CONFIDENTIAL HUMAN FACTORS INCIDENT REPORTS

FEEDBACK Nº2

The system is now settling down after the first rush of reports and we hope that you find this second FEEDBACK makes interesting reading and stimulates you to get your pen out. There are just a few points that we'd like to take this opportunity of making.

Firstly, somebody mentioned to us that they felt that one of the reports in our last FEEDBACK wasn't entirely accurate and gave a slightly misleading impression. We can only say that we publish reports in (pretty much) your own words and we obviously can't guarantee the accuracy of technical details.

Secondly, there have been a few press reports about CHIRP which, for some reason, have raised doubts about the confidentiality of the system. Well, we haven't sought publicity (beyond sending copies of FEEDBACK to FLIGHT and PILOT) because we did not wish the travelling public to become alarmed unnecessarily. However, as we send out around 10,000 FEEDBACKS to all of you, it's inevitable that one or two find their way to the media. We can reassure you, though, that nothing with anybody's name on it, or with any identifiable detail, leaves this office in the IAM.

We'd also like to mention that we've had a number of reports from pilots and engineers describing problems of relationships on the flight deck and errors made by others. Many of them are excellent and interesting reports which cast a lot of light on a complex subject, but they are tricky for us to publish without the person who was seen as being difficult recognising himself. While that might do him a lot of good, it might well also reveal the identity of our reporter. In the next FEEDBACK we'll try to include some of these in heavily disguised form, so please keep sending them in.

If you want to send in a report - and please do - there's a form on the back of this copy of FEEDBACK. However, we would point out to those who have sent in stamped envelopes that FREEPOST means the POST is FREE (ie no stamps) - got it?

Lastly, our real thanks to all of you who have taken the trouble to send us your reports.

INSIDIOUS FATIGUE LEADS TO . . . . . .

*THIS INCIDENT was precipitated I think by a combination of fatigue and distraction due to poor weather conditions. The previous day we had flown A-B-C, taking off at 11.45 and arriving ***** at 21.50, a duty day of approximately 11hrs 30mins. Although the T/O time was at a reasonable time of day, the crews all found this particular trip very tiring as the following day the return flight is flown. Pick-up from the hotel is at 5pm local time ie late evening (Z) so there is little chance of any satisfactory rest before flight.*

*T/O from C was at 23.30z and weather at ***** and ***** was poor, - snowing, contaminated runways and temperature well below freezing. On arrival in ***** we were faced with a take off problem due to the slippery runway and poor braking action. In this case for our flight to ***** our T/O weight was critical.*

Because of the extra work involved in calculating the T/O weight, telephone calls to the tower, de-icing the aircraft etc and the short transit time, the pressure was on to get away reasonably close to scheduled departure time.

On the engine start checklist, read by the F/O, the probe heaters 'ON' item is actioned by the F/O and is not required to be checked by any of the other two crew members. Good airmanship might suggest that they be checked subsequently and prior to take-off but they weren't.

*After T/O the check was carried out by the E/O who immediately spotted that the probe heaters were off, placed them on immediately and the flight continued safely to *****. Goodness knows what might have happened if the icing conditions had been worse as we would have been presented with erroneous airspeed, altitude and vertical speed in cloud and probably quite close to the ground.*

I presume that the F/O, a very competent and experienced pilot (years on type) had misread the checklist and completely excluded this item due to the various factors mentioned in this report.

* * *

*ONLY AIRCRAFT at northern Italian airfield after an Italian ATC strike and diversion from Bologna to "Z". A/C parked very close to R/W and due light weight, time/fuel saving requested this R/W for departure (reciprocal runway in use but no other aircraft operating). After initial start clearance for requested R/W given with departure instructions, due to fog and clearance change, I stopped aircraft and rebriefed departure, but wrongly briefed a right turn to *****. F/O read his plates but did not pick up this error. During R turn after T/O ATC pointed out the departure called for a L turn but cleared us to continue and would not file violation (no other aircraft involved).*

In my opinion, the following were causal factors:

1. Low flying rate during winter, more out of flying practice than I thought or had made allowances for.

2. More tired than I thought or had allowed for:

a. Due to ATC strike split duty used to extend duty period (legally).

b. Time of night combined with previous duty period.

