DERIVE

$$B_w = (\omega L + D)^{-1}\left((1-\omega)D - \omega U\right)$$

FROM

$$(\omega L + D)\, x_{k+1} = \left((1-\omega)D - \omega U\right)$$

$$\therefore \quad B_w \cdot x_{k+1} = X_{k+1}$$

NOW, IN GENERAL THE ITER MA IS B IN:

$$Ax = b \longleftrightarrow x = Bx + C \longrightarrow x_{k+1} = Bx_k + C$$

FOR JACOBI THE ITER MA IS DERIVED AS

AS IN G/S, G/S W/W, FIRST ONE SPLITS MATRICES AS $A = L + D + U$

$$\longrightarrow Ax = b \longleftrightarrow (L + D + U)x = b \quad (1)$$

REARRANGE (1) AS $\quad Dx = -(L + U)x + b$

$$Lx + Dx + Ux = b$$

$$Dx = b - Lx - Ux$$

$$\boxed{Dx = -(L + U)x + b}$$