



# READBACK

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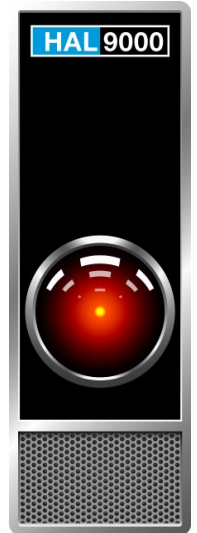
## Human Machine Interface

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It goes without saying, that aircraft are complex machines. The physical act of keeping the blue above the brown is only part of the task. We also need to make the pointy end face the direction we're intending to travel, and mesh with the thousands of other flying saucers sharing the skies. To do this, the boffins that create these majestic flying machines have given us some of the most tailor made electronics humanity can create. Utilizing them becomes an art form in and of itself.

Interfacing with a machine is also - and even more importantly - "supervising" what the machine does versus what we asked it to do. Whether it's a human error or system error; errors are inevitable. Below is a selection of ASRS reports detailing just that. Whether it is interference from 5G on your Rad Alt, or mismanagement of the avionics on an arrival or approach; lets learn from these events.



### What is

### READBACK?

Readback is a publication intended exclusively for PRISM subscribers. The format and source material is modeled after the popular Callback publication from the NASA ASRS system, but is tailored for business aviation operations. Readback takes real-world ASRS incident reports and groups them by common themes. By reading and discussing these situations, we hope to give operators an awareness and sensitivity to real world hazards and risk so they may benefit by the shared experiences of other aviation operations.

### *Don't go chasing glideslopes.....*

#### **Poor management and a late go-around causes tension in White Plains** Narrative: 1

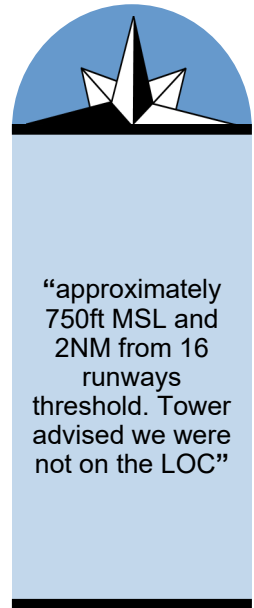
On Date at approximately XA:50 while working a trip as the First Officer and Pilot Monitoring from ZZZ to HPN, The Captain had an unstable approach going full deflection on the glide slope. During the approach into HPN, we were in IMC conditions. We were given the ILS 16. ATC vectored us onto the approach where the Captain armed the approach for an ILS 16. Continuing inbound the auto pilot did not capture the approach at that time. The Captain noticed the ILS was not captured, the LOC nor Glide Slope. I asked The Captain if we should perform a go around, he told me no. He tried to correct it by pressing V/S and manually putting our required descent rate



in. This did not seem to work so the Captain discontinued the autopilot. The Captain proceeded to disconnect the autopilot in order to hand fly the aircraft to get it re-established on the approach. As he continued we ended up going full deflection on the glide slope. At approximately 750ft MSL and 2NM from 16 runways threshold. Tower advised we were not on the LOC and asked us if we had the correct altimeter in; which we did. Ceilings were at 400ft and visibility was around 1600ft. The tower advised we were low and we needed to go around. I advised the tower we were going around. As we initiated the go around we got a GPWS warning. We were given an assigned heading and altitude during the go around. The Captain may have exceeded airspeed limits in the D airspace going approximately 250knots before slowing. We performed the go around safely and completed checklists. We were able to get vectored back around to shoot the approach again. We loaded the ILS 16 and shot the approach for the second time. We loaded the approach which then activated properly following the localizer and glide slope. We were able to get out of IMC conditions before minimums and had sight of the Runway. The Captain disconnected the autopilot and landed the aircraft safely at HPN.

**Synopsis**

First Officer reported Captain flew an unstable approach resulting in GPWS alert and late go around to a landing.



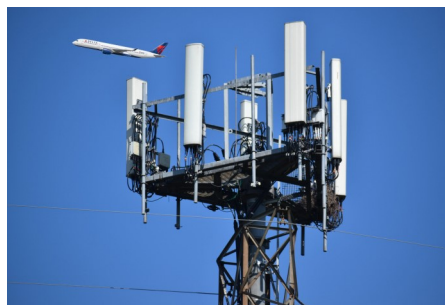
“approximately 750ft MSL and 2NM from 16 runways threshold. Tower advised we were not on the LOC”

*Alexa....what's my altitude?*

**5G interference causes confusion in Houston**

**Narrative: 1**

Holding short of Runway 27 IAH Aircraft Y reported 5G interference with flight instruments. We were cleared for takeoff and climbing through 400 ft. the mode control panel altitude window indicated 50,000 ft. on its own and the altitude alerter sounding continuously. I selected level change due to VNAV dropping offline and the absence of the flight director pitch bar. Upon re-selecting the cleared altitude in the altitude window the pitch bar was restored and VNAV was re-selected as the pitch mode. This event was reported to ATC, Dispatch, and an ELB entry was entered.



**Synopsis**

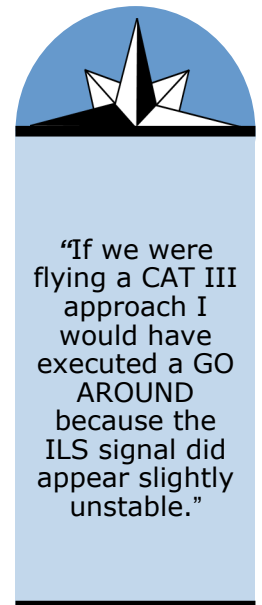
Air carrier Captain reported during departure from IAH the mode control panel altitude window indicated incorrectly and the altitude alerter sounded continuously.

*My heart flutters like a glideslope.....*

## Airline has erroneous glideslope and RAD ALT

### Narrative: 1

We were visual with the runway and flying the ILS Z 16R, after Glideslope intercept, the Localizer course in the HUD started to flutter from side to side but never lost signal. At approximately 200 ft. the Radio altimeter in the HUD also blinked a few times, but never lost signal. All altitude call outs were normal, 100, 50, 40, 30 20 10 ft. I did not write up anything in the AML, but did contact Tower to relay what we experienced to see if they were having any issues with the ILS. At no time did I feel the approach was unstable or not safe because we were VFR with the runway. However, given the 5G issues, If we were flying a CAT III approach I would have executed a GO AROUND because the ILS signal did appear slightly unstable. This is a hard event to describe because no instrument failures or equipment failures occurred. It just wasn't normal! The ILS signal appeared slightly unstable, but reliable. Again we were VFR so continued the approach. The fluttering from side to side was no more than 2 degrees. A better word to describe the fluttering maybe vibrating from side to side in a rapid motion all the time staying within the localizer course. The blinking of the Radio Altimeter was also rapid and less than a second between and only happened a couple of times. First Officer as far as I can recall did not notice anything on the Dual Cue or the PFD. Only in the HUD. It just wasn't normal. No real suggestions because I cannot point to an instrument or signal failure. It just wasn't normal. But at no time was it unsafe.



“If we were flying a CAT III approach I would have executed a GO AROUND because the ILS signal did appear slightly unstable.”

### Synopsis

Air Carrier Captain reported the Radio Altimeter display on their Heads Up Display blinked and they received an unstable ILS signal while on approach.

## *Looking for property with a mountain view.*

### **CRJ forgets a discontinuity.**

#### **Narrative: 1**

Only upon my meeting with the chief pilot was I aware that I had a close range encounter with terrain. We never received any type of warning. The Ground Proximity Warning System (GPWS) did not notify us nor did we get a terrain alert from ATC. A previous report was submitted regarding this flight due to other reasons. I viewed the flight path in question as a go around (not anything to hide). The following



is what I recall. We planned and briefed a Localizer Approach. When transferred to Approach we were informed the Localizer Approach was not available. We were left with the RNAV Approach. I requested the First Officer to brief the approach. The RNAV Approach was showing in the FMS. Approach gave us a clearance to a fix, the First Officer responded, but I did not understand the fix. A fix I was expecting to hear was not what I heard. I asked the First Officer to request the fix again. Approach replied and again I could not understand what was said. I am not seeing anything on the approach plate nor FMS what I am hearing. Approach mentioned that the fix is on the approach plate then spells it out. Now I understood and knew where to go. We are heading to ZZZZZ and at ZZZZZ I notice the aircraft is not turning. The FMS had a discontinuity then direct to ZZZZZ. I turned off the auto pilot and hand fly to get back on track. From ZZZZZ to ZZZZZ1 the course was centering. Inside ZZZZZ1 was going IMC I wanted to go missed [approach]. Somewhere during this time, the flight in which I was following shifted. The First Officer tried twice to call Approach for a heading and altitude. No answer. I transferred the controls and called Approach. Approach responded. Approach said something about not to continue the descent and gave an altitude and heading. The second time around we landed. In reviewing the flight, I can see many errors. I allowed to many little errors become a larger error. With the little errors I allowed myself to become distracted.

#### **Synopsis**

CRJ-900 Captain reported being notified by company that during a previous flight they had flown off course while conducting an approach and below the minimum terrain altitude for the procedure. The reporter stated they never received a terrain alert in the aircraft.



“Only upon my meeting with the chief pilot was I aware that I had a close range encounter with terrain.

*Buenos dias, tiene falta!.....*

## An Air Carrier pilot has flown this before

### Narrative: 1

Near the end of the cruise phase of flight we briefed the arrival and the approach to the landing runway. During the brief of the arrival we had noticed that the crossing restriction at the first fix (DARAN) on the arrival (DARAN1A) was incorrect as compared between the approach plate and the arrival selected out of the FMC. The DARAN1A arrival is FL210 to FL230 at the DARAN, the altitude from the FMC showed FL250 to FL280 (DARAN1B). At this point we both cross checked the date on the approach and discussed when we had both done our last update. We concluded that we had both updated just before the flight and the dates were correct on the approach chart. We then had thought that maybe we had incorrectly loaded the wrong arrival into the FMC. We proceeded to monitor each other as we reloaded the landing runway approach and the correct arrival. After reloading the FMC with the landing runway approach and the DARAN1A for arrival we noticed that the crossing restriction at DARAN remain the same FL250 to FL280. Due to congestion in Mexico City our flight and another flight were told to hold 20 miles north of DARAN. When told to continue our plan was to question the crossing restriction at DARAN, but we were descended in the hold to FL210. After arriving at FL210 we were cleared to DARAN and the rest of the arrival landing on Runway 5R [was] uneventful. I have previously been into Mexico City and number of times and the DARAN1A crossing restriction at DARAN has been correct as depicted compared to the FMC. NOTE: All other fixes and crossing restrictions on the DARAN1A were correct except DARAN at FL250 to FL280. The FMC loaded DARAN1A is incorrect. Please check the FMC database is correct to make sure the DARAN crossing restriction between FL210 to FL230 is correct.

### When you have to admit you're wrong



“The DARAN1A arrival is FL210 to FL230 at the DARAN, the altitude from the FMC showed FL250 to FL280 (DARAN1B).”

### Synopsis

An Air Carrier pilot reported an incorrect crossing restriction for a STAR in the FMC Database.

*Uh, sir? We're in America.*

**Man uses wrong measurements**

**Narrative: 1**

I, Name, commercial certificate #XXXXXXX holder obtained authorization to fly in a "D" airspace at ZZZ to a limit of 100 ft on Date. However, during my flight the altitude unit on my remote was set in meters. There were two instance were I exceeded the authorized limits flying at 48-60 m which was not intentional. It is new purchased drone, which the manufacture set to units of meter. I have changed the altitude unit setting to feet to avoid this issue and plan to make this apart of my checklist moving forward. I sincerely apologize.



