PARALLEL OPERATION OF THREE -PHASE TRANSFORMER FOR STAR-DELTA AND DELTA-DELTA CONNECTIONS.

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ABSTRACT

Parallel operation of transformer involves two or more transformers connected to carry a common load. In order that two or more transformer may operate satisfactorily in parallel it is necessary to fulfill their requirement. The criteria required for parallel operation of transformers are the voltage ratio, impedance, phase sequence and also the polarity.

The aim of this report is to investigate the requirement for parallel three-phase transformer and the condition when loading with the combination of load.

To achieve this, several tests had been done including polarity, phase sequence, open circuit, short circuit and load tests.

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INTRODUCTION

1.0 Introduction

The transformer serves many purposes in an electrical power transmission and distribution system. It can step up voltages to permit large amounts of power to be transmitted over long distances with minimum losses, and then step that voltage down to user levels. They permit parts of the electrical system to be electrically isolated from other parts for safety or convenience, and allow electrical quantities to be measured or scaled proportionally. Transformers operate at very high efficiencies, with no moving parts and are well understood. Transformer is one of the most important elements of electric power systems. Transformer losses could be divided into two components: iron losses and copper losses.

The transformer is probably one of the most useful electrical devices ever invented. It can raise or lower the voltage or current in an ac circuit. Furthermore, the transformer enables us to transmit electrical energy over great distances and distribute safely in factories and homes.

1.1 Project Overview

This project contains experiments carried out on parallel operation of transformers. Tests carried out includes; polarity , phase sequence , open circuit , short circuit and load test. For load test, resistance, inductance and capacitive bank are used to represent real, lagging and leading power respectively. The experiments were also done using combination of load in different connection. In this project the apparatus used for measurement works are voltmeter, ammeter, three-phase wattmeter and power factor meter. The objective of this experiment is