For variables, I will use reasnbly standard names (ask if they are unclear); Subscripts of 1 and 2 refer to individual motors, and no number refers to some attribute of the two-motor system. Subscripts of s and f refer to variables at stall and at free speed. V_r refers to the rated voltage at which free speed and stall torque were measured.

First, we start with the statement that the sum of the two currents is equal to the net current used by the system:

$$I = I_1 + I_2$$

Now, we substitute in from the single motor equations. Note that $V_1 = V_2 = V$ and $\omega_1 = \omega_2 = \omega$:

$$V_x = I_x R_x + \frac{\omega_x}{K_{vx}}$$

$$I_x = \frac{V - \frac{\omega}{K_{vx}}}{R_x}$$

$$I = \frac{V - \frac{\omega}{K_{v1}}}{R_1} + \frac{V - \frac{\omega}{K_{v2}}}{R_2}$$

Cleaning up this eqation by multiplying through by $R_1 R_2$, dividing by $R_1 + R_2$, and isolating V yields:

$$V = I \frac{R_1 R_2}{R_1 + R_2} + \omega \frac{\frac{R_2}{K_{v1}} + \frac{R_1}{K_{v2}}}{R_1 + R_2}$$

This is a significant step in getting where I want to be: I now can say that there is a two-motor equation of the form $V = IR + \frac{\omega}{K_v}$. However, I still want to check to see whether the following relationships hold:

$$R = \frac{V_m}{I_s} = \frac{R_1 R_2}{R_1 + R_2}$$

$$K_v = \frac{\omega_f}{V_m - I_f R} = \left(\frac{\frac{R_2}{K_{v1}} + \frac{R_1}{K_{v2}}}{R_1 + R_2} \right)^{-1}$$

I was not able to figure out the K_v equations quickly, but I was able to determine that the R equations are equivalent.

$$\frac{V_m}{I_s} = \frac{R_1 R_2}{R_1 + R_2}$$

Substitute in $\frac{V_m}{I_{sx}}$ for every R_x:

$$\frac{V_m}{I_s} = \frac{\frac{V_m}{I_{s1}} \frac{V_m}{I_{s2}}}{\frac{V_m}{I_{s1}} + \frac{V_m}{I_{s2}}}$$

I can cancel out all of the V_m and multiply the right side by $\frac{I_{s1} I_{s2}}{I_{s1} I_{s2}}$. I also expand out I_s.

$$\frac{1}{I_{s1} + I_{s2}} = \frac{1}{I_{s1} + I_{s2}}$$

Which are equivalent.

Now, as I mentioned earlier, I wasn't quickly able to show that the K_v equations are equivalent, but if someone looks at them, they should be able to figure them out. However, there still remains one equation to show applies to multiple motors:

$$\tau = IK_t$$

We know what K_t should be and we know what τ is in terms of individual motors:

$$K_t = \frac{\tau_{s1} + \tau_{s2}}{I_{s1} + I_{s2}}$$

$$\tau = I_1 K_{t1} + I_2 K_{t2}$$

However, I was unable to express the latter such that the only variables in the equation were τ and I, let alone determined for sure whether the former equation really does apply.