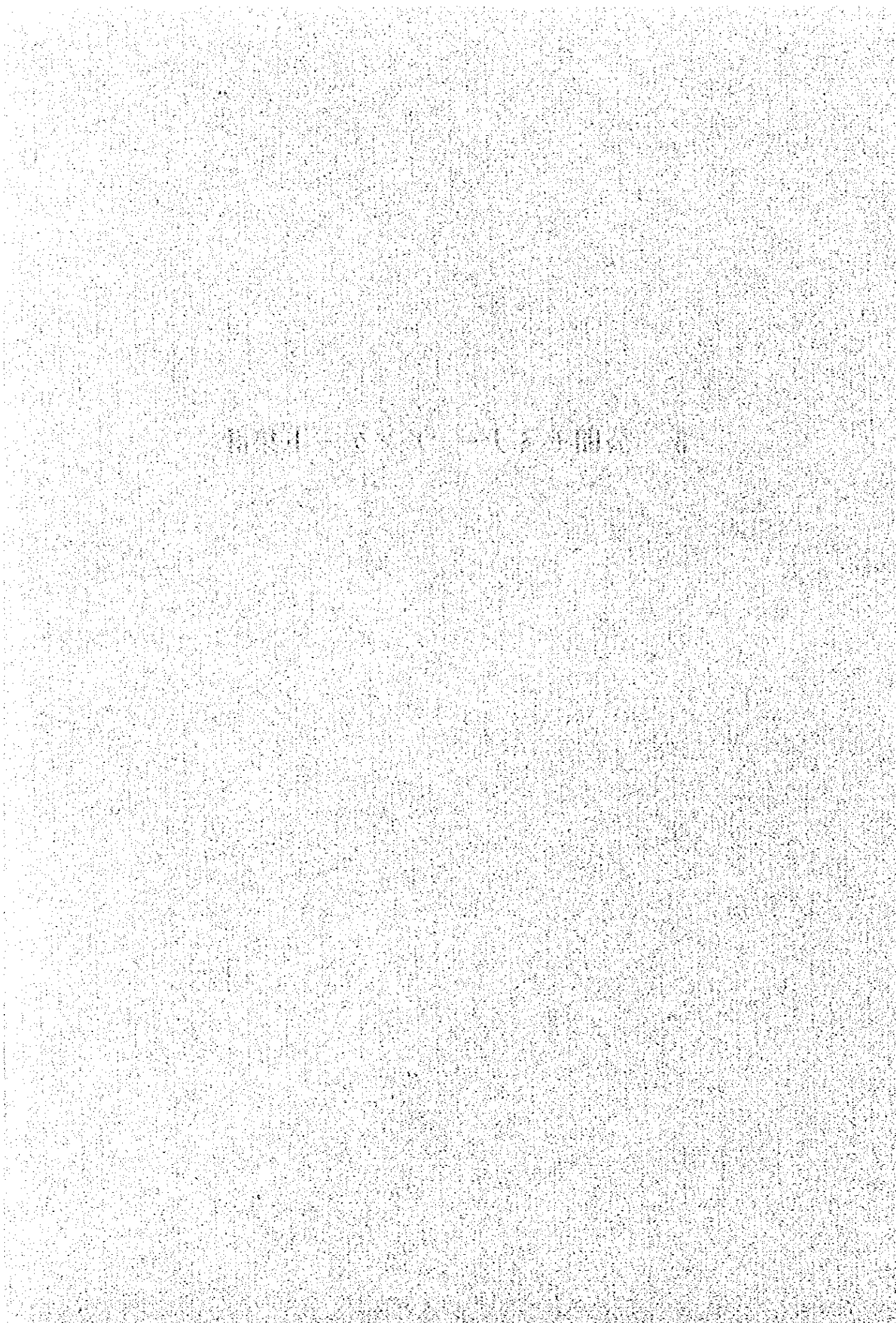


### 3. 公開セミナー アンケート集計



QUESTIONNAIRE for OPEN SEMINAR  
(チリ)

Name :

Your Organization :

Have you participated in JICA training courses ? :  Yes  No

In F.Y. \_\_\_\_\_  Certification Systems

Seminar on Industrial Standardization and Quality Control

Implementation of TQC and Standardization Activities II

We are grateful for your participation in this seminar. As we want to make use of your opinion for improvement of JICA open seminars in the future, please answer the following questions.

1. Please check and comment on today's open seminar.

- |                           |             |      |        |     |               |     |
|---------------------------|-------------|------|--------|-----|---------------|-----|
| • Materials               | sufficient  | : 9  | fair   | : 6 | insufficient  | : 2 |
| • Contents of the lecture | very useful | : 11 | useful | : 7 | useless       | : 0 |
| • Time allocation         | appropriate | : 15 | fair   | : 3 | inappropriate | : 0 |
| • Others                  |             |      |        |     |               |     |

- TQMハンドブックへの評価 (非常に役立つものである)。  
〃 の送付希望。
- Audio Visual Materialの勧め。

2. If you have any requests concerning similar seminars, please describe them.

- 消費者保護に関する基準法について
- Quality Auditing according to ISO 9000 Standards Series
- 今後とも継続して開催して欲しい。
- 試験所認定方法。

Thank you very much for your cooperation.

QUESTIONNAIRE for OPEN SEMINAR  
(ブラジリア)

Name :

Your Organization :

Have you participated in JICA training courses ? :  Yes  No

In F.Y. \_\_\_\_\_  Certification Systems

Seminar on Industrial Standardization and Quality Control

Implementation of TQC and Standardization Activities II

We are grateful for your participation in this seminar. As we want to make use of your opinion for improvement of JICA open seminars in the future, please answer the following questions.

