CONFIDENTIAL HUMAN FACTORS INCIDENT REPORTS

FEEDBACK Nº6

CHIRP is exactly two years old now, and it has settled down to a steady routine. When it was instituted, the CAA gave it a two year probationary period, but the programme has now been established as a permanent feature of the aviation scene. We try to take notice of what people want from the system, though, and one of the things that some have requested is a better idea of the content of all the reports, and some have asked for a resume of every single one. We're not prepared to do this for various reasons, one of the most obvious of which is the possibility of the reporter's confidentiality being compromised, especially at a time when only a limited number of reports are being received. Also, we feel that we give a good idea of the overall flavour of the reports we receive from those which are published in FEEDBACK, and if anyone wants more details (disidentified of course) on a certain topic or problem, we're delighted to try and help as long as they have a bona fide reason for wanting the information. Nevertheless, we have included on page 7 a rough breakdown of the last 50 reports (our receipt rate being a steady 150 to 200 per year). It's obvious from this that the largest slice of the reports at the moment concerns fatigue, sleep, and the way in which work patterns are constructed. They have certainly convinced us that urgent and radical action is called for and you can see from the next three pages how we're getting on with this.

Thanks again to all those of you who have troubled to put in a report. In our last issue we included what we decribed as a very topical helicopter report and asked for information on any others. Although we did not get enough to construct a rotary section in this issue, we received two almost identical reports concerning pilots who came very close indeed to inadvertently flying into the sea in the cruise. These reports were sent to the AIB here at Farnborough where they were received with interest. Thanks also to those companies who have troubled to give us their opinion of CHIRP, even though their opinions were not uniformly complimentary! We realise that we can't expect all the companies to love us if we pass on information to them which they regard as inconvenient, too difficult, or simply pilot whinges. What we believe, though, is that 99% of our reports come from pilots who have had an incident which may have given them a good fright, or who can see a situation which they genuinely regard as unsatisfactory. Without a confidential system like CHIRP, most of these reports simply wouldn't surface, and this is unfortunately true, however much managements may think that their pilots love and trust them. We hope that you will continue to trust us with your reports though, and we continue to undertake not to drop you in it. We feel that the thoughtfulness and interest of the content of your reports is actually improving, and we hope that if you see or do something that you think ought to be known about, but you don't feel you can speak openly about it, take that little bit of trouble to rip off the back page and send it to us. We'll be pleased to see it, you'll get a personal reply, and we'll do all we can to give your problem some attention. As in previous issues all sections in italics are, as nearly as is possible, in the reporter's own words.

YOU AND ME WE SWEAT AND SLAVE

We make no apology for giving you even more of these reports. We feel that if we were not to, there may be those who would get the idea that the problem had gone away, when the opposite is clearly so. Especially we feel the problem is acute for some single pilot operations and helicopter crews who seem to to be the Cinderellas of the industry.

S.61 Pilot reports. *I and others I regularly fly with, are all jogging along on 365 day rolling totals of approx 760 hours the same sectors 10 times a day some 5 days a week. Several times now I have mis-selected a radio frequency even after "positively" checking it to be the correct one. Also several times we have gone to put the u/c down only to find it already there! Had you asked any of us 10 seconds earlier we would each have sworn it had been raised after T/O. There have also been instances of Ground Prox. warnings on short finals due to u/c still up even after the u/c had been "lowered and checked"! Moral - you don't have to be falling asleep to make fatigue related errors.*

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I had been working nights for some time and was glad of a few days off. I had slept late and was awakened by the telephone at about 10 o'clock when the company asked me to work "tomorrow morning". I agreed but found out later that this meant a 0215 report to fly an aircraft without an autopilot. Probably because I had rested well the night before I was unable to get more than 2 hours sleep before the flight and was just beginning to feel tired as I took off. I was able to stay alert for the 1st positioning sector. On the next sector with passengers on board I began to feel very tired and found that hand flying the aircraft with a featureless sky all around made me feel very sleepy. I am no stranger to night flying and usually find that keeping myself busy with paperwork, making hot drinks and reading keeps me alert, but because of the lack of autopilot I could do nothing except the very low workload of flying the aircraft in the cruise. Twice in the next two hours I awoke to find the aircraft off course and 500 ft low. It became almost painful to stay awake. The aircraft's strange antics did not disturb the passengers as they were all asleep as well.

