

● ● ● It was **an exciting year** for the Komatsu Group, because we launched our Unique and Unrivaled products in the mainstay line of construction and mining equipment, as well as other industrial-use machinery with unique features, and kept receiving many **compliments** and words of **encouragement** from our customers. In the following pages of this feature story section, we would like to share some of our excitement with our readers.

It was also **a year of reaffirming** that **our commitment** in the "**Spirit of Manufacturers**" reform should never stop. Most importantly, the year reminded us that we must keep **taking up the challenge** by teaming up for synergy of ideas from all involved. Accomplishments build up **for higher goals**, and we are resolutely determined to thrive on them, by demonstrating and proving **our own value** as a manufacturer of industrial-use machinery.

All in all, our customers are the basis of our momentum **for future growth**. As a reliable and trusted business partner for their success, we are ready to meet their needs and expectations. This is the continuing challenge for us.

MR-2 Tight Tail Swing Mini Hydraulic Excavator



"As we are specialized in the installation of city gas pipelines, our top priority has always been safety in all aspects of our construction, including not only machine operators, but also the local community. Doing this involves the performance of the machines we use. To install larger diameter pipes for natural gas, we have been using small excavators after having equipped them with load sensors and other devices for additional lifting capabilities and safety. Recently, however, we have felt the growing need for mini excavators designed to offer both high performance and safe lifting in the confined spaces of the inner city.

"We asked Sun Rental if they could provide such excavators. As a Komatsu Group rental company, they were ready to listen honestly to our requests and develop a special model for us. By incorporating the needs of our jobsite operators, Muroto Tekkoshu, a specialized crane supplier for the Komatsu Group, developed ideal machines for us in a very short time. Of course our determined commitment to safety means an extra cost for us, but I believe this will result in, if it has not already, our clients' trust in us, which is the most valuable asset for us. I am sure it will lead to more work for us and pay off in the long run."

Mr. Yasumasa Ishigami, General Manager
Gas Pipeline Installation Division
Seiwa Kogyo K.K.

"As I was involved in the development of the MR-2 series, I am very glad that we have had superb evaluation from our customers. Among all its new features, the MR-2's tilt-forward cabin is the greatest value for us. It enables us to reduce our routine inspection time significantly and deliver our equipment in perfect condition."

Hitoshi Fukazawa
Deputy General Manager
Machine Management Division
Sun Rental Co., Ltd.

... mini excavators designed to offer both high performance and safety in the confined spaces ...



"Products that we can sell anywhere in the world, even after they become used equipment. That's our basic concept for the MR-2 series. We placed our priorities on attaining the world's highest level of safety and operator comfort in their class, while keeping the customer-proven performance of the predecessor MR-1 series.

"By anticipating higher safety needs around the world, we made sure that our new machines meet all requirements of ROPS (Roll-Over Protective Structures), TOPS (Tipping-Over Protective Structures), and OPG (Operator Protective Guards). We also developed the world's first compact model with two-post ROPS and a top guard canopy that together offer a world-class field of vision and walk-through space for easy access.

"Since conventional mini excavators with tight tail swing have sacrificed the working space for operators, in order to better secure both working range and stability, we broke away from this convention and developed the MR-2 with the goal of providing comfortable space for big operators overseas. As a result, the MR-2 offers a substantially expanded space around the operator seat, especially the foot space, and the same comfortable cab space as that of larger models. The two-post canopy type allows for easy walk through from both sides.



"To meet the needs of rental equipment customers, we have significantly improved maintenance and serviceability of the MR-2 series by incorporating a new tilt-forward cabin and by extending regular service intervals.

"Since their market launch in Japan last year, I have heard many comments from our salespeople that it's easy to convince their customers to purchase because the selling points of MR-2 machines are so easy for them to see. As we are continuing their launchings overseas this year, I also hope to hear such comments from around the world."

Hiroshi Yamamoto
Senior Manager
Utility Equipment Technical Center
Construction Equipment Division
Komatsu Zenoah Co.

"I have been using this machine, since we bought four PC400LC-7 models earlier this year. Compared to the dash-6 model, I can tell the new model is much superior in the combination of speed and fuel consumption. I have been able to fill 40-ton trucks with six passes in a total of 32 seconds from a ten-foot bench cut for its fastest time, while other trucks were loaded with about 40 seconds on the average. I have also found operator comfort improved with the larger cab space. With the new shock absorption system in the new model, I have felt virtually no vibration in the cab even when roading. The reduced noise level is also very obvious, and the machine stability has improved impressively. All in all, the PC400LC-7 is a nice machine to run."

