



Confidential Human Factors Incident Reporting Programme

FEEDBACK

FEBRUARY 1991

NUMBER 23

Automation Questionnaire

The response to the automation questionnaire sent out with the last FEEDBACK was terrific. Over 1400 replies have been received from the pilots and engineers of a wide variety of types. This means that this is by far the biggest and most detailed survey on this topic carried out in the world. Obviously we're pleased that so many of you replied, but it also shows that this is a topic that you regard as important. A large proportion of the questionnaires contained extra comments that have all been typed up and run to some 300 pages. We very much hope to produce these comments as a kind of pilot opinion reference book for the use of aircraft and instrument designers.

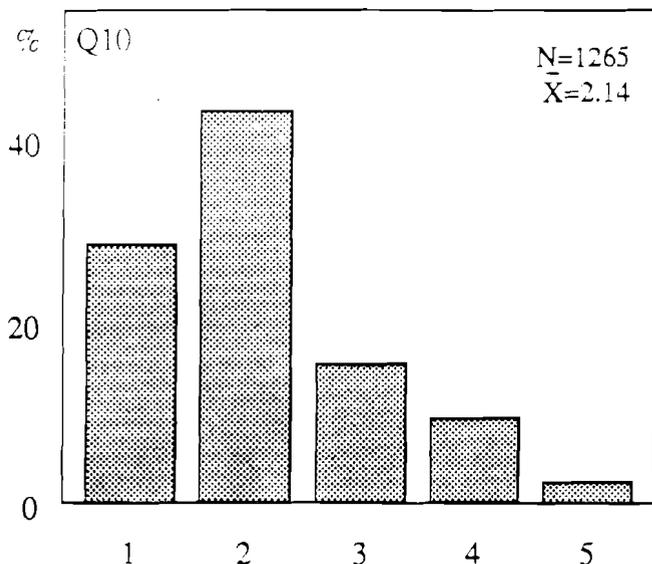
Your answers to all of the individual questions have now been entered into a database and statistical analysis is

being written up for a meeting of the Royal Aeronautical Society in March. If you took part in the survey and would like a copy of this paper, call the CHIRP office.

By and large it appears as though most of you welcome cockpit automation, and the figure summarises the answers that you gave to the most all-embracing question in this regard.

The data in this figure come from all of you, but a breakdown shows that, broadly, the more automated the aircraft that you fly, the better you like automation. You also clearly feel that a depth of experience is desirable and perhaps necessary in flying such aircraft - especially when things go wrong - but that younger pilots are better able to use the kit than older ones. It seems that the best A320 pilot would be a 14 year old with 20,000 hours.

If you are interested in any more information about this survey, do get in touch.



Overall, advanced automation on the flight deck is an extremely good thing

Overall, advanced automation on the flight deck is an extremely bad thing

A Pain in the Back

We learn that as a result of the information in FEEDBACK 21 about backache, a number of you have been provided with back supports. These are generally extremely successful, and can be provided by the RAF IAM. If you think that you would benefit from one, see your AME and ask him to contact Gp Capt David Reader, RAF IAM, Farnborough GU14 6SZ.

FEEDBACK Goes Green

This paper is recycled (from what, we're uncertain), but you'll probably find that the vinegar still drips through.

NB

In this issue:- *This is what we say*

. . . . and this is what you say.

AUTOMATION COMMENT

Well, our automation questionnaire certainly struck a nerve - we've had a great response. In this issue of FEEDBACK an extra four sides have been added to give us an opportunity to feed back some of your comments. We'll keep our chat down to a minimum and leave you to draw your own conclusions. The following comments are some of those found particularly interesting but are in no way representative of the proportions of comment in these areas.

Handling Skills / Recency

Many of you seemed concerned about erosion of handling skills. The first report mentions this and the second addresses this issue in relation to long-haul operations.

There IS a loss of motor skills after flying advanced a/c for a while (and not just advancing age!) - if the landing is to be an awkward one (X/winds or typhoon conditions etc) the sensible blokes hand fly early. Ditto for a visual circuit. It's too easy to get separated from the real world with automatics unless you are very careful. Younger pilots identify more easily with the computers, but have an unfortunate tendency to just 'follow the magenta line'. But automation is the future and we must all learn to control it (and enjoy it). And I know he can't come back, but I DO miss my F/E!

*

The degradation of handling skills on this aircraft is in no way due to the automatics.

The time spent hand flying on each sector is much the same in practice as on each aircraft type I have flown in the last ten years (all 3 crew cockpits). However, this is a very long range aircraft and is used to the full in this capacity, normally requiring two crews on each leg due flight time limitations. Recency is a big problem.