1. Please check and comment on today's open seminar.

- |                           |             |     |        |     |               |     |
|---------------------------|-------------|-----|--------|-----|---------------|-----|
| • Materials               | sufficient  | : 7 | fair   | : 1 | insufficient  | : 0 |
| • Contents of the lecture | very useful | : 6 | useful | : 2 | useless       | : 0 |
| • Time allocation         | appropriate | : 6 | fair   | : 2 | inappropriate | : 3 |
| • Others                  |             |     |        |     |               |     |

- TQMハンドブックの完成時期を知りたい。  
 〃 の送付希望。

2. If you have any requests concerning similar seminars, please describe them.

Thank you very much for your cooperation.

QUESTIONNAIRE for OPEN SEMINAR  
( サン・パウロ )

Name :

Your Organization :

Have you participated in JICA training courses ? :  Yes  No

In F.Y. \_\_\_\_\_  Certification Systems

Seminar on Industrial Standardization and Quality Control

Implementation of TQC and Standardization Activities II

We are grateful for your participation in this seminar. As we want to make use of your opinion for improvement of JICA open seminars in the future, please answer the following questions.

1. Please check and comment on today's open seminar.

- |                           |             |       |        |       |               |     |
|---------------------------|-------------|-------|--------|-------|---------------|-----|
| • Materials               | sufficient  | : 2 9 | fair   | : 1 3 | insufficient  | : 0 |
| • Contents of the lecture | very useful | : 1 3 | useful | : 2 7 | useless       | : 0 |
| • Time allocation         | appropriate | : 2 7 | fair   | : 1 2 | inappropriate | : 3 |
| • Others                  |             |       |        |       |               |     |

- TQMハンドブックの完成時期を知りたい。
- の送付希望。
- マニュアルに日本企業が品質管理を導入して成功したケースの具体例を追加して欲しい。
- 講義が多く、時間が足りなかった。
- 半日ではなく、1日実施して欲しい。

2. If you have any requests concerning similar seminars, please describe them.

- JICAが今後ブラジルに対してどのような協力をしていくのか。
- 日本の認証制度。
- 日本の試験所における計測、計量制度。
- マネージャー、労働者に対して、品質管理の動機付けの方法。
- 品質管理のNew Tool。
- ISO14000,14040,14020,14030の紹介。

Thank you very much for your cooperation.



## 4. 公開技術セミナー配付資料

### (1) 標準化とその効果的な活用

THE UNIVERSITY OF CHICAGO  
LIBRARY





# Standardization

- for its most effective use -

October 1996

Akira Aoki

Standardization - for its most effective use -

Agenda

1. Standardization
2. Aims of standardization
3. Hierarchy of standardization
4. The Eighth Long-term Standardization Plan in Japan
5. International Standardization

## 1. Standardization

Activity of establishing, with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum degree of order in a given context.

### Notes:

1. In particular, the activity consists of the processes of formulating, issuing and implementing standards.
2. Important benefits of standardization are improvement of the suitability of products, process and services for their intended purpose, prevention of barriers to trade and facilitation of technological cooperation.

## 2. Aims of standardization

1. Simplification
2. Interchangeability
3. As a means for communication
4. Symbols and codes
5. Overall economy
6. Safety
7. Consumer interest
8. Community interest
9. Elimination of trade barriers

