

diff (z (t), t) - vz (t), 28 * diff (vz (t), t) + 278,
diff (u1 (t), t) - 2 * zc + 2 * z (t) - u2 (t) / 2 + vz (t), diff (u2 (t), t) - zc + z (t)

In[8019]:= GenDbx[2, {vz, -278 / 28, 2 zc - 2 z + u2 / 2 - vz, zc - z},
{z, vz, u1, u2}, Lexicographic, {z, vz, u1, u2}]

Out[8019]= {38 642 u1 - 77 284 u2 + 1946 u2 vz - 1946 vz² + 973 z² +
98 vz² zc + 49 vz² a₅ + 973 z a₅ + 973 a₁₅, 7 vz² + 139 z + 139 a₁₅}

7 vz² + 139 z + Cnst ≤ 0

38 642 u1 - 77 284 u2 + 1946 u2 vz - 1946 vz² + 973 z² + 98 vz² zc + a (49 vz² + 973 z) + b

38 642 u1 - 77 284 u2 + 1946 u2 vz - 1946 vz² + 973 z² + 98 vz² zc

GenDbx[2, {vz, -18.77 z - 9.39 vz - 5.63 u1 + 4.69 u2, -2 z + u2 / 2 - vz, -z},
{z, vz, u1, u2}, Lexicographic, {z, vz, u1, u2}]

In[8021]:= inv = GenDbx[2, {vz, -19 z - 10 vz - 6 u1 + 5 u2, -2 z + u2 / 2 - vz, -z},
{z, vz, u1, u2}, Lexicographic, {z, vz, u1, u2}];

In[8024]:= (Factor /@ inv) // N

Out[8024]= {
 $-5.28194 \times 10^{55} u_1^2 + 1.0464 \times 10^{56} u_1 u_2 - 5.13247 \times 10^{55} u_2^2 -$
 $9.07775 \times 10^{55} u_1 v z + 9.53864 \times 10^{55} u_2 v z - 2.40599 \times 10^{55} v z^2 -$
 $3.66051 \times 10^{56} u_1 z + 3.60883 \times 10^{56} u_2 z - 3.23874 \times 10^{56} v z z - 6.32752 \times 10^{56} z^2,$
 $-5.27309 \times 10^{57} u_1^2 + 1.32825 \times 10^{58} u_1 u_2 - 2.00987 \times 10^{56} u_2^2 +$
 $2.7405 \times 10^{56} u_1 v z - 1.34078 \times 10^{57} u_2 v z + 2.67967 \times 10^{55} v z^2 -$
 $7.39867 \times 10^{57} u_1 z - 9.48434 \times 10^{56} u_2 z + 8.1834 \times 10^{56} v z z + 6.32752 \times 10^{56} z^2,$
 $-1.29239 \times 10^{56} u_1^2 + 4.39017 \times 10^{56} u_1 u_2 - 2.89029 \times 10^{56} u_2^2 -$
 $1.86248 \times 10^{56} u_1 v z + 4.55924 \times 10^{56} u_2 v z - 8.97012 \times 10^{54} v z^2 -$
 $6.1818 \times 10^{56} u_1 z + 1.23887 \times 10^{57} u_2 z - 2.88089 \times 10^{56} v z z - 6.32752 \times 10^{56} z^2,$
 $-2.15508 \times 10^{57} u_1^2 + 2.37721 \times 10^{57} u_1 u_2 - 3.56906 \times 10^{55} u_2^2 -$
 $4.86099 \times 10^{56} u_1 v z - 2.28061 \times 10^{56} u_2 v z + 7.18748 \times 10^{55} v z^2 -$
 $7.65079 \times 10^{57} u_1 z - 7.04469 \times 10^{55} u_2 z + 8.54125 \times 10^{56} v z z + 6.32752 \times 10^{56} z^2,$
 $-1.17432 \times 10^{56} u_1^2 + 4.21763 \times 10^{56} u_1 u_2 - 3.19843 \times 10^{56} u_2^2 -$
 $4.43083 \times 10^{55} u_1 v z + 1.0264 \times 10^{56} u_2 v z - 1.91823 \times 10^{54} v z^2 -$
 $6.00659 \times 10^{56} u_1 z + 1.25713 \times 10^{57} u_2 z - 7.83304 \times 10^{55} v z z - 6.32752 \times 10^{56} z^2,$
 $-2.37176 \times 10^{57} u_1^2 + 2.15465 \times 10^{57} u_1 u_2 - 3.22521 \times 10^{55} u_2^2 -$
 $3.05805 \times 10^{57} u_1 v z - 1.65563 \times 10^{56} u_2 v z + 3.36104 \times 10^{56} v z^2 -$
 $7.63327 \times 10^{57} u_1 z - 5.2183 \times 10^{55} u_2 z + 1.06388 \times 10^{57} v z z + 6.32752 \times 10^{56} z^2,$
 $6.0766 \times 10^{39} u_1^2 - 3.04279 \times 10^{40} u_1 u_2 + 3.80911 \times 10^{40} u_2^2 + 6.06316 \times 10^{38} u_1 v z -$
 $1.51803 \times 10^{39} u_2 v z + 1.51244 \times 10^{37} v z^2 + 1.80349 \times 10^{40} u_1 z -$
 $4.51538 \times 10^{40} u_2 z + 8.99749 \times 10^{38} v z z + 1.33815 \times 10^{40} z^2,$
 $1.01498 \times 10^{39} u_1^2 - 2.20829 \times 10^{39} u_1 u_2 + 1.20114 \times 10^{39} u_2^2 + 6.64651 \times 10^{38} u_1 v z -$
 $7.23039 \times 10^{38} u_2 v z + 1.0881 \times 10^{38} v z^2 + 7.37075 \times 10^{39} u_1 z -$
 $8.01826 \times 10^{39} u_2 z + 2.41333 \times 10^{39} v z z + 1.33815 \times 10^{40} z^2,$
 $1.22934 \times 10^{39} u_1^2 - 2.19618 \times 10^{39} u_1 u_2 + 9.8085 \times 10^{38} u_2^2 + 3.42057 \times 10^{39} u_1 v z -$
 $3.05537 \times 10^{39} u_2 v z + 2.37938 \times 10^{39} v z^2 + 8.11184 \times 10^{39} u_1 z -$
 $7.24576 \times 10^{39} u_2 z + 1.12853 \times 10^{40} v z z + 1.33815 \times 10^{40} z^2,$
 $2.04651 \times 10^{42} u_1^2 - 6.23111 \times 10^{40} u_1 u_2 + 4.74305 \times 10^{38} u_2^2 - 4.16918 \times 10^{41} u_1 v z +$
 $6.34706 \times 10^{39} u_2 v z + 2.12338 \times 10^{40} v z^2 - 3.30971 \times 10^{41} u_1 z + 5.03862 \times 10^{39} u_2 z +$
 $3.3713 \times 10^{40} v z z + 1.33815 \times 10^{40} z^2, 0.673873 u_1 - 1.68717 u_2 + 0.0336191 v z + z,$
 $0.275408 u_1 - 0.299602 u_2 + 0.0901741 v z + z,$
 $0.303099 u_1 - 0.270738 u_2 + 0.421676 v z + z, -12.3667 u_1 + 0.188268 u_2 + 1.25968 v z + z\}$