```cpp
#pragma once

#include "Math.hpp"
#include "InertiaDiagonal.hpp" /

// Rigid body
struct RocketState
{
    // translation in inertial frame
    Vector3 r_I; // position of center of mass
    Vector3 v_I; // velocity

    // attitude and rotational motion
    Vector3 euler; // [phi, theta, psi] = roll pitch yaw [rad]
    Vector3 omega_B; // body angular rate [rad/s]

    // mass properties
    double mass;
    InertiaDiagonal I_B; // inertia about COM

    RocketState()
        : r_I(), v_I(), euler(), omega_B(),
          mass(0.0), I_B()
    {
    }

    // constructor with all fields
    RocketState(const Vector3 &r_I_in,
                const Vector3 &v_I_in,
                const Vector3 &euler_in,
                const Vector3 &omega_B_in,
                double mass_in,
                const InertiaDiagonal &I_B_in)
        : r_I(r_I_in),
          v_I(v_I_in),
          euler(euler_in),
          omega_B(omega_B_in),
          mass(mass_in),
          I_B(I_B_in)
    {
    }
};
```