

# TOYODA TEXTILE MACHINERY BULLETIN

Vol. 6



A battledore embossed with Princess Kiyomoto from the *Dojo-ji*

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## Special Feature 2-4

A Review of the 6th Osaka International Textile Machinery Show  
Special Offer: OTEMAS exhibit brochures/OTEMAS towels

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## What's New 5-6

TOYODA-KAWAMOTO opens up a new era in weaving preparatory machinery  
A kick-off with a new resolution  
TOYODA-KAWAMOTO Product Lineup

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## Customer Support & Service 6-7

A Look at Toyoda's Global Service Centers  
Part 1: Bandung Service Center in Indonesia

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## Thoughts & Feelings 7

User Report

---

## Management for the 21st Century 8

A Special Seminar  
The "Toyota Production System"—Imbued with Resourcefulness ①

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TOYODA AUTOMATIC LOOM WORKS, LTD.



Following the well attended 6th Osaka International Textile Machinery Show, I have assumed the post of Director of the Textile Machinery Division. In taking on this duty, I intend to provide the very finest textile machinery and services in the spirit of "The Customer is First."

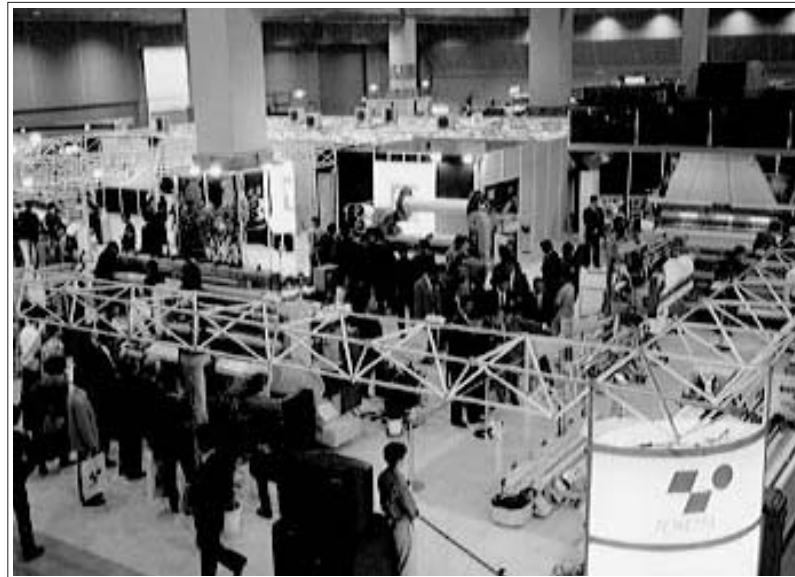
To foster a sense of ongoing trust and stability, Toyoda has made three resolutions with you, our customers, in mind. First, we commit ourselves to improving and maintaining product quality at world-class levels by applying the expertise and leading-edge technology gained over our 70 years of experience in manufacturing textile machinery. Next, so that all our customers may feel secure in their choice of Toyoda textile machinery, we are implementing a system to provide after-sales service and spare parts that is fully capable of meeting the most detailed customer requirements. Finally, to make the greatest possible contribution to the success of your business, we intend to make greater efforts to provide you with textile machinery that offers the very best in cost-performance advantages.

In addition, we are working to build solid trustful relationships with the dealers and trading companies that handle Toyoda textile machinery around the world, and are working to create an environment in which we can provide service and products that will match the needs of our customers for many years.

With these resolutions as our motto, we at Toyoda have committed ourselves to developing and manufacturing textile machinery for the future so that you can feel confident in making Toyoda your preferred choice. Our desire is to create a "win-win situation"—a partnership in which you and we both succeed.

We ask for your continued guidance and support in 1998.

**Tatsuhiro Matsuura**  
Managing Director and General Manager,  
Textile Machinery Division



Many customers visited Toyoda's booths throughout the event

The spectacular 6th Osaka International Textile Machinery Show—the 6th OTEMAS—was held for seven days from October 7th to the 13th, 1997 at the INTEX OSAKA exhibition grounds. This exhibition was the largest international textile machinery exhibition in Asia and rivals even ITMA in size and scope.

Despite predictions of a slump in the worldwide textile industry, this exhibition attracted over 235,000 visitors, far exceeding expectations. As an integrated textile machinery manufacturer with both spinning and weaving lines, Toyoda exhibited and demonstrated the latest textile machinery. These machines represent the pinnacle of product development designed to respond to the most exacting customer requirements. It offers improved productivity, greater versatility, significant labor savings, higher levels of automation, and is fully capable of meeting the demands of diversifying textile markets. Both our spinning machinery and weaving machinery booths extensively demonstrated Toyoda's state-of-the-art technology and were busy for the entire show.

