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Preface

This Standard has been established by the Japanese Society for Quality Control (here after JSQC) through the deliberations of the Technical Board, consisting of practitioners and academicians under the administrative provisions of the JSQC.

This Standard represents work protected under the Copyright Act.

Note that one or several parts of the Standard may conflict with patents, patent applications after the laying open of the applications, utility model rights or utility model right applications after the laying open of the applications. JSQC shall not be responsible for confirming whether one or several parts of the Standard infringes upon any of these patents, patent applications after the laying open of the applications, utility model rights or utility model right applications after the laying open of the applications.

Guidelines for Daily Management

(Note: this document is an official English translation of JSQC-Std 32-001:2013 written in Japanese.)

Introduction

Even if attractive new products and services are planned and designed with the understanding of needs of customers and society, it will be impossible to beat competitors if those products and services are not manufactured and provided as planned and designed. It is often said in the world of Quality Management, “Quality is achieved through the process.” This is the simple expression to show that establishing and following the process is a better way than inspecting and verifying the finished products in order to economically generate the planned products and services.

However in large organizations it is often the case that an important part of the process is unclear, or even if the process is well-established, the work is not performed according to the standards. The process, therefore, will most likely not achieve the planned performance under such a situation. “Daily Management” is the methodology devised to deal with this problem. Daily Management is the foundation of organizational management, and its quality significantly affects the profitability of the organization. Daily Management, therefore, should be thoroughly implemented and enhanced in all job units and hierarchies of the organization.

This Standard consists of the fundamentals of Daily Management, guidelines to implement Daily Management, and the guidelines to promote Daily Management throughout an organization. It is applicable to any types of organizations. Daily Management should be applied not only to organizations that follow set routines (e.g., manufacturing), but also to organizations whose jobs differ depending on the situation (e.g., research and development, sales and marketing, after-sale service, administrative and staff functions, etc.). The fundamentals of Daily Management are discussed in Chapter 4. A general way to implement Daily Management is discussed in Chapter 5 and important points in various fields are discussed in Chapter 7. Daily Management should not be limited to the front line employees and managers. Senior management and those responsible for Daily Management promotion should also be actively involved. The role of senior management including the top management is discussed in Chapter 6. Daily Management promotion in the whole organization is discussed in Chapter 8.

1. Scope

This Standard provides recommendations by the JSQC with regard to Daily Management as one of the major activities of Quality Management.

2. Normative references

The following standard will be incorporated into this Standard by reference. Only the version of the stated year will be incorporated. No revised versions and supplements will be incorporated.

3. Terms and definitions

The terms and definitions in JSQC-Std 00-001 and the following terms and definitions will be applied in this Standard. The following terms and definitions include those cited from other standards and reproduced.

3.1 Daily Management

All activities to effectively achieve the objectives with regard to the job that every job unit of the organization is charged with

(Same as JSQC-Std. 00-001)

Note 1 Daily Management is not the job itself, but the activities to make the job effective and efficient.

Note 2 Especially in this standard, Daily Management means the maintenance-plus-Enhancement activities, which set a current or extended level as a target and ensure that the job does not deviate from the target, and when it deviates from the target, the job can be quickly restored and enhanced to achieve higher performance.

3.2 Standard

(1) Agreement for unification or simplification to equally benefit related organizations and people

Note 1 Subject of standard includes physical object, performance, capacity, layout, condition, movement, procedure, method, formality, responsibility, duty, authority, point of view, concept and so on.

Note 2 Standard written in a document is called “documented standard.”

Note 3 Among standards, the agreement on the technical aspects directly or indirectly related to a product, service, process or system is called “specification.” The agreement on contents, formalities or methods related to an organization or job is called “procedure.”

(2) Normative method or physical objects used to provide universality to measurements

Note Examples include prototype kilogram as the measure of mass, fixed point of temperature and the platinum resistance thermometer to realize International Temperature Scale, standard substances as the measure of density, standard hardness tester and standard indenter as the measure of the hardness, color chart to be used in the color sensory test and etc.

