Hello, Columbus – by John Allard

Loosely based on Just Flight Cargo Pilot® - Microsoft Flight Simulator experiences….

Chapter 3 - Crisis

Well, Atlanta wasn't too bad for us tonight after all. It was clear from what we heard on the approach frequencies as we transited that things were busy, but they seemed to have it well in hand. We were treated to jetliners popping through our altitude within a few miles several times, but no one came too close.

Our northerly course tonight is ideal, passing right over the center of all those east-west runways at Hartsfield. Everyone shooting an approach was well off to our right, and those climbing out were bobbing up on the left. It's the arrivals from the west and departures headed east that actually have to cross our path, more or less, and most of the traffic called out to us tonight was of that kind. It was busy, but uneventful, which is the best you can hope for going through Atlanta, whether you're on Victor 97 at 12,000 feet or on I-75 in an automobile.

We continue roughly north, meandering along the Victor airways from VOR to VOR as we drone our way closer to Columbus. Nice place, Columbus, though we won't be seeing much of it. We still have almost 300 miles to go, a little less than two hours direct, plus a few minutes jockeying around for the approach course. We should be on the ground at…12:15, give or take a few minutes. Not bad. We'll hole up in a motel for the night and with any luck will have at least a partial load back to Ocala tomorrow; a day flight for once. Will wonders never cease?

What is that? I become aware of…something. This is the third time I've sensed it in the last five minutes or so. I'm not sure if I heard it or felt it, just an instant of…sound…or vibration…or something not quite right. The first time I wasn't sure I hadn't just imagined it, but now I know I didn't. "Joe, did you hear that – or feel it?"

I get back a puzzled look and a quick shake of the head. He's alert, but hasn't a clue what I'm talking about. "…heard something, short, sharp." I mutter. I slide the right ear cup, the inboard one, forward, clearing that ear to be able to hear whatever I'm listening for unfiltered. The noise of the two big R-2800 engines is louder now, but I'm no longer reveling in it. They're interfering with my listening and for once I wish they were quieter.

I scan the instruments, quickly, then more slowly and deliberately. The master caution light stares darkly at me. There's nothing far enough out of its parameters for that watchful sentinel to be tattling about. Whatever it was, it was

quick, just a pulse. Maybe too fast for the annunciator to latch in, or maybe just not related to anything that's monitored. The engine instruments are all right on the money for both engines – the equal readings on each pair offering further assurance that all is well with them. The flight instruments look just like they should. 12,000 feet, zero fpm, 168 knots, level, on course. All the other things – normal – OK – green - steady. But something's not right. Those little hairs on the back of my neck are standing up…those well developed little sensors that respond to all the things that go bump in the night and scare the bejeeses out of me. Something's not right. I hope I'm wrong, but I'm getting a bad feeling about this.

I go over the lineups. Fuel selectors are normal and in the detents. Fuel pressure lights are out. Both generator switches are on and the bus tie is closed. All the circuit breakers are in. I'm checking everything. The de-icers are off, pitot heat on. The lighting switches are all correctly lined up; taxi and landing lights off, everything else on. The red landing gear light glows brightly – saying the gear is up. The cabin door(s) indicator light is out. Vacuum is good. Everything on the radio stack looks as it should – not likely they'd cause anything like this. I even check the outside air temperature gauge, though I don't know what I expect to see wrong with that. Cabin heat controls are just as we always set them. Ammeter is near zero, a little plus. Voltage is…THAT'S not right!!! My eyes nearly bug out of my head staring at the little round gauge at the bottom outboard edge of the panel. It's just over 25 volts; steady, but way too low, at least two volts below normal. Damn!

"Joe, what does your voltmeter say?"

He looks. "Twenty-five and… maybe a quarter - that's low", he says with a visible double-take. I interpret this long-winded address on his part as further confirmation that this is serious – as if I needed any.

I spend about 15 seconds quietly taking stock of our situation. I'm not looking at anything with my eyes, just running it through my mind. "Joe, you have the airplane", I say quietly. "I'm going to try to work this out."

"OK" he says. He nervously puts a hand on the yoke, then pulls it back. The autopilot is still driving the bus for us.

"Don't change anything without telling me first."

"OK"

OK, indeed. We're IFR, it's dark outside and we have an electrical problem developing. For now lights and the avionics are the most important things. Landing gear and flaps will rise to the top of the list later on.

I grab the thick deck of laminated check lists, held together by a ring in the top left corner. The ones that we always use are at the top of the stack, wrinkled and dog-eared. Beneath them are the abnormal and the emergency lists. I flip through them quickly. I don't see anything that covers this.

Should I open the bus tie breaker, isolating the buses from each other? That's probably the least drastic thing I could do. Don't want to make things worse though.

Should I take the generators off-line, either together or one at a time? If nothing else we could briefly see what the battery voltage is. Don't want to upset the avionics though. Not yet.