In particular, visitors were attracted by the newly developed BR700 Rapier Loom, which made its public debut at OTEMAS, the RX240 Ring Spinning Frame boasting stable, high-speed operation at 23,000 rpm, and the JAT610 Air Jet Loom on which we demonstrated our Quick Style Change System that lets operators change the fabric in less than 20 minutes.

OTEMAS brought together the latest technology of 671 manufacturers from 23 countries. This impressive exhibition was indeed a great success.



INTEX OSAKA, the site of the 6th OTEMAS

## The 6th Osaka International Textile Machinery Show

# Toyoda products stand out among leading technologies from around the world

## WEAVING MACHINERY

In addition to the three new BR700 Rapier Looms which were shown to customers for the first time at OTEMAS, Toyoda also demonstrated seven highly reputed JAT610 Air Jet Looms.



JAT610 Air Jet Loom with QSC (Quick Style Change) System draws lots of attention

## A new rapier loom debuts

### ■ BR700

Developed by incorporating customer feedback, Toyoda's BR700 Rapier Loom unveiled at OTEMAS was the focus of attention at the show. It offers more weaving possibilities with no damage to the warp yarns thanks to its guideless weft insertion system. The BR700 weaves interior cloth with different types of weft yarn counts, including metallic gold and silver yarns and chenille yarns, as well as multicolored check suitings and high-twist filament fabrics. One typical comment was, "Overall, it has a much higher level of sophistication than I expected. I'm impressed with its compactness."

Visitors were especially impressed with its low-vibration operation without the need for foundation bolts thanks to the Perfect Balancer and a proprietary beating cam profile. These features dramatically decrease machine vibration, significantly improve the mill environment, and ensure that all components last longer. Many customers were impressed with Toyoda's technological developments saying that the BR700 offers new possibilities and choices in rapier looms—a field in which Europe has had the edge up to now—and that they look forward to its availability in the market.

Toyoda is determined to offer rapier looms designed to meet our customers' needs by making the most of the feedback and suggestions offered by visitors to OTEMAS.

## Even greater potential for air jet looms

### ■ JAT610

"These days air jet looms can weave a wide range of fabrics." This was the impression the customers who visited our weaving machinery booth had. We lined up seven JAT610s to weave a wide variety of fabrics including towels, stretch yarn fabrics, denim, voil curtain fabrics, double-width suitings and high value-added women's apparel fabrics. At the OTEMAS exhibition, all looms with the exception of the towel loom, were operated at high speeds with low vibration levels while resting



New BR700 Rapier Loom weaving suiting fabric

directly on the floor with no foundation bolts.

The ultra-wide double-width, 390-cm reed-space JAT610 featured dramatically reduced vibration, and wove high-quality suitings at high speeds. In addition, the JAT610 wove high-demand

stretch yarn fabrics for outer wear with surprising productivity at ultra-high speeds of 1,600 rpm, while the heavy-denim model ran at more than 1,000 rpm. Together, this JAT610 lineup offered a convincing demonstration of the higher productivity and expanded fabric ranges offered by Toyoda air jet looms.

## QSC (Quick Style Change) demonstration well attended

QSC (Quick Style Change) systems were shown by many textile machinery manufacturers, including Toyoda, at ITMA '95 in Milan, Italy. At OTEMAS, Toyoda showed the practicality and ease of operation of its QSC with a demonstration of a style change to a totally different density, yarn count and construction in as little as 20 minutes. Our 16-frame electronic shedding motion can change fabric construction and tappet cam dwell angles in an instant. These features will help our customers respond quickly to diversifying market needs.

## On-Loom Cloth Inspection System fosters labor savings

At OTEMAS, we demonstrated our On-Loom Cloth Inspection System on a high-speed air jet loom weaving denim. Customers to the Toyoda booth watched as this system detected warp yarn misdrawing on air jet loom units and sensed defects instantly during weaving. Ever in pursuit of greater cost-performance, Toyoda has adopted a wide range of automated features. We continue introducing new features and devices that have the potential to provide you with real production advantages.