(Same as JSQC-Std 00-001)

3.3 Control point

Items selected as the rating scale to manage the achievement of the objective

(Same as JIS Q 9023:2003)

3.4 Check point

Items selected as the constantly monitored characteristics or conditions to prevent process abnormality or easily identify the causes when it occurs, from the cases that have significant impact on the outcome(s) of the process and are directly controllable

3.5 Control level

Value or range which the process in the stable or planned condition shows

Note 1 The process can be evaluated whether it is in the stable or planned condition by comparing the actual value with the control level.

Note2 Control level can be expressed as mean or mean $\pm 3 \times$ standard deviation.

(Same as JSQC-Std. 00-001)

3.6 Process abnormality/abnormality

A state where the process is not under the controlled condition

Note Controlled condition is defined as the stable condition at the economically and technically desirable level.

(Same as JSQC-Std 00-001)

3.7 Nonconformance

Product, service, process or system that does not meet the specified requirements

(Same as JSQC-Std 00-001)

3.8 Immediate remedy

Activities taken to prevent further loss resulting from nonconformance, process abnormality or other undesirable events for which causes are unknown, or even if causes are clear, but it is impossible to take countermeasures directly due to some restrictions

(Same as JSQC-Std 00-001)

3.9 Recurrence prevention

Actions taken to prevent the recurrence of a detected nonconformance, process abnormality or other undesirable events in the same product, service, process or system due to the same cause

Note Definition of the “same” differs depending on the organization and/or industry

(Same as JSQC-Std. 00-001)

3.10 Process

Set of interrelated and interacting activities, which transforms inputs into outputs

(Same as JIS Q 9000:2006)

Note Inputs and outputs include hardware, software, service, information and energy.

3.11 Process flow

Multiple processes designed to provide the planned value by configuring the relationship so that the outputs of the previous steps become the inputs of the subsequent steps

Note Output of one previous step may become the input of multiple subsequent steps.

3.12 Process assurance

Activities that ensure the outputs of the process meet the specified requirements

(Same as JSQC-Std 00-001)

3.13 System

A collection of the components or processes that are interrelated and interacting to accomplish a specific objective

(Same as JSQC-Std 00-001)

4. Fundamentals of Daily Management

To learn Daily Management, first of all, it is necessary to understand the role of Daily Management in Total Quality Management (TQM). It is also important to understand the statistical control chart concept, which is the starting point of Daily Management. The SCDA cycle shows the fundamental steps to promote Daily Management. Standardization and standard as well as control points and control levels are essential elements in the cycle. Based on the understanding of the role of Daily Management and the statistical control chart concept, the SDCA cycle and all of the elements in the cycle must be understood.

4.1 Role of Daily Management in Total Quality Management (TQM)

Total Quality Management (TQM) is the activity;

- whose aim is the long term success through the provision of products and services that meet the needs of customers and society as well as the satisfaction of employees,
- for maintaining, improving, and innovating processes and systems,
- by all the divisions and levels of the organization,

to achieve effective and efficient organizational management in a dynamic business environment.

Core activities in TQM are the maintenance-plus-enhancement, improvement and innovation of processes and systems (Fig.1).

- **Maintenance-plus-enhancement** (management in a narrow sense): activities which set the current or extended level as a target and ensure that the job does not deviate from the target, and when it deviates from the target, the job can be restored quickly and enhanced to achieve higher performance
- **Improvement:** activities which set a higher target than the current level or extended level, and then solve problems and achieve tasks repeatedly.
- **Innovation:** drastic changes in processes or systems by the introduction and application of new know-how from outside of the organization or other divisions in the organization, different from the maintenance-plus-enhancement and improvement activities which are based on the enhancement of the know-how through operations and learnings of processes or systems in the organization.

Maintenance-plus-enhancement and improvement are collectively called “improvement” in a broad sense.