Before I had taken off I had a slight feeling of being unwell in my stomach but in no way bad enough to go sick. At the top of the climb I started to feel very unwell with stomach pains. The pains got worse and after about 30 mins in the cruise I was feeling bad enough not to take much interest in the flight at all, fortunately for once the autopilot was serviceable and I left the aircraft to itself. After about 15 mins I began to feel a bit better and started thinking again. I decided to continue to my destination instead of diverting as I seemed to be improving and the destination weather was much better. As the pain reduced I discovered a new problem in that I kept falling asleep. This I am sure was not because I was short of sleep (I had slept well the night before but was probably due to the relief of the pain. During the rest of the flight I was twice woken by ATC calls. I do not like to consider what might have happened if I had not had an autopilot to help me.

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I would like to add some thoughts to the continuing night flying/fatigue story. I spent some time last year flying on single crew freight ops loading a/c about 1 tonne, flying 3 hours (often no autopilot) on ground 2 hours, reload, return 3 hours and try to sleep in the hotel until next duty. I found after 4 "rotations" of this duty period I was falling asleep during the last hour or so of the flight. and on one occasion I must have actually gone to sleep as I have no memory of one leg! IFR approaches to mins. required immense concentration. It seems the duty hours system is built around day work. and now this type of flying is common may need modifying. Although 2 crew aren't needed to fly these types at least you can keep each other awake (I know it means less freight!). Does the beat of the props at a certain rpm have a soporific effect?

Local training detail. Crew; Training Capt, Safety Co-Pilot, Trainee pilots and just one Flight Engineer (Self). Due to WX problems our detail, includes 15 touch and go's and 6 full stops, takes over 6 hours. Towards the end of the detail we take off with rudder trim still on from previous asy. landing. This omission was solely due to fatigue on my behalf due to excessive detail length.

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In bulletin No.5 page 6 you reported the policy adopted by one of my colleagues which is similar to mine to combat fatigue caused by night flying/time zone changes. However, some crew members seem to be reluctant to admit they are feeling tired. On the flight in question, my engineer asked if he could close his eyes for a few minutes just after the 50W fuel check, to which I agreed. About 20 mins later I turned to check the engineer's panel and noted that the engineer was asleep. I then looked at the P2, an experienced pilot but on only his 2nd long haul flight, and noticed that he had fallen asleep as well. The purpose of this report is twofold. Firstly, to remind crew members that if they do have problems obtaining adequate pre-flight rest then they should consult one of their company doctors who may well be able to help them. Secondly, to re-emphasise the vital requirement that where a crew member is feeling tired, there is no "loss of face" in admitting the fact - DON'T just fall asleep without saying something. Finally, in answer to the question you pose at the bottom of page 6 regarding whether one person should be allowed to go to sleep resulting in less people monitoring one another, is YES in practically all cases. There is nothing sillier and potentially more dangerous than the whole crew getting more and more tired together. Allowing "cat naps" in turn improves monitoring and overall flight safety. Keep up the good work.

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You ask for your thoughts on fatigue, so here goes: I entirely agree with your first correspondent, who calls for "the virtual scrapping of the Bader committee's recommendations". It really is quite extraordinary that in aviation, where any error can be truly catastrophic, legislation on fatigue is probably more lax than in any other industry. Lorry drivers have better fatigue protection. So priority number one: replace Bader. Unfortunately, replacing Bader with something more realistic will be fought every inch of the way by the airlines and will therefore take a long time. There are, however, two changes which would cost the airlines next to nothing and could be made immediately - OK, tomorrow; the clue is in your correspondent's comments on "napping". So how about this- Many aircraft, including some with quite appreciable range, now have a crew of only two. This must mean that everyone - CAA, BALPA, etc - accepts the two- crew concept. This being so, the next step is surely to admit that, GIVEN PROPER SAFEGUARDS, even three-crew aircraft can be safely flown by two of their crew IN THE CRUISE PHASE. By "proper safeguards" I mean primarily having a fully integrated crew and the cockpit design necessary for that crew to monitor properly. Under most modern conditions this should present no problems. The trouble is that the present rules inhibit captains from taking what is actually the safest course - i.e. letting their crew get some real sleep. "Napping in your seat " is, I believe, not only inadequate, but positively dangerous, as it only takes the edge off your fatigue, thereby easily leading to the situations described by your correspondents where all three crew members drop off again together. On long overnight flights, with probably little sleep possible beforehand and the body already suffering from weeks - even months - of sleep distortion, it is totally impractical to expect crews to go for 8, 9, 10, even 11 hours with no sleep: the body will simply not co-operate. I therefore suggest:

1. The acceptance of the principle "given proper safeguards, only two crew need be at their stations during the cruise phase".

