

“P-PR-026: Work Standard for Training to Improve Abilities of Inspectors”

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- ① Purpose of “**P-PR-026: Work Standard for Training to Improve Abilities of Inspectors**”
- ② Definition of Terms
- ③ Receiving Inspection Training for New Employee
- ④ Receiving Inspector Certification
- ⑤ Inspector Skills Improvement Training System
- ⑥ Reference materials

Purpose

The purpose of this standard is to clarify the process for training inspectors and thereby:

- Standardize evaluation of inspection capabilities of inspectors
- Achieve standardization of training for enhancing skills of inspectors (including visual inspection and measurement method skills)
- Foster human resources able to perform inspection according to standard procedures
- Enable correct use of instrumentation (and assistive devices) required for inspection.

1. New employee

- are personnel newly hired upon request by the part receiving control department, HR recruiting in accordance with the requirements of the department and receiving final approval of the department.

2. Inspectors

- an employee approved as being competent for part visual inspection (mechanical and hardware) as well as dimensional measurement, having undergone receiving inspector training from a trainer of the part receiving department.

3. Visual Inspection

- is performed to ensure there are no visible faults by visually inspecting the shape, color, lettering and other inspection items of the product given in the inspection standards or other documents.
Inspection items: Shape, base and printed colors, lettering, etc.

4. Dimensional measurements

- is performed to ensure there are no defects based on measurement results by using instrumentation to measure parts for measurement items indicated on the inspection standards.
- Measurement items: important control dimensions and important functional dimensions
Instrumentation: 3D CMM (3 Dimensional Coordinate Measuring Machine), precision imaging measurement system, caliper, height gauge, micrometer, tension gauge, etc.

5. Trainer

- Trainers are overseers with ability to train inspectors of the part receiving control department registered as instructors or advanced technicians (for example, level A inspectors) with an equivalent level of education.

③ Receiving Inspection Training for New Employee

- The person in charge of training for the fiscal year proposes training content and gains approval from the person responsible in the department.
- The trainer ascertains the monthly employment conditions for new employees, prepares a training plan and implements training according to the plan.
- Each location's plans and procedures shall be determined based on the example (3.1.3).

③ Receiving Inspection Training for New Employee

3.1 Training items

- With regard to training items, prepare training materials with reference to the following items and plan to implement.

③ Receiving Inspection Training for New Employee

3.1.1. Inspection and measurement course training

Training category	Training item	Document number (Reference)
Basic understanding of mechanical and hardware visual inspection	Part Quality Assurance (Including receiving inspection workflow)	D03-01-01
	Basic understanding of mechanical and hardware visual inspection (Visual Appearance Inspection Work Standard, Visual Appearance Inspection Work Standard Using Limit Samples, Basic Standard for Implementation of Countermeasures against Electrostatic Damage, Standard for Handling Wrist Straps, Standard for Handling Conductive Mats, Standard for Handling Antistatic Shoes, Standard for Delivery Packaging Styles, Standard for Preparation of Incoming Inspection Standards)	T1-125/126/138/139/140/141/148/149
	Standard for Sampling Inspection	T2-113
Basic understanding of dimensional measurement	Standard for Geometrical Tolerance Indications, Standard for Dimensions and Tolerances	T0-001/108
	Calipers Handling Standard, Micrometer Handling Standard, Standard for Precision Surface Plates, Standard for Measurement Operations Using Testers (Circuit Testers), Standard for Handling Gauges	T1-129/130/142/144/146
Basic understanding of daily operations	ISO9001/14001, QCC, proposals, 5S, other	