# HIERARCHY OF STANDARDIZATION

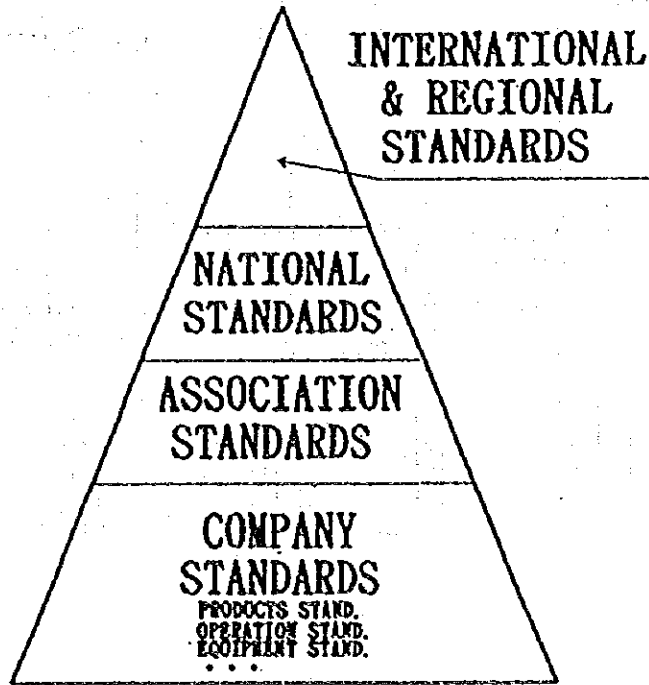


Fig. 1

## JIS as Voluntary National Standards

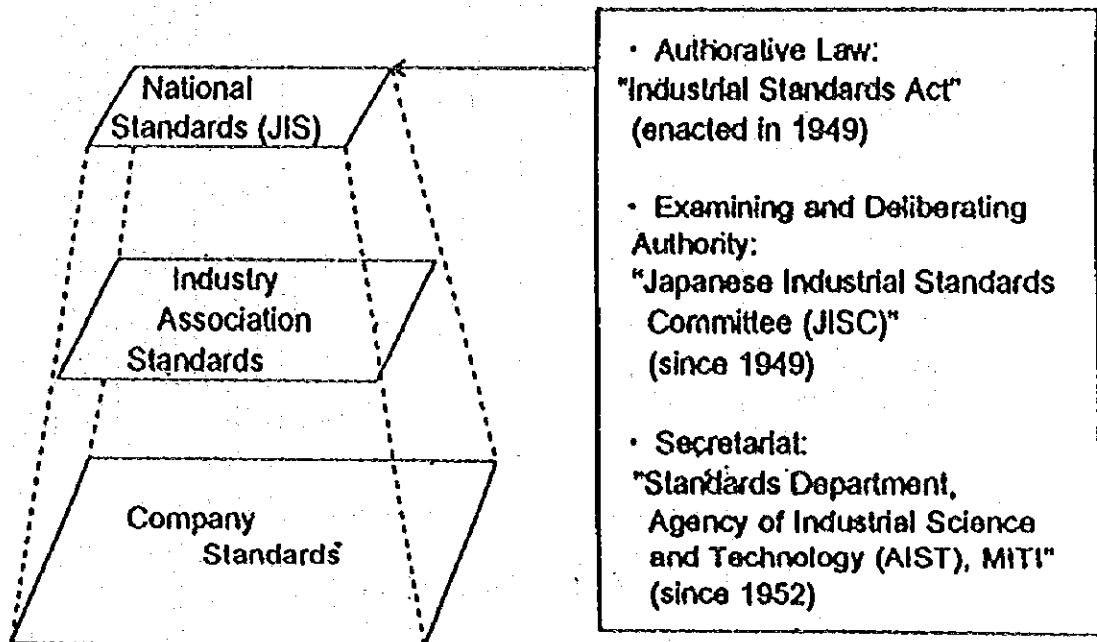


Fig. 2

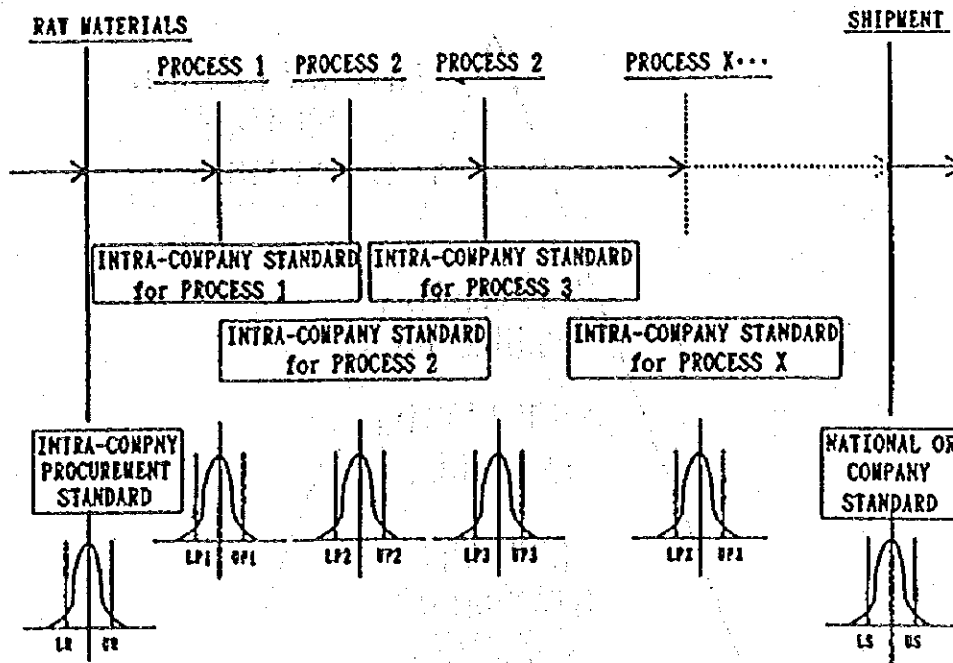


Fig. 3 Company Standardization

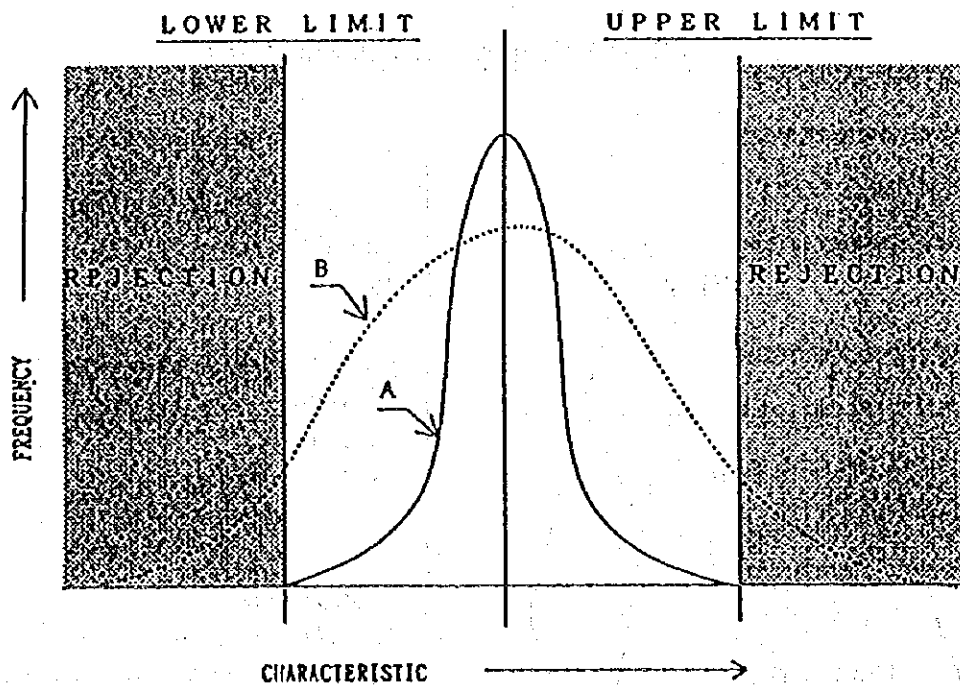


Fig. 4 Specified Values

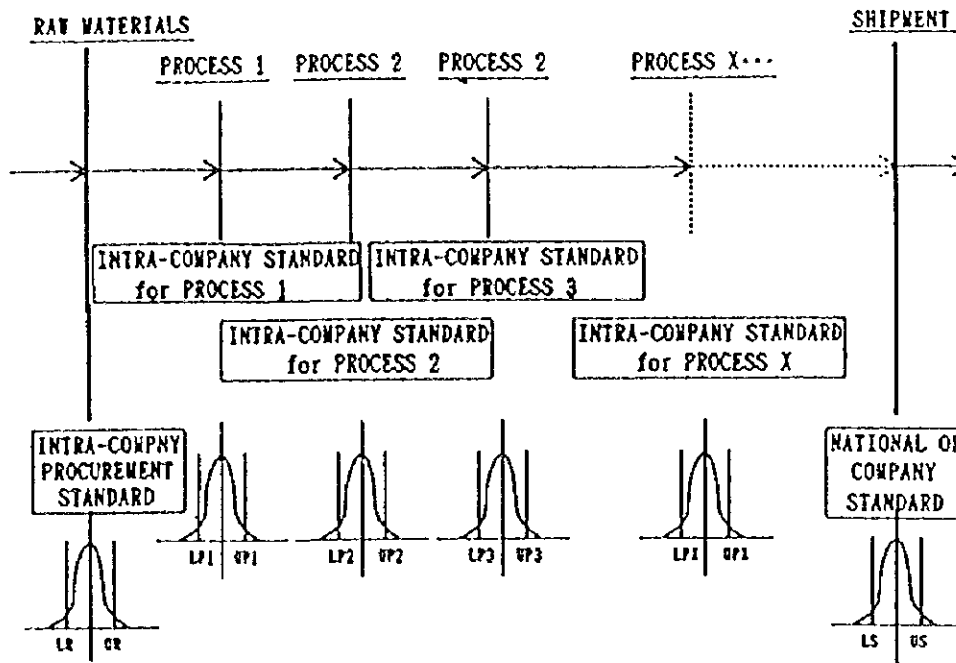


Fig. 3 Company Standardization

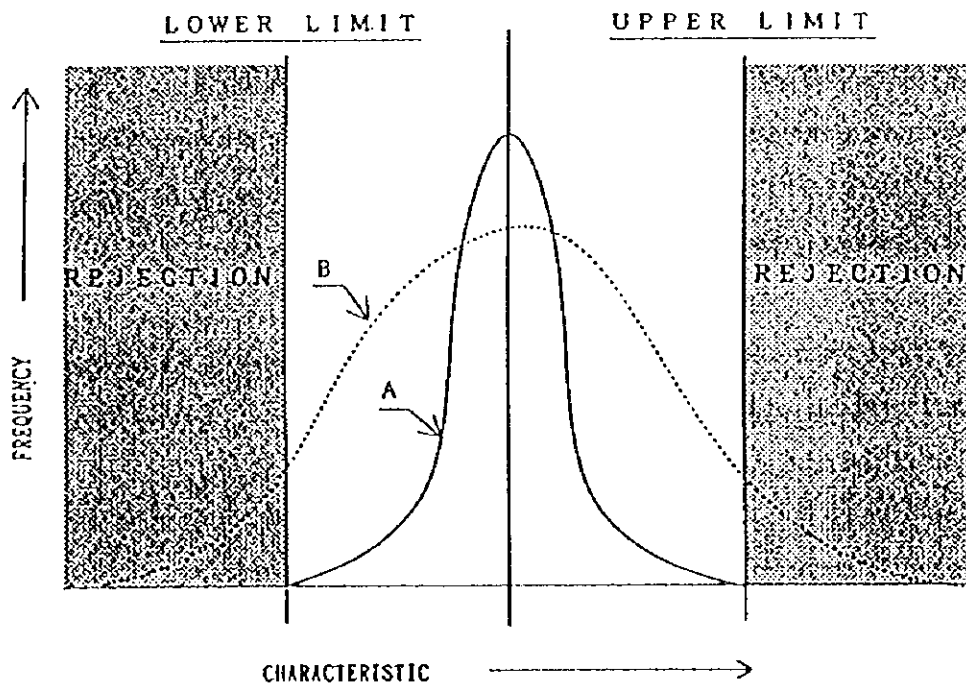


Fig. 4 Specified Values

## JIS and JIS marking system

### \* JIS (Japanese Industrial Standards)

JIS are voluntary national standards. JIS are established or revised based on an consensus of producers, consumers and related parties.

### \* JIS marking system

The JIS marking system is a voluntary certification system. Factories manufacturing products that satisfy JIS are approved to affix the JIS mark on their products if their company standards and practices of quality control are judged by the relevant minister to guarantee continuous production of products satisfying JIS.



