and taking

$$C_{\mathfrak{J}_B}^{(0,0;AB^{-1})}(w) \times_w T_{\mathfrak{J}_B,\mathfrak{J}_C,\mathfrak{J}_D}(w,u,v)$$

$$= (q;q)(p;p)\oint \frac{\mathrm{d}w}{4\pi i w}\frac{\prod_{j=1}^{8}\Gamma_e\big((qp)^{\frac{1}{2}}\frac{1}{t}a_j^{-1}w^{\pm 1}\big)}{\Gamma\big(w^{\pm 2}\big)}C_{\mathfrak{J}_B}^{(0,0;AB^{-1})}(w)T_{\mathfrak{J}_B,\mathfrak{J}_C,\mathfrak{J}_D}(w,u,v)$$

$$= (q;q)^4(p;p)^4\oint \frac{\mathrm{d}w}{4\pi i w}\frac{\prod_{j=1}^{8}\Gamma_e\big((qp)^{\frac{1}{2}}\frac{1}{t}a_j^{-1}w^{\pm 1}\big)}{\Gamma\big(w^{\pm 2}\big)}\Gamma_e\big(pqt^4\big)\prod_{j\neq i}\Gamma_e\left(\frac{pqt^2}{a_ia_j}\right)0\prod_{j=1}^{8}\Gamma_e\big((pq)^{\frac{1}{2}}ta_jw^{\pm 1}\big)$$

$$\times\Gamma_e\left(\frac{(pq)^{\frac{1}{2}}w^{\pm 1}}{ta_i}\right)\Gamma_e\left(\frac{a_iw^{\pm 1}}{(pq)^{\frac{1}{2}}t^3}\right)\Gamma_e\big((qp)^{\frac{1}{2}}t\big(B^{-1}A\big)^{\pm 1}w^{\pm 1}\big)\Gamma_e\left(\frac{qp}{t^2}\right)$$

$$\times\oint\frac{\mathrm{d}y}{4\pi i y}\frac{\Gamma_e\big(\frac{(pq)^{\frac{1}{2}}}{t^2}\big(AB^{-1}\big)^{\pm 1}y^{\pm 1}\big)}{\Gamma_e(y^{\pm 2})}\Gamma_e\big(ty^{\pm 1}w^{\pm 1}\big)\oint\frac{\mathrm{d}w_1}{4\pi i w_1}\oint\frac{\mathrm{d}w_2}{4\pi i w_2}\frac{\Gamma_e\big(\frac{(pq)^{\frac{1}{2}}}{t^2}w_1^{\pm 1}w_2^{\pm 1}\big)}{\Gamma_e\big(w_2^{\pm 2}\big)\Gamma_e\big(w_1^{\pm 2}\big)}$$

$$\times\Gamma_e\big((qp)^{\frac{1}{4}}tA^{\frac{1}{2}}B^{-\frac{1}{2}}y^{\frac{1}{2}}w_1^{\pm 1}u^{\pm 1}\big)\Gamma_e\big((qp)^{\frac{1}{4}}A^{\frac{1}{2}}B^{\frac{1}{2}}y^{-\frac{1}{2}}w_1^{\pm 1}D^{\pm 1}\big)$$

$$\times\Gamma_e\big((qp)^{\frac{1}{4}}tA^{-\frac{1}{2}}B^{\frac{1}{2}}y^{-\frac{1}{2}}w_2^{\pm 1}u^{\pm 1}\big)\Gamma_e\big((qp)^{\frac{1}{4}}A^{-\frac{1}{2}}B^{-\frac{1}{2}}y^{\frac{1}{2}}D^{\pm 1}w_2^{\pm 1}\big)$$

$$\times\Gamma_e\big((qp)^{\frac{1}{4}}tA^{-\frac{1}{2}}B^{\frac{1}{2}}y^{\frac{1}{2}}w_1^{\pm 1}v^{\pm 1}\big)\Gamma_e\big((qp)^{\frac{1}{4}}A^{-\frac{1}{2}}B^{-\frac{1}{2}}y^{-\frac{1}{2}}C^{\pm 1}w_1^{\pm 1}\big)$$

$$\times\Gamma_e\big((qp)^{\frac{1}{4}}tA^{\frac{1}{2}}B^{-\frac{1}{2}}y^{-\frac{1}{2}}w_2^{\pm 1}v^{\pm 1}\big)\Gamma_e\big((qp)^{\frac{1}{4}}A^{\frac{1}{2}}B^{\frac{1}{2}}y^{\frac{1}{2}}w_2^{\pm 1}C^{\pm 1}\big).$$