**OTEMAS Review**

**SPINNING MACHINERY**

Toyoda's diverse lineup, from drawing frames and combers to roving frames and ring spinning frames, was on display at the spinning machinery booth. The exhibit emphasized Toyoda's deep commitment to product development across a wide range of fields, as evidenced by the  $\alpha$ 100 Weighting Arm which is designed specifically for ring spinning frames, a monorail-based cop transfer, and more.



RXW240 Longstaple Ring Spinning Frame



RX240 Ring Spinning Frame

**Superior performance with stable, high-speed operation**

**■ RX240**

The RX240 Ring Spinning Frame equipped with our proprietary  $\alpha$ 100 Weighting Arm, which was introduced in April 1997, spins high-quality Ne. 30 yarns at 23,000 rpm. The demonstration at OTEMAS showed the machine's stability under practical operating conditions and its ease of operation using the touch-screen panel. Favorable comments included "There are few mechanical components that require maintenance, and it's easy to use". Many visitors enthusiastically watched a demonstration of the high-speed Automatic Stationary Cop Doffer (SCD), which simultaneously and automatically exchanges all full bobbins for empty ones in just 1 minute 45 seconds. The Toyoda Automatic Bobbin Changer (TBC), which uses a sub-conveyor system, also got favorable reviews for its compact design and practicality.

**■ RXW240**

The RXW240 was the only longstaple ring spinning frame demonstrated and exhibited at OTEMAS. The RXW240 was equipped with the optional Electrodraft™ System, which allows the operator to change the draft ratio and twist without swapping change gears. Visitors were interested in the machines' ability to handle small-batch, custom-tailored production, a particularly important issue in long-staple spinning.

**Advanced mechanisms with an emphasis on quality**

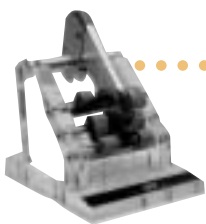
**■ FL100**

The FL100 Roving Frame is highly appreciated for its leading-edge microprocessor motor drive controls and sophisticated mechanisms that eliminate the use of cone drums. Toyoda introduced an improved presser design for the flyer and many attendees were attracted by the FL100's advanced, leading-edge features. The demonstration of high-speed operation at speeds up to 1,500 rpm showed Toyoda's unrivaled technology and expertise in this field.

**High-quality sliver at high-quality operation**

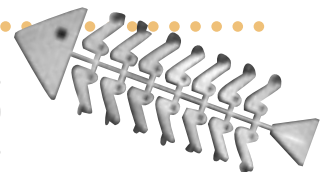
**■ CM110A (VC5), DT110A (DX7A)**

The new CM110A (VC5) Comber and DT110A (DX7A) Drawing Frame, co-exhibited with Hara Shokki Seisakusho, Ltd., showed capabilities for high-speed, high-quality operation. A demonstration of the CAP (Cherry Auto-lap Piecer), which automatically supplies feed lap, showed the advanced technology of Toyoda's comber.



**The unique display of the  $\alpha$ 100**

In production since the spring of 1997, the  $\alpha$ 100 Weighting Arm for ring spinning frames has already received many highly favorable reviews from customers. At OTEMAS,  $\alpha$ 100 Weighting Arms were equipped to RX240 Ring Spinning Frames, and showcased in various unique displays.



**P R E S E N T Brochures for Machinery Shown at OTEMAS!**

If you would like more information about our products exhibited at OTEMAS, please send your name, company name, address, and the title of the brochures you would like to receive to the address below.

**Send your brochure requests to:**

Toyoda Automatic Loom Works, Ltd.  
Attn: Noriko Tokai, Sales Department  
Textile Machinery Division  
2-1, Toyoda-cho, Kariya-shi, Aichi 448-8671 JAPAN  
Tel: 0566-27-5310 Fax: 0566-27-5307  
E-mail: bulletin@temac.toyota-shokki.co.jp

**Catalogs in a Variety of Languages**

- General catalog of Toyoda Textile Machinery (Japanese, English, Traditional Chinese)
- JAT610 Air Jet Loom (Japanese, English, Traditional Chinese, Simplified Chinese, Korean, Indonesian, Russian, Turkish)
- BR700 Rapier Loom (Japanese, English, Traditional Chinese, Indonesian, Turkish)
- RX240 Ring Spinning Frame (Japanese, English, Spanish, Turkish)
- RXW240 Longstaple Ring Spinning Frame (English)
- FL100 Roving Frame (Japanese, English, Spanish, Turkish)
- DT110A/DX7A Drawing Frame (Japanese, English)
- CM110A/VC5 (Japanese, English)
- Toyoda-Kawamoto Sizer and Weaving Preparatory Machinery (Japanese, English)
- $\alpha$ 100 Weighting Arm for the RX240 Ring Spinning Frame (English)

**OTEMAS Towel Offer!**

Toyoda would like to send you a free sports towel woven on the JAT610 Air Jet Loom at OTEMAS. To receive your towel, please fill out and return the questionnaire inserted into this issue of the Bulletin. Please be sure to fill in your name, company name and address and send then to the same address above.