3. Incipient cold symptoms for over a year - no success from doctors - no self medication but definitely not on top of the world.

4. Turn round at "Z" involves Captain paying bills etc and relying on F/O to turn A/C round and do all paperwork - he was doing a good job and seemed totally on top of things.

*5. Previous trip to "X" (similar late clearance) was given a R turn to ***** from same R/W - I was PRE-programmed.*

* * *

AFTER AN EASTBOUND Atlantic crossing which included a tech. stop in Scotland we operated back to London. By the time we were off duty at base we had extended our duty day to within 1/2 hour of the legal limit.

The crew were then "asked" to operate an early flight out the next morning due to pilot shortage. This gave us 15 hours rest.

*As neither of us had been to ***** before the 2nd First Officer was given the sector to "show" us *****. It was a lovely morning as he showed us all the features on the approach - I believe we were one of the first a/c to land that morning.*

On finals we were given clearance to land, but ATC did not have us in sight. On very short finals we were told that we were landing on the wrong runway - the reciprocal, but given clearance, with a tailwind, to land.

Clearances were all read back during the approach but none of us picked up the R/W being different from planned. Whether the mistake was ours, or ATC's, who knows? Personally I think fatigue contributed, and at a busier time the incident could have proved more embarrassing.

. . . . . GOOD NIGHT ALL

DURING CRUISE at FL85 with autopilot engaged and very little going on I began dropping off. The flight was outside controlled airspace and I was working an information service only. The squawk 4321, mode A. I had worked a fairly long duty day but was still within limits.

Suddenly I woke with a start to find the altitude hold had tripped off and the a/c was now at FL65. Since this was within 30 mins of destination I remained at this F level rather than climbing back up to FL85. I had a lower indicated airspeed than normal, but I was picking up a little ice and put it down to the extra drag.

I contacted my destination airfield and began a further descent. It was only when passing 3000' and resetting the altimeter that I realised that I was at FL130 and had been misreading the altimeters.

Had I not realised this I would most likely have overshot my destinations SRA or NDB approach.

Had I not woken up when I did, I might not have woken up at all.

* * *

THE CREW were well rested before flight but on check out from the hotel we were informed of a 12hr delay!! During the subsequent flight, because of the delay, all of us were extremely tired. During the cruise across the North Atlantic we ALL fell asleep, only to be woken up by the MACH WARNING BELL! At the constant power setting, the aircraft had slowly accelerated, causing the bell to ring. I estimated that we were all asleep for about 20mins. Fortunately we were between reporting points.

The incident wasn't embarrassing to anyone but us, but I shudder to think what COULD have happened.

* * *

Everybody in aviation has heard stories about crews falling asleep and you may remember the incident in the last FEEDBACK about the helicopter crew which did so. However, these documented sleep and fatigue incidents which we have received are now providing real food for thought for the CAA, though it's jolly hard to see what can be done. We thought that a cockpit voice monitor (which let off a warning if nothing had been said on the flight deck for, say, 5 minutes) might be a good idea, until we realised that it would be hard to make a device that discriminated between speech and snores. We've talked to the single pilot in the above report, and to some of his colleagues; it seems as though his incident is certainly not an isolated one. They felt that if you are flying at night, on a familiar sector, with no weather problems, nobody to talk to on the ground and nothing to do for long periods, then staying awake can become an insuperable problem.

If you have any more examples or solutions please let us know.

DID I DO THAT ?

*I DEPARTED from ***** with two students for an overseas training flight. This was one of the last training flights of the CPL Course and I was giving the students right hand seat practice for the first time. Up to the time of the incident the students had failed to maintain runway centre line on all take-offs and landings. They had been briefed on their failure. On the approach to ***** the student was again briefed. During the approach to land my feet were resting lightly on the left hand seat rudder pedals (that is what I thought at the time). A good landing was made to the RIGHT of the centre - line! The student was again reminded of the requirement to be on the centreline. He did nothing. I said "I have control", applied left rudder, the aircraft appeared to yaw to the left and then turned right. I applied more left foot rudder and then left brake but the turn to the right increased. I assumed that the nose steering assembly had become U/S and castered. Investigation proved no aircraft technical failure. The subsequent enquiry suggested various possible reasons for the incident. I was not convinced. Six years later I delivered a similar aircraft (solo flying from the left hand seat) from **** to **** The aircraft had just completed a technical service. The aircraft rigging was poor and to achieve hands off wings level (no aileron trim) required almost full rudder trim. Towards the end of the flight I became tired and rested my feet on the floor. I carried out a straight-in approach to land with a crosswind from the right. On the final approach I put my feet up on the rudders. Just before touch-down I kicked off the drift (left rudder) and the aircraft yawed to the right! I applied full power but the adrenalin activated the subconscious part of my brain; I knew why I had problems at ***** - I moved my feet to the left onto the correct rudders, took off the power and landed safely. The reason for the original problem was now abundantly clear. As an instructor I invariably flew from the right hand seat. In the ***** aircraft the right seat rudders are displaced considerably to the RIGHT. From the left hand seat the rudders are similarly displaced to the LEFT. In-built habit caused me to automatically move my feet to the right to find the rudders. I forgot that I should do the opposite from the left hand seat. Therefore on both occasions my left foot was placed on the right rudder and my right foot was placed against the left side of the engine controls pedestal.*

On discussion with other pilots I found that a CAAFU examiner had completed a ground loop after taking over control whilst taxying a similar aircraft. What are the lessons?

a. Familiarity breeds contempt

b. Don't be complacent

c. Experience can be a double edged sword

* * *

*I WAS FLYING in the RH seat, handling the aircraft, making an approach into *****. It was a beautiful blue day, very little surface wind and 29 degrees C. We were enjoying an uneventful flight in perfect flying weather.*

At about 3 miles on a visual approach, turning final, I called for flaps 45 - landing flap. The Captain reached across and closed the HP cock of the starboard engine.

We managed to maintain a reasonable approach path and carried out the landing on the remaining engine, being unsuccessful in our attempt to relight the No 2.

Since that time, I always look at the flap lever before I select flaps.

Your FEEDBACK seems to indicate many similar problems.

* * *

*DURING THIS APPROACH, several ac from OTHER airports were diverting into *****. Also the afternoon "Rush Hour" was in full swing, therefore the R/T was very busy indeed. The aircraft was in light turbulence and icing conditions, with the Captain flying from the left seat.*

"Flap 1" and "Flap 5" had been selected normally and the approach checks completed with "Flap 5" set. As the speed was reducing towards the "BUG" i.e. "minimum speed for flap 5" the Captain called "Flap 10", the First Officer confirmed the order by repeating "Flap 10 Speed O.K." Then without looking selected "Flap 1".

The Flight Engineer who was "in the loop" monitoring the approach, saw the mis-selection, confirmed from the flap indicators that the flap was in fact moving towards "Flap 1", and alerted both Captain and First Officer to the situation. "Flap 10" was re-selected and the aircraft landed without further incident.

* * *

TAXYING OUT from dispersal we had reached the point in the check list for "Flap Selection". The Captain confirmed flap to go to take off so I put my left hand down, grasped the knob and pushed downwards. Its travel felt remarkably smooth, so I looked down to find I had actually closed the No 2 HP cock shutting the starboard engine down. The top of the flap lever and the HP cock are immediately next to each other.

Only a small incident and not much more than highly embarrassing but it might have been different if we had been on the approach.

