STANDARD TESTING AND COMMISSIONING OF 11 kV SWITCHGEAR

Thesis is presented to fullfill the requirement of Advanced Diploma in Electrical Engineering of MARA Institute of Technology

MOHAMAD BIN OSMAN, DIPLOMA IN ELECTRICAL ENGINEERING, ITM

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Department of Electrical Engineering
School of Engineering
MARA Institute of Technology
40450 Shah Alam
Selangor
MALAYSIA

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SYNOPSIS

Switchgear is an essential part of a power system and also that of any electric circuit, switchgear includes switches, fuses, circuit breakers, isolators, relays, control panels, lightning arrestors, current transformer and various equipment.

Switchgears are necessary at every switching point in the power system. Hence in the various application the requirement of switchgear vary depending upon the location, ratings and local requirement. Besides the supply network, switchgear is necessary in industrial works, industrial projects, domestics and common buildings.

This project paper covers only the area of standard testing and commissioning of 11kV switchgear by looking detail on three main component of switchgear

i) Circuit breaker
ii) Protective relay
iii) Current transformer

The standard format of testing and commissioning are shown by

i) Type of testing for each various type of component
ii) The results of testing
iii) Setting and commissioning of the system

To understand more how the testing and commissioning is carried out, one actual case study is given.

At last, it is fair to say that without discriminative protection it would be impossible to operate a power system and without effective and safety switchgear, it would be impossible to give discriminative protection.

CONTENTS

1. POWER SYSTEM PROTECTION - PHILOSOPHY AND PRACTICE

1.1 Introduction

The history of electrical-power technology throughout the world is one of steady and, in recent years, rapid progress, which has made it possible to design and construct economic and reliable power systems capable of satisfying the continuing growth in the demand for electrical energy.

In this, power system protection and control play a significant part, and progress in design and development in these fields has necessarily had to keep pace with advances in the design of primary plant, such as generators, transformers, switchgear, overhead lines and underground cables.

The function of protective eguipment is not the preventive one its name would imply, in that in takes action only after a fault had occured; it is the ambulance at the foot of the cliff rather than the fence at the top.