JUSE

Societās Quālitātis

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UPON ENTERING THE NEW YEAR

Kohei Suzue
President, JUSE

Last year, Emperor Showa passed away at the beginning of the year, and in our world of quality control, three great pioneers also left us, one after another in April and May, and so in some ways, it was not a cheerful year. Nevertheless, JUSE was able to achieve its work basically in accordance with our its yearly plan, and in a number of aspects, we have been able to set a new record as well.

■ One is that the Deming Application Prize was awarded to a foreign corporation for the first time. Florida Power & Light Company of the United States is the company who was able to win this honor of being No. 1. Including this Florida Power & Light Company, there were altogether ten business enterprises that received Deming Application Prize for fiscal year 1989. This is the first time that as many as ten companies recieved a prize, just in one year.

JUSE's training courses also set a new record last year, after renewing the past record in 1988. The number of courses given increased to a total 295 courses, while the total number of participating trainess grew to 38,240. Moreover, QC Circle National Convention had took place for total 175 times with 4007 papers presented last year which are both the highest numbers in the past. It means that this convention is taken place once every two days at somewhere in Japan. the registered number of QC Circle at JUSE QC Circle headquarters has recorded 300,000 on December 15, 1989. Similarly, the number of visitors to JUSE from overseas increased again setting a new record of 1,250.

■ In the recent years, education and training regarding quality management (and quality control) has been carried out with enthusiasm in many countries overseas. In the past year or two, holding of courses that are specifically directed toward the top management has become particularly noticeable. And, so, an increasing number of requests have been forwarded to JUSE for cooperation in holding of such education and training for the top management people. For this year, in order to meet those requests, this type of course must be held at the rate of about one each month.

■ As for QC Circles overseas, Bangladesh has been added, so the total number of countries and areas where they are implemented now comes to 62. In addition to Japan's organs for providing cooperation and assistance overseas, international organizations are allocating funds in order to disseminate QC Circles actively in developing countries. More specifically, JUSE dispatched instructors to Algeria in cooperation with JICA and JETRO, to Cyprus in cooperation with ILO, and to Burkina Faso in cooperation with the World Bank. From these examples, too, we can see the high evaluation given to the value of QC Circles by these inter-nation third parties.

JUSE will be holding the International Convention for QC Circles (ICQCC '90) in Tokyo in October of this year. At last convention held in Tokyo, there were 570 participants from 28 countries, making it a very large and significant gathering. This year's gathering is expected to be even larger.

This year, JUSE will sponsor another international conference. It is the "International Symposium on Reliability and Maintainability." It is the world's first such international symposium to be held, and it will take place in Tokyo from June 5 to June 8. Already there is a program in which 114 papers from 11 countries will be presented.

■ When we look back on the history of quality management in Japan, we note that its development has taken big leaps precisely when Japan underwent a big economic crisis. Thus, we can state that major crises such as the oil crises and the "endaka" (the strong yen) crisis did much to promote TQC in Japan. and each time, (partly due to QC), the Japanese economy and industry have been able to overcome the crisis effectively. Thus, it is now a self-evident truth that quality improvement activity based upon team work with everyone's participation brings about vitalization and strengthening of the constitution of an organization, and promotes the development of the economy. Through the cooperation of all people who are aiming at better quality, we would like to work for the realization of world peace and welfare of the humankind, in the next ten years, with the 21st century as our target date.

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"Toward an Affluent Society With Good Quality and With Wholehearted Service."

Report: Upon Having Participated in the 5th Quality Control Conference for Service Industry

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Summary

On November 28 (Tuesday) and 29 (Wednesday) of last year, the 5th Service Industry Quality Control Conference under the sponsorship of the Union Japanese of Scientists and Engineers, Inc. (JUSE) was held at the Meiji Jingu Kaikan hall in Shibuya Ward, and at Nokyo building and Sankei Kaikan building in Otemachi, Chiyoda Ward, in Tokyo. A large number of participants, over 800 persons from 174 companies to be escast, took part; many lectures, various types of presentations, panel discussions, etc., were carried out in a lively way on a large scale. This presentation meeting, which began as an integral part of the Quality Control Month, now appears to have established itself solidly as a part of the service industry in Japan , which continues to grow at a steady pace.