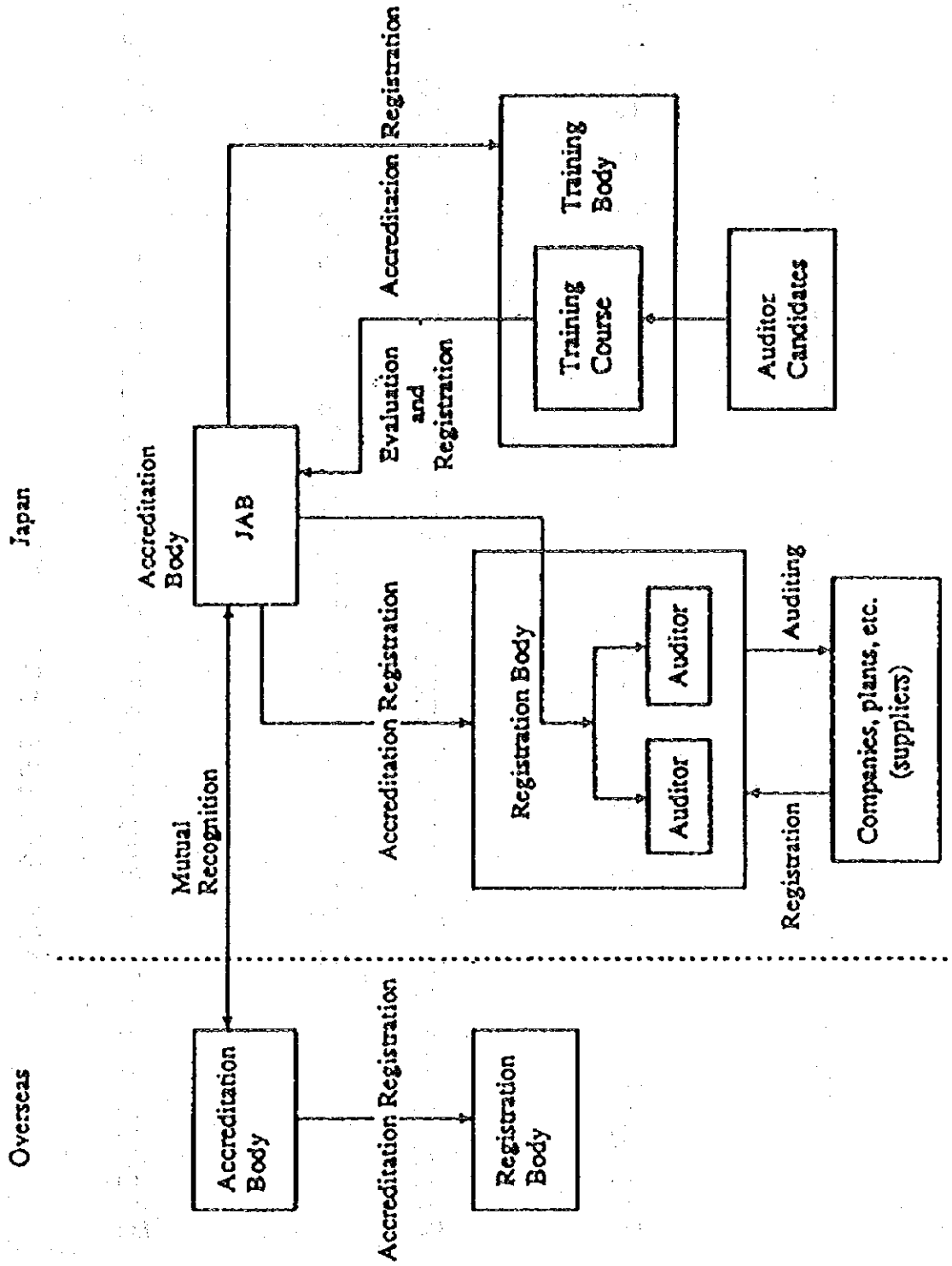
## Accreditation System in Japan

JAB (Japan Accreditation Board for Quality System Registration) was established as the accreditation body in Japan

\*JAB conducts the following activities:

- 1) Accreditation of quality system registration bodies
- 2) Accreditation of quality system auditor-training bodies
- 3) Evaluation of quality system auditors
- 4) Registration of accredited registration bodies, accredited auditor-training bodies, evaluated auditors, and assessed and registered firms
- 5) Preparation for and implementation of mutual recognition
- 6) Public relations and popularization
- 7) Other related matters

# Quality Systems and Registration Scheme and Functions of the Japan Accreditation Board (JAB)



The Eighth Long-term Standardization Plan in Japan

1. Promotion of Standardization Responding to Social Needs

2. Promotion of Standardization Responding to Fields with

Significant Technological Innovation

3. Promotion of Standardization Responding to the Development of \_

Borderless Economy

## 1. Promotion of standardization Responding to social Needs

### (1) Developing priority JIS

Consumer protection, welfare for the aged and environmental protection

### (2) Maximizing the information supply function of the JIS

"Use of recyclable materials" or "elderly-friendly"...

### (3) The accurate reflection of consumer needs

Good use of the Japanese Industrial Standards Center

## 2. Promotion of standardization Responding to Fields with

### Significant Technological innovation

(1) Providing standards-related information

Introduction of Technical Report system

(2) Converting private-sector standardization activities to JIS

Partial adoption of Private Sector Standards, Fast track

procedures...

(3) Linking research and development with public standardization

Close links need to be formed to develop standards in parallel

with research and development

3. Promotion of standardization Responding to the Development of Borderless Economy

(1) Actively participating in international standardization activities

More secretariates of international organizations, to gain the industry cooperation...

(2) Promoting alignment of JIS with international standards  
Three year project

(3) Developing internationally the JIS marking system  
Radical expansion of "Specific Inspection Bodies"

(4) Actively contributing to international cooperation in the Asia Pacific region

## International Standardization

### 1. ISO's long-range strategies 1996-1998

\* Speed-Efficiency-Flexibility-Openness and Doing more with less!

\* The five major strategic actions are to :

- 1) Increase ISO's market relevance
- 2) Decrease total system costs and time to market
- 3) Effectively promote the ISO system and its standards
- 4) Stimulate new self-sustaining programme elements
- 5) Upgrade national standards infrastructures in developing countries

## 2. Issues of interest

1. Standards for services
2. Standards for management systems
3. How to cope with consortia standards
4. Cooperation with other standardizing bodies  
IEC, CEN, WTO...
5. Fast development of ISO standards

.  
. .  
.





