

Communication Breakdown

According to NASA's Aviation Safety Reporting System (ASRS), "problems in pilot/controller communications continue to be acute." Over the years, the ASRS has culled its

data to publish several studies on pilot/controller communication problems. They can be broken down into two basic types, readback and hearback problems, where "airmen are reading back wrong numbers and the ATC controllers are failing to catch the pilots' errors." Here's what the ASRS found.

Readback *Hearback*



READBACK PROBLEMS

- Similar aircraft call signs. Airlines, with their hub operations, have set a major trap for their airmen. Trips 401, 402, 403 ... Flight ABC1 and XYZ1, GYC and GYE—all operating on the same frequency, at the same time and in the same airspace. "Good for marketing," protested a reporter, "no good for us."
- Only one pilot listening on ATC frequency. "Picking up the ATIS" and "talking to the company" represented a time-critical gap in backup monitoring during two-pilot operations.
- Slips of mind and tongue. The typical human errors in this category included: Being advised of traffic at another flight level and accepting the information as clearance to that flight level; the classic "one zero" and "one one thousand" mix-up; the L/R confusion in parallel runways; the interpretation of "maintain two five zero" as an altitude rather than an airspeed limitation.
- Mind-set, pre-programmed for..., and expectancy factors. The airmen who request "higher" or "lower" tend to be spring-loaded to "hear what we wanted to hear" upon receipt of a blurred call sign transmission.

The ASRS data set included "traffic conflicts, altitude busts, crossing restrictions not made, heading/track deviations, active runway transgressions, and mix-ups of takeoff clearances and parallel runways. Two reports of controlled flight toward terrain were reported."

HEARBACK PROBLEMS

"While the sources for pilot readback failures were clearly delineated in the narratives, hearback deficiencies diffused into a tangle of erratic, randomly overlapping causal circumstances. But the underlying problem seems to be the sheer volume of traffic: the 9 a.m. - 5 p.m. rush of departures/arrivals; the behind-the-scenes tasks of land-lines, phones and hand-offs; the congested frequencies with "stepped on" transmissions; the working of several discrete frequencies; and, at times, the time and attention-consuming repeats of call-ups or clearances to individual aircraft. These activities, together with human fallibilities of inexperience, distractions and fatigue set the stage for hearback failures. Indeed, a series of pilot narratives recognized controller "overload," "working too many aircraft," "overwork" and frequency saturation.

"These facility conditions provide strong motivations for airmen to drop any "how-the-system-is-supposed-to-work" idealism and adopt a more realistic approach to cockpit communication practices. As a working premise, airmen should assume that during congested traffic conditions, the controller may be unable to hear, or is not listening to their readbacks."

Of particular interest is the fact the ASRS publication from which the foregoing is taken was published in 1991, more than 20 years ago. It's certainly debatable whether things have improved since then—we'd argue they haven't.