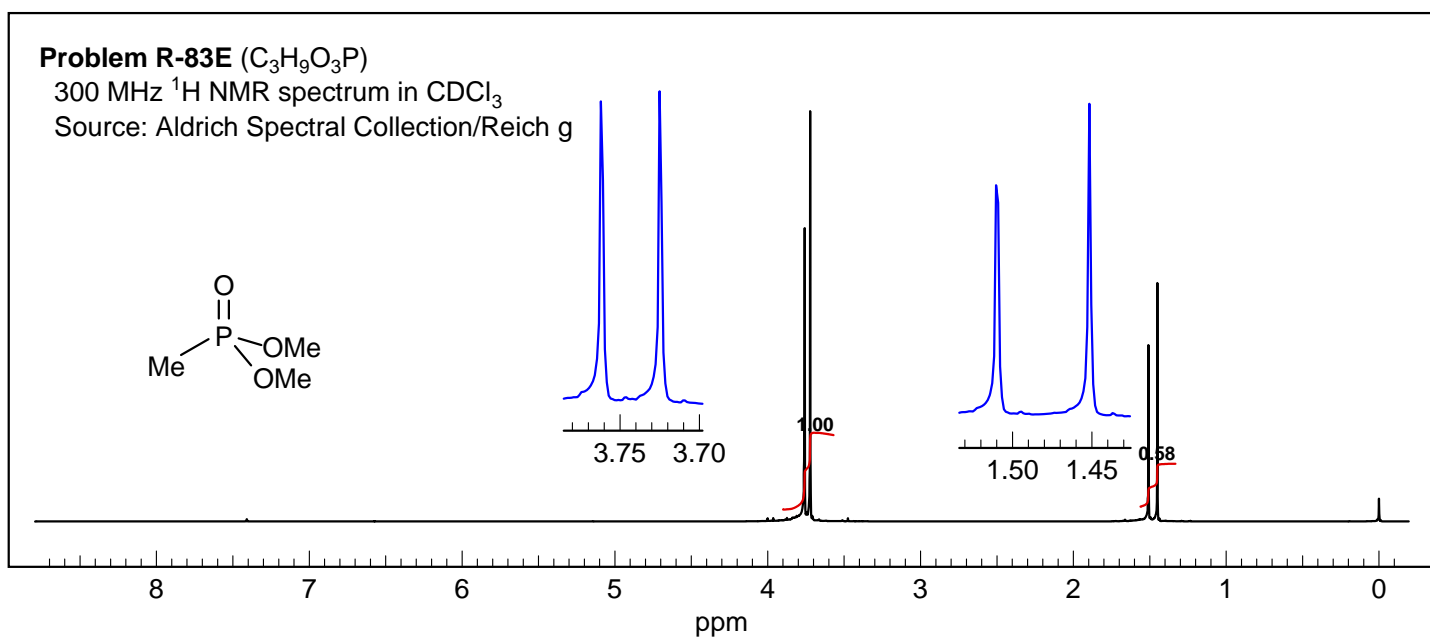
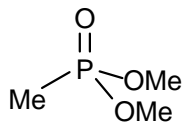
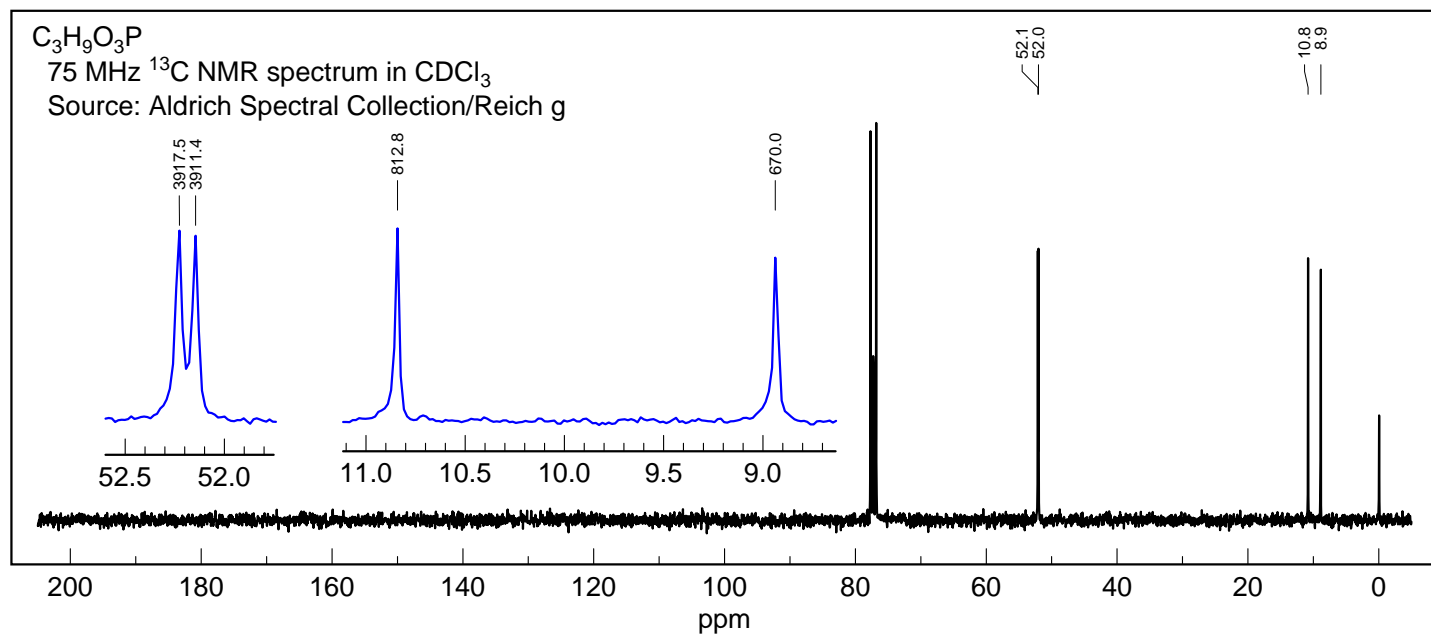
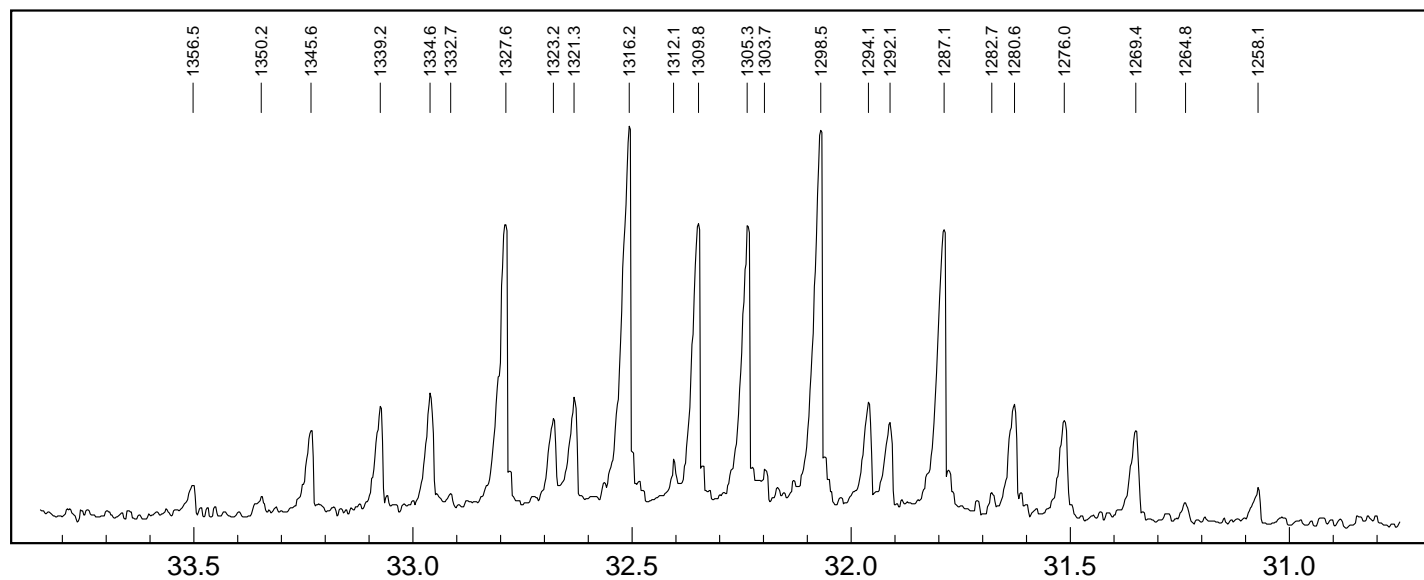