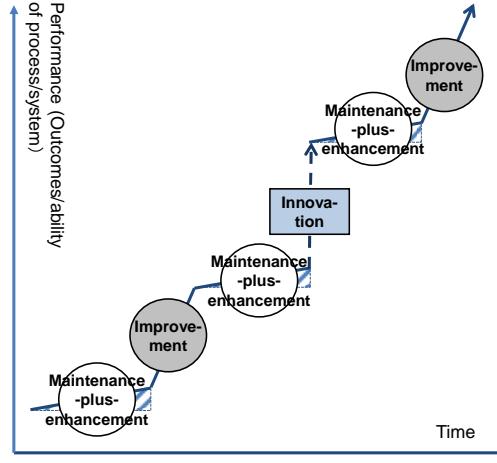


Fig. 1 Maintenance-plus-enhancement, improvement and innovation

It is important to implement maintenance-plus-enhancement, improvement and innovation in a balanced manner. Maintenance-plus-enhancement alone cannot maximize the potential of the process and system. It leads to a mannerism, reduces the interests in the process and system, and lowers the performance gradually. On the other hand, improvement and innovation alone cannot sustain achievements. This reduces motivation towards improvement and innovation, and results in poor performance. It is important that job know-how obtained through improvement and innovation becomes inputs to the maintenance-plus-enhancement and utilized, while issues and problems which are difficult to solve by maintenance-plus-enhancement become inputs to the improvement and innovation.

An organization is required to systematically address Quality Ensurance, Policy Management, Daily Management, Small Group Activity, and Education and Training on Quality Management in order to constantly implement maintenance-plus-enhancement, improvement and innovation with the participation of all the divisions and at all levels of the organization, and link it to the provision of products and services that meet the needs of customers and society as well as the satisfaction of employees (Fig. 2).

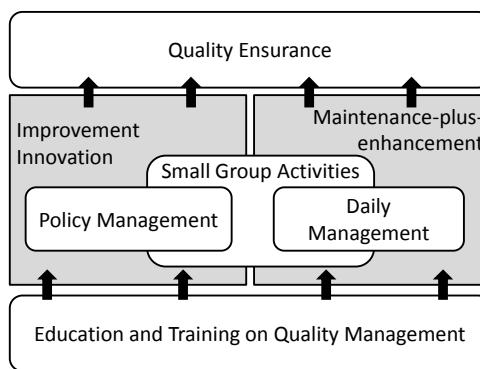


Fig. 2 Role of Daily Management in the implementation of maintenance-plus-enhancement, improvement and innovation

- **Quality Assurance:** Organizational systematic activities to ensure, confirm and demonstrate that the needs of customers and society are met. Although sometimes confused with inspection, claim handling, preparation for external audits and so on, it has a broader meaning. It includes “Process Ensurance” which establishes the process that can produce the targeted product and service effectively and efficiently and allows customers to purchase products and use services with confidence, and “New Product Development Management” which develops new products and services to meet customers’ needs effectively and efficiently. Active maintenance-plus-enhancement, improvement and innovation are essential as a foundation of Quality Ensurance.
- **Daily Management and Policy Management:** To put maintenance-plus-enhancement into practice, it is essential to enable every job unit and person in charge to continuously and steadily perform their own roles. The organization should clarify job roles and the processes to perform them as well as factors affecting job performance and methods of controlling them, and establish a system to perform the processes and methods steadily even if people change and rotate. Despite these efforts, it is often the case that the results do not turn out as intended. The organization should also establish the ways to measure the performance, share the results which contradict the normal results with persons concerned, and investigate their causes. These activities are called “Daily Management.” Daily Management is often confused with the routine job done by every job unit. Daily Management, however, is not the routine job itself, but the activity to maintain and enhance the job. On the other hand, to put the improvement and innovation into practice in areas where only maintenance-plus-enhancement is not sufficient, it is essential to establish objectives and strategies to respond to changes in the customers’ needs and the business environment and to clarify the issues and problems to be challenged based on the principles of “objective-oriented” and “priority focus.” These activities are called “Policy Management.” (Fig 3)

