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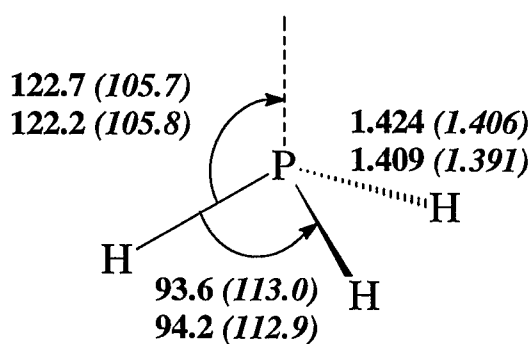
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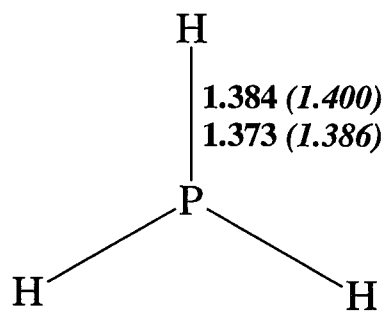
Supplementary Information

The first entry refers to B3LYP values, the second to MP2 values. Within parentheses are the geometric parameters of the corresponding cations.

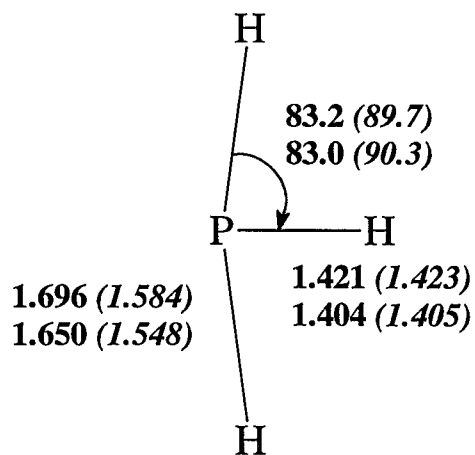
PH₃



C_{3v} 1A_1
(C_{3v} 2A_1)

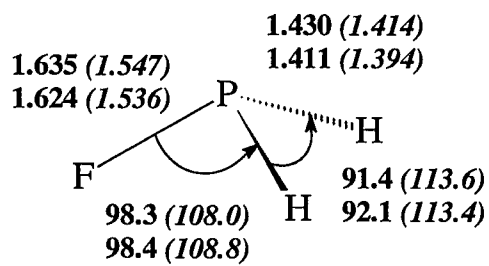


D_{3h} $^1A_1'$
(D_{3h} $^2A_2''$)

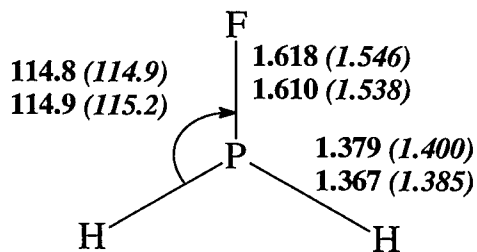


C_{2v} 1A_1
(C_{2v} 2A_1)

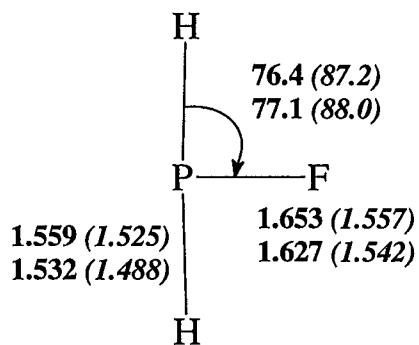
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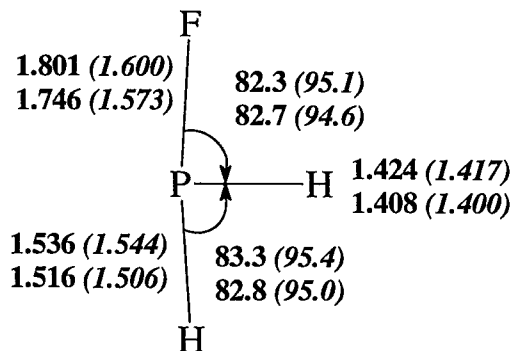
C_s $1A'$
(C_s $2A'$)



C_{2v} $1A_1$
(C_{2v} $2B_1$)

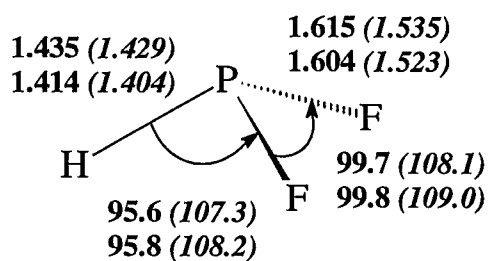


C_{2v} $1A_1$
(C_{2v} $2A_1$)

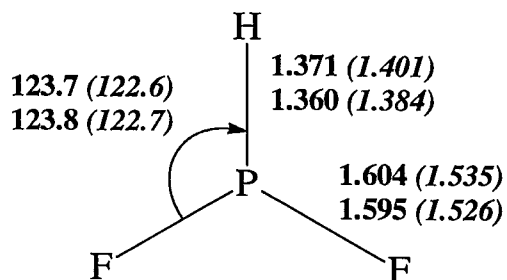


C_s $1A'$
(C_s $2A'$)