The key themes for this year's Conference were: "Building an Affluent Society With Good Quality" and "Securing Quality is the Foundation of the Work Place," and they can be regarded as themes that can be applied to any area of service industry. Whether we take manufacturing fields or service fields, producing good quality is the way to make contribution to society, and it leads to prosperity on the part of the individual, business enterprises, and organizations. This recognition is becoming a common awareness among various countries in the world.

One of the characteristics of this year's Conference was that the number of presentations other than lecturers increased tremendously, and the total increased from 36 of last year to 57. For this reason, the number of halls used at the event was increased from 3 of last year to 6 halls this year.

Also, the variety of fields in service industry is extremely broad in range, and so in Table 1, I will list the number of presentations by type of industry or business this year, and compared them with the number of presentations by type of industry last year.

Examples of Promoting TQC

In terms of examples of promoting TQC this time, there were four cases: retail trade business (apparel goods, food products, etc.), retail business (automobile), service business (entertainment), and electrical power business. And each presentation had a solid content which was based upon the characteristics of each business. (See Table 2.)

The process of disseminating and developing quality control in service industry varies considerably from one company to another.

Table 1. Number of Presentations by Type of Industry or Business

Type of industry	Contents of presentation				T
	A	B	C	D	
Wholesale trade (trading companies), retail trade (department stores, supermarkets, etc.)	2(1)	2(2)	1(3)	14(9)	19(15)
Finance, insurance (banks, insurance companies)			(1)	3	3(1)
Inns (and hotels) and restaurants	(1)	(3)		8(4)	8(8)
Entertainment industry (golf courses, clubs, entertainment centers)	1	1(1)		6(4)	8(5)
Transport and communication industry (airline companies, telecommunications and telephone companies), power industry	1(2)	1	2(1)	5(1)	9(4)
Medical care industry (hospitals)			1	5(2)	6(2)
Other industries (building service, software industries, leasing business)			1	5(2)	6(2)
Total	4(4)	4(6)	4(6)	45(20)	57(36)

Note 1. The figures in parentheses refer to the number of presentations made at last year's meeting.
2. The service-related businesses are included in the category of "other services."

Table 2.

Presentation theme
Promotion of TQC Activity at Izumi — Pursuit of Consistency in Aim, Activity and Evaluation
Method of Promoting Policy Management at Chiba Nissan Motor Co.
TQC Activity at Joban Hawaiian Center
New Frontier Activity at Hokkaido Power Co.

"Tangible products" can be recognized by everyone, and it is relatively easy to make judgments of the quality of those products, and to understand the importance of the importance of quality, for both the supplier side and the purchasing side. Therefore, even when the activity develops into TQC, there is not much danger or worry that the awareness regarding the quality of the product that play the central role in the activity may become vague. And the process of developing into TQC does not very much from one company to another, either.

However, in the case of service industry, because the range in modes and patterns of business are wide, the extent (proportion) to which service can be grasped accurately as an "intangible merchandise" in the same way as "tangible merchandise" is not necessarily large.

As we can infer from the interpretation of the term "service" in the quality control terms under JIS, the foundation of quality control in service industry is to give a definition of service as a intangible product, and to carry out quality control over that product. As for TQC in service industry, it is not confined to service as a intangible product, but may well include tangible merchandise, that is, we can take it to include work or business activity in a broad sense of that term.

However, we must never mix all of these things in a vague way; in particular, when we carry out quality assurance, we must clearly (distinguish) the tangible and intangible merchandise that we provide to customers, on one hand, and their quality, on the other.

With regard to tangible products, we need to merely apply the general concepts of quality control. However in the service industry, there are many cases where tangible and intangible products exist together as one, and so, if there were some indexes that show the relative size of the ingredients in the mix, then, that would be most convenient. More recently, the quality of (intangible) service is often differentiated into function and feelings, and the proportion of each ingredients is discussed. So, one possible method is to classify the proportion of tangible products in what is provided to the customer under a term such as the "tangible product rate."

Our of the cases that were presented at this conference, this tangible product rate was relatively high in the retail trade, but quite low in the entertainment industry. Needless to say, the tangible product rate.

Examples of Improvement Activity on the Part of Managers and Staff

Four examples of improvement activity by managers and staff were given: cases in the entertainment industry, retail trade (a shopping center), communications industry and retail trade ()apparel goods, food products, etc.). (See Table 3.)

