

Introduction



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INTRODUCTION

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The guidelines contained in this manual are prepared for carrying out maintenance procedures on system equipment.

Objectives

The objectives of these maintenance standards are:

1. Prevention of power outages caused by defective equipment by detecting and correcting such potential problems before they can reach the stage of equipment failure;
2. Standardization of the quality of the maintenance procedures performed across the company;
3. Documentation of techniques and procedures that can be referred to by all personnel involved in maintenance;
4. Communication of these methods and techniques to maintenance personnel;
5. Provision of a basis for training maintenance personnel by identifying the tasks and skills involved in their job functions;
6. Provision of a system of equipment records, maintenance records, and scheduling reports;
7. Optimization of time and money spent on maintaining equipment by refining maintenance procedures, techniques and cycles based on reports and suggestions from field personnel.

Organization

This maintenance manual is divided into six sections:

1. Introduction and Overview of the Maintenance System
2. Inspection Procedures
3. Equipment Maintenance Standards
4. Test Procedures
5. Reference Material
6. Maintenance Standard Report Forms

1. Introduction and Overview of the Maintenance System

This section is denoted by Maintenance Standard Codes of the form MSG###. It explains the function, structure, and operation of the maintenance system in detail.

2. Inspection Procedures

This section is denoted by Maintenance Standard Codes of the form MSI###. It details the procedures for carrying out proper inspections on the specified equipment.

3. Equipment Maintenance Standards

All standard procedures are classified by equipment type and denoted by Maintenance Standard Codes of the form MSP###. These procedures are subdivided into five main types of maintenance, namely:

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- I. Maintenance I - Procedures and tests carried out on new equipment or equipment which is ongoing to be installed prior to it's being released for installation;
- II. Maintenance II - The routine monthly inspection of all substation equipment. Regular inspections ensure that the condition of the equipment is constantly monitored* ;
- III. Maintenance III - A detailed inspection made up of diagnostic tests to determine if the equipment is functioning properly and can be left until the next Maintenance IV for a general overhaul. Minor repairs are done at this time* ;
- IV. Maintenance IV - A routinely scheduled general overhaul;
- V. Maintenance V - Unscheduled maintenance carried out as a result of equipment malfunction or modifications* .

* The results of inspections or tests in a Maintenance I, III, or V can determine if the unit should be given a Maintenance IV before it's regular cycle is up. Flag defects requiring further maintenance and update the maintenance record in Avantis.

4. Test Procedures

This section is denoted by Maintenance Standard Codes of the form MST###. It provides guidelines for carrying out standard test procedures (e.g. meggering, ductor testing, ratio checking, etc.).

5. Reference Material

This section is denoted by Maintenance Standard Codes of the form MSR###. It provides guidelines for determining how often the procedures contained in the maintenance standards should be carried out. It also includes test data, acceptable test levels, tolerance tables and charts.

6. Maintenance Standard Report Forms

This section is denoted by Maintenance Standard Codes of the form MSF###. It contains all of the necessary forms used in reporting system maintenance information.

Substation Maintenance Standard Distribution

Note: Switching is covered by the Standard Protection Code. If there is any conflict between these Standards and the Standard Protection Code, then the latter shall be followed.

All substation maintenance material is available in electronic format from Webster, the company Intranet. These documents are filed under [Departments] → [Engineering] → [Substations] → [Substation Maintenance Standards].