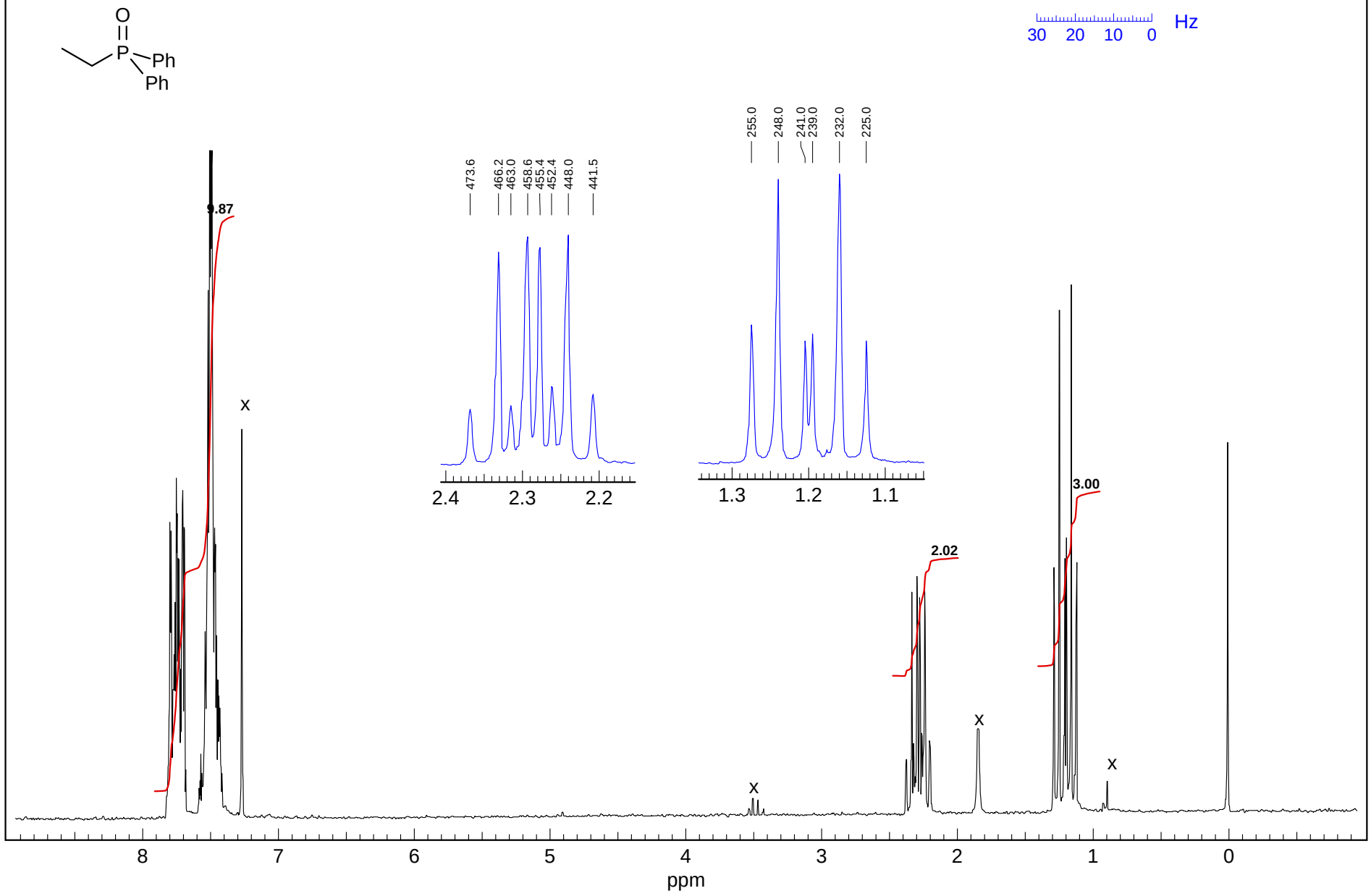
Problem R-07N ($C_{14}H_{15}OP$)

200 MHz ^{1}H NMR Spectrum $CDCl_3$

John Holmgren/Gellman (Reich digitized hard copy) g

Peaks marked x are impurities/solvents



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Problem R-07N ($C_{14}H_{15}OP$) Determine the structure of R-07N from the ^{1}H NMR spectrum provided.

(a) Analyze (report δ and J values) and report part structures for the multiplets at δ 1.2 and δ 2.3.

(b) Report the structure of R-07N

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Problem R-07N ($C_{14}H_{15}OP$) Determine the structure of R-07N from the ^1H NMR spectrum provided.

(a) Analyze (report δ and J values) and report part structures for the multiplets at δ 1.2 and δ 2.3.

δ 1.2, dt, J = 16, 7 Hz 16 Hz must be J_{HP}

δ 2.3, dq, J = 11, 7 Hz 11 Hz must be J_{HP}

6

$P\text{-}CH_2\text{-}CH_3$ or $P\text{-}O\text{-}CH_2\text{-}CH_3$

The chemical shift of CH_2 (δ 2.3) fits much petter for $P\text{-}CH_2\text{-}CH_3$

Large J_{HP} for Me group also fits $P\text{-}CH_2CH_3$ better

(b) Report the structure of R-07N

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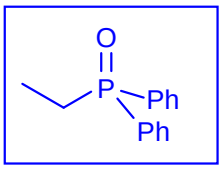

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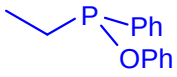

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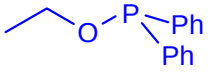
- Two Ph groups
- CH_2 should be diastereotopic



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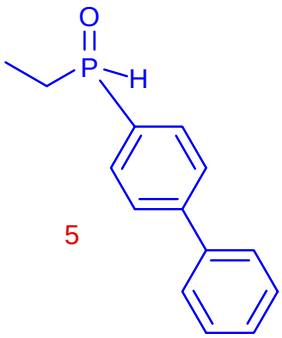
- δ CH_2 off
- 4-bond J_{HP} too large



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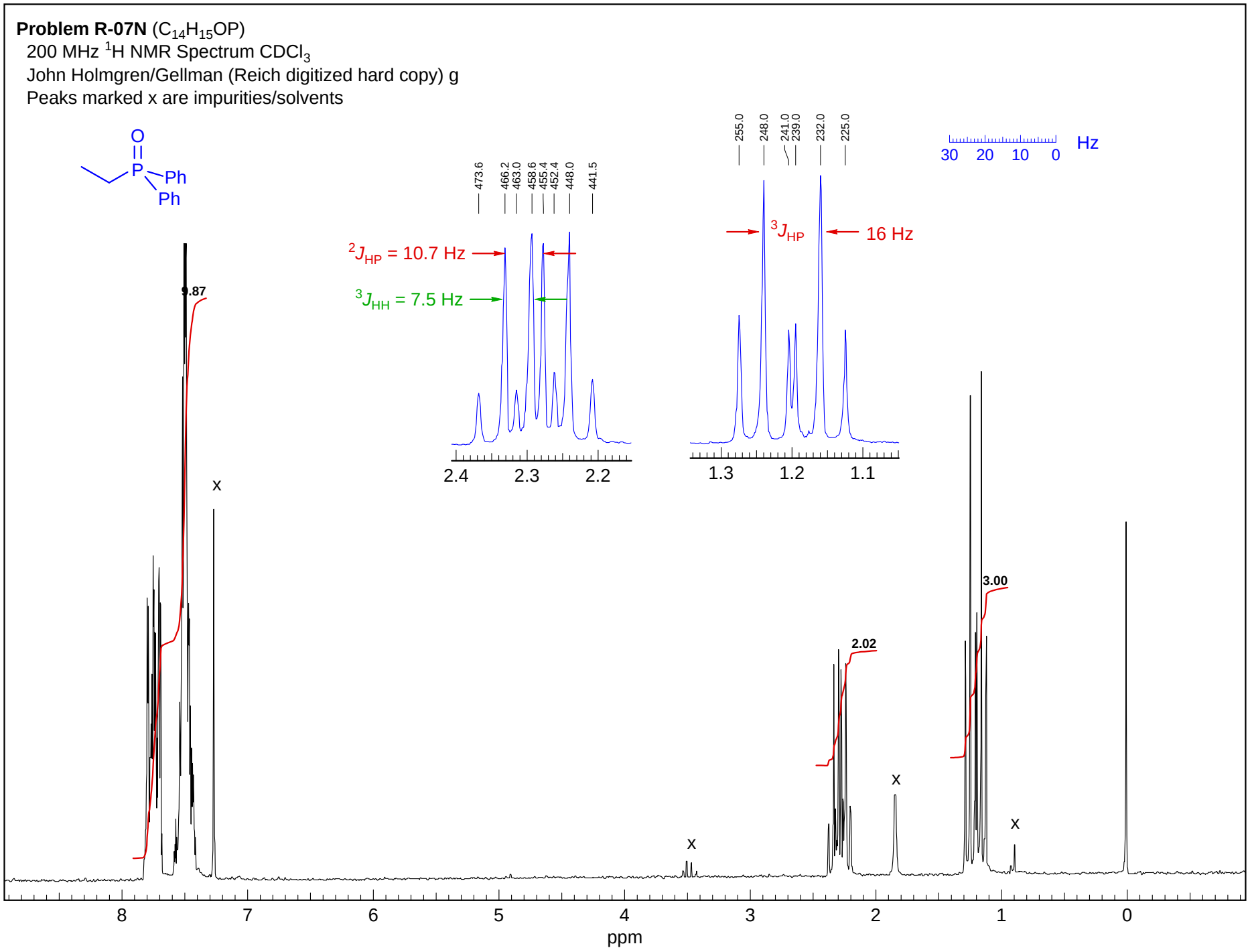

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