	L^2	L_x	L_y	L_z	S^2	S_x	S_y	S_z	J^2	J_x	J_y	J_z	π
p^4 H_n	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
$\vec{L}\cdot\vec{S}$ H_{SO}	✓	✗	✗	✗	✓	✗	✗	✗	✓	✓	✓	✓	✓
$\delta^3(r)$ H_D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗
$\frac{L}{2}+\frac{2S}{2}$ H_Z	✓	✗	✗	✓	✓	✗	✗	✓	✗	✗	✗	✓	✓