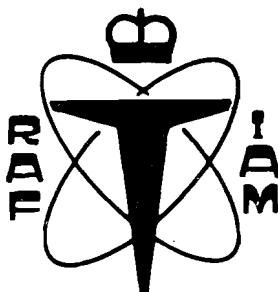


# CONFIDENTIAL HUMAN FACTORS INCIDENT REPORTS FEEDBACK

## Nº14



There have been some difficult times here at CHIRP since the last FEEDBACK. The air-traffic control reports that we published caused a surprising amount of attention, and this made us feel that it might be time to remind all of our readers of a few basic points about the system. The first is that we don't write the reports. The following pages do not contain articles from us, but reports from you. We may add the odd comment, but everything in *italics* is, as nearly as possible, in your own words. The second point is that we don't give out names and addresses to anyone. We ask for your identity so that we can call you to clarify bits of reports that we don't understand - we do this for about half of the reports we receive - but the name section of the form is always returned to the reporter and we keep no record of it. Some reporters, especially controllers, have the idea that their employers try to identify CHIRPers. All we can say is that they won't find out from us. The third point concerns the press. We never canvass publicity, and we never send FEEDBACK to newspapers or the TV. But we do print 14,000 copies, so it's not exactly a scarce commodity. CHIRP was never intended to be a secret scheme; the confidentiality is between us and the reporter and is not meant to imply that we keep the nature of the reports under wraps. This means that when the media ask us what your reports say, we try to give honest, general, but factual answers, and when GAPAN, the AIB or anyone with a detailed interest asks, we give all the help we can. The fourth point concerns the reports that go into FEEDBACK. There are two criteria for inclusion; the report should either reflect a recurring theme, or be potentially useful to the reader. We hope that you will feel that the reports in this FEEDBACK fulfil one or both of these conditions. You'll also see that there are a fair number of controller reports in this issue even though we have four times as many pilots as controllers. This simply reflects the relative numbers of reports that have been received in the last four months, and we dare say that things will settle down in the future.

Sorry for making this introduction rather serious, but we hope the above remarks clear the air. We'll be back in December. In the meantime we'll do everything that we can to ensure that somebody takes some notice of your reports; all we ask is that you keep taking the trouble to send them in.

# HELO, HELO, HELO.

As we approached the field the visibility began to deteriorate down to half to three-quarters nm so we elected to carry out a radar/NDB let-down to the platform. Before we turned onto our final approach track (into wind) we observed a radar return about 2 miles from the platform. Discussion with the traffic co-ordinator appeared to establish that this was a supply vessel and as we turned inbound I watched the return pass down the port side. The co-pilot flew the approach while I did the "talkdown" and operated/adjusted the radar. There was a certain amount of clutter but the approach to the platform was clear and the platform itself was giving an excellent radar return.

While passing about 300-400ft I was horrified to see an oil rig appear in our eleven o'clock position and pass down the port side, showing no radar return despite my efforts to adjust the set. It looked very close, I should say about a quarter nm and certainly I could clearly read the name on the side. I asked the co-pilot to look up briefly and he was clearly as alarmed as I had been. We continued the approach to the platform with the direct track still showing clear, including the now standard offset procedure, but had to go round with no visual sighting. A second approach to the previously sighted rig was successful and the radar appeared to function normally.

We were both shaken by this incident realising the very serious implications it raises. I had been entirely confident in the current offshore approach procedure, particularly with the 15 degree offset and had also been confident in my own capabilities in operating the radar. All I can suggest is:

1.Treat all radar returns, or lack of them, with extreme caution particularly if there are sea returns. This equipment is limited.

2.Have a detailed knowledge of the exact positions of other installation in the area. I believe it is necessary to have detailed, regularly updated maps of individual fields.

3.Remember that you cannot have the same degree of confidence in these approaches that you have for onshore approaches such as ILS/PAR.

\*

In the space of 3 short years there have been well over a dozen changes to the AS332 icing limitations.

The original Flight Manual Supplement was OK once you had MEMORIZED the available flight ENVELOPES and how they differed with regard to items of equipment being available or not. Since then there have been amendments, changes, new FM Supplements, Ops Circulars etc. dispensed like confetti.

The average pilot is now suffering from brain failure, trying to remember which bits of all the various legislation is still in force and which bits have been scrapped. Many items are vague and some of us feel that it is inevitable someone will get CAUGHT OUT eventually. How much longer do we have to put up with "stop-gap" measures? The recent engine icing limitations are forcing pilots into either - known icing conditions where build-ups can be reliably measured, or low level flying, either to avoid the temp/ precipitation combinations or to dissipate ice build-ups.

