

Space Applications for Earth-To-Low-Orbit Shuttle Vehicles

by

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Introduction

The Earth-To-Low-Orbit Shuttle (ETLOS) is a space transportation system of crucial importance to future space operations. Since it is not an end in itself, its development must be justified in terms of the services it can perform and of the reduction in operating costs obtained by its use--in other words, in terms of its marketability.

The question of a market justifying the investment in an ETLOS transportation system has been receiving attention for quite a number of years. Only a few years back, many people could not see much of any market in space other than for exploration and scientific work. Space applications, they felt, are primarily in the domain of a few unmanned spacecraft and that does not represent a critical transportation problem in the first place. On this premise, then, it was concluded that a requirement for low-cost transportation from Earth to orbit could not yet be established and that, therefore, the time for its development has not yet arrived.

The point of departure in every discussion of the applications of ETLOS must be the fact that cost-effective delivery of personnel and material into near-Earth orbits supports operations in high-altitude orbits and in deep space as well as in near-Earth space (Fig. 1). Thus, ETLOS is truly our umbilical to space anywhere, because near-Earth space is our major staging area for all space operations in the foreseeable future. At a later phase, a direct Earth-To-High-Orbit Shuttle (ETHOS) may be justified, but it will necessarily be a follow-on capability, testifying to the success of the ETLOS as a viable transportation system.

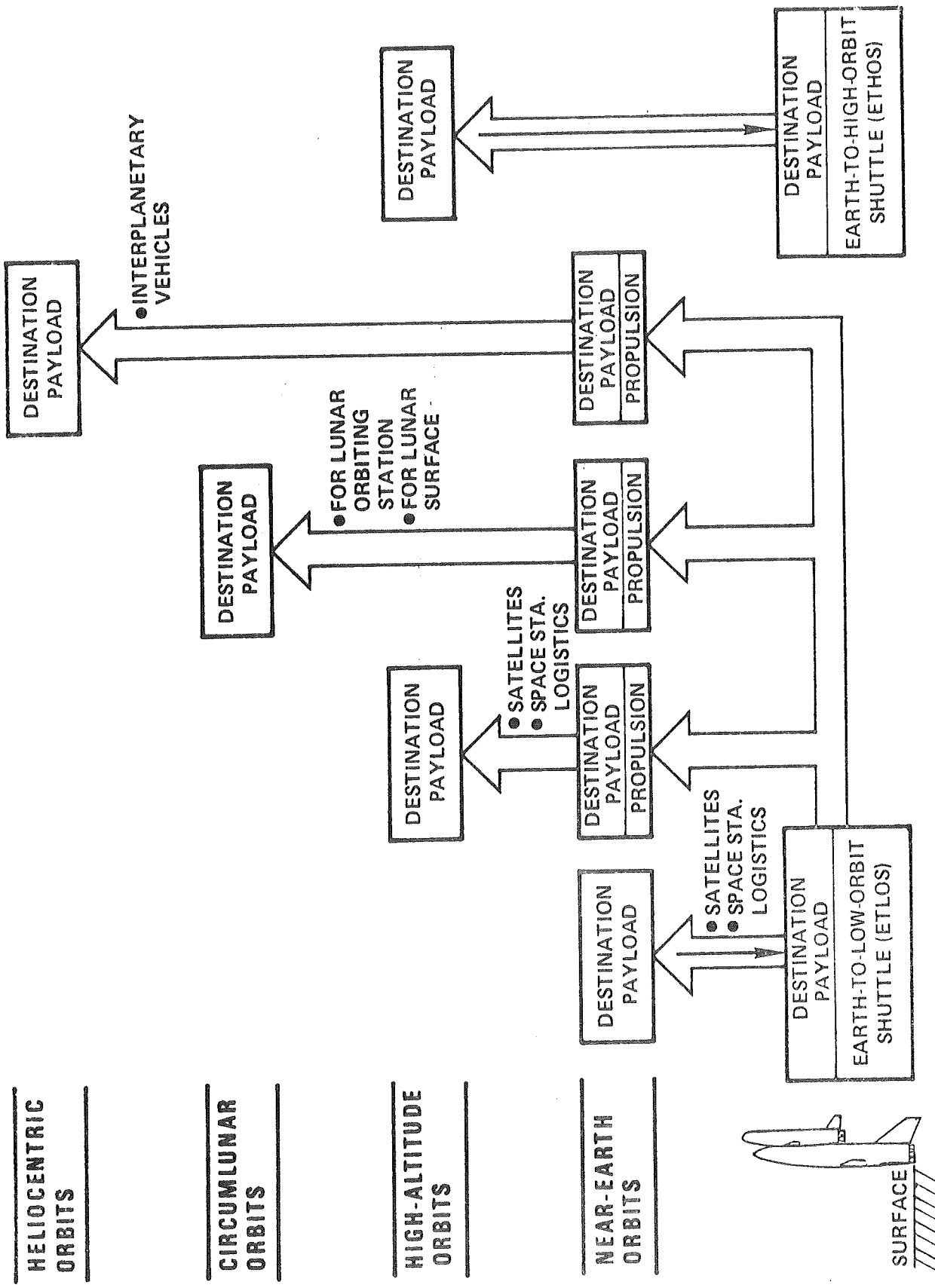


Fig. 1 Earth-Orbit Shuttle-Umbilical To Space