolidation

The consolidated financial statements for the years ended March 31, 2000 and 1999 include the accounts of the Company and 45 and 43 subsidiaries, respectively.

For the years ended March 31, 2000 and 1999, 50 and 49 subsidiaries, respectively, were excluded from the scope of the consolidation. The exclusion of these subsidiaries has not had a material effect on the consolidated financial statements.

### (b) Application of the equity method of accounting

The consolidated financial statements for the year ended March 31, 2000, included 4 unconsolidated subsidiaries and 3 affiliates and March 31, 1999, included 5 unconsolidated subsidiaries and 3 affiliates in the scope of the application of the equity method of accounting.

For the years ended March 31, 2000 and 1999, investments in 46 and 44 unconsolidated subsidiaries and 36 and 32 affiliates, respectively, are stated at cost because they do not have a material effect on the consolidated financial statements.

### (c) Consolidated subsidiaries having different fiscal year-ends

As Star Farm Machinery Mfg. Co., Ltd. closes its books of account annually on September 30, it prepares its interim financial statements for consolidation as of March 31.

IHI Inc. closes its books of account annually on December 31 and no particular financial report is prepared for consolidation to match the parent company's fiscal year. However, certain adjustments are made for important transactions occurring during the three

months ended March 31.

### (d) Sales recognition

Net sales from contracts are recognized at the time the contracts are completed, except that net sales for projects with construction lasting more than two years and revenue of more than ¥5 billion are recorded by the percentage-of-completion method.

### (e) Allowance for doubtful receivables

The allowance for doubtful receivables is provided at the maximum amount permitted as a tax deduction under the Corporation Income Tax Law of Japan, plus additional estimated amounts to cover specific uncollectible receivables.

### (f) Inventories

Finished goods, work in process and contracts in process are stated at identified cost, and raw materials and supplies are stated at the lower of cost or market, cost being determined by the moving-average method.

### (g) Marketable securities and investment securities

Marketable securities and investment securities, other than common stock listed on stock exchanges, are stated at cost determined by the moving-average method. Common stock listed on stock exchanges are stated at the lower of cost or market, cost being determined by the moving-average method.

### (h) Property, plant and equipment and intangible assets

Depreciation of plant and equipment is computed by the

declining-balance method, except that the straight-line method is adopted for office buildings used as rentals and buildings acquired since April 1, 1998, based on the estimated useful lives of the assets as stipulated by the Corporation Income Tax Law and the related regulations of Japan. (See Note 6.)

Amortization of intangible assets is computed by the straight-line method.

*(i) Leases*

Noncancelable lease transactions of the Companies are accounted for by the operating lease accounting method regardless of whether such leases are classified as operating or finance leases, except that lease agreements which stipulate the transfer of ownership of the leased property to the lessee are accounted for as finance leases.

*(j) Employees' retirement allowances*

Employees with more than one year of service with the Companies are generally entitled to lump-sum payments upon termination of employment or on retirement. Such amounts are determined with reference to their current rate of pay, length of service and the conditions under which the termination occurs. The employees' retirement allowances represent the amount which would be required to be paid if all eligible employees voluntarily terminated their employment at the balance-sheet date.

*(k) Foreign currency translation*

Short-term monetary items denominated in foreign currencies are stated at the exchange rates in effect at the balance-sheet date or at the rates of any forward foreign exchange contracts. Non-monetary items and long-term monetary items in foreign currencies are stated at their historical rates or at the rates of any forward foreign exchange contracts.

Foreign exchange gains or losses realized during the year and gains or losses resulting from translation of monetary items at the end of the respective years are included in other income or expense.

*(l) Accrued losses on sales contracts*

Among sales orders on hand at the balance sheet date, for projects in which the estimated cost is expected to exceed the amount of the sales order by a wide margin, accrued losses on sales contracts are recognized at the estimated aggregate amount of such losses.

*(m) Income taxes*

Deferred tax assets and liabilities are determined based on the differences between financial reporting and the tax bases of the assets and liabilities, and are measured using the enacted tax rates and laws, announced by the fiscal year-end.

Effective April 1, 1999, the Companies adopted tax-effect accounting. The effect of this adoption decreased net loss by ¥51,560 million (\$485,728 thousand), and increased retained earnings by ¥78,195 million (\$736,646

thousand) for the year ended March 31, 2000.

*(n) Elimination of intercompany investments and relevant shareholders' equity*

At the date of acquisition, the cost of the Companies' investment in a subsidiary is allocated to the subsidiary's individual identifiable assets and liabilities on the basis of their fair value. Any difference between the cost of the Companies' investment and the Companies' share in the amount allocated to individual identifiable assets and liabilities is amortized through the estimated effective period of the investment, with the exception that when the amounts of the resulting difference is immaterial, it is changed or credited to income as incurred.

*(o) Elimination of unrealized profits or losses*

Prior to April 1, 1999 unrealized profits or losses resulting from intercompany transactions relating to assets remaining among the Companies were eliminated and were not allocated to minority interests.