So what do we do? Introduce FULL anti-icing equipment as a mandatory requirement I suppose. Meantime let's have some common sense to bolster people's confidence.

\*

.....this change of plan was somewhat unexpected. My co-pilot quickly tuned and identified the 2 ILS receivers, while I set the QFE and promptly commenced the descent to 2000ft QFE. During the descent, I checked the ident code, selected the ILS on the HSI, set the QDM of the centre line and altered heading to establish on the localiser. I also got the approach plate out of the book and quoted the minima and salient points of the ILS procedure, in a rather hurried brief.

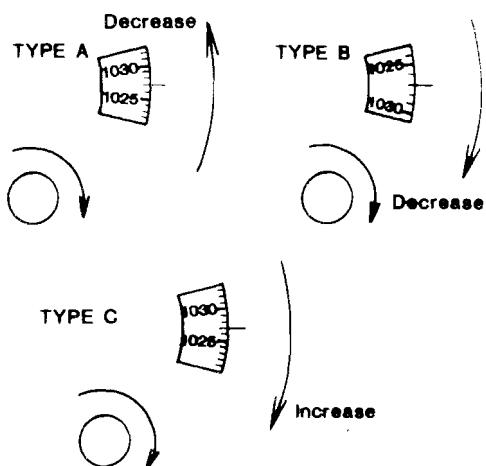
At 2000ft, my co-pilot said, "You've gone below 2000ft!". I replied that I had not, but then saw that my altimeter was set on 1030mb and not the correct QFE of 1020mb.

There are clear parallels to be drawn between this minor incident and the loss of G-BDAN at Tenerife in 1980:-

- a) The unexpected change of plan.
- b) The difficulty in executing the new procedure.
- c) The flurry of activity required to comply with the ATC instructions.

However, this does not explain why the wrong datum pressure was set, after all, altimeter pressure settings are constantly being changed without error.

Consider the attached diagrams of the altimeters, drawn 2/3 actual size. The



altimeters are viewed from a distance of some 50cm, while the instrument panel is acknowledged to suffer from shake. In the AS332 fleet of many aircraft, the individual helicopters are fitted with altimeters of types "A" & "C" or "B" & "C". As the pilots fly from either seat, according to crewing requirements and convenience, a pilot may find himself using an instrument of type "A", "B", or "C".

These altimeters are superficially similar, but the sub scales and the mode of changing the datum pressure setting are all different. It seems now, that most of my colleagues have difficulty in seeing and setting the correct pressures.

Whatever happened to the altimeters with veeder counters for the pressure setting, that we used to have 20 years ago?

\*

## ERGONOMICS AND EXPERIENCE

The last of the above reports raises the familiar problem of non-standardised equipment interacting badly with pilots' habit patterns. Design is always a compromise. It's probably impossible to make any equipment completely idiot proof (you heard of the chap who burnt his ear because somebody telephoned him while he was ironing), but that's not an excuse for booby-trapping the flight deck. Old readers of FEEDBACK will remember the BAC 1-11 LP cocks saga (now, we're told, being resolved by modification action in BA), and the first of the following reports suggests that the 737 could benefit from similar treatment. The second report illustrates the importance of checking EVERYTHING, and the last is another example of the "negative transfer" that pilots can experience when going from one type to another.

*Isn't leave wonderful? Five weeks away from aeroplanes, three of which are in the sun!*

Doom; back to work, first trip, a recency check. Shortly after T/O, Capt. requests engine antice "off". Despite nearly seven years experience on B737, I put the adjacent electric hydraulic pumps "off", causing amber light warnings and muttered curses from the Captain.

Although my Company has tried to differentiate between the four similar switches by removing the white rubber covers from both the antice switches, this problem STILL occurs. We have been asking for guarded toggle switches for the hydraulic pumps for years and still no luck. Any chance of pressing for this "mod" from your end?

P.S. It also proves how necessary Recency Checks are!

\*

*..... we were now right on departure time so I glanced at the fuel gauges, "saw" what I expected to see and signed the Tech Log and Ships Papers.*

*At the top of the climb a fuel check revealed a large discrepancy and a check of the Tech Log showed that I had signed for 6,000 Kgs. although the Ships Papers showed 8,000 Kgs. as requested. We reduced to economy cruise speed and a detailed fuel check showed that we would reach "A" with fuel to divert to "B" plus reserve. The weather at "A" and "B" was improving and ATC reported no delays into "A" so I decided to continue. We arrived on stand at "A" with diversion and reserve fuel plus about 130 Kgs.*

*I think that there were three reasons why we missed the discrepancy. The first was that the co-pilot was not in the loop until a late stage. The second was the discussions*

about the state of the aircraft very shortly before scheduled departure. Perhaps we are becoming paranoid about departure times at the expense of more vital matters. Lastly this is the first time in twenty five years that I have had an incorrect fuel load and so I signed for what I expected to see.