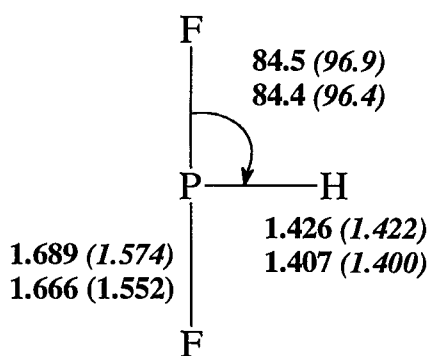
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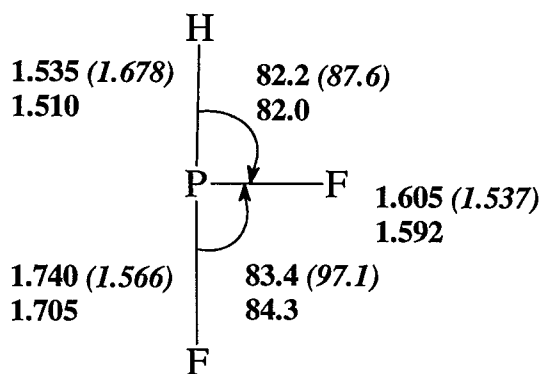
C_s $1A'$
(C_s $2A'$)



C_{2v} $1A_1$
(C_{2v} $2B_1$)

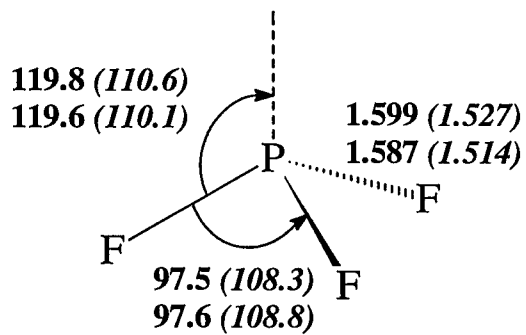


C_{2v} $1A_1$
(C_{2v} $2A_1$)

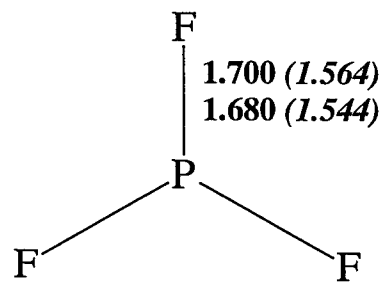


C_s $1A'$
(C_s $2A'$)

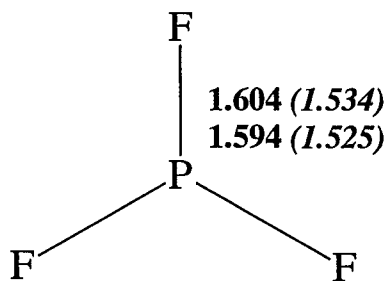
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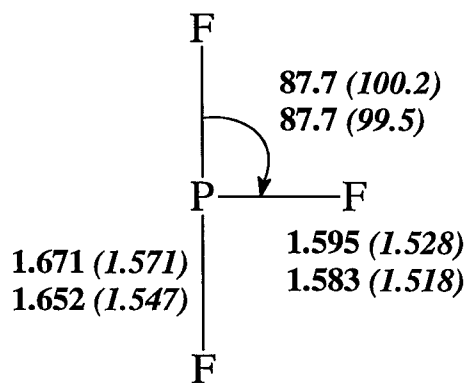
$C_{3v} \quad {}^1A_1$
($C_{3v} \quad {}^2A_1$)



$D_{3h} \quad {}^1A_1'$
($D_{3h} \quad {}^2A_1'$)

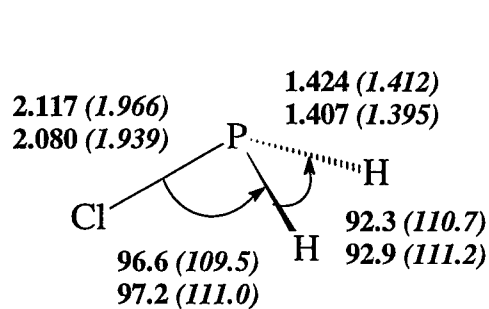


$D_{3h} \quad {}^1A_1'$
($D_{3h} \quad {}^2A_2''$)

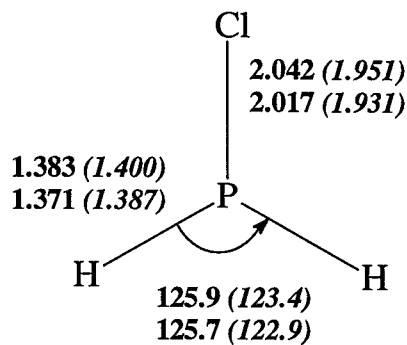


$C_{2v} \quad {}^1A_1$
($C_{2v} \quad {}^2A_1$)