## (2) 技術移転のためのTQMハンドブック

# THE UNIVERSITY OF CHICAGO

TQM Handbook development

in

JAPAN

October/November 1996

Tadato ONITSUKA

Deputy Director  
International Standards Division  
Standards Department  
Ministry of International Trade and Industry

Tentative list on TQM Handbook

1. Chief Executive Officer (CEO)
2. Managers
3. Employees
4. Management by Policy
5. Standardization
6. Daily Management
7. QC Circle
8. Problem Solving
9. Statistical Methods
10. Safety Control
11. Process Control
12. Facilities Management
13. Measurement Control
14. Inspection

and Others

No.	Contents	Corresponding check sheet item
[1]	Companywide organization charts .....	1.1)
[2]	Companywide task criteria .....	1.2)
[3]	Clarification of responsibility and authority .....	1.3)
[4]	Documented clarification of internal communication routes .....	1.4)
[5]	Operational instructions and appointing a person in charge .....	1.5)
[6]	Communication and events to increase consciousness of quality .....	2.1)
[7]	Clear statements of quality policy to customers.....	2.2)
(8)	Procedure for deciding management policy .....	2.3)
[9]	Understanding customer needs .....	2.4)
[10]	Claim handling rules and clarification of the department in charge of handling claims .....	2.5)
[11]	Establishing long-term and annual policy and deploying this transport through out the company .....	3.1)
[12]	Allocation of quality education costs in the annual budget .....	3.2)

- [13] Establishing a company standardization system and maintaining a quality control promotion organization ..... 3.3)
- [14] Grasping the trend of customer claims, and confirming the effects of quality improvement ..... 3.4)
- [15] Understanding and encouraging QC Circle activity and proposal systems ..... 3.5)
- [16] Effective use of quality control manuals ..... 4.1)
- [17] Efficient use of the quality control system ..... 4.2)
- [18] Activating quality control activities in related departments ..... 4.3)
- [19] Planned implementation of quality control education at every level of the organization ..... 4.4)
- [20] Participation of managers in QC Circle meetings 4.5)
- [21] Implementing internal QC diagnosis by top management ..... 5.1)
- [22] Planning and implementing a long-term plan for human resource development, particularly for department and section managers ..... 5.2)

**[23] Planning and implementing long-term education program for subcontractors and affiliated companies ..... 5.3)**

**[24] Joint research and development of new products and new technologies in cooperation with universities and outside research organizations .....5.4)**

**[25] Planning and deployment of future program to reinforce international competitiveness .....5.5)**



[8] Procedure for deciding the management policy

Corresponding check sheet item 2.3)

1. Purpose

Specific procedures for determining management policy shall be documented. The management board shall clarify how it will participate in this determination. The opinions from all executives, rather than the decision of only one, should be made used in order to set management policy which makes the most of the opinions from all employees.

2. Definition

Management policy is the basic business policy of a company. It shall be is documented in official company documents. This policy is the foundation of the company's management and should be disclosed to all employees, customers, and affiliates at the beginning of every year. This company policy will form the basis for each department to determine their own concrete policy.

3. Contents

3-1) Procedures for setting management policy:

(1) Procedures for setting management policy shall be specified as in-house rules.

(2) The basic management policy shall indicate concrete guidelines for important items, such as sales, production, personnel administration, quality, and service.

(3) Numerical targets, measures to realize targets, and evaluation methods shall be indicated for each item.

(4) The minutes of executive board meetings shall be kept.

(5) The decisions of executive board meetings which relate to management policy shall be distributed to each department.

(6) The target and improvement methods for quality maintenance and improvement shall be clarified to each department.

3-2) Deploying department policy:

(1) A process for understanding management policy within each department is required.  
(2) A framework for establishing concrete policy in each department through committees, meetings, or other means, is required.

(3) How to harmonize department policy with company policy shall be studied and documented.

(4) The evaluation items and appropriate evaluation scales for each department shall be established.

(5) Management shall instruct each department to report its policy and approve it.

4.. Example

Refer to Figure 8.1

5. Other remarks

Coordination between departments is important.

6. Relation with ISO Series

3.1 Quality policy

7. Keywords

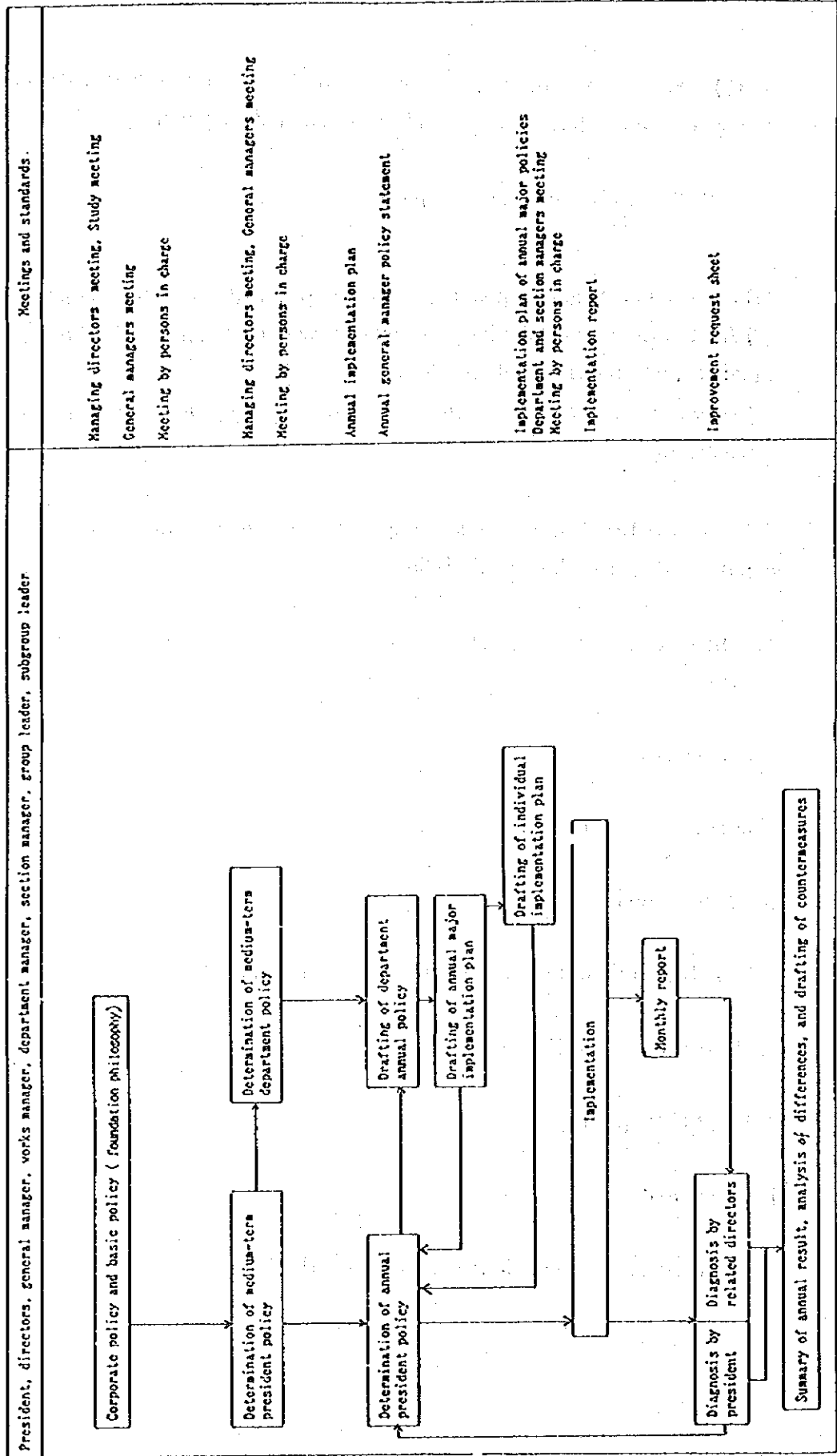
• Deployment to each department and reliable report