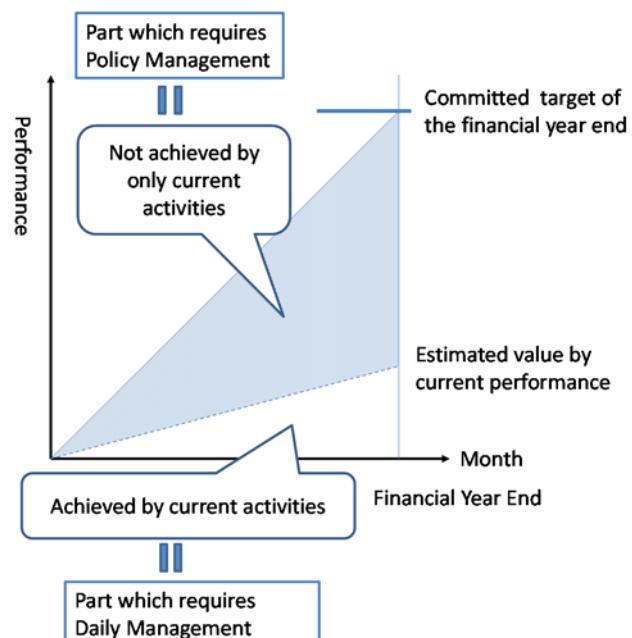


Fig.3 Daily Management and Policy Management

- **Small Group Activities (Small Group Improvement Activities):** Activities of forming small teams, which enable close communication for the issues and problems faced in Daily Management and Policy Management, challenging the issues and problems in a speedy manner, and achieving skill enhancement, self-realization, and development of trust. It includes cross-functional team activities, project team activities in a job unit, and QC circle activities by front line employees.
- **Education and Training on Quality Management:** To activate maintenance-plus-enhancement, improvement and innovation, it is important for the members of an organization to acquire knowledge and skill to perform maintenance-plus-enhancement, improvement and innovation as well as to get to hold same value and consciousness. The organization should establish a hierarchy-wise and field-wise education and training system, prepare opportunities for learning through practice, and set targets for required skills and develop them in a planned manner.

4.2 Concept of Daily Management

The concept of Daily Management has evolved from statistical control chart by Walter A. Shewhart (Fig. 4). The first step of Daily Management is to determine a measurement (metric) to evaluate the performance of the process. The next step is to prepare the graph with the central line and control limits calculated by the statistical distribution of the measurement. Then, data are plotted on the graph at proper intervals. Basically, if the point is within the limits, assignable causes are not considered to exist and jobs should be continued as they are. On the other hand, if one or more points exceed the control limits or have any specific trend, assignable causes should be considered to exist, and immediate remedies and the actions to prevent the recurrence should be taken. A statistical control chart is a method which enables users to establish a stable process through the repetition of the procedure. The concept of the statistical control chart has come to be used widely for the measurement which does not strictly follow a specific statistical distribution, and it has become an applicable tool to a variety of jobs.

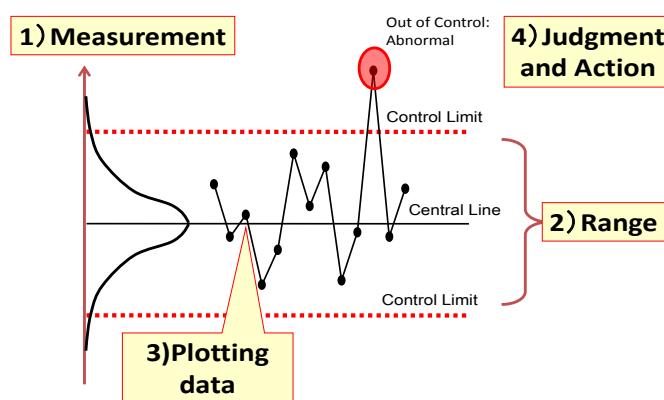


Fig. 4 Concept of statistical control chart

For the statistical control chart to effectively function, however, the measure to evaluate the performance of the process should follow a certain distribution. Therefore, establishing the agreement (standard) and the system to

ensure that the job is implemented according to the agreement (standardization) is assumed. Also, it is essential to focus on the agreement when investigating the causes and taking actions when abnormalities are detected.

Daily Management consists of statistical control chart and a series of activities necessary for the functioning of the statistical control chart. Daily Management is the activities to establish the processes and systems which can achieve a certain level of stability. Daily Management is essential not only for quality related activities to meet the needs of customers and society, but also for securing other management aspects such as volume, delivery, cost, safety and environment.

Autonomous management (a self-sustaining management of the processes and systems by job units or persons in charge) is presupposed in Daily Management. Thorough implementation of Daily Management will enable the establishment of processes and systems, which can achieve a certain level of stability and transfer of responsibilities and authorities. Conversely, Daily Management is difficult to implement without the establishment of autonomous management, which ensures a responsible and self-sustaining management by individual job units and persons in charge, because Daily Management should be applied in all jobs performed in an organization.

4.3 Daily Management method – SDCA cycle

The SDCA cycle is a useful concept when practicing maintenance-plus-enhancement. This is the concept to establish the processes and systems which can surely achieve a certain performance level by rotating a cycle of “Standardize, Do, Check and Act” steadily and repeatedly (Fig.5). The SDCA cycle simply shows the way to implement maintenance-plus-enhancement by setting the current or extended level as a target and determining organizational agreements (standards) based on current job methods in the Plan step of the PDCA cycle that is the more comprehensive method to implement maintenance-plus-enhancement, improvement and innovation.

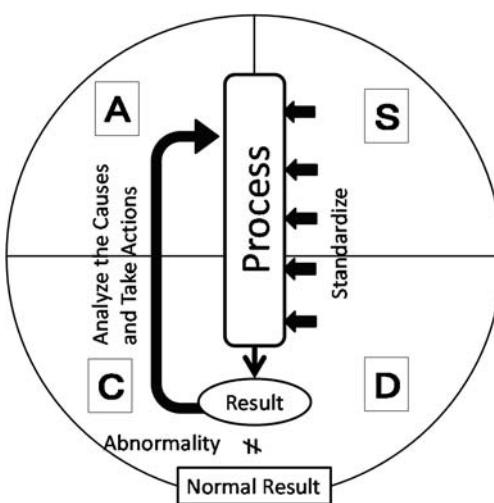


Fig. 5 SDCA cycle

- **Standardize:** It is necessary to keep operations, facilities, materials and measurement which influence the results in a certain condition so that desirable results are obtained. The organization, therefore, should determine the agreement (standard) and ensure that it is definitely followed. Prior to the determination of the

agreement, the organization should clarify a process to produce the results and knowledge with regard to the relationship between the process and the results. Standardization also includes providing necessary education and training and applying methods to let the agreement kept.

- **Do:** The process is implemented according to the agreement. A responsible person observes whether the process is implemented according to the agreement, and when necessary, conducts additional education and training or supplements the methods to let the agreement kept.
- **Check:** It is often the case that the contents of the agreement are not sufficient, or the process is not implemented as agreed upon even if the above efforts are made. It is important to quickly detect the occurrence of an abnormality and to identify the causes, i.e., insufficiency of the agreement or weakness of the system to observe the agreement.
- **Act:** Contents of the agreement or the system to observe the agreement are improved based on the result of the Check step.

Repeating the SDCA cycle by job units and persons in charge enables the achievement of maintenance-plus-enhancement and establish the processes and systems that can achieve a certain level of stability.

Although the SDCA cycle seems simple, its implementation is not necessarily easy. The organization should make the efforts to overcome the difficulties of each step after understanding them (Table 1).

Table 1 Steps of SDCA cycle, difficulties in each step and key points to overcome the difficulties

Steps	Difficulties	Points to overcome the difficulties
S	Jobs that are difficult to standardize Too many standards Complex structure of the standards	Analyze the cause-effect relationship of the process Discard unnecessary standards Establish a system of standards
D	Difficult to follow the standards	Thoroughly implement education and training. Apply methods to let the standards kept.
C	Not noticing abnormalities Failing to identify causes	Clarify the normal state Quickly share the abnormality information throughout the workplace
A	Ending in simple adjustment level without any preventive action level, so that the level of the standard are not improve.	Analyze the abnormality from the viewpoint of the standardization

4.4 Standardization and standard

“Standardization” is the basis of Daily Management. Standardization is the activity to decide and utilize the agreement which is used commonly and repeatedly for the purpose of the effective and efficient management of the organization. The agreement is called the “standard.” Efficiency decreases and the variation in the results increase if people conduct work their own way in a large organization. Standardization is the method to set the best way as a standard and make all people act according to it to achieve effective and efficient work.

There are 4 benefits of Standardization:

- Standardization brings interchangeability. Products manufactured or results evaluated in different places or times can be used as they are without rework and adjustment. This is a very important feature considering the

time and effort spent in the replacement and repair at breakdown or the inspection in shipping.

- Standardization abbreviates communication of thoughts or information. It is often the case that efficiency decreases due to lack of the standardization because decisions and adjustments are necessary whenever needed. Although standardization restricts individual freedom to some extent just as traffic rules do, overall efficiency is enhanced, resulting in the promotion of individual activities.
- Standardization enables achievement of products and services which meet customers' needs more effectively and efficiently. This is the case where it is not enough to determine a standard, and it is necessary to create a standard that contains some technical rationale.
- Standardization enhances technical level. Improvement will not be achieved without standardization because in the absence of a standard, operations may vary from person to person, which makes it difficult to understand the current undesirable situations.

In standardization, first of all, standards should be created. Standards are typically expressed in writing. However, they can also be in the form of images, figures, and actual samples and not limited to writings. It is important to create standards so that good results will be achieved if jobs are done according to the standards. Because there are countless conditions that need standardization, it is advised that non-significant conditions should be neglected and influential conditions should be addressed, considering what conditions impact results. Also, the standard should include a measurement method and the criteria for the result as well as the agreement with regard to the causes. That will enable person in charge to make judgments on the necessity of the immediate remedy and process improvement.

No matter how good the standards are, they are useless if not followed. Establishing the standards is not the end of the story. It is important that the standards are followed. It is an education issue if the person in charge does not know the standards. On the other hand, it is a matter of skill training if the person in charge cannot follow the standards. Furthermore, it is a motivation issue if a person in charge intentionally fails to comply with a standard. Standards should be implemented only after proper education, skill training and motivation are provided. In addition, there are cases in which omissions or mistakes arise due to carelessness even though the person has enough knowledge, skill and the intention to follow the standards. Error proofing is the key in order to prevent these unintentional errors effectively. It is an activity to improve machines, materials or procedures to prevent errors or to make a system immune to errors. It is also known as "fool proofing" or "poka-yoke." Error proofing can be understood as an activity to review and improve the standards from the view of unintentional errors.

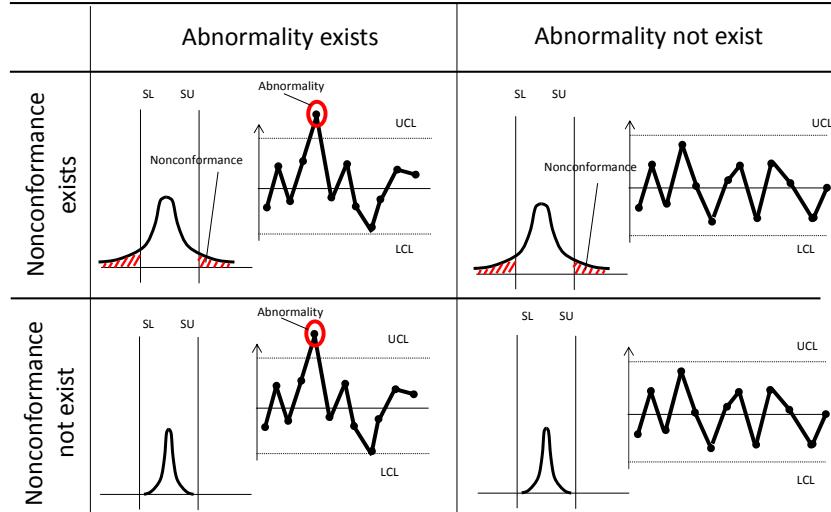
Every job should be standardized to some extent. The starting point of Daily Management is to recognize what roles the standards play when doing jobs and to connect the causes and countermeasures with the standards.

4.5 Control point and control level

The results of a process may vary due to diverse causes. There are common causes which have little effect on results and are technically or economically difficult or meaningless to identify and remove. On the other hand, there are assignable causes which should not be overlooked to achieve stable results such as not following standards, changes of raw materials, and performance degradation of facilities. These causes should be investigated and removed immediately to prevent recurrence. Events which result in deviation from the normal stable situation

because of the assignable causes are called “process abnormality” or “abnormality”.

Note Control point is sometimes called “Managing Point” or “Key Performance Indicator.”



UCL: Upper Control Limit, LCL: Lower Control Limit, SL: Lower Specification, SU: Upper Specification

Fig. 6 Abnormality and nonconformance

Table 2 Example of abnormality and nonconformance

Process	Specification	Normal range	Result	Nonconformance/abnormality
Process A (sufficient process capability)	9.6~10.4 cm	9.8~10.2 cm	10.5cm	Nonconformance and abnormality
			10.3cm	Not abnormality
			10.1cm	Neither nor abnormality
Process B (insufficient process capability)	9.6~10.4 cm	9.4~10.6cm	10.7cm	Nonconformance and abnormality
			10.5cm	Nonconformance but not abnormality
			10.3cm	Neither nonconformance nor abnormality

Note: In the case where the process is not capable, the organization should implement improvement or innovation based on the results of the process capability survey or process analysis. The organization should consider 100% inspection so that nonconforming products will not go to the next process, and also implement maintenance-plus-enhancement under Daily Management until the completion of the improvement and innovation because the possibility of nonconformance is high even if an abnormality cannot be found.

Abnormality should be clearly distinguished from nonconformance (events where the result does not meet the determined specifications) (Fig. 6 and Table 2). Where the result conforms to the specification but is different from

the normal (such as yield higher than the normal), the organization should investigate if the process conditions are different than normal operating conditions because assignable causes may exist that must be addressed in order to achieve stable result. This will result in the improvement of the process and stable and better result. On the other hand, if nonconformance occurs in the stable process, it makes no sense to try to investigate conditions different from normal operating conditions because a nonconformance does not mean the existence of assignable causes. Continuation of this situation, however, is not desirable in terms of the quality assurance and economy. It is important to obtain and analyze data for the relationship between various conditions and results, and improve the current process conditions to achieve better results.

Constant monitoring of the results is an effective way to find abnormality. “Control point” is an item selected as the rating scale to manage the achievement of the objective (Table 3). Because numerous measurable items exist, the organization should select the most suitable items among them.

To find abnormality using control point, “Normal” should be defined in an objective and measurable way. A “control level” defines the values which the control point can take where the process is under controlled state (the stable state in the economically and technically desirable level). Control level, in general, consists of the following two items:

- Central value (mean of the value in the controlled state)
- Control limits (range of the value in the controlled state)

When determining the control level, it is important to distinguish levels normally achieved from desirable levels. It should be noted that objective of Daily Management is to obtain a stable process and not to improve and innovate processes. Therefore, statistical view and way of thinking should be applied to rationally determine the control level after the collection of data with regard to the current process as well as clarification of the abnormalities to be detected, the abnormalities to be ignored and their features.

