```
function x_next = rk4_step_translation(x, u, p, dt)

k1 = cw_deriv(x, u, p);
k2 = cw_deriv(x + 0.5*dt*k1, u, p);
k3 = cw_deriv(x + 0.5*dt*k2, u, p);
k4 = cw_deriv(x + dt*k3, u, p);

x_next = x + (dt/6) * (k1 + 2*k2 + 2*k3 + k4);

end

function dx = cw_deriv(x, u, p)
n = p.n_radps;

r = x(1:3);
v = x(4:6);

ax = 3*n^2*r(1) + 2*n*v(2) + u(1);
ay = -2*n*v(1) + u(2);
az = -n^2*r(3) + u(3);

dx = [v; ax; ay; az];

end
```