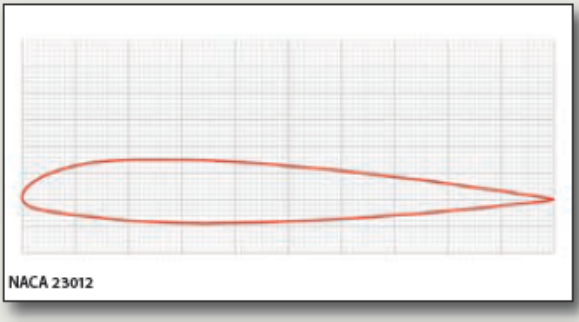
What's A NACA?

Most discussions of airfoils eventually get around to the NACA series of designs. "NACA" stands for the National Advisory Committee for Aeronautics, which was created by Congress in 1915 with the charge "...to supervise and direct the scientific study of the problems of flight with a view to their practical solution...." The Committee's work led to a number of breakthroughs, including the NACA cowl and duct designs, area rule for a supersonic fuselages and, of course, NACA airfoils.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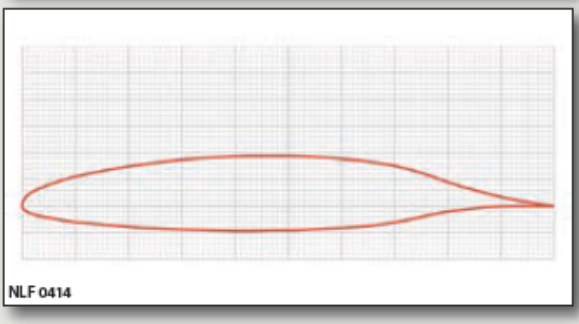
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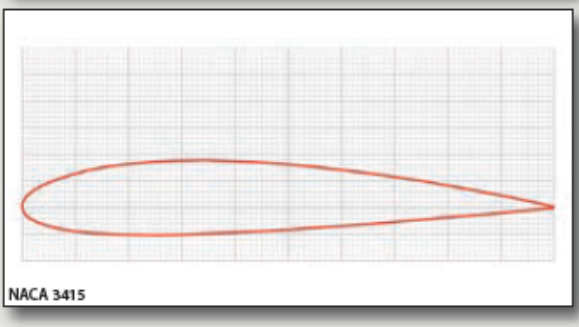
NACA 3415

The NACA airfoil series uses a four- and five-digit number to describe the design's shape. The first digit describes maximum camber as a percentage of the chord, the second digit is the distance of maximum camber from the airfoil leading edge in tens of percents of the chord and the last two digits represent the maximum thickness of the airfoil as a percentage of the chord. A NACA 0015 airfoil is symmetrical, with the 00 occupying the first two digits indicating it has no camber.

The NACA five-digit airfoil series describes more complex shapes. Its first digit when multiplied by 0.15, gives the designed coefficient of lift (C_L). The second and third digits, when divided by 2, result in the location of maximum camber as a distance from the leading edge, as a percentage of the chord. The fourth and fifth digits give the maximum thickness of the airfoil, also as a percentage of the chord.

By 1958, the Committee had some 7500 employees and $300 million worth of facilities. With the creation of the National Aeronautics and Space Administration (NASA) in 1958, NACA ceased to exist.

Airfoil images above are courtesy of the Airfoil Investigation Database, available online at www.airfoildb.com.