However, effective April 1, 1999, such unrealized profits or losses are allocated to minority interests due to the change in accounting principles for the consolidated financial statements.

The effect of this change was to decrease the net loss by ¥977 million (\$9,204 thousand) for the year ended March 31, 2000.

*(p) Translation of items in the financial statements of overseas subsidiaries and affiliates*

The items in the financial statements of overseas subsidiaries and affiliates are translated into yen at the exchange rates in effect at the balance-sheet dates of such subsidiaries and affiliates, except for the components of shareholders' equity, which are translated at the historical rates. The resulting foreign currency exchange translation adjustments are included in other assets.

*(q) Appropriations of retained earnings*

Appropriations with respect to each year ended March 31 are retroactively reflected in the consolidated financial statements for each applicable period on the assumption that the shareholders' approval relating to such appropriations is retroactively effective at each year end.

*(r) Cash and cash equivalents*

The Company and its subsidiaries substantially consider all highly liquid low risk investments purchased with original maturities of three months or less to be cash equivalents.

*(s) Net (loss) income and dividends per share*

Net (loss) income per share of common stock is based upon the weighted average number of shares of common stock outstanding during each period. Cash dividends per share shown for each period in the consolidated statements of operations represent the dividends applicable to the respective year.

### 3. Changes in methods of accounting

#### (a) Employees' retirement allowances

In prior years, employees' retirement allowances were provided principally at 40% of the amount that would be required to be paid if all eligible employees voluntarily terminated their employment at the balance sheet date. Effective April 1, 1999, this amount was raised to 100% of the amount that would be required.

After considering the recent retirement patterns of employees at group companies, and changes in the age structure and expected years of service of the current work force, the amount of the allowances based on the former method was deemed insufficient in view of expected future outlays. The change in method of accounting was implemented in order to promote a sounder financial structure and to more accurately match expenses with revenues.

The effect of this change in fiscal year 2000 was to decrease the operating loss by ¥198 million (US\$1,865 thousand), and to increase loss before income taxes and minority interests by ¥102,601 million (US\$966,566 thousand), after recording other expenses of ¥102,799 million (US\$968,431 thousand) in order to reflect

pension costs incurred in prior periods.

#### (b) Accrued losses on sales contracts

Effective April 1, 1999, among orders on hand at the balance sheet date, for projects in which the estimated cost is expected to exceed the amount of the order by a wide margin, accrued losses are recognized at an estimated amount of such losses.

The amount of the excess of cost over the amount of the order for certain work in progress, especially projects involving new technologies, increased in materiality during fiscal year 2000 in line with changes in the operating environment. This change in the method of accounting was implemented to promote a sounder financial structure and to more accurately match expenses and revenues after taking into account international accounting trends.

The effect of this change in method of accounting for the year ended March 31, 2000 was to increase loss before income taxes and minority interests by ¥9,949 million (US\$93,726 thousand).

### 4. Marketable securities and investment securities

A summary of marketable securities and investment securities at March 31, 2000, is as follows:

	March 31	
	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
Common stock listed on stock exchanges		
Marketable securities:		
Book value	¥ 61,960	\$ 583,702
Market value	146,678	1,381,799
Investment securities:		
Book value	¥ 2,069	\$ 19,491
Market value	4,312	40,622

### 5. Inventories

Inventories at March 31, 2000 and 1999 are summarised as follows:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Finished goods	¥ 21,833	¥ 22,272	\$ 205,681
Contracts in process	347,502	392,964	3,273,688
Work in process	7,708	8,436	72,614
Raw materials and supplies	53,544	52,662	504,418
Total	¥430,587	¥476,334	\$4,056,401

## 6. Depreciation of plant and equipment

Depreciation of most plant and equipment is computed by the declining-balance method; however, the Company and certain consolidated subsidiaries partially adopt the straight-line method. The approximate percentage (based

on acquisition costs) of plant and equipment depreciated by the straight-line method at March 31, 2000, was presented as follows:

	March 31	
	2000	1999
Buildings and structures	19%	21%
Machinery and equipment	9	10

The estimated useful lives for depreciation of major items of plant and equipment are summarized as follows:

	March 31
	2000
Buildings and structures:	
Metal-frame manufacturing buildings	31–38
Building berths	24
Docks	45
Machinery and equipment	10–12

## 7. Short-term bank loans and long-term loans and debentures

The annual interest rate on short-term bank loans was 0.79 per cent at March 31, 2000.

Long-term loans and debentures at March 31, 2000, consisted of the following:

	March 31	
	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
Banks, insurance companies, bearing interest rates from 0.3 per cent to 6.9 per cent	¥146,100	\$1,376,354
Government-owned banks, bearing interest rates from 2.2 per cent to 5.8 per cent	10,471	98,643
National and local government agencies, bearing interest rates from 0 per cent to 0.3 per cent	889	8,375
Debentures, bearing interest rates from 1.1 per cent to 1.9 per cent	70,000	659,444
Others, bearing interest rates from 0 per cent to 5.6 per cent	706	6,651
Less current portion	(43,447)	(409,298)
Net long-term loans and debentures	¥184,719	\$1,740,169

The aggregate annual maturities of long-term loans and debentures at March 31, 2000 are summarized as follows:

	March 31	
	(Millions of yen)	(Thousands of U.S. dollars)
Year ending March 31,		
2001	¥ 43,447	\$ 409,298
2002	46,396	437,079
2003	51,130	481,677
2004	42,885	404,004
2005 and after	44,308	417,409
Total	¥228,166	\$2,149,467

## 8. Assets pledged as collateral

The following assets were pledged as collateral at March 31, 2000:

	March 31	
	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
Notes receivable	¥ 437	\$ 4,117
Securities	362	3,410
Buildings and structures	454	4,277
Machinery and equipment	55	518
Land	1,174	11,060
Property, plant and equipment pledged as industrial factory foundation	16,197	152,586
Total	¥18,679	\$175,968

The obligations collateralized by the above assets at March 31, 2000 were as follows:

	March 31	
	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
Short-term bank loans	¥ 8,479	\$ 79,878
Long-term debt	4,734	44,597
	¥13,213	\$124,475

## 9. Accrued expenses

Included in accrued expenses were allowances for employees' bonuses of ¥21,300 million (\$200,659 thousand) and ¥26,643 million at March 31, 2000 and 1999, respectively.

## 10. Deferred tax assets and liabilities

Significant components of the Companies' deferred tax assets and liabilities at March 31, 2000 were as follows:

	March 31	
	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
Deferred tax assets:		
Accrued losses on sales contracts	¥ 4,184	\$ 39,416
Employees' retirement allowances	49,198	463,476
Elimination of unrealized profits	7,532	70,956
Net loss carried forward	13,839	130,372
Other	15,043	141,715
Valuation allowance	(9,863)	(92,916)
	79,933	753,019
Deferred tax liabilities:		
Depreciation	386	3,636
Other	93	876
	479	4,512
Net deferred tax assets	¥79,454	\$748,507

## 11. Research and development expenses

Research and development expenses, included in product cost, and selling, general and administrative expenses, are ¥20,502 million (\$193,142 thousand) for the year ended March 31, 2000.



## 12. Contingent liabilities

Contingent liabilities for trade notes receivable discounted and endorsed in the ordinary course of business amounted to ¥1,810 million (\$17,051 thousand) and ¥1,581 million at March 31, 2000 and 1999, respectively. Contingent liabilities for guarantees of debts of unconsolidated subsidiaries and others amounted to ¥21,203 million (\$199,746 thousand) and ¥25,067 million at March 31, 2000 and 1999, respectively.

Contingent liabilities arising from similar guarantees of debts amounted to ¥23,871 million (\$224,880 thousand) and ¥23,568 million at March 31, 2000 and

1999, of which ¥16,177 million (\$152,398 thousand) and ¥15,994 million at March 31, 2000 and 1999 were for employee housing loans which were secured by life insurance and loan-insurance, and therefore, the Companies were at low risk.

Unsecured debentures of 4.25 per cent of the Company due through 2000 were in substance redeemed by a debt assumption agreement and the debt amounting to ¥30,000 million (\$282,619 thousand) is contingently liable at March 31, 2000.

## 13. Other income (expense)—other, net

Other income (expense)—other, net consists of the following:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Gain on sales of securities	¥ 12,185	¥ 9,425	\$ 114,790
Loss on foreign exchange	(3,754)	(2,175)	(35,365)
Reversal of (provision for) allowance for doubtful receivables	(14)	1,128	(132)
Write-downs of marketable and investment securities	(2,286)	(2,137)	(21,536)
(Loss) gain on disposal of property, plant and equipment	(2,010)	627	(18,935)
Equity in earnings of unconsolidated subsidiaries and affiliates	586	764	5,520
Provision for employees' retirement allowances	(102,799)	—	(968,431)
Accrued losses on sales contracts	(9,949)	—	(93,726)
Loss on liquidation of subsidiaries and affiliates	(1,303)	—	(12,275)
Extraordinary retirement benefits	(1,275)	—	(12,011)
Other, net	(9,393)	(10,283)	(88,488)
Total	¥(120,012)	¥ (2,651)	\$(1,130,589)

The loss of ¥102,799 million in the above "Provision for employees' retirement allowances" for 2000 and the loss of ¥9,949 million in the above "Accrued losses on sales contracts" for 2000 relate to accounting changes. (See Note 3.)

The loss of ¥1,303 million in the above "Loss on liquidation of subsidiaries and affiliates" for 2000 is

related to Nagoya Shipbuilding & Steel Structure Co., Ltd., M-C POWER CORPORATION, and ANA-IHI Aero Engines Co., Ltd.

