

CALLBACK



From NASA's Aviation Safety Reporting System

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What Would You Have Done?

It's time for another "interactive" issue of **CALLBACK!** All of this month's reports involve the same type of incident – a real or apparent equipment problem that occurs in IMC or other adverse weather conditions. On the front page you will find "the first half of the story," report excerpts followed by several plausible action choices. On the back page, you will find "the rest of the story," the actions actually taken by reporters to resolve their situations. Each incident will give you a chance to draw on your aviation decision-making experience to anticipate what you would have done in the same situation.

The First Half of the Story

Situation #1: A TRU Dilemma (CRJ-900 First Officer's Report)

Editor's Note: A Transformer Rectifier Unit (TRU) is a device for converting alternating current (AC) input into direct current (DC) output.

■ *While en route...I as the Pilot Not Flying /Pilot Monitoring, noticed a message that said TRU2 on my PFD [Primary Flight Display] and on my MFD [Multi-Function Display]. I looked over to my Captain's side, the Pilot Flying, and saw his [display] said TRU1. I knew this was not normal so I asked him about it. Both the Captain and I thought that it was referring to the Transformer Rectifier Units (TRU) in the electrical system. We brought up the electrical page to monitor TRU1 and TRU2. Both looked fine. We got out our POM [Pilot Operating Manual] and contacted Dispatch and Maintenance Control to see if we could find out what it means, as neither of us had seen that displayed before. The plane seemed to be acting fine so we continued toward our destination. While on approach we noticed the TRU1 and the TRU2 message was blinking. When we switched from the FMS to ILS, we noticed a difference in course and also in heading...We were in IMC and in mountainous terrain....*

What would you have done?

- Break off the approach and wait for additional Maintenance input
- Cross-check ILS indications with the magnetic compass and continue the approach
- Proceed to an alternate airport
- ???

Situation #2: Partial Panel in IMC (C182 Pilot's Report)

■ *My attitude indicator failed in-flight, in IMC, approximately 70 miles southwest of my destination. Weather was reported in the area as 2,900 BKN and 4,000 OVC with 7 miles visibility which should have allowed for a visual approach. After determining weather from 2 stations which confirmed each other, I elected to continue since it should have been a brief descent through IMC which did not strike me as unsafe with the partial panel*

situation, provided the approach was to be conducted in VMC. However, weather conditions deteriorated significantly in the next 30 minutes and I was still IMC 3 miles from the airport at the lowest altitude Approach could give me, 2,300 feet MSL. Rain and light turbulence were making partial panel IFR challenging and my headings and altitudes were deviating....

What would you have done?

- Continue the approach to a landing
- Declare an emergency and request vectors to the nearest airport reporting VMC
- Fly a missed approach and return to the departure airport
- ???

Situation #3: "The Crew and Company Saw Things Differently" (A320 First Officer's Report)

■ *Aircraft generated ECAM AIR ENG 2 Bleed Fault. Crew performed ECAM actions. Next notified Company Dispatch (via ACARS) and reviewed AOM [Aircraft Operating Manual] for further guidance...There was one [AOM] procedure which would affect our flight: Do not operate into known or forecast icing conditions. In addition, the procedures required that we descend to FL310 and avoid icing conditions. We contacted ATC and requested descent to FL310 and contacted company to advise about the MEL. This is where the crew and company saw things differently... Our concerns regarding MEL requirements of known icing and FL310 required diverting to an airport with no known / forecast icing. However, the company's repeated view of no-MEL [restriction] on the aircraft and no restrictions from the AOM allowed us to continue to our ice-impacted destination at FL390. This discussion lasted while we continued northbound toward our original destination....*

What would you have done?

- Proceed to the destination at the higher altitude
- Establish a phone patch with the Chief Pilot to further discuss operating manual references
- Divert to an airport with no known icing
- ???