Mr. Joe Raspotnik
Operator
Enebak Construction Company
Minnesota, USA

Enebak Construction, one of Minnesota's largest contractors, is a premier customer of Road Machinery and Supplies Co (RMS). of Savage, Minnesota according to Tom Ernst, Sales Manager of RMS. "Our other customers have mentioned great satisfaction with the advantages of the NEW PC400LC-7. The PC400LC-6 has been a leader in our market yet the increased horsepower and attachment forces of the Dash 7 have resulted in a noticeable difference in speed and productivity. We have received many positive comments about the productivity, efficiency, operator comfort and ease of maintenance," added Mr. Ernst.



Mr. John Welt,
Shop Superintendent of Enebak Construction Co.,
trying out the PC400LC-7 model.

"Our 40/45-ton hydraulic excavators are used mainly by quarrying and civil engineering customers in Japan and overseas, and are thus expected to perform at the maximal level of their capabilities when they are deployed for many hours of excavation and loading. We focused our foremost attention on this customer need when we developed our new PC400/450-7 hydraulic excavator.



"To improve the productivity of our new excavators, in addition to their engines, we looked into energy loss as waste heat in the hydraulic system, reviewed all hydraulic circuits, and worked to eliminate such losses in the entire hydraulic system. Combined with other innovations, the new PC400/450-7 models boast an outstanding 20% improvement in productivity per fuel cost, compared with that of their predecessor PC400/450-6 models. Considerable reduction of noise both inside and outside of the cab is another important achievement we made. In fact, it turned out to be a challenge-worthy task for us to upgrade machine performance and cut down noise at the same time, but we are rewarded every time we hear our customers comment, 'Oh, it's so quiet,' when they turn on the ignition of the new model.

"I firmly believe this new model clearly demonstrates our technological advantages based on our in-house capability to produce all key components, such as engines, hydraulic equipment and the like. As a result, we were able to enjoy a greater degree of freedom in systems configuration for these new models."

Osamu Kuroyanagi
Deputy Senior Chief Engineer
Hydraulic Excavator Development Group
Construction Equipment Technical Center 1
Development Division

... I can tell the new model is much superior in the combination of speed and fuel consumption.



D475A-5 Super Large Bulldozer



At West Angelas Operations, an iron ore mine in western Australia

"We have operated two Komatsu D375 dozers since late 2001 when the project started, and the 102.5-tonne D475A-5 provides significant advantage over those units. The layout of the cab is well designed and operators have told me that it is particularly comfortable and quiet during operation. These features are attractive from a safety perspective as they contribute to a reduction in operator fatigue.

"The D475A-5 has been used for bench and dump maintenance, topsoil clearing, drill and excavator pad, and ramp preparation for a total of over 2,000 operating hours. Equipped with 641kW of flywheel horsepower, it has had no shortage of power, proving useful in the harsh, rocky conditions of an iron ore mine, and competent with bulk pushing and ripping. Compared with the D375, the D475A-5 has improved productivity through faster completion of bench maintenance work around active digging units and earlier preparation of excavator pads for fitch mining.

"We are looking at increasing the size of our dozer fleet to support ongoing production expansion at West Angelas and giving strong consideration to the purchase of another D475A-5 this year."

Mr. Andrew Caruso
Production Superintendent
West Angelas Operations, Robe River Mining Co Pty Ltd

... operators have indicated that it is particularly comfortable and quiet during operation.



"Definitely, bulldozers are expected to work under the most punishing conditions, compared to all other earthmoving equipment, as they need to excavate and push soil and rocks while moving forward. Similarly, their operators are forced to work under strenuous conditions such as noise and vibration. It's particularly demanding for operators of super-large bulldozers in quarries and mines working full-time. Some people have to use earplugs while operating their machines under constant vibration for hours. The efficiency for the entire operation is inevitably lowered.



"When developing our latest D475A large crawler dozer model, we made it our top priority to achieve unrivaled operator comfort. To reduce the noise, we needed to address two issues: to improve the source of noise like the engine, and to confine the source. When you confine the engine for noise reduction,

naturally you must confine the heat in the engine room, which will overheat. To obtain a well-balanced solution to this trade-off relationship, we developed a new hydrostatic driven engine cooling fan. This new hydrostatic-drive mechanism controls the fan revolution independently of the engine revolution, so it can not only make outstanding reduction of the noise but also ensure an optimal heat balance. To provide a more comfortable working environment than other dozers in its class, the D475A-5 model comes with additional innovations, including a hexagonal pressurized cab which prevents dust from entering the cab while providing an excellent view all around. Together with other improvements we made, our renewed D475A-5 will reduce your fatigue after working long hours and provide a new level of work comfort and productivity."

Nobuhisa Kamikawa
Deputy Senior Chief Engineer and Group Leader
Bulldozer Development Group
Construction Equipment Technical Center 1
Development Division

"We have recently built a new plant in Kyushu for our subsidiary, Daihatsu Auto Body, and we are getting ready for full-scale production start-up this fall. Equipped with state-of-the-art machinery, this strategic plant is expected to play a vital collaborative role with our plants in Southeast Asia to make our cars very competitive, not only in Japan, but also abroad.

