

REARRANGE

$$(L + D)x_{k+1} = -Ux_k + b$$

To

$$Dx_{k+1} = D x_k - (L x_{k+1} + (D + U)x_k - b)$$

$$L x_{k+1} + D x_{k+1} = -U x_k + b$$

$$D x_{k+1} = -U x_k - L x_{k+1} + b$$

$$= - (L x_{k+1} + U x_k - b)$$

$$\dots U = D + U - D$$

$$= - (L x_{k+1} + (D + U - D)x_k - b)$$

$$= - (L x_{k+1} + D x_k + U x_k - D x_k - b)$$

$$D x_{k+1} = D x_k - (L x_{k+1} + (D + U)x_k - b)$$