The constraints applied to this sample problem dictate that the node of the target orbit must be 306.35° East of Greenwich for the orbit in which rendezvous will occur. Ω_r = - 53.65°
As shown in Figure 2-7,
$A_L - \Omega = \Lambda_L - \Omega_r$ or $\Omega_r = \Lambda_L - (A_L - \Omega)$
= 307.23° - 0.88° = 306.35°
From the Radarsat Timeline, node number 156 is at - 53.13° at 271.07 hours MET, and will repeat every 219 orbits, or about 384 hours. At the first node (at epoch), Ω = 55.6°, and node 156 is 273.52 hours later. Adding this to the epoch 90:12:21/16:41:23 yields 91:01:02/02:12:35. For this epoch, Θ_g = 134.36° (Aries to Greenwich). This requires Ω = 80.7°. Nine revolutions in the phasing orbit correlates with Ω = 80.34° which is close enough for this exercise.

The position of the target at the time of launch (3.4) was established as a function of n. With n = 9, Θ_{IF} = -3173.63 and t_{IF} = - 55,644.4 sec. These values lead to
t_L = - 54094 sec. t* = 1549.7 sec. (t_1 = - 54094 as it should.)

These negative times imply launch is prior to the beginning of the time record, which starts at 91:01:02/02:12:35. Counting backwards 54,094 seconds from epoch gives
t_L = 91:01:01/11:11:01
The position of the target is 3173.63° before perigee, which is 8 orbits and 293.63° before perigee of the rendezvous orbit.

3.7 Iterate on Altitude of Waiting Orbit

This will not be done for this sample case, but it could yield a shorter time for rendezvous. Finding a node corresponding to a small number of revolutions in the phasing orbit was serendipitous in this example.

3.8 Solve for Maneuver Positions and Launch Azimuth

Due to the simplifying assumptions made in this example the maneuver positions are apparent. Injection into the final orbit occurs at the latitude of the launch site. (L = 5.24°N) Injection into the transfer orbit is at 5.24° S. The uncorrected launch azimuth is 9.56°.