Note: These OTEMAS towels are limited in number and when the supply runs out, we regret that this offer must end.





## TOYODA-KAWAMOTO opens up a new era in weaving preparatory machinery

As many of you have already heard, in July of 1997, Toyoda Automatic Loom Works, Ltd., entered the market for weaving preparatory machinery with the acquisition of Kawamoto System Corporation, a distinguished company with a long history in this area. Our intent is to strengthen and expand our weaving machinery business by absorbing the know-how and expertise of Kawamoto in the sizing field. We will be focusing even more closely on the needs of our customers, and commit ourselves to provide integrated products, services and know-how—from sizing to weaving.

Products of the new Kawamoto will be distributed under the TOYODA-KAWAMOTO brand name. Toyoda will be

providing comprehensive support in every possible aspect of product development, manufacturing and marketing. We have already received many inquiries and orders for the products of the newly reborn Kawamoto. Our main production facility in Kasugai, Aichi Prefecture is busily operating day and night to fulfill the orders. We will also be expanding Kawamoto's market outside of Japan, the primary market up to now, to include China and East Asia, and countries in the Near and Middle East such as Turkey. We would like as many new customers as possible to become familiar with TOYODA-KAWAMOTO products.

Tradition has it that Sakichi Toyoda, our founder, in developing the automatic loom, saw the need for a high-quality warp beam to improve the efficiency of his weaving machines. Being presented with this request to manufacture superior preparatory machinery offering high reliability is cited as the reason why Mr. Manzo Kawamoto, the first president of Kawamoto System Corporation, founded his company.

Now, Toyoda and Kawamoto are once again destined to do business together. By joining our efforts, we will deliver products and services of the highest quality and reliability to our customers in the future.



Filamaster Express, the first TOYODA-KAWAMOTO high-speed sizer for filament yarns

## A kick-off with a new resolution

November 7th, 1997, saw the first machine from the newly reborn Kawamoto to roll off the production line. All executives and employees of Kawamoto System Corporation attended the opening ceremony at Kawamoto's headquarters in Kasugai. The opening remarks from President Takeuchi (Managing Director of Toyoda Automatic Loom Works, Ltd.) expressed appreciation for the fact that employees of both Toyoda and Kawamoto, working together as one body, were able to make this first machine to come off the production line a reality. Mr. Takeuchi also gave words of encouragement to take production even higher. After the ribbon cutting ceremony, a festive gathering was held in a friendly atmosphere, and the day became one that both companies would long remember.



Ribbon cutting ceremony in front of the first TOYODA-KAWAMOTO sizer



## TOYODA-KAWAMOTO Product Lineup



### Mackee Eagle

- A total sizer for spun yarn with a double size box and a 4-sheet divided drying system. The originally designed EP Roller (Equal Pressure Roller) gives consistent, high-quality sizing, while saving size and consuming less electricity.
- The sizing and drying sections are just above floor level, making operation and maintenance easy.
- Warp yarn quality is improved thanks to the automatic continuous fly and size sediment removing device.

### Mackee Warper

- This machine not only offers high-speed warping, but with performance extras such as gentle winding onto the dye beam, customers get a wide variety of uses.
- The proprietary preset speed control device keeps warping speed at an optimum level for any specific material, eliminating yarn breakage and improving quality and productivity.



### Filamaster Express 610

- A high-speed single end sizer for spun yarn with dual continuous drying chambers and 6-sheet divided drying system. The world's highest machine speed ensures greater productivity. There is also the standard 400 type which offers high quality and productivity.
- The original EP Roller (Equal Pressure Roller) gives custom sizing and high-speed operation while consuming less electricity.
- By applying the optimal temperature and air volume to the yarn, uniformly dried, high-quality warp yarn is produced.

### Filamaster Escort

- A total sizer for filament yarn. High quality and high productivity are ensured thanks to the patented total sizing and drying system which winds warp yarn directly to the loom beam.
- The proprietary EP Roller (Equal Pressure Roller) gives optimum, uniform sizing for even high-density filament.
- Superb sizing efficiency offers quality sizing while saving electricity.
- In the highly-efficient drying chamber, hot air is blown from above and below the yarn sheets. Up to 32-sheet divided drying is available for greater productivity.