2. On all flights scheduled to last over 6 hours and covering the hours 0100 - 0500 local time (one can argue over the precise figures), one crew bunk must be provided: no dispensations permitted. These two changes could be made immediately, would cost the airline nothing (except the loss of some "bunk space"), and would only be an admission of an already accepted principle - that a crew of two can adequately monitor in the cruise phase.

Now three official views which we print without comment. The first is the (surprising?) CAA view on "napping" expressed by their Chief Flight Operations Inspector. The next is from a senior executive of a leading independent on rostering problems, and the third is from Capt Frank Dell, Chairman of the Flight Times Limitations Board, whom we asked to comment on the fatigue reports which you have sent to us.

* * *

The CAA's view is that part of the commander's job is to manage his flight crew. In long-range multicrew operations he is perfectly entitled to have one man off watch and napping - the other two must of course be capable of monitoring all the necessary flight deck tasks. The important thing is that this part of crew management should be properly organised, bearing in mind the particular circumstances of the flight and the prior rest which each individual has actually achieved. Most people can benefit from naps and the CAA believes they can often be organised on the flight deck - crew should not rest off the flight deck unless a relief is carried.

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It is our view that there exists in every Company a small proportion of pilots who would always wish to have a roster that suits their particular needs. This is, of course, impossible, since we have a duty to share the work as evenly as possible. It is always a mix of the rough with the smooth. The important point is notification sufficiently in advance to permit adequate forward planning. Any appreciation of crew work load must consider a period of at least 28 days, never individual flights. We are aware that all night flights (such as Rhodes) can make one tired. However, those who complain fail to point out that this is only some 10% of their flying duties. The other 90% of their work is for duty periods of less than 8 hours. UK-PMI-UK is less than 7 hours and we go there many times during each summer season. The same timing obviously applies to Ibiza, Menorca, Alicante, Gerona, Rome, etc. Rostering and communications are both complex subjects. In our company, we take a certain pride in setting up good channels of communication, plus a sympathetic roster system. Consequently, Flight Ops. have yet to be convinced that CHIRP aids this process. We do, however, support the continuation of CHIRP because, on balance, we feel that some good may be achieved. However, to return to our original theme in the letter we wrote some time ago, we asked that a future edition of CHIRP should emphasise the vital role played by the Captain, the importance of crew support and strong advice to utilise the company's internal communications system. Although one does not doubt many of the reports which have been highlighted, there is a suspicion that they do not represent a balanced picture of the industry as a whole. We do "listen" to the 5%, but feel that 95% have accepted that one must shoulder the bit of rough that is an integral part of being an airline pilot. Safety is not really the issue.

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When in the company of flying people so often the question is asked "Does the Flight Time Limitations Board know what really goes on?" To which the reply is that no doubt a great deal goes on of which it is totally unaware, but with its wide representation across the flying spectrum, not to mention information fed to it in the form of MOR digests and statistics, accident reports, airline scheduling documents, CAA, FAA and other sources, collectively the FTLB has a pretty fair idea of the general picture. It goes without saying that CHIRP reports plays their part in this information process, representing as they do, true records of events and truthful opinions in the minds of those that wrote them. Such information might not otherwise have come to light at all; indeed, this was the fundamental reason why CHIRP was set up. All this has to be weighed in the general balance. Two alternative philosophies face the CAA and its advisor, the FTLB: One is to impose a rigid system based on the rather limited research evidence currently available. The other, which has been adopted in practice, is to work to a policy document which sets out a loose fitting framework. Within this framework, responsible AOC holders can establish their own detailed arrangements to suit the character of their work, for approval by the Authority. Against the background of all the information put before it, the Board is continually asking itself the questions "Would it have happened had CAP 371 been written differently?" and "Is the philosophy of the loose

framework the correct one?" From time to time, it is a CHIRP report which causes such questions to be asked. Indeed, the FTLB regularly discusses the sort of problems which come to light in CHIRP reports. For instance, a forthcoming meeting will discuss the special problems in helicopter operations. One of the major objectives of CHIRP is to identify areas where research into human factors should be concentrated. It is to be hoped that the fruits of such research will provide valuable evidence to FTLB in future. All this must surely point to the value of the system and the FTLB would like to encourage pilots to use CHIRP to the full.