The loss of ¥1,275 million in the above "Extraordinary retirement benefits" for 2000 is related to Ishikawajima Construction Machinery Co., Ltd. and Ishikawajima Ship & Chemical Plant Co., Ltd.

## 14. Revaluation of land

In accordance with the "Law Concerning Revaluation of Land" enacted on March 31, 1998, land used for business owned by one of the consolidated subsidiaries has been revalued.

The deferred tax liability related to this revaluation of ¥3,548 million (\$33,424 thousand) has been included in

other long-term liabilities; and the minority interests related to the unrealized gain from revaluation, net of deferred tax, was increased by ¥450 million (\$4,239 thousand). The remainder of the unrealized gain was included in capital surplus.

Book value of land before revaluation	¥ 2,037 million (\$19,140 thousand)
Book value of land after revaluation	¥10,537 million (\$99,265 thousand)
Date of revaluation	March 31, 2000

## 15. Leases

### (a) Finance leases (Lessee)

The following pro forma amounts represent the acquisition costs, accumulated depreciation and net book value of the leased property as of March 31, 2000 and 1999,

which would have been reflected in the balance sheets if finance lease accounting had been applied to the finance leases currently accounted for by the operating lease accounting method:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Acquisition costs:			
Buildings and structures	¥ 53	¥ 64	\$ 499
Machinery and equipment	8,242	7,382	77,645
Others	261	319	2,459
Total	¥8,556	¥7,765	\$80,603
Accumulated depreciation:			
Buildings and structures	¥ 25	¥ 24	\$ 236
Machinery and equipment	4,915	5,199	46,302
Others	219	224	2,063
Total	¥5,159	¥5,447	\$48,601
Net book value:			
Buildings and structures	¥ 28	¥ 40	\$ 264
Machinery and equipment	3,327	2,183	31,342
Others	42	95	396
Total	¥3,397	¥2,318	\$32,002

Concerning the above finance lease transactions, lease payments, estimated depreciation expense, which is calculated as ten-ninths of the amount computed by the declining-balance method over the respective lease terms

and assuming a 10% scrap value, and estimated interest expense for the years ended March 31, 2000 and 1999 were as follows:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Lease payments	¥1,929	¥1,993	\$18,172
Estimated depreciation expense	1,780	1,769	16,769
Estimated interest expense	143	138	1,347

Future minimum lease payments subsequent to March 31, 2000 and 1999, for finance leases accounted

for as operating leases are summarised as follows:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Within one year	¥1,619	¥1,572	\$15,252
Thereafter	3,118	2,166	29,374
Total	¥4,737	¥3,738	\$44,626

### (b) Operating leases (Lessee)

The future minimum lease payments subsequent to

March 31, 2000 and 1999, for noncancelable operating leases are summarised as follows:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Within one year	¥ 513	¥ 577	\$ 4,833
Thereafter	3,653	4,285	34,414
Total	¥4,166	¥4,862	\$39,247

(c) Finance leases (Lessor)  
The following amounts are the acquisition costs, accumulated depreciation and net book value of property leased

to others under finance leases at March 31, 2000 and 1999 to which the Companies have adopted the operating lease accounting method:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Acquisition costs:			
Buildings and structures	¥4,910	¥4,909	\$46,255
Machinery and equipment	2,205	2,301	20,772
Total	¥7,115	¥7,210	\$67,027
Accumulated depreciation:			
Buildings and structures	¥1,504	¥1,077	\$14,168
Machinery and equipment	1,111	1,051	10,466
Total	¥2,615	¥2,128	\$24,634
Net book value:			
Buildings and structures	¥3,406	¥3,832	\$32,087
Machinery and equipment	1,094	1,250	10,306
Total	¥4,500	¥5,082	\$42,393

Concerning the above finance leases the lease payments, depreciation expense and estimated interest

income for the years ended March 31, 2000 and 1999, were as follows:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Recorded lease payments	¥860	¥647	\$8,102
Recorded depreciation expense	798	867	7,518
Estimated interest income, assuming that the finance lease accounting had been adopted	161	176	1,517

Future minimum lease payments subsequent to March 31, 2000 and 1999, for finance lease transactions

accounted for by the operating lease accounting method are summarised as follows:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Within one year	¥ 512	¥ 498	\$ 4,823
Thereafter	5,740	6,171	54,074
Total	¥6,252	¥6,669	\$58,897

(d) Operating leases (Lessor)  
Future minimum lease payments subsequent to March

31, 2000 and 1999, for noncancelable operating leases are summarised as follows:

	March 31		
	2000	1999	2000
	(Millions of yen)		(Thousands of U.S. dollars)
Within one year	¥109	¥ 68	\$1,027
Thereafter	249	160	2,346
Total	¥358	¥228	\$3,373

## 16. Derivatives

### (a) Foreign currency

The Company has entered into forward foreign exchange and options contracts to hedge foreign currency transac-

tions. At March 31, 2000, the forward foreign exchange contracts outstanding were as follows:

	March 31	
	2000	2000
	(Millions of yen)	(Thousands of U.S. dollars)
<b>Selling foreign exchange contracts</b>		
Contract amounts	¥ 7,523	\$ 70,871
Market value	7,417	69,873
Unrealised gains (losses)	¥ 106	\$ 998
<b>Buying foreign exchange contracts</b>		
Contract amounts	¥12,861	\$121,159
Market value	12,420	117,004
Unrealised gains (losses)	¥ (441)	\$ (4,155)

### (b) Interest rate

The Company has no outstanding interest-rate swap agreements at March 31, 2000.

## 17. Segment information

### (a) Industry segments

Industry segment information of the Companies for the years ended March 31, 2000 and 1999 is shown below:

	Year ended March 31, 2000					Eliminations and Corporate	Consolidated
	(1)	(2)	(3)	Total			
	(Millions of yen)						
<b>Sales and operating income</b>							
Sales to outside customers	¥665,052	¥195,893	¥134,118	¥ 995,063	¥ —	¥ 995,063	
Intersegment sales and transfers	19,335	277	1,042	20,654	(20,654)	—	
Total	684,387	196,170	135,160	1,015,717	(20,654)	995,063	
Operating expenses	695,871	185,396	140,679	1,021,946	(21,058)	1,000,888	
Operating income (loss)	¥(11,484)	¥ 10,774	¥ (5,519)	¥ (6,229)	¥ 404	¥ (5,825)	
<b>Assets, depreciation expense and capital expenditures</b>							
Assets	¥850,425	¥214,633	¥ 99,787	¥1,164,845	¥248,608	¥1,413,453	
Depreciation expense	20,683	11,812	2,785	35,280	225	35,505	
Capital expenditures	24,632	12,512	4,127	41,271	173	41,444	

Year ended March 31, 1999						
	(1)	(2)	(3)	Total	Eliminations and Corporate	Consolidated
(Millions of yen)						
<b>Sales and operating income</b>						
Sales to outside customers	¥745,064	¥172,845	¥135,987	¥1,053,896	¥ —	¥1,053,896
Intersegment sales and transfers	20,199	1,540	840	22,579	(22,579)	—
Total	765,263	174,385	136,827	1,076,475	(22,579)	1,053,896
Operating expenses	756,225	166,954	134,950	1,058,129	(22,128)	1,036,001
Operating income	¥ 9,038	¥ 7,431	¥ 1,877	¥ 18,346	¥ (451)	¥ 17,895
<b>Assets, depreciation expense and capital expenditures</b>						
Assets	¥860,745	¥212,762	¥116,221	¥1,189,728	¥132,488	¥1,322,216
Depreciation expense	20,291	9,326	2,632	32,249	142	32,391
Capital expenditures	17,805	18,500	2,351	38,656	93	38,749
Year ended March 31, 2000						
	(1)	(2)	(3)	Total	Eliminations and Corporate	Consolidated
(Thousands of U.S. dollars)						
<b>Sales and operating income</b>						
Sales to outside customers	\$6,265,210	\$1,845,436	\$1,263,476	\$ 9,374,122	\$ —	\$ 9,374,122
Intersegment sales and transfers	182,148	2,610	9,816	194,574	(194,574)	—
Total	6,447,358	1,848,046	1,273,292	9,568,696	(194,574)	9,374,122
Operating expenses	6,555,544	1,746,547	1,325,285	9,627,376	(198,380)	9,428,996
Operating income (loss)	\$ (108,186)	\$ 101,499	\$ (51,993)	\$ (58,680)	\$ 3,806	\$ (54,874)
<b>Assets, depreciation expense and capital expenditures</b>						
Assets	\$8,011,540	\$2,021,978	\$ 940,057	\$10,973,575	\$2,342,044	\$13,315,619
Depreciation expense	194,847	111,276	26,236	332,359	2,121	334,480
Capital expenditures	232,049	117,871	38,879	388,799	1,630	390,429

Notes: i The Companies operate in three industry segments as follows: —

(1) Land-based operations

Industrial machinery, logistic systems and steel structures, chemical plants, boilers and nuclear power plants, mass-produced machinery, farm machinery, construction machinery, construction materials, financial business, service industries and others

(2) Aero-engine and space operations

Jet engines, space-related equipment and others

(3) Shipbuilding and offshore operations

Shipbuilding, ship repairs, offshore oil and gas equipment, marine transportation and others

ii Operating expenses are entirely allocated to each industry segment.

iii Corporate assets, which amounted to ¥254,430 million (\$2,396,891 thousand) and ¥140,320 million as of March 31, 2000 and 1999, respectively, mainly consisted of cash, time deposits, marketable securities and insurance premiums paid of the Company and deferred income taxes as of March 31, 2000 and cash, time deposits, marketable securities and insurance premiums paid of the Company as of March 31, 1999.

iv Consolidated operating expenses represent cost of sales and selling, general and administrative expenses shown in the accompanying consolidated statements of operations.

v Effective April 1, 2000, the Companies adopted tax-effect accounting in accordance with the change in accounting principles for consolidated financial statements. The effect of this change increased the assets of land-based operations by ¥21 million (\$198 thousand) and increased corporate by ¥78,992 million (\$744,154 thousand) at March 31, 2000.

(b) Overseas sales

	Year ended March 31, 2000					
	Europe	Asia	North America	Central and South America	Others	Total
Overseas sales	¥37,071	¥41,445	¥74,285	¥50,100	¥20,143	¥223,044
Overseas sales as a percentage of consolidated net sales	3.7%	4.2%	7.5%	5.0%	2.0%	22.4%

	Year ended March 31, 1999					
	Europe	Asia	North America	Central and South America	Others	Total
Overseas sales	¥74,774	¥60,431	¥70,762	¥38,418	¥30,808	¥275,193
Overseas sales as a percentage of consolidated net sales	7.1%	5.7%	6.7%	3.6%	3.0%	26.1%

	Year ended March 31, 2000					
	Europe	Asia	North America	South America	Others	Total
Overseas sales	\$349,232	\$390,438	\$699,812	\$471,974	\$189,759	\$2,101,215

Note: The countries included in each segment are as follows: —

(1) Europe.....England, Germany, France, Italy, Holland, Spain, Norway, C.I.S., Turkey, etc.

(2) Asia.....China, Taiwan, Korea, Thailand, Singapore, Malaysia, Indonesia, Philippines, India, Pakistan, etc.

(3) North America.....U.S.A., Canada

(4) Central and South America.....Brazil, Panama, etc.

## 18. Subsequent events

On April 10, 2000, the Board of Directors of IHI decided to pursue a business transfer agreement with Nissan Motor Co., Ltd. On April 14, 2000, the agreement was signed for the transfer of Nissan Motor's Aerospace Division to IHI.

As part of IHI's management policy to select and concentrate on specific businesses, the agreement provides IHI with Nissan's aerospace business, a field of potential growth. With very little overlap, the operations to be transferred are highly complementary to IHI's current operations. The aerospace and defense businesses are expected to grow substantially.

The transfer covers all assets and liabilities, contracts and employees constituting the aerospace business of Nissan Motor. A wholly-owned subsidiary of IHI will acquire the business, valued at ¥30.6 billion (\$288 million), from Nissan Motor on July 1, 2000. An additional ¥3.0 billion (\$28 million) will be paid if the business achieves operating income of 2% by March 31, 2001.

The terms of the Company's 23rd and 24th bond issue were determined at the Board of Directors meeting held on April 28, 2000. Details are as follows:

1. 23rd Unsecured Bond (five-year bond)
  - (1) Issue amount: ¥10.0 billion (\$94 million)
  - (2) Issue price: ¥100 par value of ¥100
  - (3) Annual interest rate: 1.31%
  - (4) Issue date: May 25, 2000
  - (5) Date of redemption: May 25, 2005
  - (6) Use of funds: Long-term operating capital
  - (7) Subscription: Public subscription
2. 24th Unsecured Bond (seven-year bond)
  - (1) Issue amount: ¥10.0 billion (\$94 million)
  - (2) Issue price: ¥100 par value of ¥100
  - (3) Annual interest rate: 1.72%
  - (4) Issue date: May 25, 2000
  - (5) Date of redemption: May 25, 2007
  - (6) Use of funds: Long-term operating capital
  - (7) Subscription: Public subscription

# REPORT OF CERTIFIED PUBLIC ACCOUNTANTS

## Certified Public Accountants

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## The Board of Directors Ishikawajima-Harima Heavy Industries Co., Ltd.

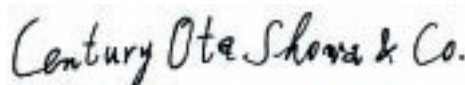
We have audited the consolidated balance sheets of Ishikawajima-Harima Heavy Industries Co., Ltd. and consolidated subsidiaries as of March 31, 2000 and 1999, the related consolidated statements of operations and shareholders' equity for the years then ended, and the related consolidated statement of cash flows for the year ended March 31, 2000, expressed in Japanese yen. Our audits were made in accordance with auditing standards, procedures and practices generally accepted and applied in Japan and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements referred to above, expressed in Japanese yen, present fairly the consolidated financial position of Ishikawajima-Harima Heavy Industries Co., Ltd. and consolidated subsidiaries at March 31, 2000 and 1999, the consolidated results of their operations for the years then ended, and their cash flows for the year ended March 31, 2000 in conformity with accounting principles and practices generally accepted in Japan consistently applied during the period except for the change, with which we concur, in the method of accounting for employees' retirement allowances and accrued losses on sales contracts as described in Notes 2(j), 2(1) and 3 to the consolidated financial statements.

As described in Note 1 to the consolidated financial statements, the accounting standards applicable to consolidated financial statements were revised and, effective April 1, 1999, a new accounting standard for tax-effect accounting was enacted and the accounting treatment of research and development expenses was amended.