Plugging in the values of a_j from where $a_i = AB^{-1}$ and using the identity $\Gamma_e\big(\frac{pq}{z}\big)\Gamma_e(z) = 1$ we get

$$(q;q)^4(p;p)^4\oint\frac{\mathrm{d}w}{4\pi i w}\frac{1}{\Gamma\big(w^{\pm 2}\big)}\Gamma_e\big(pqt^4\big)\Gamma_e\big(pqt^2\big)\Gamma_e\big(pqt^2B^2\big)\Gamma_e\big(pqt^2A^{-2}\big)$$

$$\times\Gamma_e\big(pqt^2A^{-1}BC^{\pm 1}D^{\pm 1}\big)\Gamma_e\left(\frac{AB^{-1}w^{\pm 1}}{(pq)^{\frac{1}{2}}t^3}\right)\Gamma_e\big((qp)^{\frac{1}{2}}tA^{-1}Bw^{\pm 1}\big)\Gamma_e\left(\frac{qp}{t^2}\right)$$

$$\times\oint\frac{\mathrm{d}y}{4\pi i y}\frac{\Gamma_e\big(\frac{(pq)^{\frac{1}{2}}}{t^2}\big(AB^{-1}\big)^{\pm 1}y^{\pm 1}\big)}{\Gamma_e\big(y^{\pm 2}\big)}\Gamma_e\big(ty^{\pm 1}w^{\pm 1}\big)$$

$$\times\oint\frac{\mathrm{d}w_1}{4\pi i w_1}\oint\frac{\mathrm{d}w_2}{4\pi i w_2}\frac{\Gamma_e\big(\frac{(pq)^{\frac{1}{2}}}{t^2}w_1^{\pm 1}w_2^{\pm 1}\big)}{\Gamma_e\big(w_2^{\pm 2}\big)\Gamma_e\big(w_1^{\pm 2}\big)}\Gamma_e\big((qp)^{\frac{1}{4}}tA^{\frac{1}{2}}B^{-\frac{1}{2}}y^{\frac{1}{2}}w_1^{\pm 1}u^{\pm 1}\big)$$

$$\times\Gamma_e\big((qp)^{\frac{1}{4}}A^{\frac{1}{2}}B^{\frac{1}{2}}y^{-\frac{1}{2}}w_1^{\pm 1}D^{\pm 1}\big)\Gamma_e\big((qp)^{\frac{1}{4}}tA^{-\frac{1}{2}}B^{\frac{1}{2}}y^{-\frac{1}{2}}w_2^{\pm 1}u^{\pm 1}\big)$$

$$\times\Gamma_e\big((qp)^{\frac{1}{4}}A^{-\frac{1}{2}}B^{-\frac{1}{2}}y^{\frac{1}{2}}D^{\pm 1}w_2^{\pm 1}\big)\Gamma_e\big((qp)^{\frac{1}{4}}tA^{-\frac{1}{2}}B^{\frac{1}{2}}y^{\frac{1}{2}}w_1^{\pm 1}v^{\pm 1}\big)$$

$$\times\Gamma_e\big((qp)^{\frac{1}{4}}A^{-\frac{1}{2}}B^{-\frac{1}{2}}y^{-\frac{1}{2}}C^{\pm 1}w_1^{\pm 1}\big)\Gamma_e\big((qp)^{\frac{1}{4}}tA^{\frac{1}{2}}B^{-\frac{1}{2}}y^{-\frac{1}{2}}w_2^{\pm 1}v^{\pm 1}\big)$$

$$\times\Gamma_e\big((qp)^{\frac{1}{4}}A^{\frac{1}{2}}B^{\frac{1}{2}}y^{\frac{1}{2}}w_2^{\pm 1}C^{\pm 1}\big).$$