MODELING AND SIMULATION ON STARTING RESISTANCE OF A DC MOTOR USING MATLAB/SIMULINK

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ABSTRACT

This thesis presents a modeling and simulated results of the starting resistance of a dc motor. In this project, I shall examine the starting transient of a shunt dc motor. The objectives are to implement the SIMULINK simulation of a dc motor operation in modeling the maximum stating current of 100 A and minimum starting current of 60A. The simulation measured at variations of load as at no-load, full-load, half-load and quarter-load conditions. This includes the study of dynamic mathematical modeling of a dc motor. The value of resistance will determine its suitability. Matlab/Simulink software is used in modeling and simulating the starting resistance of a dc motor.

CONTENTS

CHAPTER 1

INTRODUCTION

1.1 Introduction

In the early days, electricity was commonly generated and supplied as direct current for used at dc motors. Nowadays, nearly all-public supplies of electricity are alternating current. However, direct current has many important applications.

For certain purposes the dc motor is the only acceptable machine. This arises when the drive requires automatic speed increase with light load and controlled braking as in electric traction and cranes.

Other applications require continuous control such that the speed may be held at any set value or made to bear a constant relation to other drives. For instance, in continuous rolling processes, steel mills, paper, plastics, textile, hosiery, cable making and so on.

DC machines can be thought of as a dying breed, but death will come slowly. Prior to the development of reliable, high-power solid-state switching devices, the dc motor was the dominant electric machine for all variable-speed motor drive applications. However, the "power electronic revolution" has led to a significant shift from dc motor drives to adjustable-speed induction motor drives in the low integral to midrange horsepower variable-speed applications for new products.

The dc motor retains niches on either end of the power spectrum where it is still a machine of choice. For instance, the dc motor turns out to be the most economical choice in the automotive industry applications such as cranking, windshield