Figure 8.1 Company XX annual policy drafting procedure

△ Revised in April 1994

Established in April 1992

General affairs department manager ○ ○ ○ ○



## [2] Operation standard

Corresponding  
checksheet item

11.1.5)

11.2.1),2),3),4),5)

### 1. Purpose

An operation standard has three major functions. They are to 1) identify key points helping to prevent the occurrence of nonconforming products and production trouble, 2) improve operator efficiency, and 3) facilitate improving operations by stipulating just what the operations are.

### 2. Definition

A operation standard is a set of work instructions. From the perspective of process control, this standard is a document which stipulates work items and procedures to be taken to realize the required quality in an efficient a way as possible. These documents ensure that, even when operators differ, all operators will understanding the operations and procedures in the same way and be able to carry them out in the same way. These work instructions also covey the operation content to every level of the organization.

### 3. Content

3.1 The following items are usually described in the work instructions

- |   |  |
|---|--|
| (1) Scope   | (6) work procedures (including                     |
| (2) materials and parts                                 | operating procedure) and                           |
| (3) equipment, jig, tools, and<br>measuring instruments | cautionary remarks: check                          |
| (4) sequence of the manufacturing<br>process            | preliminary, preparatory work,<br>main operations, |
| (5) sketch of control panel                             | finishing operations, and<br>cautionary remarks    |

- |  |                                  |
|--|----------------------------------|
| (7) work condition (place/safety)              | (12) operators                   |
| (8) process inspection                         | (13) standard operation hours    |
| (9) actions to take when out of controls occur | (14) operation unit requirements |
| (10) operations report                         | (15) operation qualification     |
| (11) boundary sample                           | (16) related standards           |
|  | (17) other                       |

### 3.2 Matters requiring attention when drafting work instructions.

The following items must be kept in mind when drafting operation standards.

- (1) Instructions must be given in a way that ensures that, when followed, nonconforming products are not produced.
- (2) Implementation should be possible and easy.
- (3) Criteria for practical actions should be indicated.
- (4) The methods and criteria used to evaluate the resultant quality should be indicated.
- (5) The standard should be as simple as possible. Excessive documentation reduces productivity.
- (6) The scope of responsibility and the authority for implementation and revision must be clarified. Authority should be delegated as much as possible.
- (7) Considerations should be given to optimizing the whole process rather than to partial advantages.

### 3.3 Revision and review of the operation standards

- (1) Because there are many factors which influence quality in the manufacturing process, stipulate and document procedures when changing any part of the process.
- (2) When planning a change, ensure that the change will not cause any unexpected problems.
- (3) After a change has been made, gather and analyze appropriate data. Check whether the goals of the change have been reached, and how quality and productivity have been affected.

- (4) Be sure to remove unnecessary operation standards (old version) from the workplace.
- (5) Plan and execute a periodic review to see how they are implemented, and how effective operation standards are.

#### 4. Example

①	Work instruction sheet	Assembly of stator iron core	W12-003 3-1
②	Scope: applicable to pressing assembly of stator core sheet at Section A		
③	Facility: cantilever hydraulic press, 50 ton, foot stepping cutter		
④	Jigs and tools: platform scale, metallic spatula, chisel, scale, hammer, iron core assembling jig		
⑤			
⑥	Related standards		

①	Work instruction sheet	Assembly of stator iron core	W12-003 3-2		
②	Work procedures				
③	No	Procedures	Key points and cautions	Tools	Work condition
④	1	Check whether the sheets for stator iron core are not in section.	Read the drawing and the work instruction sheet carefully.		
⑤	2	Read the drawing and examine the thickness of laminated sheets for stator iron core.			
⑥	3				

Figure 2.1 Work instruction sheet (example)

[Source:UMEDA, Masao,"Seven key factors for success on TQM", Japanese Standards Association ,P123(1993) ]

**Clear instructions and understanding the actual situation**

**[6] Clear instructions and orders**

**Corresponding check sheet item 2.2.1)**

### **1. Purpose**

**Clear instructions and orders are fundamental in getting operators to do a proper job.**

### **2. Definition**

**Instructions and orders from managers are concrete means for gaining mutual communication between superiors and subordinates needed for achieving the successful fulfillment of work.**

### **3. Contents**

- (1) Explain to subordinates the purpose and needs of the job they will be instructed in and/or ordered to do. Let them begin work after they understand these matters well.**
- (2) Standardize instructions and orders to subordinates as much as possible in documents using "5W1H" style.**
- (3) Select important points and give feasible instructions.**
- (4) Make on-site verification that operations are carried out according to instructions and order.**
- (5) Give instructions or orders making use of past failures and experience.**
- (6) Instruct subordinates in the method of reporting job completion, abnormality occurrences, and in-house communication practices.**