The accompanying consolidated financial statements for the year ended March 31, 2000 have been presented in accordance with the revised accounting principles and standards. A consolidated statement of cash flows has been adopted as a part of the basic financial statements for the year ended March 31, 2000 under the new standards. The consolidated financial statements for the year ended March 31, 1999, however, were prepared in accordance with the former accounting principles and have not been restated to conform to the revised accounting principles and standards.

The U.S. dollar amounts in the accompanying consolidated financial statements with respect to the year ended March 31, 2000, are presented solely for convenience. Our audit also included the translation of Japanese yen amounts into U.S. dollar amounts and, in our opinion, such translation has been made on the basis described in Note 1 to the consolidated financial statements.



Century Ota Showa & Co.

Tokyo, Japan  
June 29, 2000

*See Note 1 to the consolidated financial statements which explains the basis of preparing the consolidated financial statements of Ishikawajima-Harima Heavy Industries Co., Ltd. under Japanese accounting principles and practices.*

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(As of July 1, 2000)

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**Main Overseas Subsidiary Companies****LONDON: IHI Europe Ltd.**

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**LONDON:****Ishikawajima Europe B.V.**

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FAX: +31-10-411-6412

**HEIDELBERG:****IHI TURBO GERMANY GmbH**

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GERMANY  
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FAX: +49-6221-3096-111

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Cernusco Lombardone (LC), ITALY  
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FAX: +39-039-9284-675

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FAX: +65-265-0780

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**TAIPEI:****IHI Technical Consulting Co., Ltd.**

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FAX: +61-2-9922-3638

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**NEW YORK: IHI Inc.**

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FAX: +1-212-599-8111

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(Branch of IHI Inc.)

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48084, U.S.A.  
TEL: +1-248-244-9370  
FAX: +1-248-244-9062, 2037

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FAX: +1-210-521-2311

**Consolidated Subsidiaries**

- 1) Paid-in Capital (millions of yen)
- 2) Products & Services

**Diesel United, Ltd. (DU)**

- 1) 480
- 2) Engineering, manufacturing and maintenance of diesel engines

**Goko Seisakusho Co., Ltd. (GS)**

- 1) 350
- 2) Engineering and manufacturing of steel structures

**IHI Amtec Co., Ltd. (AMTEC)**

- 1) 480
- 2) Shipbuilding and repairing

**IHI Construction Machinery Ltd. (IK)**

- 1) 2,700
- 2) Engineering, manufacturing and sales of construction machinery

**IHI Granitech Co., Ltd. (IGC)**

- 1) 300
- 2) Processing of stone materials for building walls and floors

**IHI Inc.**

- 1) US\$2,000 thousand
- 2) Sales of land-based machinery, plant facilities, ships and offshore structures

**IHI Kure Marine Construction Co., Ltd. (KMC)**

- 1) 150
- 2) Engineering and construction of ship hull structures

**IHI Logistic Technology Co., Ltd. (ILT)**

- 1) 200
- 2) Engineering, construction and maintenance service for physical distribution systems

**IHI Marine Co., Ltd. (IMC)**

- 1) 416
- 2) Consulting and engineering for shipbuilding, ship repair, supply of marine equipment

**IHI Marine Coating Co., Ltd. (IMAC)**

- 1) 100
- 2) Painting and coating works for shipbuilding, steel structures

**IHI Packaged Boiler Co., Ltd. (IBK)**

- 1) 350
- 2) Sales and maintenance service of packaged boilers

**IHI Plant Technology Co., Ltd. (ITC)**

- 1) 200
- 2) Engineering and construction of storage tanks

**IHI Systems Co., Ltd. (ISS)**

- 1) 180
- 2) Development and operation, maintenance service for information systems

**IHI Trading Inc. (IT)**

- 1) 200
- 2) Sales of various kinds of machinery

**IMEC Ltd. (IMEC)**

- 1) 15
- 2) Engineering for material-handling equipment and industrial machinery

**INC Engineering Co., Ltd. (INC)**

- 1) 250
- 2) Consulting, engineering and construction of noise and vibration suppressing equipment

**Ishikawajima Compressor Service Co., Ltd. (ICP)**

- 1) 100
- 2) Engineering, installation and maintenance of compressors and blowers

**Ishikawajima Construction Engineering Co., Ltd. (IIC)**

- 1) 241
- 2) Engineering and construction of bridges, cranes and steel structures

**Ishikawajima Construction Machinery Sales Co., Ltd. (IKTH)**

- 1) 25
- 2) Sales and maintenance service for construction machinery

**Ishikawajima Construction Materials Co., Ltd. (IKK)**

- 1) 1,665
- 2) Engineering, manufacturing and installation of pre-cast concrete materials

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**Ishikawajima Environmental Engineering Co., Ltd. (IKE)**