\*

This was my 7th sector on type since final line check.

A gust just prior to touchdown kept us airborne for a few extra seconds and displaced the aircraft by about 10 feet from the centreline. On touchdown we started drifting further towards the runway edge. Full opposite rudder would not arrest the drift. We were very close to coming off the side of the runway when I (and simultaneously my F/O) applied brake to slew

\* \* \* \* \*

We've run out of snappy titles for these fatigue reports. If you can think of one please use the form at the back to send it to us since we're certain to need it for the next FEEDBACK. We're offering a prize of a free life subscription to FEEDBACK for the best. Second prize - a job at CHIRP!

Off chox on sched with the not unusual 1 HR taxi time at BBB (they don't seem to believe in Gate Hold procedures).

Tech problems caused us to return to BBB. Second T/O 3 hours behind schedule for a flight time of under seven hours.

Around 50W, Flt Eng asleep - hasn't managed any sleep prior to PM pick-up.

Around 40W, Co-Pilot asked if he could close his eyes - Eng now awake.

About half an hour later, 3 times I dozed off momentarily when Co-Pilot awoke, I then slept for about 1hr.

Total FDP 12 hrs. At one stage, really only the Eng was fully awake. How would we have managed safely with a 2 man crew. No long single sectors involved.

\*

....3 nights of this (there's one series in my log book of 5 in a row!) doesn't do much for one's alertness. I don't have the exact wx conditions at ABZ but weather producing fog must mean light S/E'ly wind. The RVR had been hovering around 600m-700m and we had another flight going out so I had a go at getting into ABZ. I joined the ILS R/W 17 normally crossed the outer marker and somehow between the O.M. (1268ft QFE) and D/H (240ft QFE) I "lost" 1000ft and thought that I still was 1270ft when in fact I was at D/H. As a result I broke visually at about

the aircraft back towards the centreline. Only then, having been closer to the runway edge than I ever have before or since, did I realize that I had not yet used the nosewheel steering. I then did so, slowing down and brought the aircraft under control to the R/W centreline.

I had completed training on this new type one month earlier and had then unexpectedly had to resume flying my previous type, for about 3 weeks. This was my first duty back on the new one for 27 days.

My original type is more controllable in a crosswind than the new one and it is normal practice to control the A/C with rudder until about 60 Kts on the landing roll. The new one calls for nosewheel steering to control the A/C immediately the nosewheel has touched down.

100ft QFE very very surprised and shaken at something which was nearly a disaster caused by a simple error. The problem was that I knew I was tired so I was being careful but realized all along that I was slow to make decisions, slow to recognise situations developing and in the end made a simple error of misreading an altimeter which nearly killed me. I suspect that it was not tiredness but real fatigue which caused the problem.

\*

Having started the day at 0500 Local for an 0715 hrs T/O to Rig "A" and Rig "B" (5 sectors) we duly returned to Aberdeen by 1015 and were then "stood down" (no facilities for rest on base) until 1300 Local for a 1400 hrs T/O to Rig "C". On the return leg at about 1600 I was awoken from a "cat-nap" by the co-pilot asking me if I was awake. Fortunately the aircraft has both height and heading holds and also, we were both very aware of being very tired and overheated in our survival suits (Bright sun - OAT + 4 deg C). Even cold air failed to alleviate the tiredness. I finally deselected the holds and flew "manually" to keep myself awake. This was not "fatigue" but the effect of a bad night's rest before an early start with a split shift to a late finish, on a hot day, in survival suits. And it was all quite "legal" for duty hours.

# TOO CLOSE FOR COMFORT?

..... I assess that there was 400ft vertical separation and no lateral separation. The St Annes radar gives poor coverage to the eastern part of B1 near to OTR & track jitter is not uncommon.

I admit I felt quite shaken but the traffic was such that there was no chance to "bandbox" so I had to carry on working for another hour, with the oceanic rush subsiding approx. 20 mins later - however sustaining a moderate workload throughout that time. The crew chief, when his workload permitted, phoned Mil. Radar to find out why the a/c had not been coordinated. They apparently were very contrite, the Mil ATCO was on his 1st tour of duty & the Mil Supervisor & the CSC agreed that a "MOR" would not do anyone any good!