#### 4. Example

Refer to Table 6.1

#### 5. Other remarks

---

#### 6. Relation with ISO 9000 Series

4.17 Internal quality audits

4.18 Training

#### 7. Keywords

- Feasible instructions and orders



Table 6.1 Directions of manufacturing conditions

[XX Electric and Machinery Co., Ltd. Washing Machine Factory, Directions of manufacturing conditions]

Direction No.	Date of issue	Person in charge	Deputy manager	Manager of control section	Works manager
A-3214	96 / 10 / 1	Signature	Signature	Signature	Signature
Name of product		○○type automatic washing machine		Model	S - 9601 - 2
Name of manufacturing section		First manufacturing section		Name of process	Automatic assembly process
Personnel required		3 persons		Equipment used	Type 4 automatic assembling machine
Production capacity		200 unit/hour		Production operation standard	N - 86001
Production period		96 / 10 / 5 - 96 / 10 / 20		Production volume	20,000 units
Safety matters		Wearing of protective goggles		Special remarks	Cleaning and check of automatic machine
Report/communication		One hour after completion of operation		Control chart	X - R control chart

## Traceability and control system of measuring equipment

### [14] Traceability and calibration records

Corresponding Check sheet item 13.3.4)

#### 1. Purpose

Precision suitable to the measurement purpose is ensured by calibrating equipment to in-house standards, outside standards, national standards or international standards.

#### 2. Definition

Relationship among in-house, outside, national and international standards used for calibrating measuring equipment, and its records.

#### 3. Content

- (1) All measuring equipment must be calibrated with their superior standardizing reference devices.
- (2) Calibration certificates are issued for the measuring equipment which was calibrated by standardizing reference devices.
- (3) Calibration certificates should include the following items.
  - Calibrating department or calibrating organization
  - Standards used
  - Calibration date
  - Calibration personnel (person in charge)
  - Certificate

#### 4. Example

Refer to Table 14.1 Traceability chart and Table 14.2  
(History of ) Calibration and repair on overleaf

## **5. Other remarks**

The department in charge of calibration should prevent the calibration schedule from disturbing the manufacturing departments. It is important to give prior notice in writing and carry out calibration in a planned manner.

## **6. Relation with ISO 9000 Series**

### **4.11 Control of inspection, measuring and test equipment**

## **7. Keywords**

- **Centralized control of master file for measuring equipment**

Table 14.1

(i) Traceability chart

		Primary and secondary reference devices	Reference device for periodic inspection	Factory reference device for checking	Measuring equipment		
National or public standards	Manufacture standards	Block gauge	Block gauge	Block gauge	Block gauge		
					Micrometer	Height gauge	
				Depth gauge	Vernier caliper		
				Micrometer	Thickness gauge		
				Ring gauge	Cylinder gauge		
		Standard block of hardness			Hardness tester		
		Standard block of roughness			Roughness tester		
		Magnification scale			Projector		
		Loop tester			Universal tester		
		Reference weight		Standard pressure gauge		Pressure gauge	
		type pressure gauge		Standard ammeter/voltmeter		Ammeter/voltmeter	

(2) (History of) Calibration and repair

1	I.D. No.: HG1532		Name : Micrometer		
2	Class		Calibr. interval: 6 month		
3	Due date	Calibr. data	Acc/Rej.	Record No.	Ref. gauge
4	Feb-10-94	Feb- 4-94	Acc	CR94008	G12034
5	Aug- 4-94	Aug- 4-94	Acc	CR94147	G12035
6	Feb- 4-95				
7					

[1] Work instruction

Corresponding check sheet item 5.1.1)

1. Purpose

Work will be done correctly and the target quality shall be ensured. When appropriate work instructions are provided.

2. Definition

A work instruction is a statement which correctly conveys the daily production plans and related information to workers.

3. Content

Work instructions should include 5W1H (Who should do What, When, Where, Why and How). Will make these more concrete. Including 4M1E (Man, Machine, Material, Environment), detailed methods of operation should be specified in the operation standards and operation instructions should include the operation standard number. The instructs should be as simple as possible.

Methods include the following.

- (1) Operation instruction sheet
- (2) Operation instruction bulletin board (exclusive instruction board, blackboard, or white board)
- (3) Operation instructions illuminating board (to show operation no., or key points of operations in automated manufacturing lines).
- (4) Operation slip (to accompany individual products, or each lot of products)

Method (1) is most common. When using methods (2),(3),(4), combine them with method 1.

When beginning operations, tell operators to confirm the content of operation instructions.

It is important to hold a meeting when beginning operations to confirm that operators are familiar with operation instructions. Operation instructions should include columns in which the results of operations can be filled in. These may also be used with operation reports. Items to be filled in include

working hours, values of instructed items, resultant quality characteristic values, and abnormalities or defectives.

#### 4. Example

Table 1.1 Work instruction sheet

#### 5. Other remarks

---

#### 6. Relation with ISO 9000 Series

4.8 Product identification and traceability

4.9 Process control

4. Example

Table 1.1 Work instruction sheet

Description of operation	Press operation for product A				Operation standard No.	Machine No.	Outer diameter $\phi$		Thickness $aa$		Date $\rightarrow$ March 1, 1996	Instructor (name) $\rightarrow$ JI	
	Time		Quantity				Operator(name)	Target value	Actual value	Target value			Actual value
	Instructed	Actual	Instructed	Actual									
96	8.00	8.00	200	180	Mr. Yamada	20.0	19.85	15.0	14.65	No1	179	Malfunction, irregularity, and countermeasures	
	9.15	9.15	Σ										±1.0
						(19.0 21.0)	(20.05)	(14.5 15.5)	(No n 15.00)				









JICA