

# CALLBACK

From NASA's Aviation Safety Reporting System



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## What Would You Have Done?

This latest “interactive” issue of *CALLBACK* deals with two situations that involve general aviation pilots and one that involves an air carrier flight crew. In “the first half of the story” you will find report excerpts describing the situation up to the decision point. It is up to the reader to determine the possible courses of action and make a decision (preferably within the same time frame that was available to the reporter).

The selected ASRS reports may not give all the information you want and you may not be experienced in the type of aircraft involved, but each incident should give you a chance to exercise your aviation decision-making skills. In “the rest of the story,” you will find the actions actually taken by reporters in response to each situation. Bear in mind that their decisions may not necessarily represent the best course of action. Our intent is to stimulate thought, discussion, and training related to the type of incidents that were reported.

### The First Half of the Story

#### Situation #1: (C170 Pilot's Report)

■ *We diverted east-northeast...due to a slow moving storm system across the direct route to my destination.... We were getting beat up with turbulence and I climbed above a scattered layer into smooth air, climbing to 6,500 feet MSL. The layer gradually increased in altitude and I climbed to 8,500 feet MSL to maintain VFR cloud clearances. Everything was fine at this point, but the cloud layer gradually increased to a continuous layer. The cloud layer was expected, but I also expected to be well past it before having to descend for fuel. I stayed above the layer rather than backtracking and descending below the layer. This was a poor decision.*

*The wind gradually increased to about 40 knots of headwind. It gradually became clear to me that I did not have adequate fuel to get past the layer. The cloud layer did turn out to disappear approximately where I expected it to, but I could not get there with the fuel on board. I was way too far into the corner I created by the time I admitted it to myself. At this point, I did not believe backtracking was a reasonable option. The storm system, which I had done an end-run around, was slowly moving toward the route I had flown, the terrain behind me was higher, and the ceiling under the*

*cloud layer was minimal. AWOS stations ahead of me were reporting a ceiling of greater than 6,000 feet, and some of them were reporting a broken layer. I was still hoping that I would find a break in the cloud layer and be able to stay legal VFR. I finally realized that I had to choose between two poor options: 1. A high probability of running out of fuel in flight if I continued trying to fly past the cloud layer. 2. Descend through the cloud layer, even though I am only VFR rated.*

#### What Would You Have Done?

#### Situation #2: (C172 Pilot's Report)

■ *I am a member of a club which gives me access to four C172's. I typically fly one of the 160HP models. On this trip, however, I would be carrying four adults and the airplane I took on that day was a 180HP model. It was the only plane with enough useful load to carry all of us. So, I chose to fly an airplane that I had never flown before. I got some performance information from the club's website (50 gallon, long-range tanks, 8.7 gallons/hour fuel burn, and a cruise speed of 128 knots). I used those numbers to calculate that I could fly for 5 hours and 15 minutes before reaching my 30-minute reserve. I purchased [flight planning software] earlier in the week and used that to calculate that the trip should take just under 4 hours so I thought I had plenty of fuel. Once the flight was under way, I learned that the cruise speed was more like 120 knots (at 2,400 RPM), the headwind was stronger than I had planned for and I was only achieving a ground speed of around 100 knots. However, my GPS told me that I would still be able to make [my destination] in less than 5 hours. I failed to note our exact time of departure.*

#### What Would You Have Done?

#### Situation #3: (B737 First Officer's Report)

■ *It started when we were on [a published arrival] and told to hold. Dispatch gave us an alternate with an enroute fuel burn of 2,800 lbs. We were currently around 7,700 lbs. so we should have diverted then. We told ATC we wanted to divert but then they said to wait three minutes. We waited and then received clearance and vectors for the approach. Once on approach, at 6,500 lbs. on the fuel, at about 1,000 feet, we got a windshear warning and we executed*

a go-around. At this point, we had 5,900 lbs. of fuel. We were getting backed into a corner. We didn't have enough fuel for the alternate and the weather was not getting any better at the [destination] airport. We told the Controller we wanted vectors for [a nearby Air Force Base] and we were approved. Everything was fine. Then ATC said the Base was closed. Approach vectored us back around for the approach. We were coming in for a flaps 30 landing. Once again at about 1,000 feet, we received a "Windshear, Go Around" command from the aircraft.

