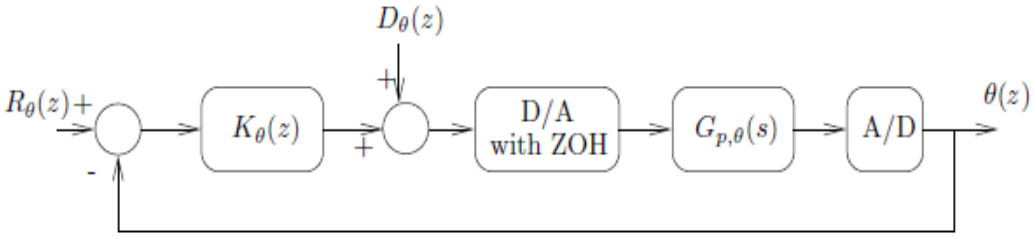
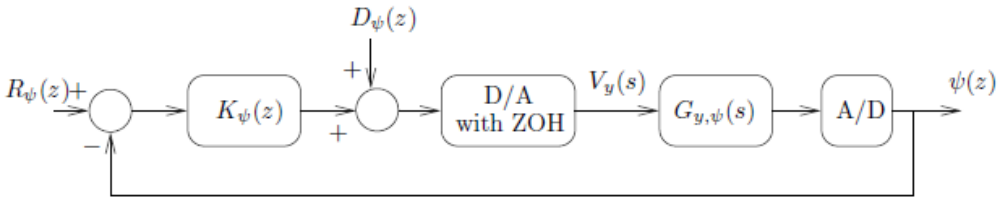
Block Diagram for Pitch Channel:



$$G_{p,\theta(s)} = \frac{\theta(s)}{V_p(s)} = \frac{37.2021}{s^2 + 0.2830s + 2.7452}$$

Block Diagram for Yaw Channel:



$$G_{p,\varphi(s)} = \frac{\varphi(s)}{V_y(s)} = \frac{7.461}{s(s + 0.2701)}$$

Controller Specifications:

1. Percentage of overshoot for step reference input ≤ 20%
2. Settling time of step response ≤ 18 sec
3. Rise time of step response ≤ 3 sec
4. Steady-state error for step reference input = 0
5. Steady-state output in response to step disturbance = 0

Overall Closed-loop System: