(vi) Determine the lowest and highest engine speeds corresponding to the value calculated in paragraph (a)(1)(v) of this section, using linear interpolation as appropriate. Calculate $f_{\text{ntest}}$ as the average of these two speed values.

(viii) The following example illustrates a calculation of $f_{\text{ntest}}$:

$(f_{\text{n1}} = 2360,\ P_1 = 223.1,\ f_{\text{nnorm1}} = 1.002,\ P_{\text{norm1}} = 0.967)$

$(f_{\text{n2}} = 2364,\ P_2 = 227.7,\ f_{\text{nnorm2}} = 1.004,\ P_{\text{norm2}} = 0.986)$

$(f_{\text{n3}} = 2369,\ P_3 = 230.0,\ f_{\text{nnorm3}} = 1.006,\ P_{\text{norm3}} = 0.994)$

$(f_{\text{n4}} = 2374,\ P_4 = 220.8,\ f_{\text{nnorm4}} = 1.008,\ P_{\text{norm4}} = 0.951)$

$$f_{\text{ntest}} = \frac{\left(\left(2360 + (2364-2360)\cdot\frac{0.98\cdot 230.0 - 223.1}{227.7-223.1}\right) + \left(2369 + (2374-2369)\cdot\frac{0.98\cdot 230.0 - 230.0}{220.8-230.0}\right)\right)}{2}$$

$$= \frac{2363+2371}{2} = 2367\ \text{r/min}$$

Sum of squares = $(1.002^2 + 0.967^2) = 1.94$

Sum of squares = $(1.004^2 + 0.986^2) = 1.98$

Sum of squares = $(1.006^2 + 0.994^2) = 2.00$

Sum of squares = $(1.008^2 + 0.951^2) = 1.92$

$$f_{\text{npmax}} = \frac{\left(\left(2360 + (2364-2360)\cdot\frac{0.98\cdot 2.0 - 1.94}{1.98-1.94}\right) + \left(2369 + (2374-2369)\cdot\frac{0.98\cdot 2.0 - 2.0}{1.92-2.0}\right)\right)}{2}$$

$$= \frac{2363+2371}{2} = 2367\ \text{r/min}$$