

2.7 Match Launch Time with Time Launch Site Crosses Orbital Plane

The time the launch site crosses the orbital plane t_L given by Equation 2-6-3 is measured from the vernal equinox direction in the equatorial plane. The launch time t_{1f} calculated in section 2.5 gave the time the target satellite must spend in the final orbit prior to the last perigee crossing before rendezvous. To make these times correspond, it is necessary to add the time (t^*) required by the target satellite to travel from the projection of the perigee radius in the equatorial plane to the vernal equinox direction.

$$t_1 = t_{1f} + t^*$$

The times t_L and t_1 are related to a common base and may be equated:

$$t_L = t_1$$

The time t^* is determined from spherical trigonometry.

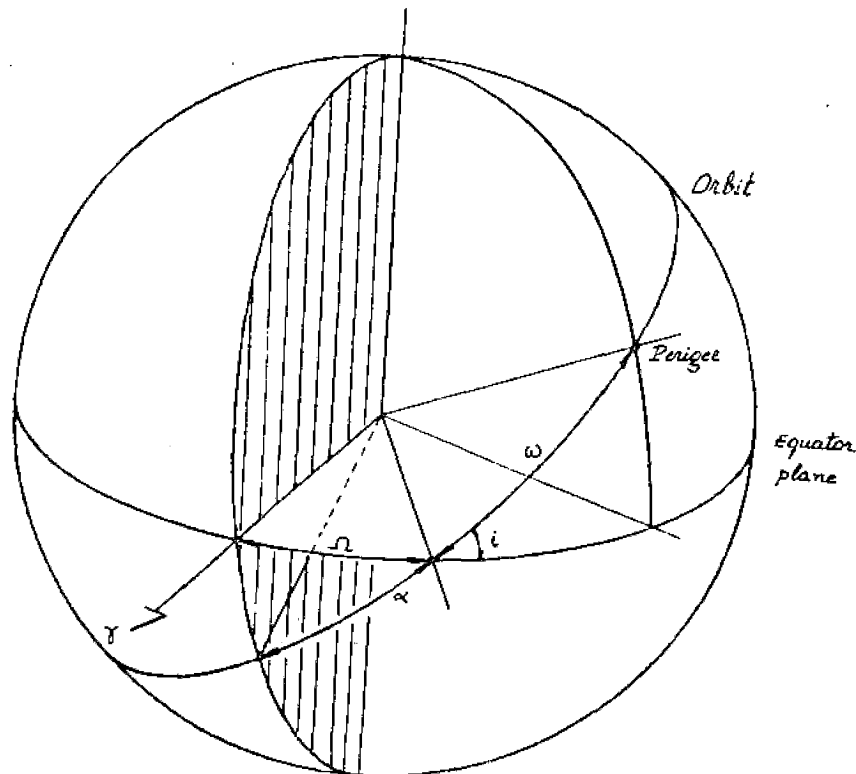


FIGURE 2-8 INTERSECTION OF ORBIT PLANE, EQUATORIAL PLANE AND PLANE OF REFERENCE (EQUINOX) DIRECTION