- 1)100
- 2)Operation and maintenance service for environment control equipment

**Ishikawajima Factoring Co., Ltd.**

- 1)200
- 2)Established T.F.I. Co., Ltd. and transferred all operations

**Ishikawajima Hanyoki Service Co., Ltd. (IHS)**

- 1)1,033
- 2)Engineering and maintenance service for air conditioners and industrial machinery

**Ishikawajima Industrial Machinery Co., Ltd. (IIM)**

- 1)480
- 2)Engineering, manufacturing and sales of industrial machinery

**Ishikawajima Inspection & Instrumentation Co., Ltd. (IIC)**

- 1)220
- 2)Non-destructive inspection service and manufacturing of related devices

**Ishikawajima Iwakuni Seisakusho Ltd. (IS)**

- 1)400
- 2)Engineering and manufacturing of industrial furnaces

**Ishikawajima Jet Service Co., Ltd. (IJS)**

- 1)200
- 2)Installation and maintenance service for gas turbines and jet engines

**Ishikawajima Kogyo Co., Ltd. (IKC)**

- 1)480
- 2)Real estate management, insurance agent business and data processing service

**Ishikawajima Mass-Produced Machinery Co., Ltd. (IHK)**

- 1)1,760
- 2)Manufacturing of turbochargers and packaged compressors

**Ishikawajima Packaged Boiler Fabrication Co., Ltd. (IBF)**

- 1)50
- 2)Engineering, manufacturing of packaged boilers

**Ishikawajima Plant Construction Co., Ltd. (IPC)**

- 1)255
- 2)Engineering and construction of power plants and process plants

**Ishikawajima Plant Engineering & Construction Co., Ltd. (IPEC)**

- 1)50
- 2)Engineering and manufacturing of chemical plant equipment

**Ishikawajima Precision Castings Co., Ltd. (ICC)**

- 1)450
- 2)Engineering and manufacturing of precision casting

**Ishikawajima Shibaura Machinery Co., Ltd. (ISM)**

- 1)4,207
- 2)Engineering and manufacturing of small-size engines and agricultural machinery

**Ishikawajima Ship & Chemical Plant Co., Ltd. (ISC)**

- 1)1,410
- 2)Engineering and construction of ships and steel structures

**Ishikawajima System Technology Co., Ltd. (IST)**

- 1)80
- 2)Development and engineering of control systems for plants and machinery

**Ishikawajima Transport Machinery Co., Ltd. (IUK)**

- 1)2,647
- 2)Engineering, manufacturing and maintenance for material-handling equipment, parking systems

**ISMIC Co., Ltd. (ISMIC)**

- 1)120
- 2)Engineering, maintenance and repair of bridges, gates and steel structures

**Kaisho Shipping Co., Ltd. (KS)**

- 1)450
- 2)Marine transportation

**Kanto Segment Co. (KTS)**

- 1)135
- 2)Manufacturing of pre-cast concrete materials

**PC BRIDGE Co., Ltd.**

- 1)504
- 2)Prestressed concrete product manufacture, sales, construction work design, execution, etc.

**Reprography and Consultants, Ltd. (REPRO)**

- 1)50
- 2)Printing, copying and data processing

**Star Farm Machinery Manufacturing Co., Ltd. (SFM)**

- 1)480
- 2)Manufacturing of attachment for agricultural machinery

**TFI Corporation (TFI)**

- 1)200
- 2)Financing, factoring

**Tokyo-wan Tochi Co., Ltd. (TTK)**

- 1)48
- 2)Real estate and management of marinas

## CORPORATE DATA

(As of March 31, 2000)

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<b>Founded</b>	1853	
<b>Incorporated</b>	1889	
<b>Number of Employees</b>	12,794	
<b>Transfer Agent</b>	The Chuo Mitsui Trust and Banking Company, Ltd.	
<b>Consolidated Subsidiaries</b>	45	
<b>Nonconsolidated Subsidiaries</b>	50*	
<b>Affiliates</b>	39*	
	(Note*: Includes four nonconsolidated subsidiaries and three affiliates applying the equity method of accounting)	
<b>Stock Exchange Listings</b>	Tokyo, Osaka, Nagoya, Kyoto, Fukuoka, Sapporo	
<b>Shares Outstanding</b>	1,298,495,152	
<b>Number of Shareholders</b> (holding the minimum unit of 1,000 shares)	104,618	
<b>Major Shareholders</b>	Toshiba Corp. 4.26%	
	The Daiichi Mutual Life Insurance Company 3.77%	
	The Dai-Ichi Kangyo Bank, Ltd. 3.54%	
	Nippon Life Insurance Company 3.42%	
	Asahi Mutual Life Insurance Company 2.86%	
	Sumitomo Life Insurance Company 1.66%	
	The Industrial Bank of Japan, Limited 1.60%	
	Sakura Bank, Ltd. 1.54%	
	Chiyoda Life Insurance Company 1.46%	
	IHI Employee Stock Ownership Association 1.34%	
<b>Independent Auditors</b>	Century Ota Showa & Co.	



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