We can perform the integral over w using the inversion formula which sets $y=\frac{AB^{-1}}{(pq)^{\frac{1}{2}}t^2}$, and we get

$$
\begin{aligned}
&(q;q)^2(p;p)^2\Gamma_e\big(pqt^2B^2\big)\Gamma_e\big(pqt^2A^{-2}\big)\Gamma_e\big(pqt^2A^{-1}BC^{\pm1}D^{\pm1}\big)\Gamma_e(pq)\Gamma_e\big(t^{-4}A^2B^{-2}\big)\\
&\quad\times\Gamma_e\big(pqA^{-2}B^2\big)\oint\frac{\mathrm{d}w_1}{4\pi i w_1}\oint\frac{\mathrm{d}w_2}{4\pi i w_2}\frac{\Gamma_e\big(\frac{(pq)^{\frac{1}{2}}}{t^2}w_1^{\pm1}w_2^{\pm1}\big)}{\Gamma_e\big(w_2^{\pm2}\big)\Gamma_e\big(w_1^{\pm2}\big)}\Gamma_e\big(AB^{-1}u^{\pm1}w_1^{\pm1}\big)\\
&\quad\times\Gamma_e\big((qp)^{\frac{1}{2}}tBD^{\pm1}w_1^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}t^2A^{-1}Bu^{\pm1}w_2^{\pm1}\big)\Gamma_e\big(t^{-1}B^{-1}D^{\pm1}w_2^{\pm1}\big)\Gamma_e\big(v^{\pm1}w_1^{\pm1}\big)\\
&\qquad\times\Gamma_e\big((qp)^{\frac{1}{2}}tA^{-1}C^{\pm1}w_1^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}t^2v^{\pm1}w_2^{\pm1}\big)\Gamma_e\big(t^{-1}AC^{\pm1}w_2^{\pm1}\big).
\end{aligned}
$$

$\Gamma_e(pq)$ is zero but the integral over w_1 is pinched at $w_1=v^{\pm1}$ due to the term $\Gamma_e(v^{\pm1}w_1^{\pm1})$ such that the multiplication is finite and we get

$$
\begin{aligned}
&(q;q)(p;p)\Gamma_e\big(pqt^2B^2\big)\Gamma_e\big(pqt^2A^{-2}\big)\Gamma_e\big(pqt^2A^{-1}BC^{\pm1}D^{\pm1}\big)\Gamma_e\big(t^{-4}A^2B^{-2}\big)\Gamma_e\big(pqA^{-2}B^2\big)\\
&\qquad\times\Gamma_e\big(AB^{-1}u^{\pm1}v^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}tBD^{\pm1}v^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}tA^{-1}C^{\pm1}v^{\pm1}\big)\\
&\quad\times\oint\frac{\mathrm{d}w_2}{4\pi i w_2}\frac{1}{\Gamma_e\big(w_2^{\pm2}\big)}\Gamma_e\big((qp)^{\frac{1}{2}}t^2A^{-1}Bu^{\pm1}w_2^{\pm1}\big)\Gamma_e\big(t^{-1}B^{-1}D^{\pm1}w_2^{\pm1}\big)\Gamma_e\big(t^{-1}AC^{\pm1}w_2^{\pm1}\big).
\end{aligned}
$$

Integral over w_2 can be evaluated using the elliptic beta integral formula, and the final result is

$$
\begin{aligned}
&\Gamma_e\big(pqA^{-2}B^2\big)\Gamma_e\big(AB^{-1}u^{\pm1}v^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}tBD^{\pm1}v^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}tA^{-1}C^{\pm1}v^{\pm1}\big)\\
&\qquad\times\Gamma_e\big((pq)^{\frac{1}{2}}tBC^{\pm1}u^{\pm1}\big)\Gamma_e\big((pq)^{\frac{1}{2}}tA^{-1}D^{\pm1}u^{\pm1}\big).
\end{aligned}
$$

We glue this to another three punctured sphere closed with $a_i=A^{-1}B$ and the claim is that gluing this to a given model we get the same model. Indeed we have

$$
\begin{aligned}
&T_{\mathfrak{J}_C}(u)\times_u\Big(\big(T_{\mathfrak{J}_B,\mathfrak{J}_C,\mathfrak{J}_D}(w,u,v)\times_w C_{\mathfrak{J}_B}^{(0,0;AB^{-1})}(w)\big)\\
&\qquad\times_v\big(T_{\mathfrak{J}_B,\mathfrak{J}_C,\mathfrak{J}_D}(h,z,v)\times_h C_{\mathfrak{J}_B}^{(0,0;A^{-1}B)}(h)\big)\Big)\\
&=(q;q)^2(p;p)^2\Gamma_e\big(pq\big(A^{-2}B^2\big)^{\pm1}\big)\Gamma_e\big((pq)^{\frac{1}{2}}tB^{-1}C^{\pm1}z^{\pm1}\big)\Gamma_e\big((pq)^{\frac{1}{2}}tAD^{\pm1}z^{\pm1}\big)\\
&\quad\times\oint\frac{\mathrm{d}u}{4\pi i u}\frac{\Gamma_e\big((qp)^{\frac{1}{2}}t^{-1}A^{\pm1}D^{\pm1}u^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}t^{-1}B^{\pm1}C^{\pm1}u^{\pm1}\big)}{\Gamma\big(u^{\pm2}\big)}\\
&\qquad\times\Gamma_e\big((pq)^{\frac{1}{2}}tBC^{\pm1}u^{\pm1}\big)\Gamma_e\big((pq)^{\frac{1}{2}}tA^{-1}D^{\pm1}u^{\pm1}\big)T_{\mathfrak{J}_C}(u)\\
&\quad\times\oint\frac{\mathrm{d}v}{4\pi i v}\frac{\Gamma_e\big((qp)^{\frac{1}{2}}t^{-1}A^{\pm1}C^{\pm1}v^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}t^{-1}B^{\pm1}D^{\pm1}v^{\pm1}\big)}{\Gamma\big(v^{\pm2}\big)}\\
&\quad\times\Gamma_e\big(AB^{-1}u^{\pm1}v^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}tBD^{\pm1}v^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}tA^{-1}C^{\pm1}v^{\pm1}\big)\\
&\quad\times\Gamma_e\big(A^{-1}Bz^{\pm1}v^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}tB^{-1}D^{\pm1}v^{\pm1}\big)\Gamma_e\big((qp)^{\frac{1}{2}}tAC^{\pm1}v^{\pm1}\big).
\end{aligned}
$$