

[Organization logo]

[Organization name]

**Commented [16A1]:** All fields in this document marked by square brackets [ ] must be filled in.

## PROCEDURE FOR EQUIPMENT MAINTENANCE AND MEASURING EQUIPMENT

**Commented [16A2]:** If you want to find out more about measuring equipment control, see:

Monitoring and Measurement Equipment Control  
<http://advisera.com/9001academy/blog/2014/05/06/monitoring-measurement-equipment-control/>

Code:	
Version:	0.1
Created by:	
Approved by:	
Date of version:	
Signature:	

**Commented [16A3]:** Adapt to the existing practice in organization.

### Distribution list

**Commented [16A4]:** This is only necessary if document is in paper form; otherwise, this table should be deleted.

Copy No.	Distributed to	Date	Signature	Returned	
				Date	Signature

## Change history

Date	Version	Created by	Description of change
	0.1	16949Academy	Basic document outline

## Table of contents

<b>1. PURPOSE, SCOPE AND USERS .....</b>	<b>3</b>
<b>2. REFERENCE DOCUMENTS .....</b>	<b>3</b>
<b>3. EQUIPMENT MAINTENANCE.....</b>	<b>3</b>
3.1. IDENTIFYING EQUIPMENT .....	3
3.2. EQUIPMENT MAINTENANCE .....	3
3.2.1. <i>Maintenance planning</i> .....	3
3.2.2. <i>Preventive and predictive maintenance</i> .....	3
3.2.3. <i>Repairing equipment</i> .....	4
3.2.4. <i>Measurement of maintenance process effectiveness</i> .....	4
3.3. MEASURING EQUIPMENT MAINTENANCE .....	4
3.3.1. <i>Calibration of measuring equipment</i> .....	4
3.3.2. <i>Software validation</i> .....	5
3.3.3. <i>Measuring equipment storage</i> .....	6
<b>4. MANAGING RECORDS KEPT ON THE BASIS OF THIS DOCUMENT .....</b>	<b>6</b>
<b>5. APPENDICES .....</b>	<b>6</b>

## 1. Purpose, scope and users

The purpose of this procedure is to describe the process of maintaining and measuring equipment in order to constantly keep them in working order, and to prevent production halt due to malfunctioning.

This procedure is applied to all measuring equipment in the organization and equipment that the organization considers crucial for provision of conformant product or service.

Users of this document are [employees of maintenance department] of [organization name].

**Commented [16A5]:** Adapt to organization's practice.

## 2. Reference documents

- IATF 16949, clauses 7.1.5.2, 8.5.1.5, 8.5.1.6.
- Procedure for Addressing Risks and Opportunities
- FMEA procedure
- Procedure for Purchasing and Evaluation of Suppliers
- [other legal and contractual requirements]

## 3. Equipment maintenance

### 3.1. Identifying equipment

[Job title] forms and maintains the List of Equipment including production tools where all equipment and tools are entered. All equipment must be permanently identified by its inventory number.

**Commented [16A6]:** Write in the method of identification of equipment and measuring equipment.

**Commented [16A7]:** Adapt to organization's practice.

### 3.2. Equipment maintenance

#### 3.2.1. Maintenance planning

According to the List of Equipment and instruction manuals from manufacturers, [job title] creates the Plan for Preventive Maintenance of Equipment. In line with the plan, [job title] identifies all spare

**Commented [16A8]:** E.g. Maintenance Manager

**Commented [16A9]:** E.g. Maintenance Manager

executed within the organization. For outsourced maintenance activities, [job title] hires a service

**Commented [16A10]:** E.g. Purchasing Manager

#### 3.2.2. Preventive and predictive maintenance

[organization name]

[Employees of maintenance department] conduct all activities regarding preventive maintenance according to the Plan for Preventive Maintenance of Equipment and their competency. Activities that

**Commented [16A11]:** Adapt to organization's practice.

Records for every preventive maintenance activity is entered into the Plan for Preventive Maintenance of Equipment by [job title], who verifies that the action was undertaken and had a

**Commented [16A12]:** Adapt to your organization.

Outsourced maintenance service providers must deliver evidence of their activities to [job title]. If

**Commented [16A13]:** Adapt to your organization.

[Job title] uses special testing equipment and statistical methods to analyze and predict the failure of critical systems for key equipment.

**Commented [16A14]:** Develop here according your organization practices, for example if TPM is implemented.

**Commented [16A15]:** It is necessary to adapt this to your organization practice – for example analyze of oil viscosity in order to predict the failure of bearings is an example of predictive maintenance practice.

