CALLBACK

From NASA's Aviation Safety Reporting System

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PIREPS: Pilot Reports Revisited

At the beginning of their flying careers, most pilots quickly learn the value of PIREPS – "pilot reports" of actual inflight weather conditions that are provided by pilots, for other pilots. These near real-time weather reports help pilots anticipate inflight conditions, verify forecasts, and fill in the weather picture while en route.

PIREPS provide information on cloud tops and layers, precipitation, turbulence, icing, visibility, temperature, wind speed and direction, and other weather-related conditions. They are generally given to FSS, Flight Watch (122.0), or ATC for quick dissemination, but may also be transmitted through Dispatchers and other aircraft.

This month we'll take a look at how PIREPS can help pilot decision-making when they are in the system and available—and how the absence of timely PIREPS, or failure to request them for a weather briefing, can lead to unpleasant or hazardous flight experiences.

PIREP: Severe Turbulence

A B-777 flight crew en route over the Atlantic was given early warning of severe turbulence by ATC. That heads-up allowed the crew to develop a game plan that protected all on board from injury.

■ *I was the Relief Pilot and had just come off first break and assumed the duties of pilot flying. Random route over the Atlantic. One PIREP and SIGMET from Center for moderate to severe turbulence along our route. Prior shift had tried to alter course and altitude and ATC was unable to accommodate. Approaching area of possible turbulence, we briefed the Flight Attendants to secure the cabin and turned on the fasten seatbelt sign with an especially strong announcement to stay seated.*

Seatbelt sign had been on for some 10 minutes prior to encountering any turbulence at all. Encountered moderate and then severe turbulence. Made the decision to declare an emergency and followed SOP for an emergency descent to FL280, as that had been reported smooth. FL280 was much better so we stayed at that altitude until we could coordinate with ATC for subsequent climb and continue to destination. No injuries reported. Captain (who was on break) did an excellent job of briefing and establishing a game plan for possible turbulence. His obvious confidence in his crew made it easy to make a timely decision.

PIREP: Review for Inflight Decisions

A Dispatcher's report described how the absence of a PIREP prompted an ERJ 170 flight crew to continue their flight when the landing gear failed to retract after takeoff.

■ *As* [our] *flight was climbing through 10,000 feet,* [Dispatch] *received ACARS, "Gear will not come up. Do we continue?" At this time I went over to talk to Maintenance Control and they said they were OK with continuing. I also advised the Dispatch Coordinator leaving and the one taking over (they were changing shifts at the time). One told me to continue and the other said to return. I asked some other Dispatchers as well, since I was not sure what to do. I found the QRH and paged to the landing gear section, but I saw only EICAS messages that did not fit the situation. I knew that icing was a concern for gear down so I referenced AIRMETs and PIREPs and found no known or forecast icing. I responded to the crew that Maintenance Control was OK with them continuing and that…there was no known or forecast icing. The flight had leveled off at 15,000 feet at this time and was approximately one third to one half of the way to destination. I calculated a gear down burn and sent this info to the crew. The crew sent an ACARS at that time saying they agreed it would be OK to continue...The flight continued and landed….*

PIREPS: Recheck After En Route Stops

A Piper Cherokee pilot and his wife learned how important it is to check PIREPS, even for an 18-minute flight after a lunch stop.

■ *My wife and I departed for our destination after a lunch stop. Arrival from the west had been uneventful with a descent through clouds and ceilings about 3,500-4,000 MSL...On departure, we entered clouds at 3,000 MSL, a little lower than expected. We flew out of that layer at 5,000 MSL having picked up about 1/8 inch of clear ice on the temperature probe. (On our Piper Arrow, the temperature probe is easy to see and accumulates visible ice sooner than any other part of the airplane, making it an ideal "early warning system.") I was surprised to find another cloud layer almost on top of the first and was*

back in IMC by 6,000 MSL. The plane continued to slowly accumulate ice but I (foolishly) hoped that the second layer would be very thin and I would quickly climb out the top of it. At 8,000 MSL we were still IMC and still accumulating ice. I received clearance for descent and lowered the landing gear and pulled the power back to get a 2,000 FPM descent to what I assumed would be clear, warm air at 3,000 MSL. I was dismayed to still be in IMC at 3,000 MSL with ATC telling me that we could not descend further at our position, just west of the ZZZ VOR. ATC offered the GPS 16 approach to ZZZ as the closest option and I took it. We flew in IMC until descending below 2,900 MSL on the final approach. By the time, we had over 1/2 inch of clear ice on the temperature probe. Air temperature on the ground was just +1 C….

