



INTERNATIONAL FEDERATION OF AIR TRAFFIC CONTROLLERS' ASSOCIATIONS

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Statement

Gol Flight 1907

The International Federation of Air Traffic Controllers' Associations (IFATCA) has noted recent statements attributed to the Chief Commander of the Brazilian Air Force, and Commander of the Aeronautica Tenente-Brigaderio-do-Ar, Senor Luiz Carlos da Silva Bueno. IFATCA is surprised and disheartened to learn that statements to the effect that an air traffic controller from Brasilia ACC made an error when controlling the Legacy flight so that it collided with the Boeing 737-80 of GOL over the Amazon, were made in front of the Brazilian Congress. Senor Bueno allegedly said that 'the controller thought that the aircraft was at FL 360, which was erroneous information, but the air traffic controller believed this wrong information'.

IFATCA believes that Commander Bueno is not well informed and therefore is making incorrect, or only partially correct statements. Facts will show that the Air Traffic Management system in place in the airspace of Brasilia did not register nor correctly detect the true altitude of the American-registered aircraft. This leaves serious questions to be answered by the operators of such a system. The safety of aviation depends heavily on disposing of safe and correct information being displayed. The Federation is therefore very surprised that there is apparently an air traffic control system in operation that is showing false and/or misleading information to its operators. This even is more surprising when the man that is ultimately responsible for the system and the safety of the equipment is making such public statements. He is in fact pointing the finger of blame at his own organisation, to which the safety of aviation in Brazil is entrusted!

IFATCA believes that operators in the air (the pilots), and on ground (the controllers), fell victim to unacceptable systems traps brought on by 'non-error tolerant', and 'bad system design' of air traffic control and flight equipment in use. We are confident that our statements concerning this equipment are accurate, and said equipment is responsible for starting the fatal chain of events of September 29, 2006, and therefore, contributed to the mid-air collision.

IFATCA urges Brazilian authorities not to engage in a 'counterproductive' blame game, but to invest their energies to the undertaking of immediate and decisive remedial actions to eliminate these dangerous safety 'traps'. If swift action is not forthcoming, the probability of incidents or, a similar type second accident occurring remain high.

IFATCA urges the Brazilian authorities to release immediately the two US-pilots held in Brazil.

END OF STATEMENT

Observations and Areas of Concern

1. The software of ACC Brasilia (CINDACTA – 1) is badly designed in the opinion of IFATCA, and therefore is a major contributor to an unsafe and dangerous ATC system.

The system is constructed of three different parts (or legs), that must function well together in a safe manner. They are: a) the operators (mostly air traffic controllers); b) the equipment (machines and tools) and c) procedures in use. The optimum is for the system to work in harmony and with the required degree of safety. For instance, machines and equipment must help operators to perform better and safer, i.e. provide warnings, hints and be able to take over routine tasks.

2. IFATCA has been very much surprised by what was seen when visiting the ACC in Brasilia after the accident in early October 2006. The cleared flight level (“nível autorizado”) on the aircraft label, as it appeared on the radar screen, was not only fed by controllers into the system (once the clearance was transmitted by radio to the aircraft, and the aircraft had correctly read back the clearance), but there were occasions when this was done automatically by the system itself without any direct input from the controllers. This automatic change did not show prominently on the aircraft label as it should (both the *fonts* and the *colours* of the label remained the same as before). The “explanation” given by the FAB authorities was that this FL was actually the Flight Plan Level of the flight and so it was “normal” to change it automatically when an aircraft passes over a fix (or NAV-aid) where a change of flight level is requested by the flight plan.

In many ACCs of the world, this crucial information of the cleared flight level (“nível autorizado”) is fed by the controllers into the system once the clearance is transmitted by radio to the aircraft (and this has been correctly repeated by the pilot = read-back). This “feeding of the system” is sometimes done by hand-writing on paper strips, while other systems work electronically whereby the input is done directly onto the label of the flight that appears on the radar screen at the CWP (Controller Working Position). What is very important, even crucial, is that the ground ATC system and the aircraft cockpit always dispose of the same information.

3. In the case of the Legacy coming from Sao Paulo, in the south of Brazil, and proceeding north to Manaus, there was a need to change from an odd level (FL 370) to an even level, being FL 360. When passing over Brasilia VOR (farol de navegação) the software of CINDATCA-1 did automatically change the second altitude indication to 360 (from 370) on the aircraft label shown on the radar screen. However, the flight was still flying at FL 370 and was *not* cleared down by ATC to FL 360 as shown on the label. Information we have gathered tells us that this “discrepancy” happens several times a day and is a “common scenario” for ACC Brasilia. Of course the situation is not that dramatic when all runs well and according to the book. In these cases when scanning the radar screen, controllers will notice the discrepancy (sometime later), issue a proper descent clearance and so correct the situation.

Of course we know now this scenario is not fool-proof. There is no “reminder” when the transponder (unfortunately) goes off the air after the passage of Brasilia VOR, and before the controller has an opportunity to note the problem. Because the Mode C (automatic altitude report of the transponder) is not being received anymore there is no “check and balance” system working. This is precisely what happened on September 29, 2006 with aircraft N600XL, as the Legacy aircraft flying from São José dos Campos to Manaus passed over the city of Brasilia.