### 3.2.3. Repairing equipment

Every employee who notices malfunctioning equipment is obliged to report it to [job title]. Repairs

**Commented [16A16]:** E.g. Maintenance Manager or CEO

[Job title] or service provider is obligated to deliver a report on the repairs to [job title].

**Commented [16A17]:** E.g. Maintenance Manager or CEO

### 3.2.4. Measurement of maintenance process effectiveness

[job title] measures the effectiveness of the maintenance process by using MTBF (Mean Time

**Commented [16A18]:** Adapt to your organization, in general is Maintenance Manager, Engineering Manager or similar.

Dashboard.

## 3.3. Measuring equipment maintenance

According to the processes identified, the organization determines the need for monitoring and measuring equipment.

- Monitoring is a group of operation aimed at determining the value of the measured object.
- Measuring is a group of operation aimed at determining the value of the measured object.

### 3.3.1. Calibration of measuring equipment

[organization name]

The owner of the process in which measuring equipment is used is responsible for specifying

Calibration is performed by [job title or authorized laboratory] against measurable standards traceable to international or national standards. When no such standard exists, [job title] is adjustments are made, product previously approved by the equipment will be assessed for Nonconformities and Corrective Actions.

[Job title] enters data regarding new calibrations into the Maintenance and Calibration Record in accordance with the report from the authority which performed the calibration.

The owner of the process in which measuring equipment is used is responsible for preventing

If it turns out that the measuring equipment is malfunctioning, [job title] must determine in which [Job title] must act according to the Procedure for Management of Nonconformities and Corrective

All readings that are out of specification are recorded by [job title] in the List of Equipment – Notes

Records of calibration provide evidence of conformity to internal, legislative/regulatory statement of conformity for equipment and/or software version checked (if software is used to control product and/or process).

According to the production schedule, [job title] schedules an annual overhaul for specific lines/workstations/workshops.

### 3.3.2. Software validation

[Job title] must validate software that is used for product and/or process control, to ensure that

Although software is not subjected to real-time changes, there can be unintentional changes, so it is measuring equipment.

**Commented [16A19]:** Delete if all calibration activities are outsourced.

**Commented [16A20]:** E.g. Maintenance Manager

**Commented [16A21]:** Adapt to your organization, document here who is responsible for FMEA – can be for example Quality Manager.

**Commented [16A22]:** Adapt to your organization, can be for example Quality Engineer.

**Commented [16A23]:** Adapt to your organization, e.g. Quality Manager.

**Commented [16A24]:** Adapt to your organization, delete if it is not applicable.

**Commented [16A25]:** Delete if not used by organization.

**Commented [16A26]:** One of the ways of validation of software is its validation on product whose characteristics are predetermined.

**Commented [16A27]:** For example, for protecting SCADA systems it is common to use SCADA firewalls or virtual closed network; for protecting business software it is common to use antivirus and firewall software.

[organization name]

### 3.3.3. Measuring equipment storage

[Job title] is responsible for storage of measuring equipment in a way that prevents deterioration during storage.

**Commented [16A28]:** E.g. Warehouse Manager

See also the equipment storage and the measuring equipment that is used. The specific details of measuring equipment that is used is a different area being addressed.

## 4. Managing records kept on the basis of this document

Record name	Code	Storage		Responsibility
		Retention time	Location	
List of Equipment	PR.15.1	2 years	[office of Maintenance Manager]	[job title]
Plan for Preventive Maintenance of Equipment	PR.15.2	2 years	[office of Maintenance Manager]	[job title]
MTBF and MTTR Downtime Dashboard	PR.15.3	2 years	[office of Maintenance Manager]	[job title]
Maintenance and Calibration Record	PR.15.4	2 years	[office of Maintenance Manager]	[job title]
Maintenance Work Instruction Template	PR.15.5	2 years	[office of Maintenance Manager]	[job title]

**Commented [16A29]:** For example only, you need to adapt according product requirements, customer and internal requirements.

**Commented [16A30]:** If the record is in electronic form, write the name of the folder on Maintenance Manager's computer.

**Commented [16A31]:** If the record is in electronic form, write the name of the folder on Maintenance Manager's computer.

**Commented [16A32]:** If the record is in electronic form, write the name of the folder on Maintenance Manager's computer.

**Commented [16A33]:** If the record is in electronic form, write the name of the folder on Maintenance Manager's computer.

**Commented [16A34]:** If the record is in electronic form, write the name of the folder on Maintenance Manager's computer.

## 5. Appendices

- Appendix 1 – List of Equipment
- Appendix 2 – Plan for Preventive Maintenance of Equipment
- Appendix 3 – MTBF and MTTR Downtime Dashboard
- Appendix 4 – Maintenance and Calibration Record
- Appendix 5 – Maintenance Work Instruction Template