## CUSTOMER SUPPORT & SERVICE

### A Look at Toyota's Global Service Centers

– Part 1: Indonesia –

## Bandung Service Center

PT. Anugerah Texindotama Komplek Segitiga Mas Kosambi  
Blok C, No. 5, JL. Ahmad Yani No. 221/223  
Bandung 40113 Indonesia Tel/Fax: 62-22-727-6771

Toyota has established seven service centers around the world to quickly and efficiently respond to the needs of customers. A variety of services are provided, such as spare parts supply and after-sale service. This corner introduces each of the seven service centers in a series. In this issue, we would like to introduce the Bandung Service Center in Indonesia, which is in its 7th year of operation.

Indonesia is a country which consists of 13,525 islands of various size. The Bandung Service Center is located on Jawa Island which has more than half the total population (200 million) of Indonesia. More than 95% of Indonesia's textile-related plants are located on Jawa Island, and 60% of them

are centralized around Bandung. Toyota services more than 40 weaving companies and 60 spinning companies on Jawa Island alone. Toyota relocated its service center to the new site in Bandung in order to provide more substantial services to customers.



User Report

– Part 5 –

PT. Bintang Agung, Indonesia



An integrated textile company with about 3,500 employees, PT. Bintang Agung is aggressively expanding its business in spinning, weaving and apparel. It is located in Bandung, one of Indonesia's most prosperous textile industry cities.

Setting its motto to "Keeping the Top Quality", PT. Bintang Agung exports most of its products overseas, mainly to Europe. In 1997, PT. Bintang Agung installed one hundred sixty JAT610 Air Jet Looms for weaving sheeting (R/S336), ten RX240 Ring Spinning Frames, and three FL100 Roving Frames. We spoke with Sebastian Kunanda, PT. Bintang Agung's director who plays an important role in management.

Office building at PT. Bintang Agung



Mr. Sebastian Kunanda, Director of PT. Bintang Agung

**Interviewer:**

What do you think of Toyoda textile machinery?

**Mr. Kunanda:**

Put simply, it is easy to operate, offers high performance, and comes with good after-sales service. As for our Toyoda air jet looms, we were able to install them and be ready for full-scale production in

a surprisingly short time. Of course, their productivity, fabric quality and efficiency are clearly superior to our previous looms. Plus, because the computer makes the machines so easy to run, they are favorites of our operators. In terms of after-sales service, there is a service center in Bandung, so we can get rapid response, and we are extremely satisfied.

**Interviewer:**

What's in store for the future?

**Mr. Kunanda:**

We would like to aggressively expand our business with investment not in pursuit of volume, but of improved quality. Our plans are to gradually switch our existing shuttle looms and rapier looms over to air-jet looms. If we cannot produce

enough yarn, we intend to install even more spinning machinery to maintain consistent product quality.

**Interviewer:**

Do you have any requests for Toyoda?

**Mr. Kunanda:**

I would like to see continuing efforts to develop technologies to improve the quality of the products we manufacture. Plus, once installed, our machines must be used for long periods of time—10 or even 20 years. This means after-sales service becomes important. On this point, Toyoda is superb, but I would like to see you putting more energy into continuously improving your service to make it better than ever.



JAT 610 in operation inside the mill



Our Bandung Service Center operates with a staff of 10, including one service specialist posted from Japan, a two-member air jet loom service staff, a four-member spinning machinery service staff, and three office personnel. It provides after-sales service and installation guidance to our customers, as well as taking care of sales of spare parts for Toyoda textile machinery. The seven-member service staff is aggressively expanding its service activities by making regular visits to our customers' production facilities. Once a month, the service staff get together for a regular meeting.

"We're always close to our customers. If they call, we get there as soon as we can. We want to provide quality service." Today too, with tools in hand, our seven Indonesian staff members are going around to visit our customers' factories.

At the regular monthly meeting

**Spinning Machinery Service Staff Member**

**Mr. Nugraha**



I began working for Toyoda four years ago. At the beginning when I was studying installation under the supervision of the senior technicians, I sometimes made mistakes. I got annoyed at all my errors, but I soon learned my lessons. Now, I can install and service a ring spinning frame all by myself. From here, I intend to increase my technical proficiency so I can provide service that will satisfy my customers.