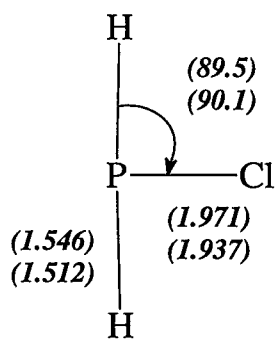
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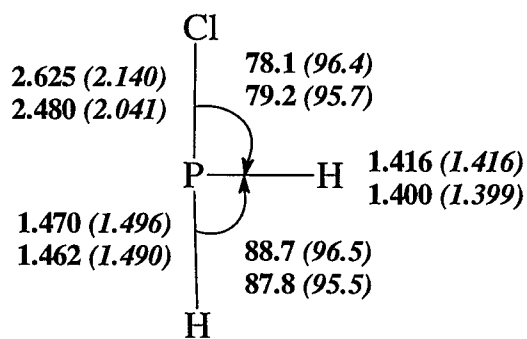
C_{2v} $^1A'$
 (C_{2v} $^2A'$)



C_{2v} 1A_1
 (C_{2v} 2B_1)

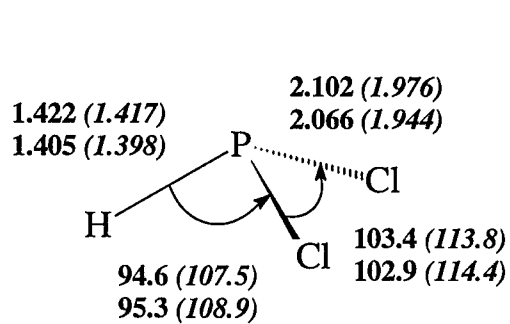


(C_{2v} 2A_1)

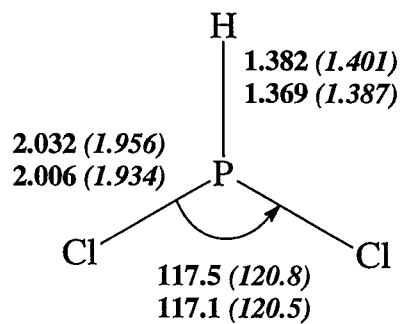


C_s $^1A'$
 (C_s $^2A'$)

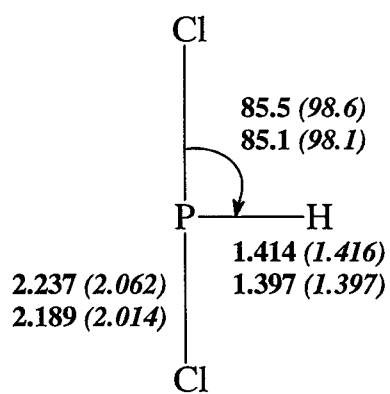
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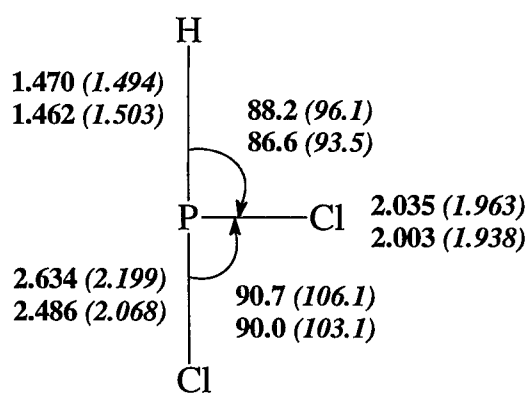
C_s $^1A'$
(C_s $^2A'$)



C_{2v} 1A_1
(C_{2v} 2B_1)

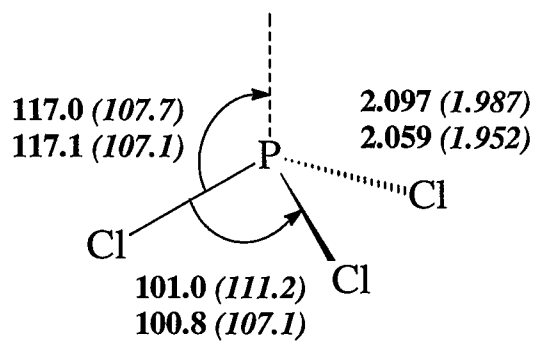


C_{2v} 1A_1
(C_{2v} 2A_1)

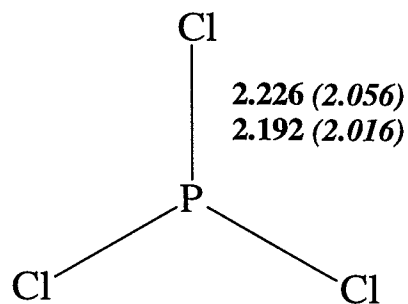


C_s $^1A'$
(C_s $^2A'$)

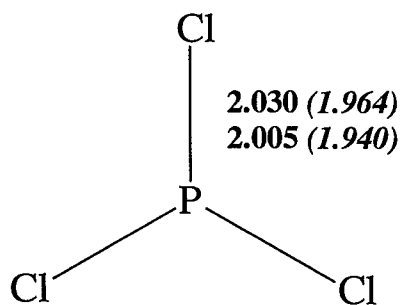
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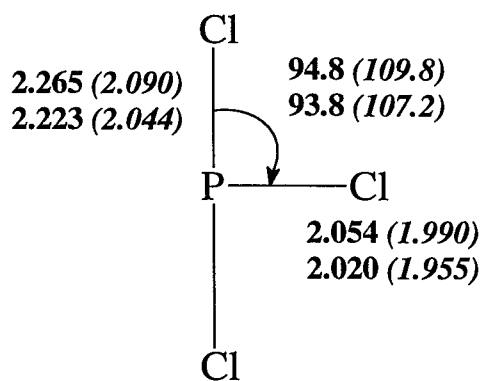
$C_{3v} \ ^1A_1$
($C_{3v} \ ^2A_1$)



$D_{3h} \ ^1A_1'$
($D_{3h} \ ^2A_1'$)

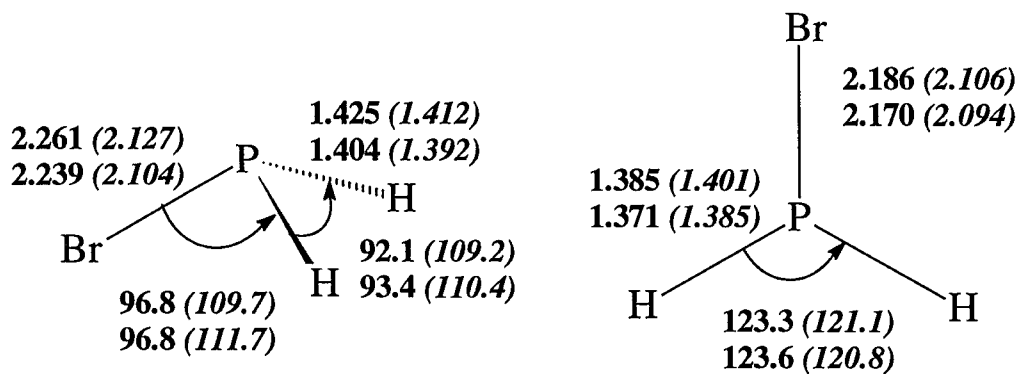


$D_{3h} \ ^1A_1'$
($D_{3h} \ ^2A_2''$)



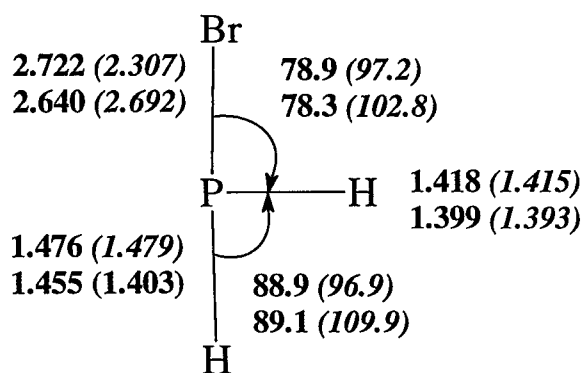
$C_{2v} \ ^1A_1$
($C_{2v} \ ^2A_1$)

PH₂Br



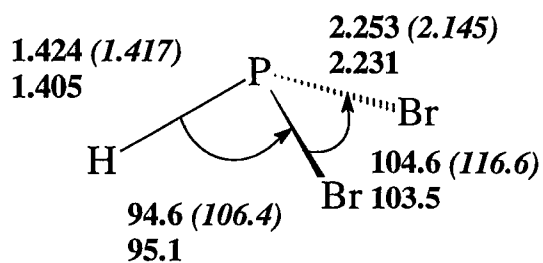
C_s 1A'
(C_s 2A')

C_{2v} 1A₁
(C_{2v} 2B₁)

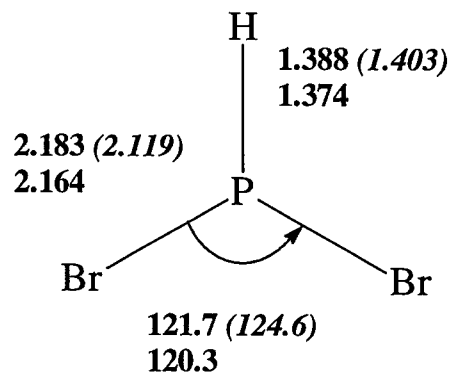


C_s 1A'
(C_s 2A')

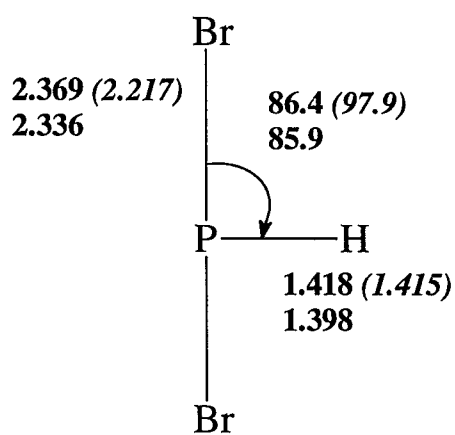
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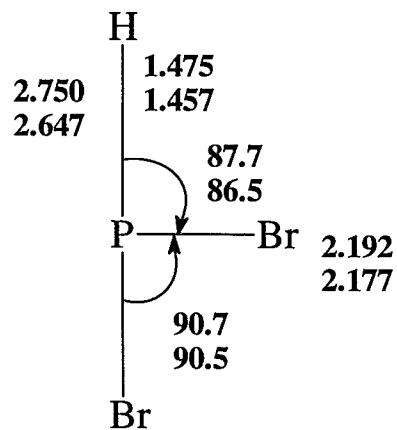
C_s $^1A'$
(C_s $^2A'$)



C_{2v} 1A_1
(C_{2v} 2B_1)

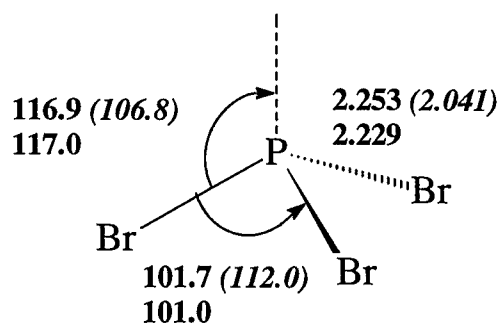


C_{2v} 1A_1
(C_{2v} 2A_1)

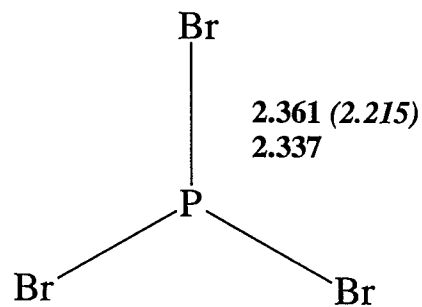


C_s $^1A'$
(C_s $^2A'$)

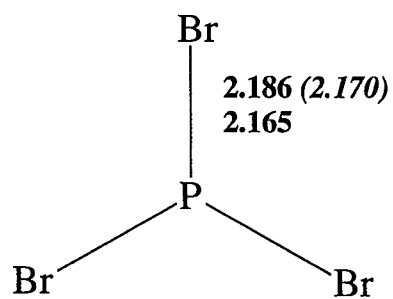
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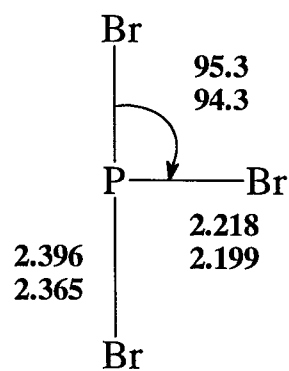
$C_{3v} \ ^1A_1$
($C_{3v} \ ^2A_1$)



$D_{3h} \ ^1A_1'$
($D_{3h} \ ^2A_1'$)

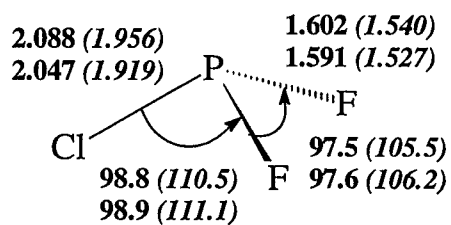


($D_{3h} \ ^2A_2''$)

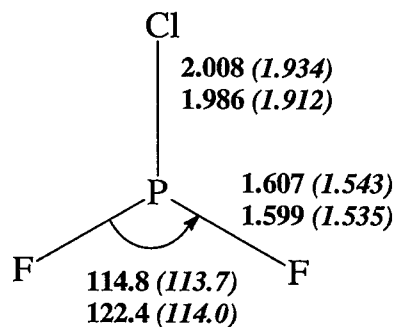


$C_{2v} \ ^1A_1$
($C_{2v} \ ^2A_1$)

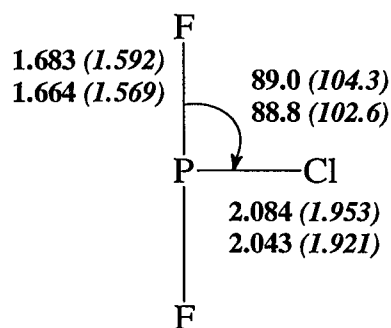
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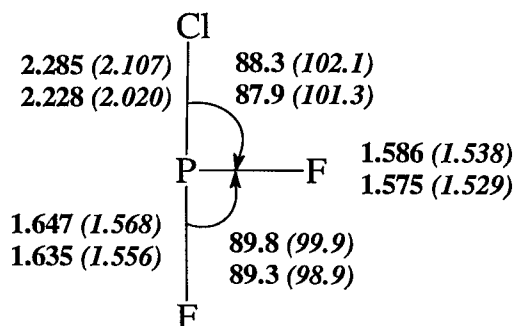
C_s $1A'$
(C_s $2A'$)



C_{2v} $1A_1$
(C_{2v} $2B_1$)

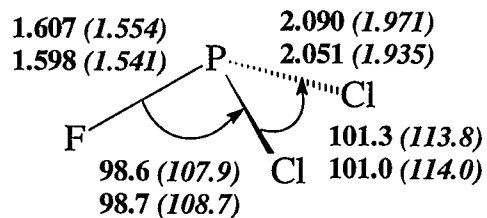


(C_{2v} $2A_1$)

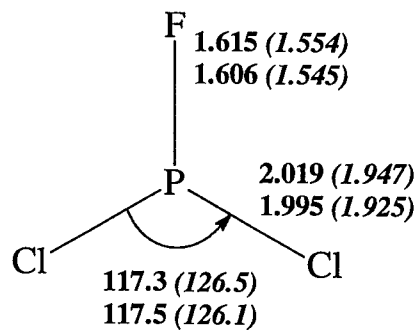


C_s $1A'$
(C_s $2A'$)

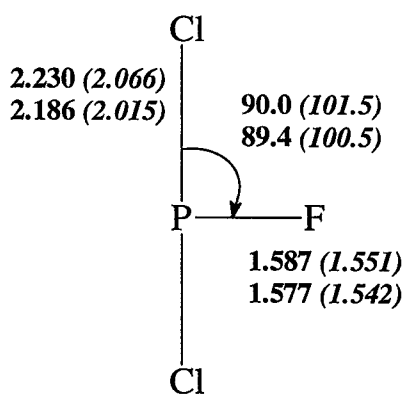
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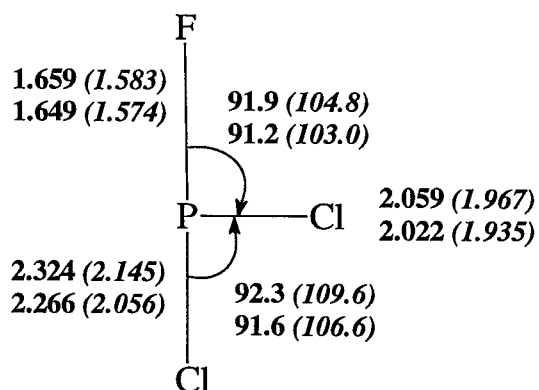
C_s $1A'$
(C_s $2A'$)



C_{2v} $1A_1$
(C_{2v} $2B_1$)

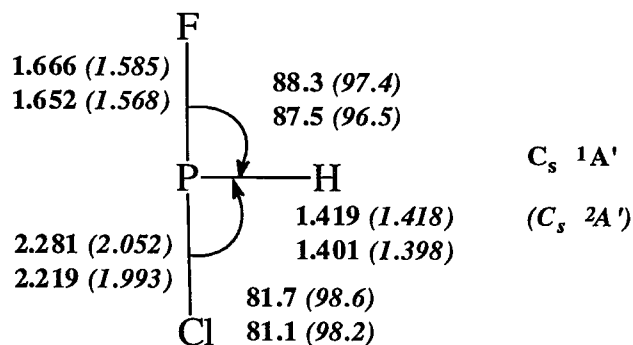
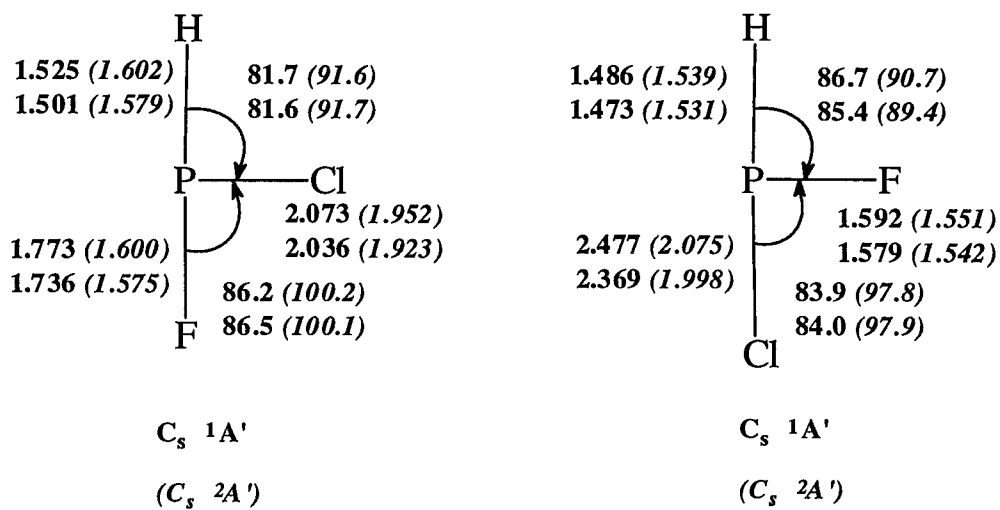
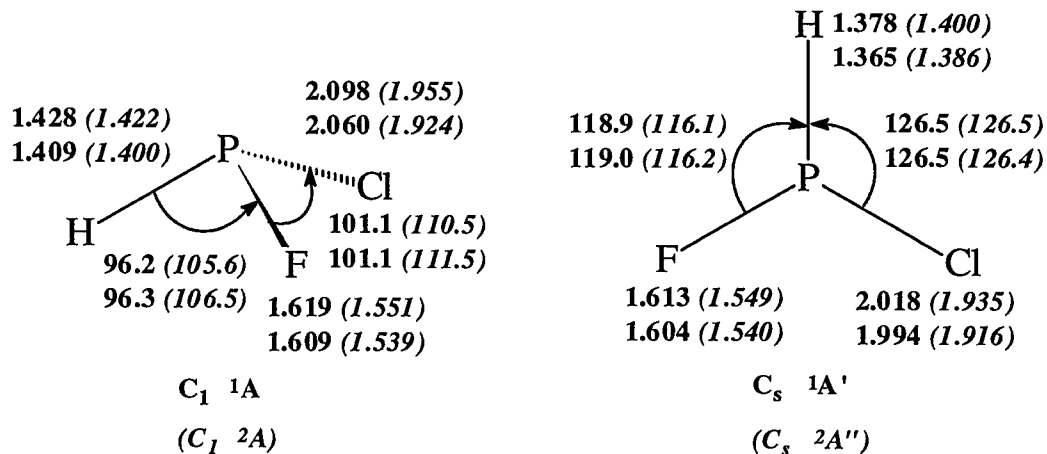


C_{2v} $1A_1$
(C_{2v} $2A_1$)

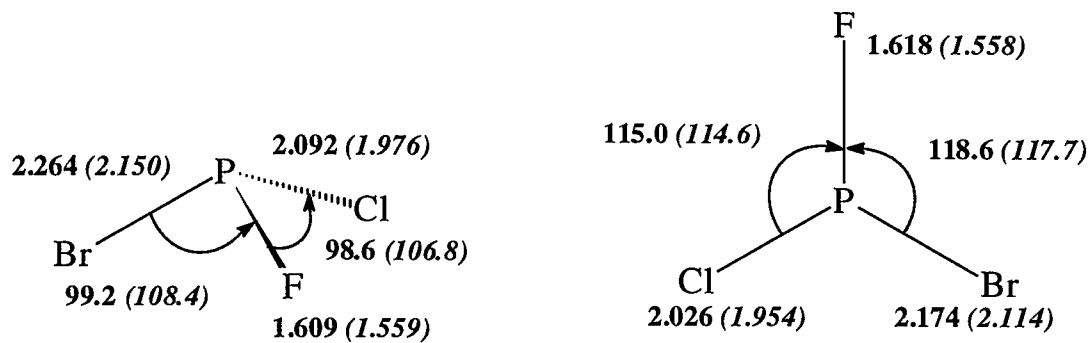


C_s $1A'$
(C_s $2A'$)

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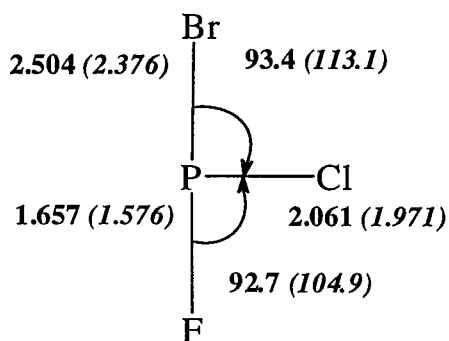


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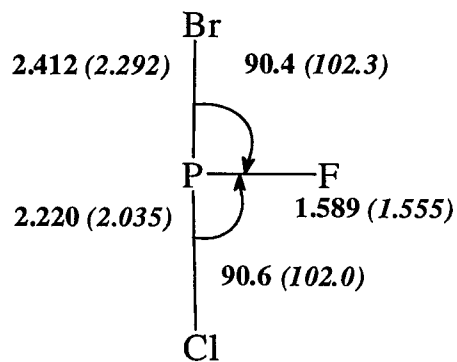


C_1 1A
(C_1 2A)

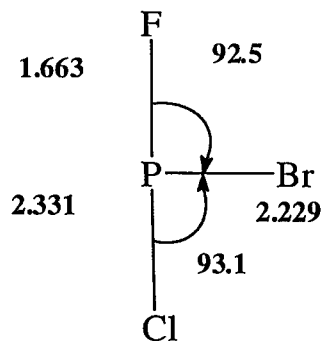
C_s $^1A'$
(C_s $^2A''$)



C_s $^1A'$
(C_s $^2A'$)

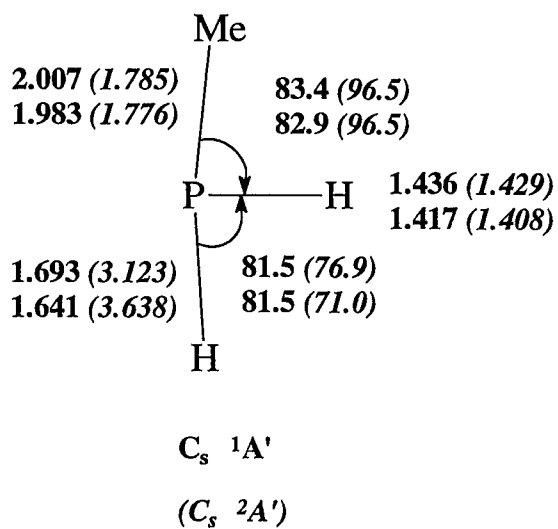
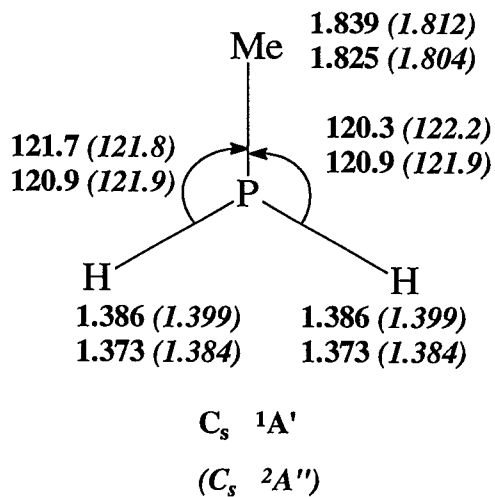
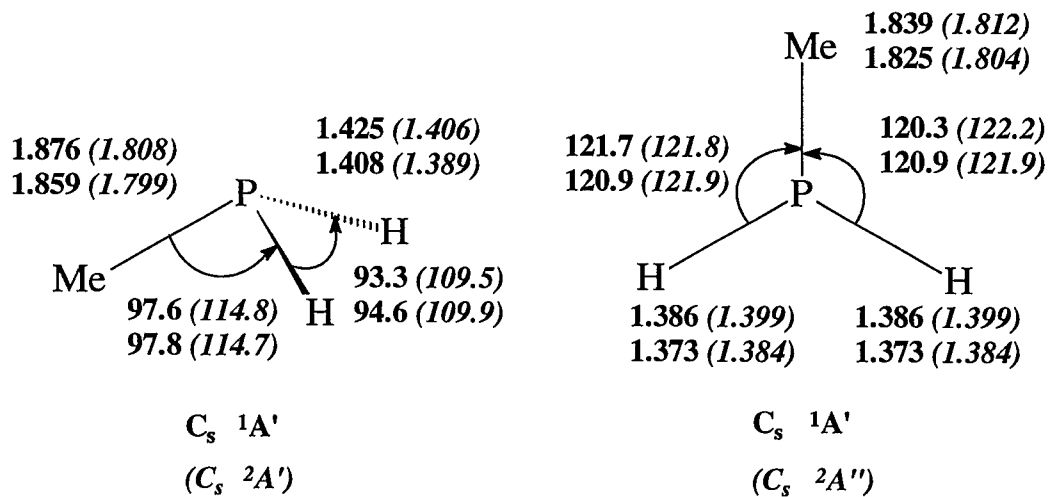


C_s $^1A'$
(C_s $^2A'$)

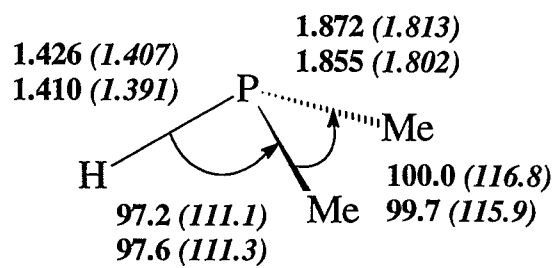


C_s $^1A'$
(C_s $^2A'$)

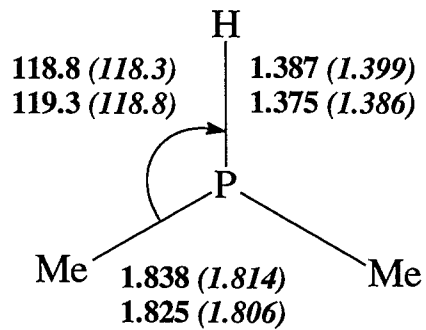
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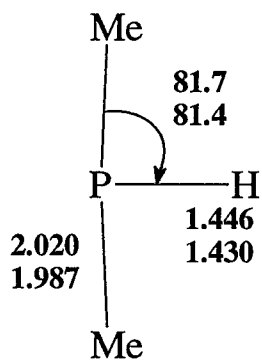
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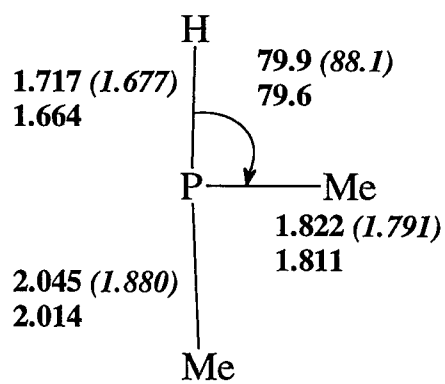
C_s $^1A'$
(C_s $^2A'$)



C_{2v} 1A_1
(C_{2v} 2B_1)

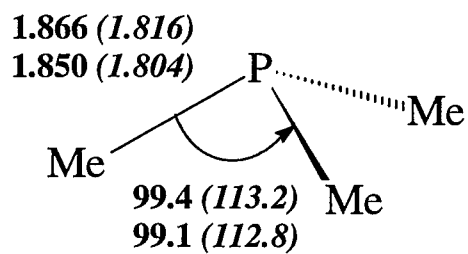


C_{2v} 1A_1
(C_{2v} 2A_1)

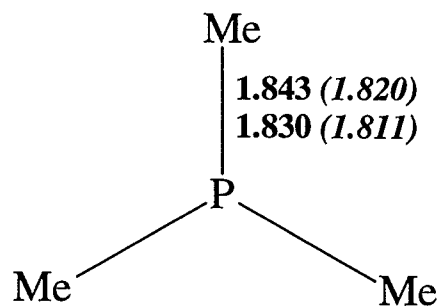


C_s $^1A'$
(C_s $^2A'$)

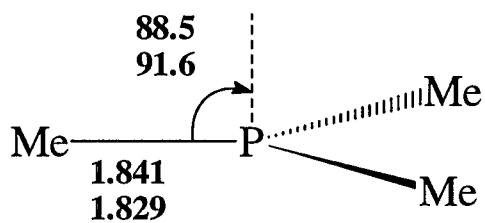
$\text{P}(\text{CH}_3)_3$



$\text{C}_{3v} \quad {}^1\text{A}_1$
($\text{C}_{3v} \quad {}^2\text{A}_1$)



$\text{C}_{3h} \quad {}^1\text{A}'$
($\text{C}_{3h} \quad {}^2\text{A}''$)



$\text{C}_{3v} \quad {}^1\text{A}_1$
($\text{C}_{3v} \quad {}^2\text{A}_1$)