On my last trip I was presented with the situation whereby I had to do the landing or I would be out of 28 day recency, and my co-pilot had to do it or he would be out of 3 in three months recency. This is the major cause of lack of practice and consequent degradation of handling skills, NOT the automatics.

Two crew 747-400

Whilst on the subject of long-haul flying, many of you were mourning the demise of the friendly Flight Engineer on the new 747-400. The next report gives an idea of what the two remaining pilots have to contend with...

Straightforward line flying in the 747-400 is a pleasure. However I do feel that we should operate within the constraints of the 2 crew cockpit in that when abnormalities occur they should be dealt with from the checklist and if that doesn't cure the problem, then the engineers should

take over. The great temptation is for pilots to play 'engineers', a task that not all of us are well equipped for, and a lot of circuit breakers are fiddled with in an effort to clear snags and enable aircraft to either depart on time or continue to destination.

In many cases tripping CBs does clear problems (mainly minor), but in a lot of cases we are not aware of the implications of pulling certain CBs and it is a task that we were certainly not equipped for at ground school, which was based on a 'need to know' philosophy. On my last aircraft we were told never to touch CBs that we didn't understand, because of the possible interaction with other systems - a situation which led to a fatality with one operator.

On my last flight, after take-off it wasn't possible to engage Autopilot - suddenly having a situation of hand flying for 12 hours. To solve the problem involved quite a high workload of manually flying the aircraft, communicating with ATC on HF, whilst trouble shooting and talking via HF to Company. Fortunately we had an extra crew member to cope with the situation... but we're supposed to be 2 crew and he's SUPPOSED to be resting.

Last and not least... fixing toilets, lighting problems and IFEs etc. These are long flights and it doesn't reflect well on the Company if the lights are on all night, or the film doesn't work or the loos are blocked. Result - one pilot leaving flight deck for EXTENDED periods... but then it's an easy aeroplane to fly with all the automation! ...is that what it's for though!?!?

Workload

Automation is supposed to reduce workload and, although this is what most of you say, there are others out there with different ideas...

"Automation decreases workload at low workload phases" = true. My point here is that I believe that the automated flight deck does just the opposite of what it should do! It DECREASES workload at LOW workload phases and INCREASES it at HIGH workload phases. That's why I fall asleep in the cruise day and night (mostly night). Furthermore the concentration required at difficult approach phases can be so enormous that many pilots abandon the automatics just when they most need them simply because they don't have the spare capacity to use them!

...and some of you know why it's a problem

Many pilots either do not understand, or will not accept, the FACT that aircraft of this type are MEANT to be flown automatically for ALL phases of flight, including

the take off and landing. These pilots do not realise that when they hand fly they put the aircraft into an ABNORMAL configuration, and cause an immediate and dramatic increase in the workload of the other pilot. Also by hand flying during the departure and approach phases of flight, pilots do not acquire the very different skills needed to operate the aircraft's automated navigational systems. The often heard complaint of a high workload is real but is self imposed!

Crew co-ordination

Automation also appears to have effects on crew co-ordination - your're not both supposed to do it at the same time.

The real problem with an automated aircraft like a B757 is that it is so easy that one pilot can operate the machine by him/herself. And it requires self discipline to stick to the P1 and P2 duties. The biggest 'cockups' happen when people try to do too much. Like manually flying and inputting CDU entries and operating engine anti ice switches. If a crew stick to P1/P2 duties communication is unambiguous and the operation is a delight.

*

In my opinion it's ALL about discipline, clear division of duties in the event of a problem. I believe that each crew member must get on with his PF/PNF duties with occasional update briefings to keep both pilots in both 'loops'. The great danger is tunnel vision, so cockpit management is more vital than ever before. Workload is down because intra-cockpit communications are as much visual as aural.

*

Whilst the automated flight deck is functioning normally the workload is low; however, in the event of a significant failure in a major system the workload rises to a level where, unless very good CRM is practised, all forms of cross-monitoring of pilot actions break down. This presents a problem as the arousal level of individual pilots tends to be low in normal operation (particularly on long sectors), probably operating at around 20% of capacity or lower and in the event of a failure 100% of capacity is required instantly.

*

My sole experience of automated aircraft so far is 'electronic navigation'. However, there is much talk of 'new generation' helicopters for the North Sea. My main reservation is this; the 'not seeing the wood for the trees' syndrome. When I am locked into feeding the electronics, and noting down its feedbacks, my attention is narrowed, and I can become obsessed. When watching my co-pilot feeding the electronics, I can still keep my awareness wide, craftily noting the occasional gem of time/fuel/wind/heading, but using these simply to

complement my airmanship, not take over from it. We must use machines not worship them, nor become subordinate to them.

