1. PREDICTION

1a.	state	$\hat{\mathbf{x}}_{k\|k-1} = \mathbf{A}_k \hat{\mathbf{x}}_{k-1} + \mathbf{B}_k \mathbf{u}_k$
1b.	state covariance	$\mathbf{M}_{k\|k-1} = \mathbf{A}_k \mathbf{M}_{k-1\|k-1} \mathbf{A}_k^T + \mathbf{Q}_k$
2a.	measurement	$\hat{\mathbf{z}}_{k\|k-1} = \mathbf{C}_k \hat{\mathbf{x}}_{k\|k-1}$
2b.	measurement covariance (called innovation covariance)	$\mathbf{S}_k = \mathbf{C}_k \mathbf{M}_{k\|k-1} \mathbf{C}_k^T + \mathbf{R}_k$
3.	gain	$\mathbf{K}_k = \mathbf{M}_{k\|k-1} \mathbf{C}_k^T \mathbf{S}_k^{-1}$

observation is received

4.	innovation	$\mathbf{y}_k = \mathbf{z}_k - \hat{\mathbf{z}}_{k\|k-1}$

2. UPDATE

5a.	state	$\hat{\mathbf{x}}_{k\|k-1} = \hat{\mathbf{x}}_{k\|k-1} + \mathbf{K}_k \mathbf{y}_k$
5b.	state covariance	$\mathbf{M}_{k\|k-1} = (\mathbf{I} - \mathbf{K}_k \mathbf{C}_k) \mathbf{M}_{k\|k-1}$

system model covariance 'unknown'