In the present situation, the quality control activity in the service industry takes the form of QC circles developing first (because of the character of the service industry), and this type of activity is achieving certain results. However, in comparison with quality control for industrial products, there were a considerable number of persons who felt that something was missing in quality control for the service industry.

Notwithstanding this situation, in all the cases that were presented this time, the content was really solid, and the approach and techniques of quality control were made effective use of in the course of day-to-day work.

Joban Hawaiian Center's presentation "Improvement

Table 3.

Presentation theme
Improvement of Customers' Degree of Satisfaction due to Reduction in Malfunctioning of Game Machines
Remodeling of the Sago Shopping Center through making Use of Quality Control Functions
Improving Handling of Inquiries — Let us Eliminate Omissions in Handling Over Forms
On Suggestion Activity at the Stores

of customers' degree of satisfaction due to reduction in malfunctioning of game machines" dealt with the development of maintenance techniques based upon reliability data for game machines, and this example can be expected to have some application for other service industries. Also, Takasago Kanko Ltd.'s "Remodeling of the Sago Shopping Center through making use of quality control functions" is an excellent example where the approach of quality control was applied in the project to strengthen the company's managerial fiber and character by upgrading quality through remodelling.

The QC stories involved can be used not just for QC circles, but the flow involved in these examples can be used for all types of supervisory and work place activity. Thus, whether a person is a worker on site, manager, or staff, when he or she is confronted with the need to make improvement activity, he or she can sort things out based upon a QC type of thinking and activity methods, and take up the challenge of making improvements at the work piece.

Case Report of Promoting QC Circle Activity

There were four cases of promoting QC Circle activity that were presented at this meeting: transportation business (JR West), service industry (a hospital), retail trade (a department store), and communications industry (NTT). Because there were many problems at the old Japanese National Railways (JNR), the developments at JR West are worth looking at first.

Needless to say, JR occupies a very important position

as a major transportation organ, within the overall service industry sector. After it was reconstituted as JR, there was a strong request for the renovation of its constitution and character. Thus, it was quite wise for JR to have introduced QC Circle activity rather quickly. This move was taken not only at JR West, but throughout all the JR's, and as a concerned person, I would like to welcome this development very much.

According to the presentation, there were problems such as a low level of participation in QC Circle activity, (difficulties on the part of) operators in selecting the theme for QC Circle activity, and activity outside of the regular work hours, etc. Now, there are many advanced companies who have solved these problems already, and so we would like ask for effective exchanges of QC Circle activities and those who are implementing them.

With regard to the QC Circle activity at hospitals, there have already been a large number of presentations made. While it is rather difficult to get an accurate grasp of quality of service at hospitals, it is a business with which a large number of problem areas have been identified, and so there must be many areas where improvements can be made. There is not yet a solid system of quality established for hospitals, but were can say this much: The tangible products such as pharmaceutical products that are provided there are of course quite important, on one hand. On the other hand, out of various intangible good,s the functional and information aspects are both very important. So, much improvement can be made in the quality of human service through QC Circle activity.

There are a great deal of expectations and requests made in relation to QC Circle activity, gut the difficulties involved in starting a new QC Circle is not so different from before. However, a large number of the top management people have come to know about QC Circle activity, at least on a conceptual level, in the recent years, and so, as far as the starting QC Circle activity, and defining its position within the overall business management, etc., are concerned, the situation has advanced considerably from before, it may be inferred.

The question of whether the best initial entry into this field of quality control is made through TQC or through QC Circle activity is often made a matter of debate.

Table 4.

Presentation theme
Introduction and Promotion of QC Circle Activity in JR West-Japan Railway Company, Kameyama Train Operation Depot.
Introduction and Changes of QC Circle at the Hospital
Introduction and Promotion of QC Circle Activity at Yamagataya
Introduction and Promotion of "Ask" Activity at Nippon Telegraph and Telephone Corporation (NTT)

However, it appears that it has become a common sense understanding that unless the top management has a good understanding, and actively "wave the banner" for the movement, no progress can be made for QC Circle activity.

From this standpoint, we would like to make a note of the fact that in introducing and promoting QC Circle activity both at Yamagataya and NTT, there was a solid definition of the importance of it within the overall business, as well as a firm support rendered by the management.

Case Reports of Problem Solving by Heading

Cases of QC circles this year reached as many has 45 altogether , which was twice the total last year, and this may serve as one evidence for the development of QC circle activity in service industry.

No matter what the definition of quality in the service industry may be, there are many improvement items that directly relate to the workers on the frontline. In particular, the frontline employees are the main actors in person-to-person service, and so, in many cases, their attitude and expertise determine whether or not the service in question overall is good or not., In this sense, it really stands to reason that QC circle activity has become a vital focus of attention in the service industry overall, even more 11/12 than in manufacturing industries generally.

The fact that as many as 14 out of the total of 45 cases presented this time were from the retail trad is due to a number of reasons: There are many people who work at department stores and supermarkets; and in the retail trade, the good or bad aspects of the activity of the workers on the frontline is directly reflected in customers; and so, even small improvements in behavior of the employees show up in improvements of the quality of service. Moreover, judging from the fact that all the presentations followed the basics of the QC story, and were drawn up effectively, indicates not only that the QC circle members develop one another, but also that guidance and training by superiors is carried out appropriately. We can infer with some confidence that all the workshops involved are filled with liveliness and energy among the staff members.

That there were as many as eight presentations were given by people in the hotel and restaurant industry (which, incidentally, fall in the category of the retail trade in terms of the commonly accepted industry classification) is probably due to similar reasons as those discussed above. It should also be noted that there were six presentations by golf clubs and entertainment centers, and five cases presented by people who work at hospitals.

The transport industry, communications industry,a nd the power industry each belong to a different industry classification; they are typical service industries in that the good or bad of their functional performance is evaluated,

and along with that, the good or bad of the person-to-person response and interaction in each is evaluated. In that sense, they are major industry and trade types for promoting quality control in the service industry, and as such, I would like to see even a greater involvement and participation from these industries in this (annual) presentation meeting. In particular, as the process of aging of the Japanese society proceeds, the level of concern in hospitals for QC circle activity is most likely to become stronger, more and more.

Panel Discussion

Up to now, most of the problems brought up to the "Consultation Office" for quality control activity had to do with the management and running of QC circle activity. This time, however, the question was pushed one step further, and the presenters talked about how to promote quality control, and how to develop this type of activity to the level of TQC. The discussion meeting unfolded in a lively way along the following four topics:

(1) Is QC circles sufficient in the service industry?

While QC circle activity is an integral link in the company-wide total quality control (TQC), but it is widely agreed that quality control activity must not stay there, but must develop to become a mod of management called quality control. At Kyoto Kintetsu Department Store, it was explained that TQC was being pushed forward in activities with the three pillars of policy management, daily management, and QC circle activity.

QC circle activity is not undertaken simply because it is easy to undertake; for if a company tackles with quality control activity based upon its definition of quality in its business activity, and upon an adequate definition of the role of the top management and other management-level staff, then, the quality control activities themselves will become vitalized, and the development to the level of TQC becomes feasible. This was the gist of the views presented.

(2) Problems in Moving Onto TQC

In the service industry, the terminology of quality control has not penetrated company-wide as penetrating as in the manufacturing industry, and so it is not that easy to implement TQC (quality control) throughout the company overall. If it is at the level that people do not understand quality control well, but they can understand the "QC circle activity" in an experiential way, then, it is difficult to develop quality control in a company-wide manner. Thus, problems in moving to TQC lie, in the final analysis, in the lack of adequate and thoroughgoing understanding of the true meaning of "quality control" on a company-wide level.

Quality control is one method of management, and so, unless the company's top management has firm ideal regarding the company's own quality, it cannot make the shift to the level of TQC. However, at the present time, if we take a look at the service industries that manages to achieve a high level of customer satisfaction, and have a smooth management, without putting forth the signboard of TQC in terms of form, then, such companies are actually fulfilling a considerable portion of the necessary conditions of TQC. So, we need to reexamine this actual state, and to tackle with quality control on that basis.

(3) What Is TQC in the Service Industry?

The foundation of TQC in the service industry is accurate grasp of the quality demanded by customers, and assurance of definite quality standards to customers. For example, it was introduced that at a department store company, the requisite quality standards were formulated as "product line up," "work place environment," and "customer reception and service," and the quality control activities re being carried out based upon these to assure quality. Then, too, there was a view pointing out that while the method of carrying out opinion survey is often carried out to check on the custom satisfaction level, it is vital to be extremely careful about the degree of reliability of such surveys when they are implemented.

In the service industry, even the term "quality control" itself has not penetrated that much; and so, when we bring out the concept of "quality assurance" into such a situation, in many cases, it will not be understood, and it may even be kept at a distance.

So, we would like take up quality control in a steady and solid way while appreciating fully the truth that "Quality assurance is the very essence of quality control," and the service industry is not an exception.

(4) Where should we start in taking up TQC?

There was not enough time at the meeting to examine and discuss this question. But it is clear that we should not be too self-conscious about the special characteristics of the service industry. If we are to list the key elements, they are as follows, and they are not that different from those in other industries.

(1) The firm determination of the top management to carry it out.
(2) Establishing a powerful secretariat to promote it effectively.
(3) Creating arenas and opportunities for thinking about quality as well as about quality control.
(4) To create the supportive soil and ground for promoting quality control through education and training.

In not a few instances, the term TQC begins to walk on its own, so to speak, and creates confusion within the company. So, before we start talking about TQC, we should get back to the foundation and starting point of quality control, review of quality control has penetrated company-wide, and that the basic understanding of the management (about TQC) has been developed to a certain degree. Only upon this foundation, should we start talking about TQC. Any effort to tackle with TQC before these necessary conditions have been prepared is bound to entail extreme risks.

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JUSE EDUCATION & TRAINING COURSES 1990

QUALITY CONTROL

QC Top Management Course (5 days)
Karuizawa: July (2), Sept. (2), Oct. (1)
QC Executive Course (5 days)
Hakone: Apr. (1), May (1), June (1), Oct. (1), Dec. (1), Mar. (1)
QC Introductory Course for Executive & Management (3 days)
Osaka: Apr. (1), Mar. (1),
Tokyo: Aug. (1), Jan. (1)
QC Middle Management Course (12 days)
Tokyo: Apr. (2), Aug. (1), Sept. (1), Oct. (1), Nov. (2), May (2), Jun. (2), July (2), Dec. (1), Jan. (2), Feb. (2), Mar. (2)
Osaka: Apr. (1), May (1), Jun. (1), Jul. (2), Aug. (1), Sept. (2), Oct. (2), Nov. (2), Dec. (1), Jan. (1), Feb. (1), Mar. (1)
Nagoya: Apr. (1), May (1), Jun. (1), Jul. (1)
QC Basic Course (30 days)
Tokyo: Apr. (2), Oct. (2), May (2), Jun. (2), Jul. (2), Aug. (2), Sept. (2), Nov. (2), Dec. (2), Jan. (2), Feb. (2), Mar. (2)
Osaka: Apr. (1), Oct. (2), May (2), Jun. (2), Jul. (2), Aug. (2), Sept. (2), Oct. (2), Nov. (2), Dec. (2), Jan. (2), Feb. (2), Mar. (2)
QC Introductory Course (8 days)
Tokyo: Apr. (1), Oct. (1), Nov. (1), May (1), Jun. (1), Jul. (1), Jan. (1), Feb. (1)
Osaka: Apr. (1), Oct. (1), Nov. (1), May (1), Jun. (1), Jul. (1)
QC Course for Sales Department (13 days)
Tokyo: Apr. (1)
QC Course for Purchasing Department (16 days)
Tokyo: Sept. (1)
QC Introductory Course for Purchasing Department (4 days)
Tokyo: Nov. (1)
QC Introductory Course for Sales Department (4 days)
Tokyo: Sept. (1), Nov. (1)
Osaka: May (1), Sept. (1), Fe.b (1)
TQC Instructor Course (6 days)
Tokyo: (1),
TQC Introductory Course for Service Industries (6 days)
Tokyo: Oct. (1), Nov. (1)
QC Course for GMP (Pharmaceutical) (5 days)
Tokyo: Apr. (1) (Introductory), Sept. (1), May (1) (Advanced)
Introductory Course for Seven Management Tools for QC (3 days)
Osaka: Apr. (1), Jun. (1), Nov. (1), Dec. (1), Feb. (1), Jan. (1)
Tokyo: Apr. (1), May (1), Jun. (1), Jul. (1), Sept. (1), Dec. (1)
Nagoya: Jul. (1), Sept. (1)
QC Basic Course for Foreman (6 days)
Tokyo: Apr. (2), May (2), Jun. (1), Jul. (1), Aug. (1), Sept. (1), Oct. (2), Nov. (2), Dec. (2), Jan. (1), Feb. (1), Mar. (2)
Osaka: Apr. (1), Jul. (1), Nov. (1), Feb. (1), May (1), Aug. (1)
Nagoya: May (1), Sept. (1), Jun. (1), Oct. (1)
Fukuoka: Jun. (1), Jul. (1)
QC Basic Course for Group Leaders (4 days)
Tokyo: Apr. (2), Jun. (2), Jul. (2), Sept. (2), Oct. (2), Nov. (1), Dec. (1), Jan. (1), Feb. (1)
Osaka: May (2), Jun. (1), Jan. (1), Feb. (1)
Fukuoka: Aug. (2), Sept. (1)
Nagoya: Sept. (1), Oct. (1)
OC Circle Top Management Course (2 days)
Nagoya: Sept. (1)
Osaka: Oct. (1)
Tokyo: Jul. (1)
QC Circle Instructor Course (2 days)
Tokyo: Apr. (1), May (1), Jun. (1), Jul. (1), Sept. (1), Oct. (1), Dec. (1), Jan. (1)
Osaka: Apr. (1), Jun. (1), Sept. (1), Dec. (1)
Sendai: Apr. (1)
Nagoya: Jun. (1), Oct. (1), Nov. (1)
Sapporo: Jun. (1)
Fukuoka: Sept. (1)
QC Circle Leader Course (3 days)
Osaka: Apr. (1), May (1), Jun. (1), Jul. (1), Sept. (1), Oct. (1), Jan. (1), Mar. (1), Dec. (1)
Tokyo: Apr. (3), May (3), Jun. (2), Jul. (2), Sept. (1), Aug. (1), Oct. (2), Nov. (2), Dec. (2), Feb. (2), Mar. (2), Jan. (2)
Nagoya: May (1), Aug. (1), Feb. (1)
Sendai: Jun. (1)
Sapporo: Aug. (1)
Kokura: Oct. (1)
Fukuoka: July (1)
Okinawa: Sept. (1)
QC Circle Course for Clerical Work (6 days)
Tokyo: Apr. (1), Oct. (1), May (1), Jun. (1), Jul. (1), Sept. (1)
Osaka: May (1), Jun. (1)
Nagoya: Jul. (2)
QC Correspondence Course (6 month)
Tokyo: Jul. (1), Feb. (1)

