$$= \left(\frac{1}{u(\lambda_1\lambda_2 - \lambda_{12}^2)}\right)^2 \Big(\leftrightarrow + \cancel{\lambda_{11}\lambda_{22}\lambda_{12}\alpha_1\alpha_2}\, d_1 d_2$$

$$(\rightarrow)(\leftrightarrow + \cancel{\lambda_{11}\lambda_{22}\lambda_{12}\alpha_1 d_2} - \lambda_{12}^3 d_1 d_2 - \lambda_{11}\lambda_{22}^2 d_1^2 + \lambda_{12}^2\lambda_{22} d_1^2$$

$$+ \lambda_{11}\lambda_{22}\lambda_{12} d_1 d_2 - \lambda_{11}^2\lambda_{22} d_2^2 - \lambda_{12}^3 d_1 d_2 + \lambda_{11}\lambda_{12}^2 d_2^2$$

$$+ \cancel{\tfrac{1}{2}}\tfrac{1}{2}\lambda_1\lambda_{12}^2 d_2^2 - \lambda_{11}\lambda_{12}\lambda_{22} d_1 d_2 + \tfrac{1}{2}\lambda_{11}\lambda_{22}^2 d_1^2$$

$$+ \lambda_{12}^3 d_1 d_2 - \cancel{\lambda_{22}\lambda_{12}\alpha_1^2} - \lambda_{11}\lambda_{12}^2 d_2^2 - \lambda_{22}\lambda_{12}^2 d_1^2 + \lambda_2\lambda_{11}\lambda_{22}\boxed{d_1 d_2}$$

$$+ \tfrac{1}{2}\lambda_{22}\lambda_{12}^2 d_1^2 - 2\lambda_{22}\lambda_{12}\lambda_{11} d_1 d_2 + \tfrac{1}{2}\lambda_{22}\lambda_{11}^2 d_2^2.$$