### What Would You Have Done?

## The Rest of the Story: The Reporter's Actions

### Situation #1: (C170 Pilot's Report)

#### The Reporter's Action:

■ I chose to descend through the cloud layer. I set up a heading toward a nearby airport reporting a high ceiling, stabilized the descent, and descended on instruments. The layer was not very thick, but I did not maintain VFR cloud clearance requirements. Center would have known where and at what altitude I was from my transponder. Hopefully there was no other airplane cruising in that layer.... After breaking out, I landed and refueled. Remaining fuel was minimal. I then continued on to my destination....

This is only about the third time that I have ever proceeded on top of an undercast. I did not plan to do it. I did not have adequate weather information to commit to that course of action, particularly with the fuel on board....

The jam I got myself into was my responsibility, caused by my poor decisions and not leaving a legal and safe way out. Fortunately, the minimal instrument time that I get every two years during biennial flight review allowed me to keep the airplane under control.

(Ed. note: Air Traffic Control is ready and willing to lend assistance to pilots who find themselves in unforeseen difficulty. Establishing verbal communications with ATC, when able, may ensure that the situation doesn't go from bad to worse.)

### Situation #2: (C172 Pilot's Report)

#### The Reporter's Action:

■ Approaching [the destination], the fuel gauges began to dip near "E," but I've never trusted fuel gauges in airplanes

and instead trust my math to determine my range. So, I refused to believe the gauges and continued to proceed (although the gauges did make me a bit nervous). After I had contacted Approach...the engine started to cut out. I informed the Controller that I had run out of fuel. He told me to look for the North/South highway. While I looked, I tried switching the fuel selector to "Left" and to "Right." It had previously been set to "Both." This did not help. I found the highway and felt that I could make it as long as the engine didn't quit completely. The engine did cut out completely once I was within a few hundred feet of the highway, but I had already made it at this point.... I touched down on the highway and was very fortunate that traffic was able to see me land and stopped behind me.

In reflecting upon my mistakes, I can find many. To start with, I used numbers from the club website to do my trip calculations rather than consulting the POH. I did not confirm the accuracy of the numbers with other club members who had plenty of experience in the airplane. I had far too much confidence in numbers that I did not know from experience to be accurate. I failed to check the exact time of departure when we took off. I did not trust the fuel gauges when they were nearing empty. I've never trusted those gauges and assumed wrongly that they would go well under "E" like most cars do. I was stubborn and believed that my math was correct and more accurate than the gauges. I failed to inform the controller upon initial contact that I had minimal fuel... I learned many valuable lessons from these mistakes and am very thankful that my friends and I are still here to benefit from what I've learned.

### Situation #3: (B737 First Officer's Report)

#### The Reporter's Action:

■ The Captain, knowing we were at 5,200 on the fuel, [the Air Force Base] was closed and the weather was not getting any better, made the decision to use his Captain's emergency authority and land the airplane. We landed the plane safely without any damage.

The lesson learned from this situation is that when you decide to divert, just do it. You have to stick to your guns. I think the Captain did the best job he could and once we were in the bad predicament, we exercised great CRM and landed safely.

ASRS Alerts Issued in December 2011	
Subject of Alert	No. of Alerts
Aircraft or aircraft equipment	9
Airport facility or procedure	4
ATC equipment or procedure	2
<b>TOTAL</b>	<b>15</b>

385  
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December 2011 Report Intake	
Air Carrier/Air Taxi Pilots	2835
General Aviation Pilots	748
Controllers	540
Cabin	238
Mechanics	146
Dispatcher	68
Military/Other	15
<b>TOTAL</b>	<b>4590</b>