* * *

Probably the commonest type of incident that we have had reported to us are these "actions not as planned" ie pilots who quite clearly intended to do one thing but actually did another. It's a curious fact that these incidents happen only to experienced people, because you have to be well-practised at the behaviour you accidentally exercise before you can do it "automatically". As the instructor above puts it so well - "Experience can be a double edged sword".

A MERE DETAIL

THROUGHOUT THE DESCENT we all assumed the ATS was engaged. Although we all checked the correct speeds were set 'in the window' we ALL missed the fact that the ATS was not engaged. Having captured the Loc and levelling off at 4500' to capture the G/S the speed was allowed, inadvertently, to drop 10-15 kts BELOW MIN SPEED! On noticing the speed I applied Max thrust and prevented the aircraft from stalling. I know of 2 other similar cases concerning different crews and told to me confidentially. It's apparent, to me, that we rely rather heavily on the Auto Throttle System and it only takes the assumption that ATS is engaged and a distraction on the flt deck to set up a potentially dangerous situation.

* * *

Problems with automation in general, and autothrottles in particular, don't seem uncommon - you may have read about the autothrottle problem on an Aeromexico DC10 which caused a serious stalling incident in 1979. More information from you on this topic will be especially useful.

LIGHTER MOMENTS

AFTER LOCAL flying outside the TMA, a return was made towards the field via the normal visual entry lane, in contact with Approach. After establishing downwind, landing checks were carried out, but before a landing could be made, the first of a succession of transport jets arrived, necessitating a holding orbit close to the downwind leg of the circuit. As several jets landed one after the other, the instruction to orbit was renewed several times in response to requests to land, all the time darkness approaching. When there was finally a gap in the traffic, it was after official dark, and permission to land given provided it was quick.

When on the approach about 2 miles out, the engine started to die. Immediately diagnosing the problem (I hoped) I switched tanks and the engine picked up again. A normal landing was carried out.

I consider I made a number of mistakes on this occasion. I should have informed the controller that I was not qualified to fly at night, though no difficulty was experienced landing on such a well lit runway.

I did not adequately monitor the fuel state while in the holding orbit, due to the frustration of being kept flying while it got dark, this problem made worse by the very inaccessible fuel sight glasses (no guages) in the a/c.

Due to the hurried nature of the approach, I did not re-do the pre-landing checks.

Fortunately I diagnosed the problem quickly enough to avert a disaster, a night forced landing does not bear thinking about.

I learned a number of lessons that night.

* * *

THE AIRCRAFT had recently undergone a check 4, and had been flown for only a few hours. I noticed that the engine seemed to be feeding off the LH tank only, as the right stayed fairly full. At 3000 feet the engine stopped, and in spite of selecting LH and RH tanks would not start. I glided into a field and made a safe landing. It was found that the fuel selector had been replaced in the wrong position so that "both" was left, left was "off", and right was "both". Selecting "left" didn't help therefore, and I obviously did not leave selector on "right" long enough.

The cause, in my opinion, was an apprentice not sufficiently supervised. I was technically illegally using MOGAS- although I have a dispensation to use it, it had not been uplifted as the regs. require at an airfield refuelling point. The engine by the way had never been in better condition in respect of plugs valves etc due to MOGAS and not one plug-caused mag. drop all year. Although the landing in a difficult field was faultless, I noticed that my preoccupation with the MOGAS technicality definitely degraded my performance.

Suggest redesigned fuel selector that can only be fitted one way!

* * *

Though this Confidential Reporting Scheme is aimed principally at the commercial pilot, we thought that these two incidents would make interesting reading for everybody. The first happened to a pilot with a total of only 80 hours and the second highlights a well-known problem. In fact, it reminds us of the story of a pilot who used to hang his suit bag over the back of his seat. One day a hostie who was viewing the take-off started fiddling with the zip on this bag and the Captain asked her to stop it, which she did but said she thought he was making an unnecessary fuss. During the roll, an engine was lost and the Captain was, apparently, more concerned with wiping the CVR tape ("Stop fiddling with my zip will you" - "OK, but I don't see why you're making such a fuss over such a little thing") than controlling the aircraft.

