```
include("../../../code/sfd.jl")
using .SpaceFlightDynamics
using LinearAlgebra

r1 = [8000.0, 0.0, 0.0]
r2 = [7000.0, 7000.0, 0.0]
TOF = 3600.0

v1, v2, e, rp = solve_lambert(r1, r2, TOF; long_way=false)
sv2 = solve_2BP(StateVectors(r1, v1), (0.0, TOF), μ=μ_Earth)

r2_diff = r2 - sv2[end].r
v2_diff = v2 - sv2[end].v

r1_norm = norm(r1)
v_circ1 = [ 0.0,
            sqrt(μ_Earth / r1_norm),
            0.0 ]

r2_norm = norm(r2)

t_hat2 = [-r2[2], r2[1], 0.0] ./ r2_norm
v_circ2 = sqrt(μ_Earth / r2_norm) .* t_hat2

ΔV1 = norm(v1 .- v_circ1)
ΔV2 = norm(v2 .- v_circ2)
ΔV_total = ΔV1 + ΔV2

println("ΔV at departure (km/s): ", ΔV1)
println("ΔV at arrival   (km/s): ", ΔV2)
println("Total ΔV         (km/s): ", ΔV_total)

ΔV at departure (km/s): 6.535402184960239
ΔV at arrival   (km/s): 5.235910109612791
Total ΔV         (km/s): 11.771312294573029
```