"However, during my flight the altitude unit on my remote was set in meters. "

**Synopsis**

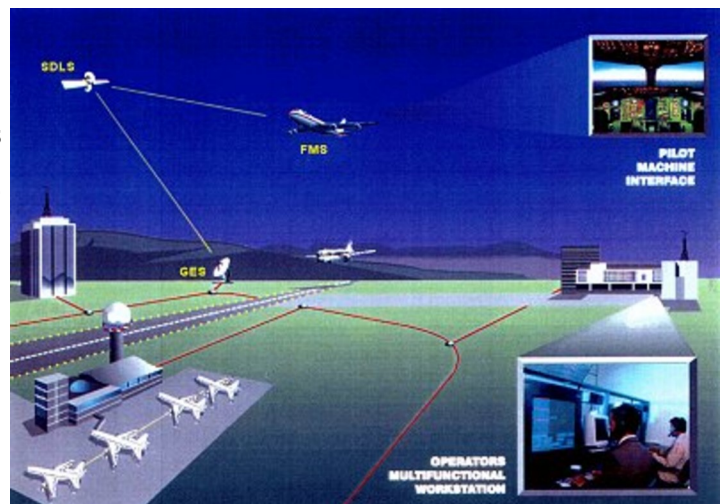
Part 107 pilot reported using meters instead of feet to determine altitude leading to a clearance violation. The pilot recognized the error and descended to appropriate altitude

*Hello? New flight who this?*

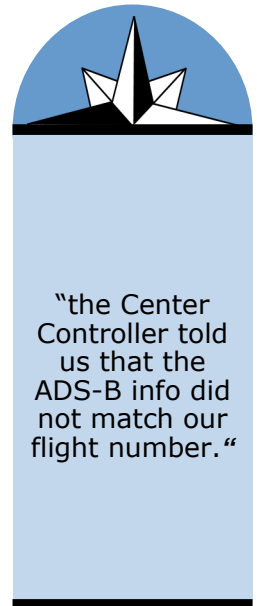
**Airline loses its datalink system.**

**Narrative: 1**

After flying from ZZZZ to ZZZZ1 and preparing to return to ZZZZ, We learned that the entire data link system for the airline had been down for 1 hour, and would stay out for an undetermined amount of time. Apparently, this was night 1 of three days that the system was to be purposely down for maintenance of some sort. While the timing worked well for the US/ domestic operation (middle of the night), it was right in the middle of the day for the [foreign] operations. The aircraft would not "Auto Initialize", which of course, begins the sequence of automatic data links to the aircraft. After a crew discussion, the consensus was to manually input the route. The entire crew was present, and coordinated the correct loading of the route. It was then discussed, that the weights would not data link, as well as any performance information. Ultimately, we were shut down until the data link came back up. Eventually, the system slowly returned, but in a very reduced capacity. The auto init function was utilized, as well as all the performance information: the predicted takeoff data, final weights, and