Should I declare an emergency? Pretty soon, I think. Yes, definitely.

What do we have for backup if we lose a bus? A couple of flashlights. That's about it. I suspect the problem is on one side and dragging the voltage down on the whole of the two connected buses. But which side has the problem? There's a selector switch for the voltmeter, so you can read voltage on either bus if the bus tie is open. I flip the selector over and back just to confirm this – no change. If I open that bus tie though, we might well lose one side completely. The benefit would be to protect the other side. Which side is critical? Don't know yet. I'll have to dig up the schematics to see what loads are fed from each side. It's not like I can choose which half is faulted, even if my analysis is right. No, I'm not going to open the bus tie breaker. Not yet. Think things through first.

Something else occurs to me. How does low voltage correlate with that sound – or whatever – I heard? I can't understand low voltage causing that.

I look again at the offending meter. It's still the same, then suddenly it spikes – to 30 maybe, or more; off the graduated part of the scale at least, if not on the stop. Just as quickly it drops back where it was. This time I do hear something, a pulse of some kind, exactly in time with the spike, but more definite this time. I heard something more too, a snap from the overhead panel. I look up at the electrical panel. Well, that answers the question about the bus tie breaker – it's opened. I quickly switch the voltmeter selector from right to left, and the meter drops to zero. Back to the right; 25 plus again. We've lost the left bus. I note also that the right bus voltage hasn't returned to a normal value; it's still low.

"Boss, the radios are gone." Joe walks on my grave. I look up and the radio stack is dark. Well, no, not completely. There's still something on the COM1 and NAV1 displays, but it's just….parts and pieces of digits. Some of the digit segments are still glowing, but dimly. Those two radios must be powered from the right bus, probably for redundancy, but that last voltage spike I saw on the meter must have damaged the electronics. Now the master caution is on and an

annunciator panel lamp illuminates a yellow tile from beneath - LFT BUS VLTS LO.

I take a deep breath and think hard. If the radios are gone, so is the autopilot.

"I'm going to try to reset the bus tie breaker." I reach up and push the white button firmly. It moves but I don't feel anything but spring. There's no sense of anything attached at all, and as I release my finger, the button follows me all the way back out. No good.

"You're going to have to hand fly for a while, Joe. Nice and easy. Keep the power settings where they are. Use the trim to keep us where we should be. What's our next checkpoint?"

"Hinch Mountain VOR, about twelve miles." The kid's sharp.

I notice the tone in the earphones has changed. A background sound is gone or something. There are batteries in each set, so they still work between us, but they're no longer getting any input from the audio panel.

"OK, let's follow the flight plan as nearly as we can. We need to stay oriented so we know where we are. It's going to be clock and compass work now. I'll help you as much as I can, but I want to spend some time trying to troubleshoot this and thinking my way through it. Get a time check now. We've got just a little tailwind, so use three miles a minute. Offset about 3 degrees left for the crosswind component. Start noting times. ATC is going to figure out we're out of touch quick enough. In the meantime, let's try to do exactly what they expect us to do. It's three and a half minutes to HCH now, near enough. Let's just try to stick with our plan until we decide that we need to do otherwise."

"OK" He gets busy, first checking the clock and making a note, then fishing for the map case. One of the things I need to do right away is figure out what we've lost besides the radios, and what still has…

BANG – It's dark - - - really dark. Damn! I can see the stars, and notice for the first time that the magnetic compass up on the windshield frame has a luminous dial. A fat lot of good that will do. The pulse had been hard and clearly audible that time. Whatever it was had taken the other bus with it. Maybe one of the generators.

Flashlights. There's one in the map case, and another in my flight bag. I fish around in the dark, finally coming up with my light. Should have gotten it out earlier. It's one of the new multi-bulb LED lights, with a kind of blue-white cast to it. They're supposed to be very easy on batteries. I sure as hell hope so. With the light on I look first to the flight instruments, then to Joe's side of the panel. I hadn't even gotten round to thinking about the flight instruments when the first

bus dropped out. Nothing bad is happening with them yet. I hand Joe the light then grab for the map case and dig for the other; find it; turn it on for myself. Back to the flight instruments. Back to basics. Aviate, navigate, communicate – in that order. We need the flight instruments to aviate, especially in the dark.

I run through them quickly. We can count on the altimeter, and the airspeed indicator and the VSI – no gyros, just static port and pitot instruments. If we've got enough light to read them by they'll read true. HSI? I don't know if the gyro is electric or vacuum. Look at the meter face. No indication of which. Some of the functionality of that instrument has to be electric, but somewhere in there is a DG. Is it electric or vacuum? I don't know.