③ Receiving Inspection Training for New Employee

3.1.2. Practical Instruction for Inspection and Measurement

Training Category	Training Item
Basic understanding of mechanical and hardware visual inspection	Part Quality Assurance (Including receiving inspection workflow)
	Basic understanding of mechanical and hardware visual inspection (Visual Appearance Inspection Work Standard, Visual Appearance Inspection Work Standard Using Limit Samples, Basic Standard for Implementation of Countermeasures against Electrostatic Damage, Standard for Handling Wrist Straps, Standard for Handling Conductive Mats, Standard for Handling Antistatic Shoes, Standard for Delivery Packaging Styles, Standard for Preparation of Incoming Inspection Standards).
	Standard for Sampling Inspection
Basic understanding of dimensional measurement	Standard for Geometrical Tolerance Indications standard for Dimensions and Tolerances
	Calipers Handling Standard, Micrometer Handling Standard, Standard for Precision Surface Plates, Standard for Handling Gauges

3.1.3. Example Plan

1.1 Inspection and measurement course training:

- Training hours : 15H
- Location of training: Training and practice room
- Training method: Course lecture
- Training items: 3 categories/6 Items
- Trainer: Overseer of the department or designated inspector

Training category	Training hours (15H)
Basic understanding of mechanical and hardware visual inspection	8H
Basic understanding of dimensional measurement	4H
Basic understanding of dimensional measurement	3H

3.1.3. Example Plan

1.2 Practical instruction for inspection/measurement

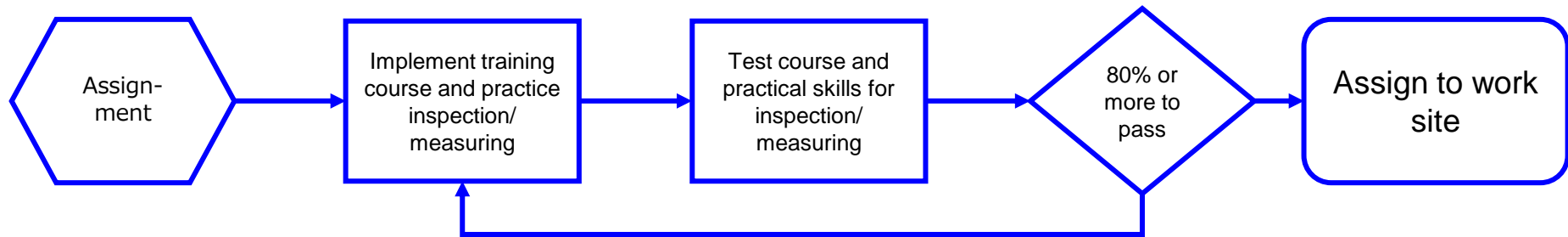
- Hours of training: 25H
- Location of training: Receiving Inspection work site
- Training method: TWI-JI
- Inspection items: 2 categories/5 Items
- Trainer: Group leader at work sight or designated inspector

Category	Training hours (10H)	New hire training time (15H)
Basic understanding of mechanical and hardware visual inspection	6H	8H
Basic understanding of dimensional measurement	4H	7H

4.1 Receiving Inspection Certification Flow

- Purpose of certification: By testing basic training, equip new employees with basic inspection abilities
- Scope of certification: New employees
- Certification period: within 3 months of hiring

Certification Flow:



④ Receiving Inspector Certification

- An approved employee determines inspector certification depending on the results of learning in the Inspection and Measurement Course Training and the Practical Instruction for Inspection and measurement.
- This employee prepares an inspector certification plan (including certified content, implementation date, methods, etc.) and gains approval from the responsible person.
- Certification testing is implemented according to the certification plan and passing employees are assigned to inspection work sites.
- The certification workflow is determined by the location and expressed in procedures.