\*

..... my attention was turned to other tasks briefly but returning to monitor the descent of the inbound DC9, I noted that the squawk of the Kingair was garbling with another aircraft above our sector but I sensed that it had turned sharply left directly towards the DC9. I quickly established that the Kingair had turned left towards Daventry and instructed it to turn right immediately onto the original heading and told the DC9 to maintain his present heading.

The two aircraft would have undoubtedly passed very close to each other without immediate action. As it was, separation of just over three miles was maintained.

\*

...this military "crosser" had not been coordinated with us but it was obvious from the radar that the two a/c were on a collision course. Our Manual (Mats II, which you know is completely out of date) states : "Neither avoiding action nor traffic information is to be given" in these circumstances. Controller "B" gave both avoiding action and traffic information and achieved 300ft and two and a half miles. If this action had not been taken the blips would have merged and the heights would have been the same. The military radar apologised and said it was their fault. Why report it?

(a) Our manual suggests action that is profoundly stupid.

(b) No MOR was put in because

"everybody makes mistakes".

(c) This is just one of other unreported airmisses.

(d) Controller "B" was very rattled by this and struggled on for an hour and a half afterwards with very heavy workloads. We did not have enough staff to relieve controller "B".

\*

Very shortly afterwards a primary radar signal was observed heading north just north of Denby. I then remembered there was FL80 traffic with no functioning Mode C and which had failed to "paint" on the Clee Hill radar (which is notoriously bad in this area for traffic at FL70 to 90). On estimating backwards the heights and speeds involved, these two aircraft most certainly have passed with much less than the required separation. I understand the cloud tops were between FL80 & 85 and I assume the aircraft were invisible to one another.

All controllers at the Manchester Sub-Centre are familiar with, and have complained about this known fault on the Clee Hill radar (and which has resulted in at least two previous air misses).

\*

The sector was bandboxed in order to give a trainee a good workout and it was considered safe because of the attention a controller and the crew chief were providing. We now see the first point of danger. There is no simulator available for validation training at LATCC and as recruits arrive with no experience of controlling high density traffic, they have to be put under pressure using live traffic. During a period of reasonably intensive traffic four potentially hazardous situations had to be resolved.

The culmination of these four hazards occurred about 2 minutes later, when X and Y were 10 miles head on with X passing FL270 in the climb, and Y was still level at FL280. Two sharp turns and a sudden descent kept about two and a half miles between the aircraft.

I am in no way trying to absolve the participants in this saga for a thoroughly controller inspired (and controller averted) incident. However I would point out that many factors conspire to make our task much harder than it need or should be.

\*

*On Manual Reversion after failure of Oceanic FDPS, XY27 was planned on Track "A" FL350 WESTBOUND in direct conflict and opposite direction to KY101.*

*The potentially horrific situation was resolved by pure "good luck" when another*

*controller noticed that the Eastbound KY101 was "missing" from the display and may have been deleted by mistake. Since introduction of FDPS, which has regularly failed, there has been no visible back-up ATC system.*

\*

## ..... AND SPEAKING OF OCEANIC .....

*....Since "O" date the system has been averaging a crash every other day. Some have been recovered but eight have been major resulting in the system failing completely. In seven of these, Manual Reversion took over which puts tremendous extra strain on the system and personnel. Resulting in delays and flow control. Senior management on each occasion have come to the Operation Room putting pressure on, to increase the flow rate. (With most of our traffic taking 1-3 hours to reach the oceanic boundary it must take quite a while for the*

*staff to be certain of what flow rate they can cope with in a completely new system.)*

*On one occasion when the system crashed all information available electronically to the staff was wiped out. For two and a half hours the staff had no idea of what traffic was in their area. Very slowly a picture was built up by ringing the adjacent centres and examining old hard copy. Domestic Radar areas were most unhappy as they were holding A/C short of the boundary and uncoordinated flights were calling them sometimes in conflict.*

## WHICH ONE'S THAT?

*The DC9 was British Midland 082 (BD 082) London Heathrow to Belfast.*

*The BAC 1-11 was Dan Air 082 (DA 082) London Gatwick (Aberdeen?) (not sure of destination).*

*Both a/c appeared on transfer from TMA N.E. on parallel radar headings 5nm apart, both a/c were on the same heading 330 degrees and both a/c were climbed separately to FL280, on two occasions the callsigns were confused and the wrong a/c answered when I called. These services operate at similar times every day and this problem continually recurs, some sort of working group with the airlines should be set*