Attitude indicator. I read the face. Vacuum. Thank God! That's a critical one. Look at the vacuum gauge – it's green. The vacuum pumps are engine driven and the engines don't need electricity, the magnetos make their own for the ignition system. Uh oh! What about the props? They're electric. Well, let's see. With no electric power, they should stay where they are at 1,850, or at the pitch that yields 1,850 at this power setting and density altitude. The governors won't maintain that speed if flight conditions change though. I guess we've got fixed pitch props now, and they'll be cruise props not climb props. Nothing to be done about that for now, just something we need to remember later when it's time for a descent and approach. If we need to go around this crate is not going to be very responsive.

Back to the flight instruments. What haven't I thought about? Turn coordinator. The face says "DC Electric". I can almost hear the tiny gyroscope winding down. The little bar is starting to lean over already. My hand reaches for the yoke unbidden. No! That thing's lying! Look at the attitude indicator. The wings are level. It's insidious. One look at that drifting instrument and all those hours of eye-hand training try to take over. Your hands want to level the wings. The seat of your pants and your inner ear are fooled too. For a scary second or two it feels like we've got a wing low. I look back to the AI to stabilize myself. Have to cover that turn coordinator up – Joe's too.

"Joe, the flight instruments are good except the turn coordinator. Don't let it suck you in. I'm not 100% sure about the HSI. Keep checking it against the magnetic compass and let me know if they diverge. I'll find something to cover the turn coordinators."

"OK." Nervousness is in his voice this time. In the sparse illumination of the flashlights I can read the tension. His shoulders are hunched up. He's leaning forward in the seat. One hand is on the yoke, the other with a death grip on the flashlight. He's scanning the flight instruments intently, almost frantically.

I reach across the aisle and squeeze his left shoulder. "Joe, we're going to be OK. We'll work our way through this. All right?"

"OK." This time he sounds only a little less tense.

Now, how are we going to find a field? Ideally, we ought to have the longest runway we can make our way to. I'm pretty sure we can pump the gear down by hand, but I'm not at all confident about the flaps. If we have to land flaps-up at this weight we're going to want a lot of runway.

Rickenbacker would be perfect. 5R/23L is a generous 12,100 feet long, thanks to its former status as a military field. But how are we going to find it and get down through that layer of clouds with no radios? If we can get in the neighborhood and let down blind until we're below the overcast, we might be able to see the beacon and get oriented - - - maybe. I need to know the MSA, the minimum safe altitude for that area. It will be on the approach plates. They put it there for situations like this. I dive into the flight bag next to the seat again.

Here it is. The MSA on the approach chart reads 3,100 MSL for 25 miles around DD, the 5R outer marker. Field elevation is…744. That's not going to work. If the ceiling is at 800 AGL as forecast, we'd have to be at about 1500 to get below it, and there are things to run into below 3,100. Have to think of something else.

Where else can we go where we'd have a better chance? I try to remember the weather forecasts. Was there anywhere in range that is supposed to be clear? Not that I can remember. I need to see a chart. Maybe we can get to Lake Erie, descend below the overcast over the water, then go for Toledo or Cleveland or even Detroit. There are some nice big runways up that way too. The only problem is, the further we fly, the less certain we'll be about where we are.

"Boss?"…from Joe, hesitantly.

"Yes." I pop up from digging through my flight case again, looking for the sectional.

"I've got a handheld GPS in my jacket."

"Say that again."

"There's a handheld GPS in my jacket pocket. It's back in the cargo bay. I bought one a couple of weeks ago and I've been learning how to program it and use it." These may be the most consecutive words I've ever heard from Joe.

I've never liked GPS. It's not that I don't trust it or don't understand the principle or anything like that. It's just too damned easy. I mean, anyone could navigate with one of them. Real pilots use VORs and ILSs and the odd NDB. Wooden ships and iron men. What's the world coming to if all we have to do is look at a dot on an electronic map to know where we are, where we're going, how fast,

when we'll get there, and all that jazz? It's all well and good in a rental car, but I've never been keen to have one in my airplane.

I'm silent for a moment, taking this in. What a godsend. If we can bring that GPS into play, a huge chunk of our problems will go away. We can find Rickenbacker; we can follow our flight plan right to it and that big, long runway. There are even published GPS approaches. I look up at him and see the unasked question in his eyes and in the set of his shoulders. "Bless you, my son." I say quietly. "I have the airplane – go get it. While you're back there see what you can find to cover these turn coordinators before one of us tries to do an aileron roll."

"OK!" He sounds almost joyful this time. He's out of his belt and out of his seat in a flash. Somehow he manages to not trip over the unmatched suite of flight luggage that I've dragged into the aisle between the seats. He climbs down to the floor of the cargo bay and disappears. It's even darker in here now with only one flashlight…and the little hairs on the back of my neck are still standing at rigid attention as I try to keep up my scan of the six – no, make that five – of the five basic flight instruments.

End – Chapter 3