### The "Toyota Production System"—Imbued with Resourcefulness ①



Lectured by **Rikizo Naruse**

**Profile:** Joined Toyoda Automatic Loom Works, Ltd. in 1968. Constructed an innovative production control system based on concepts derived from the Toyota Production System for our Vehicle Division and Textile Machinery Division. Currently, General Manager of the Sales Planning Office of the Textile Machinery Division.

#### Introduction

I'm sure many of you have heard the words "Toyota Production System" or "kanban." In this series on the Toyota Production System I will talk about my own personal experience of putting this system into practice.

The first thing to understand is that "Toyota Production System" means "Toyota's way of production". You often hear stories like "We adopted the kanban system, but instead of our inventory decreasing, it increased," or "We tried production leveling and one-by-one flow, but our setup for production only increased and it led to a drop in efficiency". Why? This is because they forgot that this is "Toyota's way of doing things".

Toyota adjusts production to customers' orders on a monthly and daily basis. The production department sets the sequence of production for the day and reassigns orders by time slot, distributing the daily orders to individual machines ("production leveling"). At the manufacturing site, the

machinery, equipment and personnel have been arranged to achieve the most effective manufacturing. Workers closely follow "Standard operating charts", and fluctuations in planning and results are managed within finite limits based on quantity and product specifications. A breakdown of this system results in parts shortages and production line stoppages, so it is the job of managers and supervisors to prevent problems before they occur. By repeatedly applying the (P.D.C.A.\*) control cycle, the reliability of planning increases; and "kanban", "production leveling", and "one-by-one flow" bring down costs. An important point to make is that cooperative manufacturers must also work the same way.

It is important to identify the most effective individual system and the most effective overall system, and apply these according to your objectives. An individual system cannot achieve overall goals, nor can an overall system achieve individual goals. Remember to only use the Toyota Production System as a basic guideline for your business.

I often cite these words: "Shine the light of your creative power on the knowledge you gain by seeing and hearing, and you turn it into wisdom". It would be my pleasure if the Toyota Production System that I will introduce in this series proves beneficial to you.

\*P.D.C.A. = "Plan, Do, Check, Action"; repeatedly implementing this evaluation cycle leads to improvements in the situation.

#### The objective of the Toyota Production System

No matter what the company, the premise on which business is based is that you must make a profit. If there are no profits, a company will not be able to survive or grow. In addition, the company will never be able to fulfill its obligations to society. Naturally, the objective of the Toyota Production System is to ensure the ability to make a profit. So let's consider how we can make a profit.

#### Price and Cost

There are two formulas:

$$\text{Cost} + \text{Profit} = \text{Price}$$

A

$$\text{Price} - \text{Cost} = \text{Profit}$$

B

- A "determines the price by acknowledging the costs involved and adding a profit on top", and,
- B "considers the price to be determined by the market; profit is what remains as a result of subtracting costs".

Mathematically, the two formulas are identical, but their significance is completely different in Toyota's perspective.

#### Value and Price

Who determines the price: the company or the customer? Think about this. Would you pay a lot of money for something that had no value? Would you buy something priced beyond its value even though you recognize that it has value? I suspect not. In other words, being able to sell a product at a certain price is based on the idea that there is a balance between value and price in the eyes of the customer. If you merely determine price based on the costs involved, you destroy the balance between value and price and, before long, the product will not sell. For this reason, we adopt the idea that price is determined by the market, and make  $\text{Price} - \text{Cost} = \text{Profit}$  the starting point for all our activities. The Toyota Production System can be described as a method to decrease costs, an idea we firmly believe in. Thus, we can increase profit by maintaining value and lowering costs.



#### Cost varies from company to company

In the next issue, we'll consider the nature of cost.

#### From The Editor

Best wishes for 1998! Last year, Toyoda Automatic Loom Works, Ltd. worked hard on OTEMAS, an exhibition held once every four years. Thanks to your support and advice, our booths were bustling with visitors, and the show was a big success. We hope this year will be an even better one for you than last. We at Toyoda ask for your help and consideration in 1998 as we strive together to meet the challenges ahead.

#### About the Cover

*Hanetsuki*, the game of "battledore and shuttlecock", is the Japanese version of badminton, and is traditionally enjoyed by kimono-clad girls during the New Year holidays. In olden days, the battledore, or wooden paddle, was painted on one side. From about the 18th century, it was decorated with elaborately embossed pictures. Today, battledores are often used as decorative items displayed for good luck. The design on the battledore in the photograph is of the princess from *Dojo-ji*, a familiar title in *Noh* and *kabuki* drama.



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