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## Business Day

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ITINERARIES / ON THE ROAD

### A New Twist In Talking the Plane Down

By JOE SHARKEY

**T**HE private jet approached the runway over the dusty hills of the central Arizona desert. It was not in ideal landing configuration.

"Too high! Too high!" a recorded female voice called out in the cockpit.

The pilot, Markus A. Johnson, nodded. This was actually the reaction he had been seeking from the warning system.

Pulling up, the airplane surfed over the runway at Phoenix-Mesa Gateway Airport, now used mostly for business jets and other general aviation. At noon, with the temperature already pushing past 100 degrees, the airport looked sleepy.

Mr. Johnson and the co-pilot, Steven T. Kilbourne, climbed to 1,600 feet. "We'll go around, because I didn't fly it bad enough this time," Mr. Johnson said with a chuckle.

The airplane, a vintage Sabreliner NA265 twin-engine business jet, made a big sweep around the airport and again approached the long, empty runway. In the right seat, Mr. Kilbourne deliberately set the flaps wrong.

"Flaps! Unstable!" the recorded voice called out as the runway loomed.

Again the airplane pulled up. From the jump seat in the cockpit, I saw the skyline of Phoenix shimmering in the distance.

In a few minutes, we had made a normal landing and were taxiing around the airport while Mr. Kilbourne studied a taxiway chart and spoke with controllers in the tower. As we trundled along, the recorded voice, urgency gone, called out locations of intersecting runways.

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"Approaching 1-2 center," it said. "Approaching 3-0 left."

Mr. Johnson and Mr. Kilbourne are both test pilots for Honeywell, which has an aerospace headquarters in Phoenix. They were demonstrating a new Honeywell technology that provides aural alerts to pilots as they approach runways and as they land and roll through the maze of taxiways.

Being reminded where you are when approaching the runway is crucial because pilots have leeway on where to put the plane down. Last month, an Air India Express flight crashed in Mangalore, killing 158 on board, and investigators are trying to determine whether the accident was caused by a pilot miscalculation on the approach to the runway.

In general, pilots need to pay close attention to a wide variety of visual signals, beyond cockpit instruments, when landing an airplane or moving around the airport. They look out the window, study maps, peer at signs. Occasionally they make mistakes and their planes wander into one another's paths, sometimes with disastrous results.

Skill and acute awareness are required to land a plane safely, whether it's a mid-size business jet like the Sabreliner, or a lumbering giant crammed with hundreds of passengers like a 747. But far more than most passengers realize, pilots have options on their approach, among them, just where to slide that plane down on that vast and fast-looming concrete runway.

Within overall safety guidelines, airlines set what they call correct landing procedures for pilots. But airports, weather, terrain and other factors vary, as do company procedures. In general, airlines like pilots to strive for soft landings, glid-

ing the aircraft gently onto the runway, rather than hard landings, in which the plane comes down with a thump or a bang that alarms passengers.

Hard landings are jarring, but not necessarily unsafe. On the other hand, if the pilots are not fully aware of exactly how much runway they have in front of them on approach, a soft landing can be unsafe. Last week, for example, a directive by aviation regulators in India warned airlines about overemphasizing soft landings.

"A good landing is not one that the passengers perceive as a soft landing, but one that is made at the correct point on the runway, with correct flight parameters," the directive said. It was issued after the Air India Express accident. The question is whether the pilots, in calculating their runway position, decided incorrectly that they had enough room for a full soft landing.

"Situational awareness" are the two most important words that pilots know, even before "when's lunch?"

Honeywell's new product, called SmartLanding, augments the company's Runway Awareness and Advisory System, introduced almost a decade ago to remind pilots exactly where they were on the ground. SmartLanding "has more to do with approaching the runway," Mr. Johnson said.

As we rolled to a stop on an airport apron last week, Mr. Johnson said that adding to pilots' situational awareness was invaluable — even if it required an audible nag from a disembodied voice amid all the other distractions of a cockpit.

"It's easy to trigger a warning announcement," he said as the engines shut down. "The tricky thing is to not trigger one."

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