④ Receiving Inspector Certification

4.2 Receiving Inspection Certification Content and Evaluation Standards

Detailed certification plan:

Certified content	Scope of certification	Certification Method	Evaluation Standard
General receiving inspection operations (Part Quality Assurance)	New-Employees	Testing of inspection/measurement course (time: 60 minutes / score: 80 points) + Testing of practical inspection/measurement (time: 80 minutes / score: 20 points)	Total score: 80% or more shall Understanding of the inspection and measurement course be a passing score
Understanding of the inspection and measurement course be a passing score (Basic understanding of mechanical and hardware visual inspection and Standard for Sampling inspection)			
Basic understanding of dimensional measurement (calipers, micrometer, handling, etc.)			
Submitting part defects, classification (separating accepted items from rejected items)			
Preparing inspection charts, surveys			
ISO, safety and other training			

- Training is implemented to improve the inspection skills with the purpose of multi-skill development for inspectors with inspection experience of at least six months and that have passed the certification testing.
- Inspector skills improvement training is divided into improvement of visual inspection skills for hardware and improving specialized measurement skills.
- Using a method combining inspection measurement course training and practical guidance for inspection measurement, inspectors are trained, tested and evaluated quarterly.
- The certification workflow is determined by the location and expressed in procedures.

5.1. Example workflow for the visual inspection training system for mechanical and hardware

Training plan

- A training plan is proposed and the following items are determined in consultation with relevant parties (including managers):
 - Purpose of training, scope of training, factories involved (range)
 - Selection of training promoters and trainers
 - Implementation of the training (performed quarterly)

⑤ Inspector Skills Improvement Training System

Training content

Content	Part Type	Level	Document no.	Training time (18H)	Training time (18H)
Visual Inspection Judgement Standard	Visual Inspection Judgement Standard	C	BTJ-QA353A	4H	4H
Standard for Colorimetry	Mechanical	C	T2-112	2H	2H
Barcode Printing Quality Standard	Mechanical	C	T3-302	2H	2H
Outer Packaging Judgement Instructions	Mechanical	B	BTJ-QA42A	4H	4H
Standard for printing strength Testing	Mechanical	B	T2-119	2H	2H
Dielectric Strength Test Standard	Hardware	A	T-1143	2H	2H
Method for Inspecting Paper Passing Surfaces	Mechanical	A	PQAIQCI53A	2H	2H

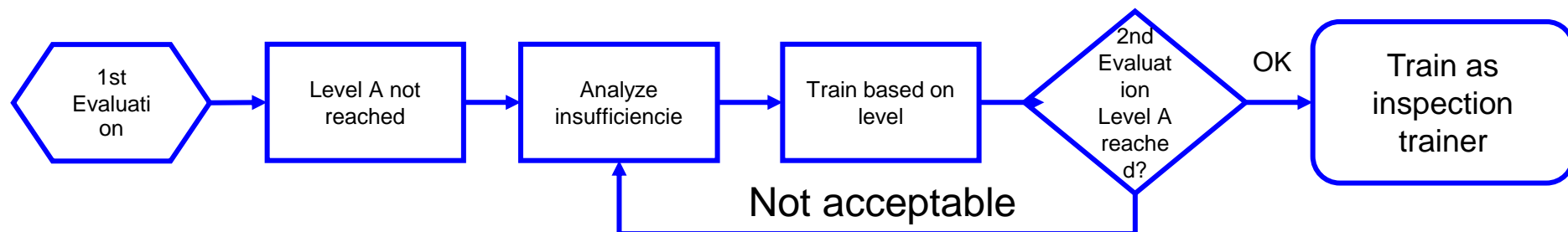
⑤ Inspector Skills Improvement Training System

Testing and Evaluation

- Prepare test questions (Inspection Measurement Course Test: 60min, 70 points / Inspection Measurement Practical Skills Test: 30 min, 30 points)
- Evaluation standard

Evaluation Points	90 to 100 pts	80 to 89 pts	70 to 79 pts	Less than 70 pts
Visual Inspection Skill Level	A	B	C	None (Do not fill in on the certification management chart)

- If unachieved, the following procedure is implemented.