I made several mistakes on this 18-minute flight. Among them: taking off without rechecking METARS and PIREPS; assuming that the weather east of our lunch stop would be essentially the same as the weather to the west; continuing the climb into the second cloud layer; and not immediately returning when I climbed out of 5,000 and saw clouds where I did not expect them.

PIREP: Incomplete

An CRJ 200 sustained damage during a landing rollout in high winds and "blowing dust" because of insufficient ATIS information and lack of a PIREP from a preceding flight crew.

■ *On landing rollout on Runway 28L the Captain's (left windscreen) shattered at approximately 100 knots. We had been advised of dust blowing along the runway. The dust appeared to be coming from the end and sides of the runway. We had been given no indication that the dust was actually sand and small pebbles used for road and runway sanding operations. When the windscreen cracked, we were approximately 2,500 feet from the threshold and visually in the clear with the visible dust 2,000-3,000 feet further down the runway. At the time the windscreen cracked, we were rapidly slowing to make sure we were firmly on the runway and at a slow pace before we neared the dust. Upon entering the dust area we had severely reduced visibility down to less than 1/4 mile. We slowly moved clear of the runway at F4 high speed turnoff. After clearing, we heard that another aircraft on Runway 28R had aborted a takeoff for a cracked windscreen.*

We later learned that a total of four aircraft had cracked windscreens. Of particular concern was the fact that nothing was on the ATIS regarding the dust. No indication was given that the dust was actually sand and small pebbles. We asked for a PIREP from a previous aircraft and received no warning regarding this issue… Winds reported on the ATIS were 280 degrees at 26 knots gusting to 41 knots. Later heard from ATC Tower person that they had winds gusting between 39 and 55 knots during the time this happened. We didn't get that information during our flight.

A "Pirep" from the Maintenance Side

Maintenance Technicians sometimes use the term "pirep" too, but in a different way than pilots as shorthand for a pilot write-up of an equipment problem in the aircraft logbook. Two Maintenance Technicians reported to ASRS the problems they had resolving a "pirep" for an MD-80 stabilizer trim that operated in only one direction.

■ *After seven hours of troubleshooting this aircraft in miserable weather, my co-worker and I consulted with our Manager and his Manager. It was then decided that we replace the stabilizer trim primary drive motor. We were informed at that time that, conveniently enough, it's in stock here. Anxious to fix the aircraft, we hastily installed the replacement drive motor. The cold weather coupled with a stiff wind of 25-30 MPH, and throw in some snow – made the conditions almost unbearable. We wanted to get done. The "pirep" indicated the stabilizer trim would only operate in one direction. We checked operation of the stabilizer trim in both directions OK.*

It was near the end of our shift, and we wanted to complete the job. In our haste, we failed to notice the part number difference for the stabilizer trim drive motor between the newer MD-80 and the legacy part number.

PIREPS: The Payoff

- **P**ilots can't provide too many
- **I**ndispensable for preflight planning
- **R**eport weather conditions that may be worse (or better) than forecast
- **E**asy to provide to others
- **P**rovide actual weather information that other sources may not
- **S**afe pilots use and provide PIREPS!

ASRS Alerts Issued in November 2010	
Subject of Alert	**No. of Alerts**
Aircraft or aircraft equipment	7
ATC equipment or procedures	7
Airport facility or procedure	7
TOTAL	**21**

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http://asrs.arc.nasa.gov/

November 2010 Report Intake	
Air Carrier/Air Taxi Pilots	2770
General Aviation Pilots	831
Controllers	839
Cabin/Mechanics/Military/Other	488
TOTAL	**4928**