

# Pitch Plus Power

The great unanswered question about the loss of AFR447 is and always will be: How did an experienced crew flying for a major carrier lose control, enter a stall, fail to recognize it and maintain it during a descent from more than 38,000 feet and lasting almost four minutes? Without having been there, it's impossible to know.

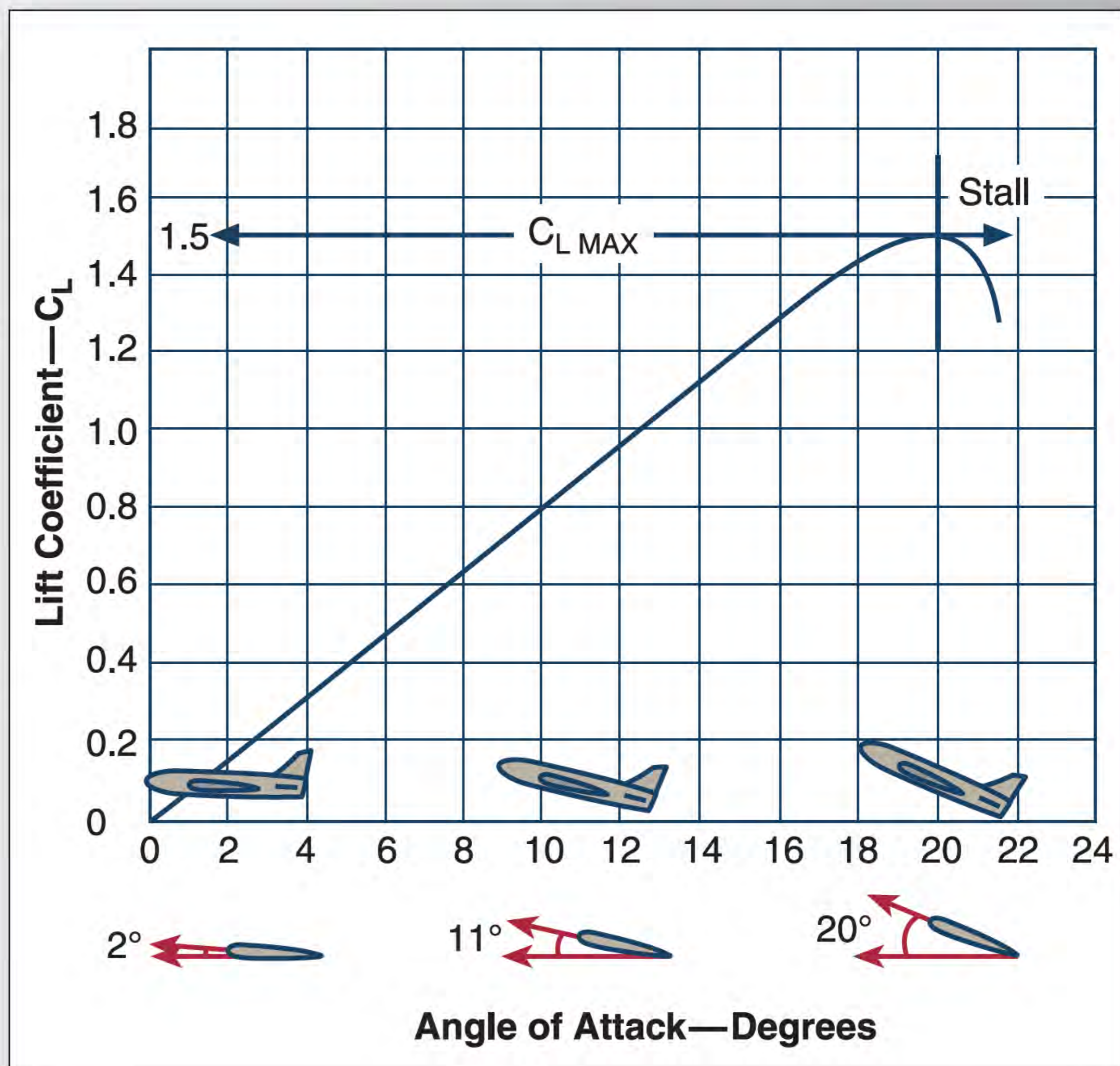
One thing we do know, however: If the flightcrew had simply maintained pitch and

power at or near their cruise-configuration norms until the ice-clogged pitot tubes cleared and the flight control system recognized valid airspeeds, the Airbus in all likelihood would have arrived in Paris safely later that day. If the crew had remembered a very simple formula—pitch plus power equals performance—no one would be studying their actions today, more than two years later. The FAA's *Instrument Flying Handbook* (FAA-H-8083-15-1) spends a great deal of time emphasizing the fact that a given power setting and pitch will have specific results in speed and climb. Even a pre-solo student is taught the basics of the pitch/power/performance equation: He or she learns to use full power for climb, around 2300 rpm for cruise and to reduce to 1500 rpm on downwind.

More important, however, is that we all should know—within reasonable tolerances—what pitch and power values will result in desired airplane performance. For example, a Beech Bonanza flying at full power near sea level and with a five-degree nose-up pitch attitude will establish and maintain an approximate 750-fpm climb. The same airplane, in a clean configuration, at approximately 18 inches of manifold pressure and about 2.5 degrees nose-up will maintain altitude at roughly 90 KIAS. Each airplane type will have different numbers, but each also will perform basically the same each time, within the obvious variances produced by weight and atmospheric conditions.

If you don't know some basic pitch/power combinations for your airplane, now is a good time to go out, do some flying and write down the results of various pitch/power combinations. Depending on the

kinds of operations in which you engage, you might want to establish values for initial climb, cruise climb, high-speed cruise, long-range cruise, en route descent, approach maneuvering and landing configurations. Put together a basic chart, like the one above, and fill in the blanks. Once it's complete, memorize it, tape it to the instrument panel or somehow figure out how to keep the results handy for when the magic soils the bed..



Configuration	Pitch Angle	Power Setting	IAS	RoC
Climb				
Cruise				
Descent				
Approach				