Problem R-83E ($\text{C}_3\text{H}_9\text{O}_3\text{P}$)300 MHz ^1H NMR spectrum in CDCl_3

Source: Aldrich Spectral Collection/Reich g

 $\text{C}_3\text{H}_9\text{O}_3\text{P}$ 75 MHz ^{13}C NMR spectrum in CDCl_3

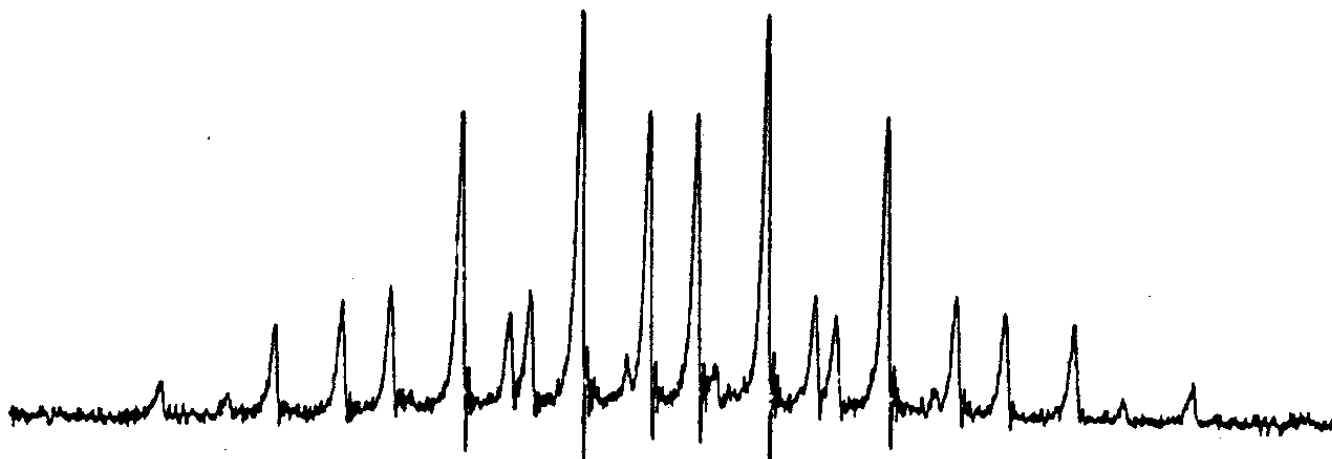
Source: Aldrich Spectral Collection/Reich g

40.5 MHz ^{31}P NMR spectrum

Problem R-83E ($\text{C}_3\text{H}_9\text{O}_3\text{P}$). The ^{31}P NMR spectrum of $\text{CH}_3\text{-P(O)(OCH}_3)_2$ is shown below. The theoretical number of lines is: _____

Is $J(\text{PCH}_3)$ or $J(\text{POCH}_3)$ larger?

Mark distances on the spectrum corresponding to these quantities, and show the origin of the lines in a coupling "tree".



1

Problem R-83E ($\text{C}_4\text{H}_9\text{O}_3\text{P}$). The ^{31}P NMR spectrum of $\text{CH}_3\text{-P(O)(OCH}_3)_2$ is shown below. The theoretical number of lines is: q sept = $4 \times 7 = 28$ lines

Is $J(\text{PCH}_3)$ or $J(\text{POCH}_3)$ larger? $^2J(\text{PCH}_3)$

Mark distances on the spectrum corresponding to these quantities, and show the origin of the lines in a coupling "tree".

One expects a quartet of septets for the ^{31}P NMR spectrum:

