When the mean line used is obtained by combining more than one mean line, the design lift coefficient used in the designation is the algebraic sum of the design lift coefficients of the mean lines used, and the mean lines are described in the statement following the number as in the following case:

$$\text{NACA } 65{,}3\text{–}218\begin{Bmatrix} a=0.5,\ c_{l_i}=0.3 \\ a=1.0,\ c_{l_i}=-0.1 \end{Bmatrix}$$

Airfoils having a thickness distribution obtained by linearly increasing or decreasing the ordinates of one of the originally derived thickness distributions are designated as in the following example:

NACA 65(318)–217, $a=0.5$

The significance of all of the numbers except those in the parentheses is the same as before. The first number and the last two numbers enclosed in the parentheses denote, respectively, the low-drag range and the thickness in percent of the chord of the originally derived thickness distribution.

The more recent NACA 6-series airfoils are derived as members of thickness families having a simple relationship between the conformal transformations for airfoils of different thickness ratios but having minimum pressure at the same chordwise position. These airfoils are distinguished from the earlier individually derived airfoils by writing the number indicating the low-drag range as a subscript; for example,

NACA 65_3–218, $a=0.5$

For NACA 6-series airfoils having a thickness ratio less than 0.12 of the chord, the subscript number indicating the low-drag range should be less than unity. Rather than use a fractional number, a subscript of unity was originally employed for these airfoils. Since this usage is not consistent with the previous definition of a number indicating the low-drag range, the designations of airfoil sections having a thickness ratio less than 0.12 of the chord are now given without such a number. As an example, an NACA 6-series airfoil having a thickness ratio of 0.10 of the chord would be designated:

NACA 65–210

Ordinates for the basic thickness distributions designated by a subscript are slightly different from those for the corresponding individually derived thickness distributions. As before, if the ordinates of the basic thickness distribution have been changed by a factor, the low-drag range and thickness ratio of the original thickness distribution are enclosed in parentheses as follows:

NACA $65_{(318)}$–217, $a=0.5$

If, however, the ordinates of a basic thickness distribution having a thickness ratio less than 0.12 of the chord have been changed by a factor, the number indicating the low-drag range is eliminated and only the original thickness ratio is enclosed in parentheses as follows:

NACA $65_{(10)}$–211

If the design lift coefficient in tenths or the airfoil thickness in percent of chord are not whole integers, the numbers giving these quantities are usually enclosed in parentheses as in the following designation:

NACA $65_{(318)}$–(1.5)(16.5), $a=0.5$

Some early experimental airfoils are designated by the insertion of the letter "x" immediately preceding the hyphen as in the designation 66,2x–115.

Thickness distributions.—Data for available NACA 6-series thickness forms are presented in the supplementary figures. These data are comparable with the similar data for airfoils of the NACA four-digit series, except that ordinates for intermediate thicknesses may not be correctly obtained by scaling the tabulated ordinates proportional to the thickness ratio. This method of changing the ordinates by a factor will, however, produce shapes satisfactorily approximating members of the family if the change in thickness ratio is small. Values of v/V and $\Delta v_a/V$ for intermediate thickness ratios may be approximated as described for the NACA four-digit series.

Mean lines.—The mean lines commonly used with the NACA 6-series airfoils produce a uniform chordwise loading from the leading edge to the point $\frac{x}{c}=a$ and a linearly decreasing load from this point to the trailing edge. Data for NACA mean lines with values of a equal to 0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, and 1.0 are presented in the supplementary figures. The ordinates were computed by the following formula, which represents a simplification of the original expression for mean-line ordinates given in reference 11:

$$\frac{y_c}{c}=\frac{c_{l_i}}{2\pi(a+1)}\left\{\frac{1}{1-a}\left[\frac{1}{2}\left(a-\frac{x}{c}\right)^2\log_e\left|a-\frac{x}{c}\right| -\frac{1}{2}\left(1-\frac{x}{c}\right)^2\log_e\left(1-\frac{x}{c}\right)+\frac{1}{4}\left(1-\frac{x}{c}\right)^2-\frac{1}{4}\left(a-\frac{x}{c}\right)^2\right] -\frac{x}{c}\log_e\frac{x}{c}+g-h\,\frac{x}{c}\right\} \tag{6}$$

where

$$g=-\frac{1}{1-a}\left[a^2\left(\frac{1}{2}\log_e a-\frac{1}{4}\right)+\frac{1}{4}\right]$$

$$h=\frac{1}{1-a}\left[\frac{1}{2}(1-a)^2\log_e(1-a)-\frac{1}{4}(1-a)^2\right]+g$$

The ideal angle of attack α_i corresponding to the design lift coefficient is given by

$$\alpha_i=-h\,\frac{c_{l_i}}{2\pi(a+1)}$$

The data are presented for a design lift coefficient c_{l_i} equal to unity. All tabulated values vary directly with the design lift coefficient. Corresponding data for similar mean lines with other design lift coefficients may accordingly be obtained simply by multiplying the tabulated values by the desired design lift coefficient.

In order to camber NACA 6-series airfoils, mean lines are usually used having values of a equal to or greater than the distance from the leading edge to the location of minimum pressure for the selected thickness distribution at zero lift. For special purposes, load distributions other than those corresponding to the simple mean lines may be obtained by combining two or more types of mean line having positive or negative values of the design lift coefficient. The geometric