5.2. Example workflow for the measuring skills improvement training system

Training plan

A training plan is proposed and the following items are determined in consultation with relevant parties (including managers):

- Purpose of training, scope of training, factories involved (range)
- Selection of training promoters and trainers
- Implementation of the training (performed quarterly)

⑤ Inspector Skills Improvement Training System

Testing and Evaluation

- Prepare test questions (Precision Imaging Instrumentation Practical Skills Test: 90min, 100 points / 3D CMM Practical Skills Test: 120 min, 100 points / Other Equipment Practical Skills Test: 60min, 100 points)
- Evaluation standard

Evaluation Points	90 to 100 pts	85 to 89 pts	80 to 84 pts	Less than 80 pts
Skills Level	A	B	C	None (Do not fill in on the certification management chart)


5.3. Example of managing inspector ability levels

- Applies to: all inspectors
- Level categories: 4 Levels
Certified (Approx. Level 1 / Level2[BIVN]) → Level C (Approx. Level3[BIVN]) → Level B (Approx. Level4[BIVN]) → Level A (Approx. Level5 [BIVN])

⑥ Reference materials

Reference Materials

- New Hire Certification Problem Sheet
- SAMPLE**

New Hire Certification Problem Sheet		Version: V1 Page: 1/5
Employee Number:	Name:	Date of Hire: 2015/09/01
I. True or false (True: ✓ False: ✗ / 1 point each, total 13 points)		
1. When checking the results of an ink test for a pressed part, test one minute after applying ink. ()		
2. Acceptability of visual defects on the Brother emblem are determined by any 100mm dia area on the part ()		
3. (Similar questions follow)		
--- Blank Space ---		
II. Multiple choice (Select the most appropriate answer from A/B/C/D / 1 point each, total 16 points)		
1. When inspecting the appearance of a part, the distance between your eyes and the part should be ().		
A. 20cm B. 25cm C. 30cm D.35 cm		
2. (Similar questions follow)		
--- Blank Space ---		
III. Fill in the blank (Write your answer in the space provided / 0.5 points each, total 28 points)		
1. IQC is defined as _____, so the customer is _____, the responsibility of an inspector is _____		
2. (Similar questions follow)		
--- Blank Space ---		
IV. Observation questions (find the difference between the photographs and mark with a circle / 2 points each, total 10 points)		
1. Find the difference between the photographs and mark with a circle.		
		
2. (Similar questions follow)		

--- Blank Space ---
V. Written questions (Write your answer in the space provided under the question / Q1 5 points, Q2 8 points, total 13 points)
Q1. Explain in detail the work flow for general inspection.
Answer: ***
Q2. (Similar questions follow)
Answer: ***
--- Blank Space ---
VI. Skills questions (5 points each, total 20 points)
1. General handling for instruments (pin gauges, calipers, micrometers, thickness gauges, screw gauges)
Explanation: The worker shall follow the requirements in the drawing and measure the samples with the indicated instrumentation. Evaluation of instrumentation handling will focus on the range of action of the worker.
Prepared items: drawings, standard samples, instrumentation, etc.
.... (Similar questions follow)
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⑥ Reference materials

- BIVN Inspection and Measurement Skill Chart (Sample)
Refer to the attached file to use the chart.

Danh sách 一覧表																	
No.	Mã nhân viên 社員番号	Họ & Tên 名前	Chức vụ 職種	Join Date	Nhóm グループ	Nhiệm vụ 工場	Kỹ năng 1 Skill 1 (Năm) (年)	Kỹ năng 2 Skill 2 (Năm) (年)	Trung bình 平均	Kỹ năng 3 Skill 3 (Năm) (年)	Kỹ năng 4 Skill 4 (Năm) (年)	Kỹ năng 5 Skill 5 (Năm) (年)	Kỹ năng 6 Skill 6 (Năm) (年)	Kỹ năng 7 Skill 7 (Năm) (年)	Kỹ năng 8 Skill 8 (Năm) (年)	Kỹ năng 9 Skill 9 (Năm) (年)	Mức nhận thưởng gia đình 家族手当 (Có: O; Không: X)
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THANK YOU!

brother
at your side