LANDING SHORT

*ON THE CLIMB to FL80 I suddenly started to feel unwell, with stomach pains and an urgent desire to defecate. It soon became obvious that I was suffering from an attack of diarrhoea. To divert back to ***** to go to the toilet would have incurred serious commercial penalties, and, no doubt, very little sympathy from the company's management. I therefore decided to persevere and continue to *****. Fortunately, the weather was good and I was able to complete a straight in, visual approach. During the second half of the flight the quality of my flying had deteriorated significantly, and my pre landing checks consisted of little more than checking "Three greens and brakes off," before closing the throttles and landing. I made it to the toilet, just in time, and was able to continue the rest of my night's flying without incident. Most of my commercial flying has been single crew, and it is a type of flying that I have always enjoyed. Pilot incapacitation is something that I have always considered as so remote a possibility in someone of my age, that I have previously ignored it, confining it to pilots with, "Dicky Tickers," who are nearing retirement. However, the sort of incapacitation that I suffered in this incident had a markedly adverse effect on the safety of the flight, and it has called into question, in my own mind, the whole desirability of operating public transport flights, single crew. Had I been flying, that night, with a copilot, I could have left him to fly the aircraft, whilst I climbed over the freight to the "Honey Bucket" at the rear of the aircraft.*

* * *

The CAA medical branch tells us that "acute gastrointestinal disorder" (gut rot) is the single commonest cause of in-flight pilot incapacitation. We also asked the aviation pathologists whether they ever saw evidence of diarrhoea in accident victims. They said that normally they took care not to look, but they will do so now that they are alerted to the possible problem. It's not really funny, of course, and we remember that a few years ago a light twin was force landed in a field only because the pilot was taken short. If you find yourself in this situation probably the best advice is to bury your pride and let it go - just like the first astronauts. By the way, the CAA is, apparently, considering the whole question of the desirability of single pilot public transport operations.

AND FINALLY...

.... a reminder that it always helps to use the right chart and the right Navaid.

AFTER A COMPLETELY normal heavy-weight take off it was noticed that the wrong chart had been used to calculate RTOW. In fact the chart used assumed a taxiway intersection start of T/O roll using less than full runway length available. As the full length was indeed used, then the error was on the safe side. If it had been the other way around then the consequences may have been alarming!

* * *

APPROACHING LYON SATOLAS from the West - blue skies - excellent visibility runway in sight from 20+ miles out.

Red ADF/VOR pointing at L.OM, green ADF/VOR needle pointing at Satolas VORTAC. 'AD' NDB (due north of Bron) tuned on ADF2. Puzzled that while visually on the centreline the ILS showed full fly right the red needle showed 45 deg to the right, yet the green needle showed dead ahead. Explanation - we were lined up on Lyon Bron, not Satolas - the co-pilot had, without saying a word, selected the green needle from VOR to ADF.

Moral of the story - amongst others - always let the other fellow know when you intend to reselect a Navaid!

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DATE OF RECEIPT AT THE R.A.F. INSTITUTE OF AVIATION MEDICINE -

BACKGROUND TO THE INCIDENT

BRIEF PERSONAL DETAILS		
CREW POSITION	**TOTAL FLYING HOURS**	**HOURS ON TYPE**

DETAILS OF INCIDENT : PLEASE COMPLETE THOSE BOXES WHICH ARE RELEVANT			
DATE	**TIME GMT/LOCAL**	**AIRCRAFT TYPE**	**No OF CREW**

FLIGHT : FROM **TO**	**IFR/VFR**	**LOCATION OF INCIDENT**	**PHASE OF FLIGHT**
TYPE OF OPERATIONS		**WEATHER CONDITIONS IMC/VMC**	

PLEASE USE THIS SPACE TO WRITE YOUR ACCOUNT, USING EXTRA PAPER IF YOU NEED TO