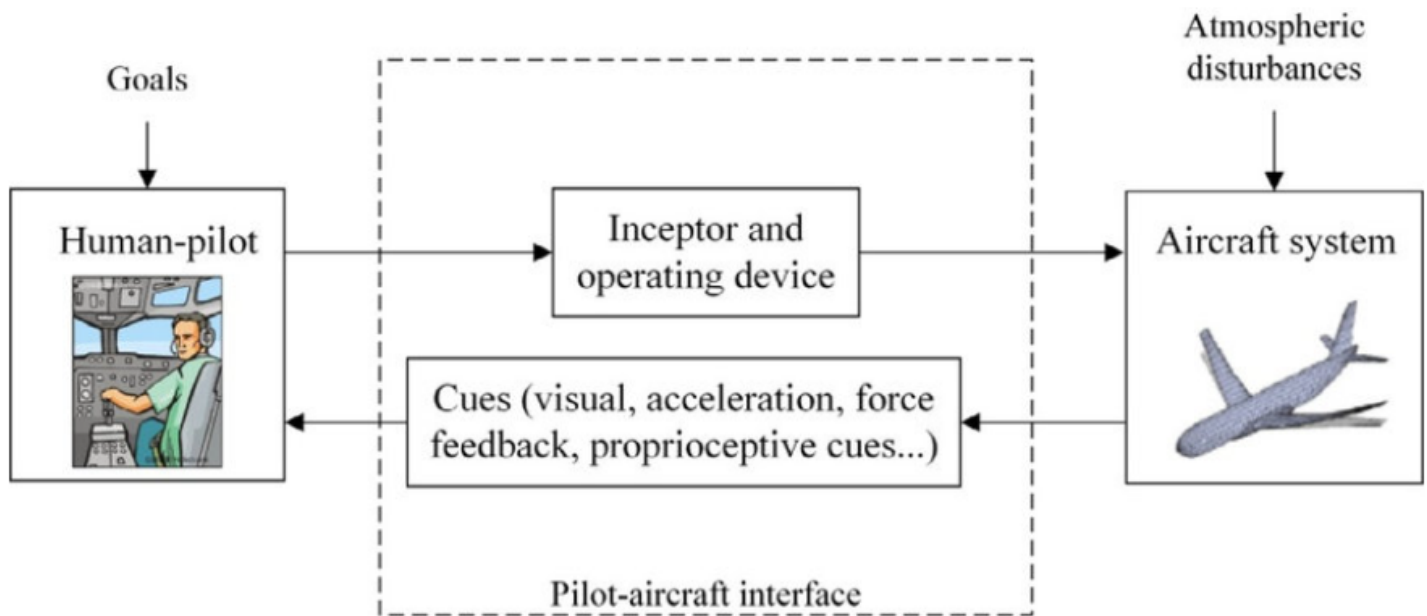


final takeoff data. As a side note, the flying FO (First Officer), did the load at the gate, and the final load after engine start. After a normal takeoff and climb, FO went to crew rest, as he was the Flying Pilot. FO relief pilot took the right seat. Near the fir boundary, at cruise altitude, the Center Controller told us that the ADS-B info did not match our flight number. The language barrier was significant, as this was not a typical ATC conversation, and several attempts were made to confirm what the problem was. After investigating several areas where we may have had a disconnect, I believe that we realized the flight number that would normally have data-linked to the route page was empty. We then consulted the [stored information] to determine the correct format for that input. Initially, I believe we input Aircraft Y, rather than Aircraft X. After the flight info was input, we received no other notification of the flight number mismatch, and assumed that the problem had been corrected. It is my understanding that was the case. In any case, the system reset caused us a great deal of trouble, both here and three days later when conducting the last flight of the trip pairing. Automation is a sensational thing when it works correctly.



**Synopsis**

B777 Captain reported having problems with the aircraft data link resulting in their flight number not matching with Foreign ATC displays.



Pilot-aircraft system block diagram.



### **About ASRS**

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

#### **Summary**

The ASRS is a small but important facet of the continuing effort by government, industry, and individuals to maintain and improve aviation safety. The ASRS collects voluntarily submitted aviation safety incident/situation reports from pilots, controllers, and others.

The ASRS acts on the information these reports contain. It identifies system deficiencies, and issues alerting messages to persons in a position to correct them. It educates through its newsletter CALLBACK, its journal ASRS Directline and through its research studies. Its database is a public repository which serves the FAA and NASA's needs and those of other organizations world-wide which are engaged in research and the promotion of safe flight.

#### **Purpose**

The ASRS collects, analyzes, and responds to voluntarily submitted aviation safety incident reports in order to lessen the likelihood of aviation accidents.

ASRS data are used to:

- ⇒ Identify deficiencies and discrepancies in the National Aviation System (NAS) so that these can be remedied by appropriate authorities.
- ⇒ Support policy formulation and planning for, and improvements to, the NAS.
- ⇒ Strengthen the foundation of aviation human factors safety research. This is particularly important since it is generally conceded that over two-thirds of all aviation accidents and incidents have their roots in human performance errors.