Situation #4: "Canceled IFR Short of the Destination" (Piper Malibu Pilot's Report)

■ *Departed local VFR and picked up IFR en route. Flew to vicinity of destination in good weather. Canceled IFR short of the destination...It became apparent that fog had moved in with ceiling of 100 feet. Elected to continue VFR to airports indicating VMC...Two airports selected just prior to arrival (within 1 mile) had become obscured due to very heavy rainfall. Fog had moved inland and presented an obscured deck of 1,500 feet. Unable to locate airport frequencies due to name issues on GPS systems (the airport is not named after the city but by another name). It took an additional 10 minutes to contact them. Fuel was now a critical issue....*

What would you have done?

- Request ATC vectors to an airport in VMC
- Request an immediate IFR approach
- Declare an emergency
- ???

ASRS Alerts Issued in April 2010	
Subject of Alert	No. of Alerts
Aircraft or aircraft equipment	2
Airport facility or procedure	6
ATC equipment or procedure	3
Other	1
Total	12

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April 2010 Report Intake	
Air Carrier/Air Taxi Pilots	2843
General Aviation Pilots	979
Controllers	544
Cabin/Mechanics/Military/Other	481
TOTAL	4847

The Rest of the Story: The Reporter's Actions

Situation #1: A TRU Dilemma (CRJ-900 First Officer's Report)

- **The Reporter's Action:**
Proceed to an alternate airport

■So we went missed. After being vectored around we noticed that our heading indicator was about 12 degrees off of the magnetic compass....Our localizer did not match the runway heading so the Captain decided to go missed again. On the climb-out he made the decision to go to our published alternate, which was VFR. After landing I finally figured out that the FMS was set to True heading instead of Magnetic, which was the reason that our heading and ILS course did not match up. That's when we realized that TRU1 and TRU2 was referring to True Course, not Transformer Rectifier Unit.....

The reason this occurred was because the FMS was set to TRUE instead of MAGNETIC. Double-check the FMS page to make sure it is on MAG.

Situation #2: Partial Panel in IMC (C182 Pilot's Report)

- **The Reporter's Action:**
Continue the approach to a landing

■I notified ATC of the malfunctioning attitude indicator, but elected not to declare an emergency. I requested vectors for the VOR/GPS approach to try and get a controlled descent to VMC, since this seemed a faster route to visual conditions than returning to the south with indeterminate weather. The approach was successfully executed and I broke out at 1,300 feet MSL (800 feet AGL) and was able to land. However, again due to partial panel indications compounded by light to moderate turbulence, my headings and altitude were deviating from ATC clearance, heading up to 25 degrees and altitude up to 200 feet.

The chain of instrument failure, unexpectedly low ceilings, and my own lack of very recent partial panel experience all led to imprecise IFR flight and likely reduced safety margins. To prevent a recurrence, additional focus on

partial-panel proficiency and a more conservative view of weather...to keep the situation from deteriorating would have been advisable, and at the initial indication of attitude indicator failure, I should probably have requested vectors to the nearest airport reporting VMC.

Situation #3: "The Crew and Company Saw Things Differently" (A320 First Officer's Report)

- **The Reporter's Action:**
Divert to an airport with no known icing

■I, being the Flying Pilot, handled the aircraft and communications with ATC, while the Captain communicated with the company. He provided operating manual references which state: If any instrument or item of equipment required for the particular operation becomes inoperative en route, the Captain shall comply with the approved procedures for such occurrences as specified elsewhere in the manual, the AOM, applicable MEL's/CDL's [Configuration Deviation List], and any pertinent FAR's. The Captain and I discussed the issue at length, and made the decision to divert to an airport with no known icing due to inop AIR ENG 2 Bleed Fault and MEL restrictions, which we did. This maintenance diversion caused the crew to exceed eight hours within 24 hours which required 18 hours rest and removal from the next day's trip....

When Dispatch and/or Management disagree with a Captain in regards to the safe operation of an aircraft, the safest course of action should always be taken without extreme pressure that this crew encountered.

Situation #4: "Canceled IFR Short of the Destination" (Piper Malibu Pilot's Report)

- **The Reporter's Action:**
Request an immediate IFR approach

■An immediate IFR approach was requested. Gear was dropped and several approaches made. Eventual landing ended with gear failure to engage – landing on the belly. No injuries and minimal damage to plane except propeller.