*up, so that similar sounding trip numbers can be eliminated from the system.*

\*

*The Pole Hill sector was experiencing the "normal" early morning rush. It had been split onto frequencies 131.05 and 129.1 due to traffic loading. During the period 0740 - 0808 four BA a/c of similar callsigns were on frequency scattered over the displayed radar and/or garbling under the overflying traffic. The a/c were:-*

*BA 5662 squawking A4432 : BB-PH  
BA 5642 squawking A4455 : BB-PF  
BA 5442 squawking A4454 : LL-NT  
BA 5441 squawking A4445 : NT-LL*

## ODDS AND ENDS

*On arrival at the Irish Sea/Pole Hill sector I was requested by the Chief Sector Controller to open up the Irish Sea half of the sector. The traffic level was too high for one controller band boxed.*

*As a validated radar controller with three years experience I was happy to take some of the load off my colleagues. In the full expectation that my mentor would be there soon.*

*On arrival, my mentor was instructed*

*by the SCS to split the Pole Hill side of the sector as the traffic levels were so high.*

*There are normally at least three controllers rostered for the sector plus one controller shared between POLE/IRISH & DTY sectors. As two controllers had gone sick (one being the third POLE/IRISH man) and there being NO other spare validated controllers available, I was required to continue in this position for 45 mins without a mentor.*

I request that you print a precis of this report to inform pilots & other ATC units that the staffing level picture at LATCC is not all rosy.

\*

.....the C.172 was instructed to enter, back-track and line-up RWY 26 and the Aztec instructed to cross RWY 26 and line-up RWY 22 for power checks.

The first 300 metres of RWY 26 is not visible from ATC due to the siting of a hangar.

The Aztec began to taxi across the RWY 26/RWY 22 intersection and stopped before entering as the C.172 had commenced take-off without clearance but was NOT in view of ATC. As soon as the 172 came into view it was instructed to "Stop immediately" but by this time it had crossed the intersection. The pilots on-board were a qualified flying instructor and a former airline training captain!! Both later stated that they "thought" that they had received take-off clearance. The CAA should bring back the instruction "line-up and HOLD" or introduce into UK usage "line-up and WAIT".

\*

Radar control for the North Sea Sector, one of LATCC's largest by area although granted not one of its busiest by traffic volume, is carried out by a small band of CAA ATCOs at Eastern Radar (RAF Watton, Norfolk) where the prime "tool" is a 1960's vintage Bloodhound missile tracking radar converted for air traffic use. All that is seen on the controller's display are primary radar blips and an accompanying SSR "slash" if an aircraft has a squawk selected - not even codes are displayed on the radar picture, let alone aircraft call-signs! In order to confirm a particular aircraft's squawk or altitude a strobe ring has to be placed over the SSR "slash" next to the primary blip. When the radar time-base passes over it a read-out appears for less than 5 seconds on a box at the side of the console. Information from the CAA's newest long-range radar at Claxby in Lincolnshire is also piped into Watton but is displayed in exactly the same archaic format and requires the same haphazard and long-winded method to decode SSR data.

\*

## MORE ATC PLEASE

It had been one of those days that we experience offshore - visibility down to 200m and cloud base indeterminate. About 1300 the weather started to improve up to about three-quarter mile reported and it was decided to launch to the Clyde. The area adjacent to the Clyde is operated by two oil companies and on this day they employed three helicopter operators, so that in a short space of time four helicopters were outbound to the same area at roughly the same altitude, mostly in ignorance of the others destination. At 90 miles, the point at which Aberdeen relinquishes control it rapidly became apparent that all four would arrive together and that in two cases they were both bound for the same platform.

There is no ATC as such out there, just an A/G station designed to give administrative details but no control, and it is up to the aircraft captains to sort themselves out.

We coped and all landed without too much of a panic, but I do wonder just what would have happened if all the aircraft had

been short on endurance. Perhaps we would have had the opportunity to try out those new survival suits and life rafts that we hear are so wonderful (quoth a Company spokesman).

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

YOURSELF	THE FLIGHT	THE INCIDENT
CREW POSITION	DATE	TIME (PLEASE STATE LOCAL/GMT)
TOTAL FLYING HOURS	FROM :-	DAY/NIGHT
HOURS ON TYPE	TO :-	LOCATION
THE AIRCRAFT	IFR/VFR	PHASE OF FLIGHT
TYPE	TYPE OF OPERATION	WEATHER (IMC/VMC)
No. OF CREW		

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