Table 3 Example of control point and control level

Job	Control point	Control level
Manufacturing of product xx	Percentage of defective	$5\% \pm 1\%$
Sales of product xx	Monthly Sales	100 mil \pm 10 mil yen
Development of product xx	Number of unsolved technical issue as of 6 months before sales release	10 and under

5. Implementation of Daily Management

Daily Management basically should be practiced in every organization. Fig. 7 shows the fundamental process flow of Daily Management in single job unit. A job unit in this context is supposed to be the smallest managerial organization which performs a block of jobs and typically includes one manager and a few to tens of employees.

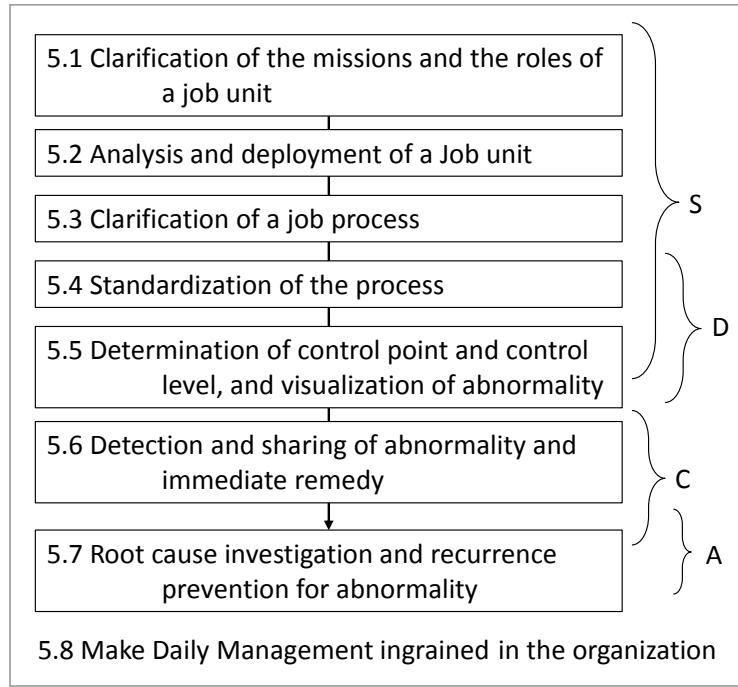


Fig. 7 Implementation of Daily Management in single job unit

When considering the relation of the Fig. 7 to the SDCA cycle in sub-clause 4.3, the sub-clauses from Clarification of Mission and Role of a Job Unit (sub-clause 5.1) to Setting of Control Point and Control Level and Visualization of Abnormalities (sub-clause 5.5) correspond to S (Standardization). Standardization of Process (sub-clause 5.4) and Setting of Control Point and Control Level and Visualization of Abnormalities (sub-clause 5.5) are to be repeated in D (implementation) and reinforced. The sub-clauses from Detection and Sharing of Abnormality and Immediate Remedy (sub-clause 5.6) to Cause Investigation and Recurrence Prevention (sub-clause 5.7) correspond to C (Check) and A (Act). Making Daily Management take ingrained in the organization (sub-clause 5.8) supports the whole implementation process.

Each step is discussed precisely in the following sub-clauses. Daily Management in a larger organization rather than in a single job unit is discussed in clause 6.

5.1 Clarification of the mission and the role of a job unit

5.1.1 Mission and role

It is necessary to clarify the mission and the role in a job unit to practice Daily Management effectively and efficiently. At this context, the mission and role are derived through analysis of required function at each job unit or its members to achieve business objectives and are allocated to them.

It is advised that the mission and role in a job unit should be prescribed in a form as what is allocated to whom. For example, in a job unit in charge of parts processing, mission and role should be as “supplying processed parts meeting the requirement (quality, cost, quantity and the date of delivery) to assembly unit.”

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