"Mini cars, our major products, are experiencing very tough cost competition, more so than regular-size passenger cars. To win over intensified market competition for mini-cars, I gave our manufacturing technology people a breakthrough task of cutting down the conventional five pressing processes to three or fewer with a substantial reduction in production costs. Needless to say, it's on the premise of keeping the same press quality, because the quality of pressed parts determines the quality of cars on par with engines.

"We chose Komatsu as our partner because they were very eager and offered the best proposal very quickly. Our request called for a cost-competitive tandem press line, because it can flexibly respond to the change of dies, but we also required a higher productivity than that of a standard transfer press. To this demanding requirement, Komatsu engineers responded to my ideas and proposals by creating an innovative transfer system.

"All in all, it's a revolutionary press, and I am sure it will become their next-generation press with a bright future."

Mr. Takashi Higashi
Executive Vice President
Daihatsu Motor Co., Ltd.



"Generally speaking, you find two types of press lines at automobile manufacturing plants today, the high-speed transfer line designed for mass production of the same body frame and parts, for example, and the tandem line, often used with robots, for flexible production of different work pieces.

"Our first high-speed flexible transfer line, which we developed and delivered to Daihatsu Motor, combines the best qualities of these two lines into one that has both high productivity and flexibility. In response to our customer's determined request for seamless actions of the press line, we were able to effectively capitalize on our accumulated technological expertise in mechanical controls.

"To ensure no idling mechanism in the line, we needed to achieve complete synchronization between not only modular presses among themselves, but also presses and feeders at the same time. For high-speed transfer of the work piece from one press to the next, use of robots was out of the question. Through many hours of discussions with our customer and after a number of trials with new mechanisms, we came up with the idea of a pendular mechanism for the feeder. By incorporating a linear motor system to this unique mechanism in this class of large feeders for the first time in the world, we were able to attain an optimal control of motion to minimize the vibration of the feeder for high speed transfer of workpieces."

Yukiyoshi Takayama
Manager
Development Group
Industrial Machinery Division



... it's a revolutionary press, and I am sure it will become their next-generation press with a bright future.





Mr. Hashimoto (far right) and operators of Isuzu Linex

"Isuzu Techno is an engineering company providing machine maintenance and other services for Isuzu Motors' plants. Here at the Fujisawa Plant, we are responsible for the maintenance of about 600 forklift trucks. Frankly speaking, my first impression when I saw an LEO-NXT 109 series model, in December of last year, was doubt about its power judging from its compact size. But it was a matter of a very short period of time before I became convinced that we needed more LEO-NXT 109 series trucks. We now have 16 in total.

"This plant assembles medium-size and small trucks, naturally with heavy and large parts, so our vehicles must have a powerful lifting capability. Soon we are getting an assembly job of large trucks from another plant. We will need more powerful and compact trucks. The LEO-NXT 109 series has met our needs.

"So far I've heard only good things about the 109 series from the operators at Isuzu Linex, which is commissioned for the materials handling work at this plant. They mention how its long-depth entrance/exit step, and flat and wide foot space, allow for easy, stress-free access constantly throughout the day. They also state that the 109 series is smooth and quiet thanks to its special tires. And most notably, they like that it is a compact design with power comparable to conventional models in the one-ton and larger classes. This makes for outstanding user friendliness."

Mr. Masahiro Hashimoto
General Manager
Vehicle Maintenance Division
Isuzu Techo Co., Ltd.

... it is a compact design with power comparable to conventional models in the one-ton and larger classes.



"To develop Japan's Number One fork lift truck, we looked into the basics of a forklift truck -- the hardware itself like hydraulics, while our competitor turned to electronics. Our exhaustive research in the basic performance led to the development of a new hydraulic system which offers both high productivity and fuel economy for many hours of operation. Two key factors of our special attention were machine durability and stress reduction for the operators.

"It was very fortunate for me to develop the LEO-NXT series by using many ideas from my notes that I made during the 1980's, when I was given the wonderful opportunity by the company to exclusively devote my time to thinking about and designing an ideal forklift truck. In those days, I spent most of



my time meeting a wide range of our customers who engage in all kinds of work, talked to them, learned their valuable opinions, and developed my ideas for solutions in sketches.

"As we worked on the project, more people got involved, including partners from Fukuyama Rubber Industry, and thus we were able to incorporate our innovations for all of the stress-causing factors we identified, both mental and physical alike. I am sure that our LEO-NXT 109 customers will feel the difference in operator comfort, especially in terms of fatigue, after calling it a day, whether in the warehouse, or on the farm. They might have a difficult time trying to pin point the reason why they are not as tired as before, because they have experienced the complete manifestation of our close and specific attention to details regarding operator comfort".

Fumio (Fred) Ikesugi
Executive Officer and General Manager
R&D Division
Komatsu Forklift Co., Ltd.