FUEL SNIFFERS

Had driven to the airfield arriving just after 0700, to carry out site inspection, have meetings and after lunch left at 1230 for local city where arrived at 1300 and had another site check and meeting. Then rendezvous with other crew member and walkout to aircraft at 1430 for flights to EMA, thence to XXX and finally to YYY, a fairly full working day was well in progress by the time we flew, and this may have some relevance to what follows. Our aircraft was parked 20m at most behind right wing of a Viscount. During external check we were asked to move our a/c so that Viscount could briefly run his No. 4 engine, and were assured that only idle power would be used. Aircraft moved directly to rear of Viscount whose ground staff made it imperative that we lean on our right wing as the only possible precaution. During the 2-3 minutes of running we both must have breathed in a good few lungfuls of kerosene fumes even though we tried to face "down-blast" for some of the time. Eventually airborne at 1450. During take-off I recall an unfamilar and uncharacteristic lightheaded feeling, as though all was not real. My map reading was lax to say the least - we were way east of track over the western edge of ZZZ which was blithely identified yet no action taken to correct heading. The fact that the ADF needle was correctly pointing left whereas it should have been to the right was also noted yet ignored. The aerodrome appeared ahead and descent commenced after a "field in sight" call. Our position was requested and we were then told that we were about to make an approach to an old disused RAF aerodrome. Descent was checked, the supplied QDM steered and we landed at dest. without further incident. During this final phase I attempted to excuse myself by blaming the compass. There was of course no error here of any significance because aircraft has slaved gyro and standby magnetic both of which subsequently proved faultless. I have flown in that area on similar work many years and there was just no explanation or excuse for this mess - until I thought about those lungfuls of fumes half an hour or so earlier. On landing I felt vaguely odd, and my other crewmember had headache, dry throat and slight nausea, all of which took some time to clear. This insidious hazard associated with a crowded apron may be worth wider publicity.

ON DEPARTURE STRAIGHT AHEAD ONE THOUSAND FIVE HUNDRED FEET FLY THREE THREE ZERO TO INTERCEPT THE ZERO FOUR ZERO RADIAL BONG ISLAND MAINTAIN EIGHT THOUSAND FEET TO TEN DME GOLDSWORTH TWO EIGHT ZERO RADIAL PICK UP THREE FIVE ZERO RADIAL FROM BLUNGFORD TO CLIMB AND MAINTAIN FLIGHT LEVEL THREE FIVE ZERO CHANGE TO ONE THREE THREE DECIMAL SEVEN SEVEN FOR DEPARTURE HAVE A NICE DAY

While taxying out I copied the clearance which was read out incredibly fast. It was the end of a long day for me (sixth sector) and also, I imagine, for the controller (Sunday is very busy at XXX). I read back all of the clearance that I had understood but not the bit that I hadn't quite understood. I believed it to be "call through 2000". The controller didn't query the fact that I hadn't read back the entire clearance. (So he must have been fairly tired!). We were cleared take-off and at 500' began a right turn as we changed frequency to tower. Because of traffic ahead of us, of which we had lost sight (we were cleared take-off with the one ahead in sight) we were slow to contact radar controller. His first words were a very urgent "Turn left 320 degrees - weren't you told to climb straight ahead to 2000'." Only then did I realise what that clearance must have been. Entirely my fault for not asking for the clearance to be read slowly - but after a long day.....

I think that controllers are having a competition this summer to see how fast they can read out clearances.

THEN THE WORLD MOVED

Trying to do things in a hurry! This aircraft has three inertial reference systems. Alignment of these systems is essential before departure and this can take up to ten minutes, during which time the aircraft must be kept stationary. The control switches are set in the "NAV" position during alignment. When alignment is complete, the ADI and MAP displays appear and the IRS "align" lights extinguish. Occasionally, after alignment is complete, a slight "drifting" occurs, which is evident by a movement of the aircrafts' apparent position on the MAP display and an indication of one or two knots on the groundspeed readout. Re-alignment can be readily accomplished by selecting "align" on the IRS control switches, re-entering the aircrafts position on the CDU and then selecting the switches back to "NAV". The process only takes a few seconds. On the day in question, all checks had been completed and engines were started during push-back, but after engine start, a minor technical fault manifested itself and I opted to return to the stand to have it fixed. Back on stand, I noticed that the IRSs had drifted slightly and selected all three to "align", re-entered our position, and made a note to select them back to "NAV" when our snag had been fixed. During the next few seconds the engineers had found a popped circuit breaker, fixed the snag, Speedy Gonzales my First Officer had negotiated a new departure slot which we could JUST make if we hurried and had requested "push and start". Before-start checks were carried out and we were on our way backwards with one engine started and the other winding-up before I noticed that the IRS switches were still in "align". With the aircraft stopped after push back, we switched to "NAV" again, but alas the IRUs were "lost". The map display put us somewhere the other side of Crawley. Rather than delay our departure any further, I opted to continue the flight using "basic" instruments. It was a "CAVOK" daylight flight and no significant problems were involved, but we could not use our Map display, which was a nuisance, and I had a very red face for an hour or so. I gave myself a mental kick-in-the-pants and resolved not to be so easily rushed in future.

