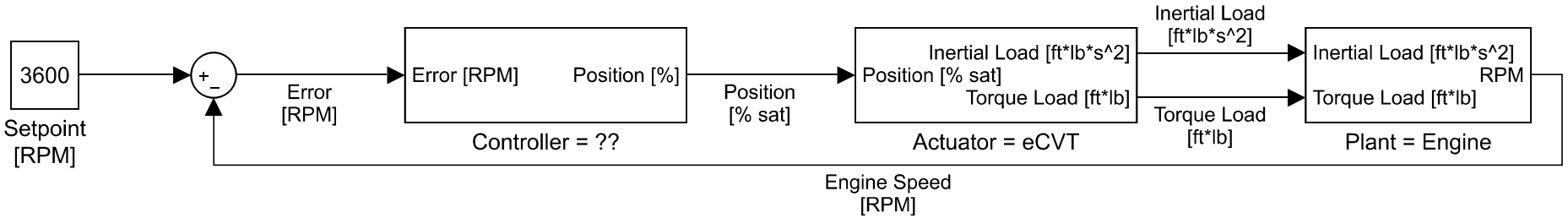
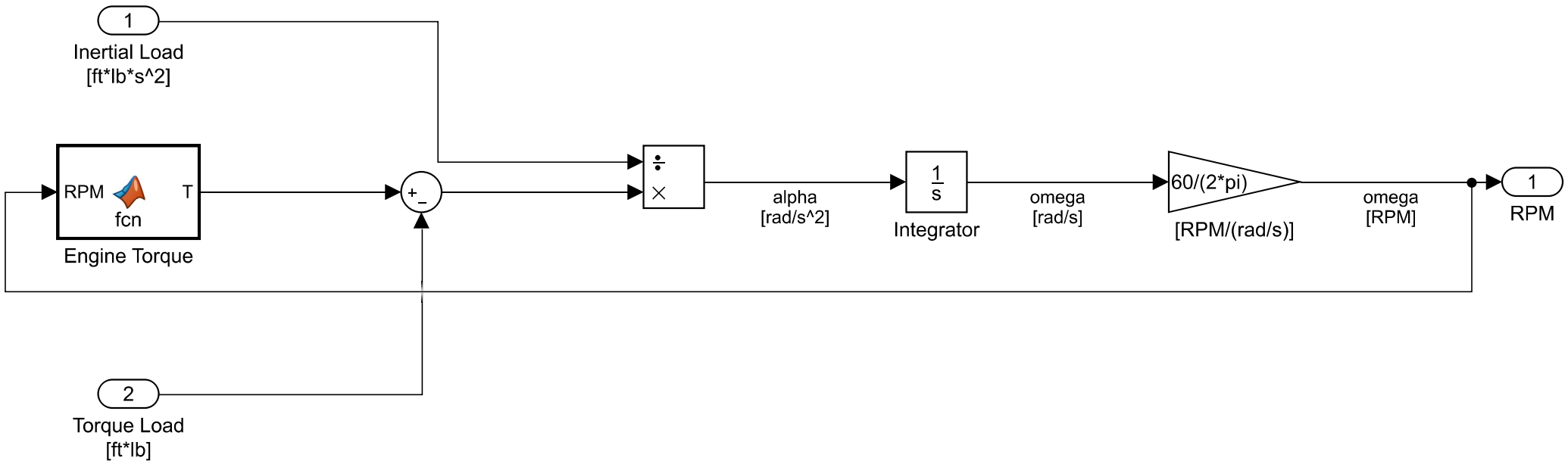
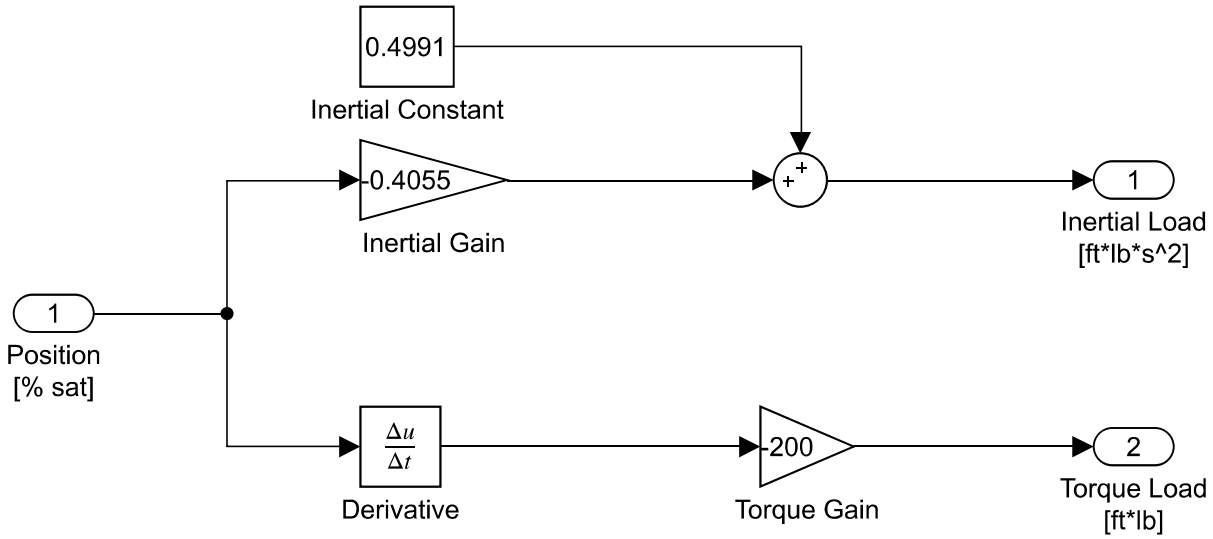
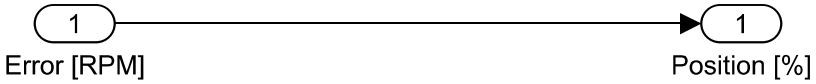

