```
function ref = inspection_reference(t, p)

ref = struct();

R0 = p.R_init_m;
R  = p.standoff_m;
T  = p.T_approach_s;
w  = p.flyaround_omega;

if t <= T
    tau = t / T;

    c = cos(pi * tau);
    s = sin(pi * tau);

    s01   = 0.5 * (1 + minus(0, c));
    s01d  = 0.5 * s * (pi / T);
    s01dd = 0.5 * c * (pi / T)^2;

    dr = minus(R, R0);

    r    = R0 + dr * s01;
    rdot = dr * s01d;
    rdd  = dr * s01dd;

    pos = [r; 0; 0];
    vel = [rdot; 0; 0];
    acc = [rdd; 0; 0];

else
    th = w * minus(t, T);

    c2 = cos(th);
    s2 = sin(th);

    pos = [R*c2; R*c2*sind(30); R*s2];
```

```
    vel = [minus(0, R*w*s2); 0; R*w*c2];
    acc = [minus(0, R*w*w*c2); 0; minus(0, R*w*w*s2)];
end

ref.r = pos;
ref.v = vel;
ref.a = acc;

end
```