V WHAT? (AGAIN)

From reading FEEDBACK and from personal experience, may I briefly comment on an operational matter which has concerned me for some years. It is practically universal procedure for crews of jet transports to call "80 knots" on the take off run (airspeed cross check), "V1", and "Rotate". In theory, these calls are purely ASI crosscheck calls, with the Pilot Flying (PF) making specific actions and decisions on the indications of HIS OWN ASI. Thus, the PNF calling "Rotate" calls at a specific speed, and 99.9% of the time, the PF takes rotate action at that call, because his own ASI should read the same figure. I believe use of the word "Rotate", intended as a speed crosscheck, is potentially dangerous. Called in a firm voice, it implies an instruction, and on several occasions, where the "Bug" has been incorrectly set, I have personally seen early or late rotations based upon the verbal "command", not the speed. I have also experienced the situation where the rotate call has been momentarily forgotten due to some distraction, and the PF has not rotated until perhaps 10-15 knots after his own ASI passed the bugged rotate speed. Discussion afterward revealed that the PF was unconsciously waiting for the command "Rotate". FEEDBACK No. 3 and 5 illustrate the incorrect airspeed call problem. The solution is to call "VR" at the nominated rotation Bug speed. We call "V1" at V1 speed - we do not say "Decision Speed", because it takes too long. The call "VR" takes the same time span as "Rotate", and in my view, implies a speed crosscheck, not a verbal command - which clearly "Rotate" has now become. Although Feedback covers just a fraction of the CHIRP reports, it would be interesting to note the number of premature and late rotations, which are the subjects of reports, and perhaps provide discussion material for a future edition of FEEDBACK. Perhaps a comparison could be made between those operators that require "VR" as the call, and those that use "Rotate".

SEEMS LIKE YESTERDAY

During the taxi out, in a Boeing 747 faults developed with one of the hydraulic systems and also with an electrical generator. The aircraft was stopped while I tried to sort out these problems. ATC then called us to tell us we had to be airborne within four minutes to meet our slot time.

The taxi was therefore continued while I tried to identify and correct the malfunctions. Having finally satisfied myself that all was OK I then commenced the pre-T/O checks - fairly lengthy - completing the final items somewhat quickly while applying T/O power.

My final action on my panel was to zero all the fuel used indicators. This was standard procedure on Shackletons an aircraft which I had flown 12 years ago!! A simple case of "reversion" while under heavy workload and pressure, in this case without any problems but in other circumstances.....??

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Whilst "under pressure" during a simulator check, I looked up to the overhead panel to reselect the ADF's. I couldn't find them! After what seemed an eternity it dawned on me I was looking at the position where they had been fitted on a D.H. Comet - and I was in a Tristar. I last flew a Comet many years previous to the occurrence. In a Tristar, the ADF's are on the throttle pedestal.

A traveller in time?

WHAT COMES IN

We've never been anxious to play the numbers game at CHIRP as we feel that there would still be a requirement to have the facility for pilots to report incidents confidentially even if nobody had used it so far. However, we get about 50 reports between each FEEDBACK and the 400 we have received in total means that about 1 in 20 or so of you have submitted one. This is roughly how they break down.

TOTAL NUMBER OF REPORTS SINCE LAST FEEDBACK 50

REPORTERS:		TYPES:		
CAPTAINS	34	WIDE BODIED	11	(747,A310,757,L1011)
FIRST OFFICERS	11	TWIN/TRI JET	15	(727,737,TRIDENT,1-11)
ENGINEERS	2	TWIN PISTON/TURB	8	(BE90,330,404)
NOT KNOWN	3	HELICOPTERS	7	(S61,SA365,PUMA)
		4 TURBO PROP	3	
		4 JET	2	
		LIGHT	2	
		NOT GIVEN	2	

BROAD AREAS OF REPORT CONTENTS:

FATIGUE/FLIGHT TIME LIMITATIONS/COMMERCIAL PRESSURES/ (Including 4 with sleeping on flight deck involved)	24
OWN ERRORS-NO REASON GIVEN	7
CREW CO-ORDINATION	6
ERGONOMIC PROBLEMS	3
ATC RELATED	2
HEIGHT MIS-JUDGED	2
MISC.	6

Have a Chirpy Christmas Paul Wilson

Roy Rimmel Roger Green