3600
Setpoint
[RPM]
+
−
Error
[RPM]
Error [RPM]
Position [%]
Controller = ??
Position
[% sat]
Inertial Load [ft*lb*s^2]
Position [% sat]
Torque Load [ft*lb]
Actuator = eCVT
Inertial Load
[ft*lb*s^2]
Torque Load
[ft*lb]
Inertial Load [ft*lb*s^2]
RPM
Torque Load [ft*lb]
Plant = Engine
Engine Speed
[RPM]


1
Inertial Load
[ft*lb*s^2]
RPM
T
fcn
Engine Torque
+
−
alpha
[rad/s^2]
1
s
Integrator
omega
[rad/s]
60/(2*pi)
[RPM/(rad/s)]
omega
[RPM]
1
RPM
2
Torque Load
[ft*lb]

```
function T = fcn(RPM)

% RPM < 1750
if RPM < 1750
    T = 0;

% 1750 < RPM < 3800
elseif RPM < 3600
    % BSM19 Engine HP vs. RPM Equation  (3rd Order)
    HP = - 2.874 * 10^-10 * RPM.^3 ...
         + 1.781 * 10^-06 * RPM.^2 ...
         - 6.842 * 10^-04 * RPM.^1 ...
         + 1.719 * 10^000 * RPM.^0;

    % Torque = Power / Angular Velocity
    T = HP ./ (RPM*2*pi) * 33000;

% 3600 < RPM < 3800
elseif RPM < 3800
    % Linearized Governor
    T = -0.065 * RPM + 247;

% RPM > 3800
else
    T = 0;

end
```


0.4991
Inertial Constant
0.4055
Inertial Gain
1
Inertial Load
[ft*lb*s^2]
1
Position
[% sat]
Δu/Δt
Derivative
200
Torque Gain
2
Torque Load
[ft*lb]


1
Error [RPM]
1
Position [%]