RELIABILITY ENGINEERING

RE Management Course (4 days)
Tokyo: Apr. (1), Aug. (1), Nov. (1)
RE Course (15 days)
Tokyo: May (1), Nov. (1), Apr. (1), Jun. (1), Oct. (1), Dec. (1)
RE Basic Course (4 days)
Tokyo: Apr. (1), Jun. (1), Aug. (1), Sept. (1), Oct. (1), Nov. (1), Jan. (1), Fet. (1), Mar. (1)
RE Course on FMEA-FTA
Tokyo: Apr. (1), May (2), Jun. (1), Sept. (1), Nov. (1), Jul. (1), Aug. (1), Feb. (1), Oct. (1)
Osaka: Aug. (2), Sept. (1), Jan. (1)
Hiroshima: Dec. (1)
RE Course on Design Review (2 or 3 days)
Tokyo: Apr. (1), May (1), Jun. (1), Oct. (1), (1), Feb. (1), Mar. (1)
Osaka: Jul. (1), Sept. (1), Jan. (1)
Hiroshima: Sept. (1)
RE Course on Test (3 days)
Tokyo: Oct. (1), Dec. (1), Jan. (1)
RE Six Day Course (6 days)
Osaka: Jul. (1), Aug. (1), Feb. (1), Mar. (1)
RE Course on Failure Analysis (3 days)
Tokyo: Apr. (1), Oct. (1), Jan. (1)
RE Course on Checklists (3 days)
Tokyo: Jul. (1), Dec. (1)
Osaka: Sept. (1)
Hiroshima: Jan. (1)

