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B1.0 LAUNCH ON DEMAND RENDEZVOUS PROBLEM

1.0 INTRODUCTION

To determine the feasibility and costs of a satellite designed to approach other satellites for purposes of information gathering requires an exploration of the general problem of rendezvous. To launch from earth and come close to another satellite requires the same timing and manoeuvres as to rendezvous with a spacecraft. In each case the launch will be planned so as to have the satellite reach the same place at the same time and at the same speed as the target. A method of matching the position and velocity of the target satellite is therefore required.

Such a method involves two phases. The first phase uses ground station controlled manoeuvres to bring the satellite into acquisition range, and is addressed by this paper. The second uses on-board controlled transfer manoeuvres to home in on the target, and will be treated separately.