

$$\begin{aligned}
& \frac{-1/2i[15](3|1+6|5)^3\langle 4|2+3|1\rangle^2\Pi_{462}}{[16](23)[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle^4} + \\
& \frac{-1/4i[15][25](46)\langle 3|1+6|5\rangle^2\langle 4|2+3|1\rangle\langle 5|1+6|4\rangle\Pi_{462}}{[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle^3\Delta_{624}} + \\
& \frac{[15]\langle 3|1+6|5\rangle^2\langle 4|2+3|1\rangle(-3/2i[12](23)(24)[24]\dots\langle 9\text{ terms}\rangle)\dots-1i[13](34)(35)(45)}{[16](23)[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle^3} + \\
& \frac{[15]\langle 3|1+6|5\rangle\langle 5|1+6|4\rangle\Pi_{462}(-1/8i[12]^2(13)(14)^2[14][15](26)\dots\langle 105\text{ terms}\rangle)\dots-3/16i[15][24](34)^3[34]^2(46)}{[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle^2\Delta_{624}^2} + \\
& \frac{[15](3|1+6|5)\Pi_{462}(1/2i(12)[12]^2(14)[14](36)\dots\langle 10\text{ terms}\rangle)\dots-1i[13](23)[24][26](36)(46)}{[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle^2\Delta_{624}} + \\
& \frac{[15]\langle 3|1+6|5\rangle(-1/2i[12]^2(13)[14](23)(24)\dots\langle 23\text{ terms}\rangle)\dots-3/2i[13][14](34)^2(35)(45)}{[16](23)[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle^2} + \\
& \frac{[15]\langle 5|1+6|4\rangle\langle 5|16i(12)^3[12]^4(13)[15](36)\dots\langle 147\text{ terms}\rangle)\dots-5/4i[13](15)[15](23)[25](26)[26]^2(36)^2}{[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle^2\Delta_{624}^2} + \\
& \frac{[15]\langle 5|1+6|4\rangle\Pi_{462}(3/32i(12)^2[12]^3(13)[15](36)\dots\langle 119\text{ terms}\rangle)\dots+1/4i[15](23)[25]^2(35)(36)[36](56)}{[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle^2\Delta_{624}^2} + \\
& \frac{[15]\langle 5|1+6|4\rangle(1i(12)[12]^2(13)[15](36)\dots\langle 43\text{ terms}\rangle)\dots-5/8i[16][25](36)^3[36]}{[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle^2\Delta_{624}} + \\
& \frac{[15]\Pi_{462}(-3/4i(12)[12]^2(13)[14](36)\dots\langle 25\text{ terms}\rangle)\dots-7/8i[14][26](36)^3[36]}{[56]\langle 2|1+6|5\rangle\langle 4|1+6|5\rangle\Delta_{624}} + \\
& \frac{-1/2i(12)[12]^4[15](23)^3\dots\langle 35\text{ terms}\rangle)\dots-3/2i[13][14]^2[15](34)^3(35)(45)}{[16](23)[56]\langle 2|1+6|5\rangle\langle 4|2+3|1\rangle\langle 4|1+6|5\rangle} + \\
& \frac{[15](-935/32i(13)^2[13]^2[14]^2(15)[24](34)(36)\dots\langle 262\text{ terms}\rangle)\dots-47/32i[12](35)^2[45]^2(56)^3[56]^2}{[56]\langle 2|1+6|5\rangle\Delta_{624}^2} + \\
& \frac{7/4i(12)[12]^2(13)[14]^2(36)\dots\langle 21\text{ terms}\rangle)\dots+45/8i[12][16](23)[24]^2(26)(36)}{[56]\langle 2|1+6|5\rangle\Delta_{624}} + \\
& (123456 \rightarrow \overline{654321}) + \\
& \frac{-1/2i(13)^3[46]^3s_{123}^2\Pi_{624}}{(12)(23)[45][56]\langle 1|2+3|6\rangle^4} + \\
& \frac{\langle 13\rangle[46]s_{123}^2\Pi_{624}(1/4i[12](13)(15)[46]-1/4i(13)[14](15)[26]-1/4i(13)[23](35)[46]-1/4i(15)[26](35)(45))}{(12)[56](1|2+3|6)^3\Delta_{624}} + \\
& \frac{\langle 13\rangle^2[46]^2s_{123}(3/2i(12)[12](13)[14]\dots\langle 15\text{ terms}\rangle)\dots-3/2i(23)[24](45)(45)}{(12)(23)[45][56]\langle 1|2+3|6\rangle^3} + \\
& \frac{-3/16i(13)^2(15)[26][46]^2(6|2+3|1)^2s_{123}\Pi_{624}}{(12)[56]\langle 1|2+3|6\rangle^2\Delta_{624}^2} + \\
& \frac{\langle 13\rangle[46](6|2+3|1)s_{123}(3/4i[12](13)(15)[46]+1/4i(13)[14](15)[26]-3/4i(13)[23](35)[46]+1/4i(15)[26](35)(45))}{(12)[56]\langle 1|2+3|6\rangle^2\Delta_{624}^2} + \\
& \frac{\langle 13\rangle[46]s_{123}\Pi_{624}(3/4i(12)[12][24](35)\dots\langle 7\text{ terms}\rangle)\dots+1/4i[23](35)^2(45)}{(12)[56]\langle 1|2+3|6\rangle^2\Delta_{624}^2} + \\
& \frac{\langle 13\rangle[46](3/2i(12)[12](13)^2[14]^2\dots\langle 24\text{ terms}\rangle)\dots-3/2i(23)^2[24]^2(45)(45)}{(12)(23)[45][56]\langle 1|2+3|6\rangle^2} + \\
& \frac{5/128i(16)[16](23)[23](45)[45](3|1+6|2)\langle 5|1+6|4\rangle\langle 6|2+3|1\rangle\Pi_{624}\Pi_{246}\Pi_{462}}{\langle 1|2+3|6\rangle\langle 2|1+6|3\rangle\langle 4|1+6|5\rangle\Delta_{624}^3} + \\
& \frac{\langle 16\rangle[16](23)[23](45)[45](3|1+6|2)\langle 5|1+6|4\rangle\langle 6|2+3|1\rangle(5/32i\Pi_{624}-5/32i\Pi_{246}-5/32i\Pi_{462})}{\langle 1|2+3|6\rangle\langle 2|1+6|3\rangle\langle 4|1+6|5\rangle\Delta_{624}^2} + \\
& \frac{\langle 13\rangle[46](6|2+3|1)^2s_{123}(-1/8i[12](13)(15)[46]\dots\langle 4\text{ terms}\rangle)\dots-1/2i(15)[26](35)(45)}{(12)[56](1|2+3|6)\Delta_{624}^2} + \\
& \frac{\langle 13\rangle[46](6|2+3|1)\Pi_{624}(-5/8i(12)^2[12]^2[24](35)\dots\langle 19\text{ terms}\rangle)\dots+1/16i(15)[15][23](35)^2(45)}{(12)[56](1|2+3|6)\Delta_{624}^2} + \\
& \frac{\langle 13\rangle[46]\Pi_{624}(-1/4i[12][14](15)(36)\dots\langle 3\text{ terms}\rangle)\dots-1/4i[16][24](36)(56)}{(12)[56]\langle 1|2+3|6\rangle\Delta_{624}} + \\
& \frac{\langle 13\rangle[46](-1/4i[12](13)[14][23](26)(35)\dots\langle 20\text{ terms}\rangle)\dots+1/4i[15][24](35)^2(35)(56)}{(12)[56]\langle 1|2+3|6\rangle\Delta_{624}} + \\
& \frac{\langle 13\rangle[46]\Pi_{624}(1i[12][14](15)(36)\dots\langle 3\text{ terms}\rangle)\dots-1/2i[16][24](36)(56)}{(12)[56]\langle 1|2+3|6\rangle\Delta_{624}} + \\
& \frac{-3/2i(13)^3[14]^3\dots\langle 4\text{ terms}\rangle)\dots-1/2i(23)^3[24]^3}{(12)(23)[45][56]\langle 1|2+3|6\rangle} + \\
& \frac{-1/2i(12)[12]^2(15)[24](35)\dots\langle 7\text{ terms}\rangle)\dots-1/2i[24]^3(25)(34)(45)}{(12)[23](45)[56]\langle 1|2+3|6\rangle} + \\
& \frac{-1/2i(12)[12]^3(14)(15)[24](25)\dots\langle 99\text{ terms}\rangle)\dots-1/2i[24]^3(25)(34)[35](45)^2}{(12)[23](45)[56]\langle 1|2+6|3\rangle\langle 4|1+5|6\rangle} + \\
& \frac{2i(12)[12][14]^2(16)^3(56)\dots\langle 43\text{ terms}\rangle)\dots-5i(16)[24](26)[45](56)^3[56]}{(12)(16)\langle 1|2+6|3\rangle\langle 2|1+6|5\rangle\langle 6|1+2|3\rangle} + \\
& \frac{1/2i(12)[12]^3[16]^2(23)(36)\dots\langle 24\text{ terms}\rangle)\dots+1/2i[14]^2[16]^2[24](34)^2(46)}{[16][56]\langle 2|1+6|5\rangle\langle 4|2+3|1\rangle\langle 4|1+5|6\rangle} + \\
& \frac{-967/32i(13)^2[13]^2[14]^2(15)[24](34)(36)\dots\langle 639\text{ terms}\rangle)\dots-33/8i[12](36)^2[46]^2(56)^3[56]^2}{(12)[56]\Delta_{624}^2} + \\
& \frac{-297/8i(13)[13][14][24](35)(36)\dots\langle 23\text{ terms}\rangle)\dots+11i[14][26](36)^2[46](56)}{(12)[56]\Delta_{624}}
\end{aligned}$$