DESIGN OF EXPERIMENT

DE Basic Course (30 days)
Tokyo: Oct. (2), Nov. (1), Dec. (1), Jan. (1), Feb. (1), Mar. (1)
DE Osaka Course (20 days)
Osaka: May (1), Jun. (1), Jul. (1), Aug. (1)
DE Introductory Course (8 days)
Tokyo: Apr. (1), Jun. (1), Aug. (1), Sept. (1), Jan. (1), May (1), Jul. (1), Dec. (1), Feb. (1), Mar. (1)
Osaka: Sept. (1), Jan. (1), Oct. (1), Feb. (1)

MULTIVARIATE ANALYSIS

MA Seminar (3 days)
Osaka: Nov. (1), Dec. (1)
MA Basic Course (4 days)
Tokyo: Jul. (2), Mar. (1)
MA Advanced Course (3 days)
Tokyo: Aug. (1)

(NOTE) The number with parenthesis represent the number to be held.

ANNUAL CONFERENCES & SYMPOSIA AND INTERNATIONAL SEMINARS & CONVENTIONS

Feb. 22, 23	QC Circle Convention in Okinawa
Mar. 22	JSQC Symposium in Tokyo
Apr. 12, 13	QC Circle Convention in Tokyo
May 12	JSQC Technical Conference in Tokyo
30, 1	Symposium on Ergonomics and Human Factors in Tokyo
May 30, 31, Jun. 1	Quality Control Conference in Kokura (for Managers and Staffs)
5 to 8	International Symposium on Reliability and Maintainability, Tokyo
14, 15	QC Circle Convention in Kanazawa
Jul. 26, 27	QC Circle Convention in Sapporo
Sept. 4, 5	Sensory Inspection Symposium in Tokyo
6, 7	QC Circle Convention in Kagoshima
12, 14	Symposium on Quality Control of Software Production in Tokyo
27, 28	Quality Control Symposium for Service Industries in Tokyo
Oct. 16 to 22	International Seminar on TQC
23	International QC Circle Seminar
24 to 26	International Convention on QC Circle
27	JSQC Annual Conference in Tokyo
Oct. 31, Nov. 1	Quality Control Conference for Service Industries in Tokyo
1, 2	Symposium on Computational Mathematics in Tokyo
5	All Japan QC Circle Convention
6 to 8	Quality Control Conference for Foreman in Tokyo
12	Top Management Quality Control conference in Tokyo
	The Deming Prize Celebration in Tokyo
13 to 16	Quality Control Conference for Manager & Staff in Tokyo
Dec. 6, 7	QC Circle Convention in Matsuyama

Honshu-Shikoku Bridge(over Seto-Inland Sea)——Aerial view of Kojima—Sakaide route from Honshu side.

INTERNATIONAL SYMPOSIUM
ON
RELIABILITY AND MAINTAINABILITY
JUNE 5–8, 1990 TOKYO
"WORLD PROSPERITY THROUGH R & M"

Welcome

Papers presented: Total 114 papers – 41 from 11 countries and 73 from Japan

Language: Simultaneous interpretation of English and Japanese is provided in each Session.

Proceedings: All the papers presented are printed in the Proceedings in English.

Technical Visits: For participants from abroad technical visits are programmed on June 8th.

Social Program Optional Tour are also provided for the participants from abroad during and after the Symposium.

FEES

Welcome Cocktail		Free		
Symposium:	before March 1	¥45,000		
	after March 1	¥55,000		
	speaker	¥40,000		
Technical Visits	¥ 8,000			
Farewell Banquet	¥ 8,000			
Family Program		Adult	Child*	Junior**
A.	Tokyo Afternoon	¥ 3,910	¥ 3,090	
B.	Tour to Tokyo Disneyland	¥ 8,630	¥ 5,070	¥ 7,790
C.	Panoramic Tokyo	¥ 9,980	¥ 7,920	
D.	Nikko 1 Day	¥18,030	¥13,600	
E.	Kamakura, Hakone 1 Day	¥18,000	¥13,600	
F.	Kabuki Night (with Dinner)	¥12,970	¥10,000	
G.	Fascinating Night (with Dinner)	¥11,050	–	
*Child: 6～11 years, **Junior: 12～17 years				
Post Symposium Industrial Tour (Twin Occupancy)				¥260,000
	(Single Occupancy)			¥285,000

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