4. There is a second questionable feature of ACC-Brasilia. Once a flight is “lost” by SSR (radar secundário), when the transponder shuts off, or goes to ‘stand-by’ mode, the Brazilian military primary radar kicks in. It continues to show the ‘lost’ flight almost immediately in a very similar way as before the failure. So, it is very difficult for a controller to see that this flight is actually not receiving the same quality of detection and altitude reporting as others in the sector may be receiving. Identification of the flight continues as the track was never terminated and the identification process is taken over from before. With regard to label colouring, the aircraft label on the radar is still shown in the same colour(s) and with the same fonts. The only indication to the operator(s) that the aircraft is no longer being detected by SSR-radar is that the radar position indicator as displayed to the controller is just a cross ...the round is missing.

5. Another feature of the Brasilia military radar is that it calculates altitudes (or flight levels) in a 3D-mode. This is done by detecting the position of the aircraft using a very sophisticated triangulation calculation. Unfortunately, this is a rather imprecise process and at 300 or 400 km out of Brasilia, where the radar site is located, results can vary by several thousand feet from the actual altitude of the detected aircraft. This, once again, can “fool” the operators. In addition to the ‘wrong’ level (automatically changed) and shown on the right of the aircraft label, if we look to the left of the label where the current FL *should* show, we see only a rough ‘estimate’ (and many times wrong) altitude shown to the controllers. Pictures taken show us clearly the calculated altitude incorrectly shown as FL 360, thereby inducing misinterpretation and/or error. There is a small Z between both 360 indicating the missing Mode C report, but this can be easily overseen and not noted.

6. For IFATCA it not all surprising to learn that at hand-over, when a new operator came in, at approximately 45 minutes before the collision, the level of the Legacy was passed as FL 360 to the incoming operator. This was done because that was the altitude that was depicted by the ATC system and shown to the operators involved.

To date IFATCA has not received a convincing explanation of why the software of ACC-Brasilia is tuned in such a strange way. We are also at a loss to understand why the very unreliable 3D-altitude calculations of military primary (3D radars) are shown to civilian controllers. These are questions to be asked considering that both features have played a very crucial role in the chain of events leading to the accident of the GOL aircraft.

7. The Embraer Legacy cockpit can be a dangerous trap for pilots. The Legacy with its Honeywell custom-built avionics panel can be a hazard in the air. To inadvertently switch off the safety-essential transponder (or to put it on stand-by) in this aircraft is very easy. This, despite the fact that doing so in any aircraft in flight is a most unlikely and an exceptional event. There may be moments where there is a wrong altitude indication (Mode C), requiring a de-activation of certain parts of the transponder (altitude for instance), but to de-activate it completely, or to put it on stand-by (switch it off and let it heat up) is not at all common practice. Incredibly IFATCA has learned that with one accidental or wrong touch of a button on the panel, a pilot can actually inhibit all transponder transmissions in a Legacy cockpit! This would mean it is possible, even probable, that pilots (in particular pilots that are not very experienced Legacy pilots) could accidentally switch off the transponder in flight, not “on purpose”, but accidentally. This vital piece of equipment that permits aircraft to be “seen” by ATC, and which forms the basis of anti-collision systems such as TCAS (a last-ditch anti-collision system) could be rendered completely useless by an accidental and involuntary action. What is even worse is that the indications on the panels after an accidental transponder (and TCAS) switch-off are not very prominent and cannot be clearly seen by the pilots. Examples are:

- TCAS OFF is written in small white letters on the Primary Flight Display (PFD), and not in red warning colours!
- a similar white message is put on the Navigation display (very small)
- on the transponder display where the 4 numbers are set, a small yellow message appears saying STAND BY
- the TCAS needle, displaying vertical escape movements to the crew when a TCAS Resolution Advisory is triggered, remains green despite the fact that the equipment is turned off and not functioning (in aviation green means on and functioning!!)

Final remarks

IFATCA is of the opinion that this accident investigation must remain neutral and completely un-biased. The focus should be to bring to light all relevant facts and actions that have led to this terrible tragedy. We must permit the aviation system to learn from this accident and to correct the identified weaknesses in order to strengthen the ATM system.

IFATCA has concerns regarding some of the content appearing in the intermediate report published by the Centro de Prevenção e Investigação de Acidentes Aeronáuticos (CENIPA) last week. We believe a certain 'tone' of language used and points mentioned in the intermediate report are not indicative of a neutral stance, and are an early indication of a certain view and position held by the accident investigation commission. To mention that neither the Legacy nor Brasilia ACC requested, or ordered a level change around, or after passage of the Brasilia VOR, is in our opinion simply misleading as this was not required. In the intermediate report it is clearly noted that the GOL aircraft did not have communication problems with Manaus, nor was there any radar detection failure of the Boeing until "its transfer to Brasilia ACC". The wording is in our opinion at the very least ambiguous as the contact with Brasilia ACC was never established. Additionally, the commission fails to clearly mention that the quality of radar detection for the Legacy jet, as well as the radio communications with Brasilia up to the time of the collision, were not of good quality and at times incomplete.

IFATCA urges the CENIPA and the Brazilian government to report neutrally and consistently, without any distortion, the relevant facts and factors that have led to this terrible accident. Full disclosure is paramount so that we may learn from this tragedy.

With particular regard for individual rights and appropriate law(s), IFATCA respectfully calls for the release, without prejudice of the two Legacy pilots involved in this accident. Incarceration without justification will do little to foster an environment of mutual trust and respect that is needed to carry out a successful investigation.

IFATCA is the worldwide organisation representing more than fifty thousand air traffic controllers in over 130 countries. Among its goals are the promotion of safety, efficiency and regularity in international air navigation and the protection and safeguarding of the interests of the air traffic control profession.

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