Training

Other areas that generated a lot of comment were training and checks. Are we teaching pilots the wrong skills, or the right skills in the wrong ways?

My biggest reservation about automatics on the B737-300 is that they are basically a 'bolt-on' system based on the much older 737-200 airframe. The automatics, therefore, are not as clever as on later aircraft, i.e. 757-767, and cannot cope with other than normal day-to-day operations. A good example of the limitations of the system is the engine failure/engine out approach. On the new generation aircraft (757/767) it is accepted practice for the autopilot to carry out the single engine approach and landing. The 737-300 has to be hand-flown.

The problem is, then, that we spend the vast majority of the time teaching our pilots how to use the automatics effectively and yet when things go wrong on the 737-300 we have to revert to the manual/hand-flown methods. Because of the lack of hand-flying practice on B737-300 we know that newly-experienced co-pilots' flying skills are not up to the standards of pilots ten years ago AND YET we still require those skills on a 737-300 when things go wrong!!

*

The greatest problem I have seen on the 757 and 737-300 is the quality of ground training. There is too much emphasis on AVT... I have not yet seen a system that can replace face to face 'chalk and talk', for many reasons. Additionally, independent experts must retain control of course content and examinations and not just be a rubber stamp for companies that are not interested in quality of student but regard training as a drain on financial resources.

*

The Boeing/FAA approved minimal B737-200 to 300/400 course as experienced by myself and others - "it's just another 737", minimal cost to airline sales line - was potentially disastrous. Two pilots knowing very little in the same cockpit after this quicky course is not a pleasant situation - and QUITE AVOIDABLE.

There's a feeling that checks and instrument ratings for glass cockpit aircraft are perhaps a little behind the times with aircrew being tested on what are now inappropriate items or uncharacteristic modes of flight.

There are very few occasions when the autopilot (automatics) cannot control the a/c - so why do I need to demonstrate my skills (manually) every six months - I should be demonstrating my skills of controlling the

computer! However, until I no longer have to demonstrate such skill I am forced to fly the a/c manually as much as possible in order to maintain that skill - this is a self defeating spiral. We are clearly at the very early stages of a/c automation.

Over the next few decades I strongly hope that comments such as these will be incorporated into systems that optimise the use of computers for the overall improvement of safety and efficiency. We clearly have a long way to go.

FMS / FMC

The FMS/FMC came under fire from many quarters and a range of these comments is shown below.

My greatest 'gripe' is that the FMS 'scratchpad' cannot be used to write information whilst the FMS is working. Some computers are slower than others and some tasks take longer than others. This waiting time to input further information seriously eats into time which could be used more profitably (and safely) elsewhere.

Although aircraft computers have increased and developed quite dramatically, they still lag far behind the 'user-friendliness' of most home-computer systems. Generally the information is correct and available. The means of access to it leaves a lot to be desired.

A larger input keyboard would help with the standard British finger!



(CAPTAIN)



KEYS TOP
CLOSE
TOGETHER = WRONG SELECTIONS

*

Because there is so little need for the old fashioned type of navigating (DME and stop-watch for groundspeed calculation and manual VOR tuning for lateral navigation etc) the FMC becomes a toy with which to play. A lot of my FOs spend inordinately long amounts of time building up complex aerial pictures, as part of the V NAV descent profile, only to chuck it away once a little pressure is on - say a delayed descent clearance or an ATC induced step descent - when they revert to 3 x height and other clockwork cockpit rules of thumb.

Another common trait is that even experienced FOs are tempted to fiddle with the FMC at low level, putting their head in the office when it should be outside, even when other cues are available to answer their question. For

example, at about 500' on a visual approach with a cross-wind I've seen on many occasions an FO, as handling pilot, selecting Progress Page 2 for the cross-wind component when it's pretty obvious by seeing which ear is closest to the piano keys or the runway, how strong the cross-wind is! (There is also a wind vector on the EHSI clearly showing the wind.)

To summarise, the worst thing about 'automated' flight decks on 737-300, and 757s is the temptation to fiddle; to be tempted to be masters of the inconsequential. I haven't written about the good side, so I'll briefly say that it (automation) takes the drudgery out of flying.

*

Power source changes seem to often cause problems on automated (EFIS) flight decks, with manually set data 'defaulting' to pre-programmed parameters, often with inadequate indication that this has occurred.

Flight guidance and FMS 'computer logic' often appears to have been programmed by someone who has never flown an aircraft and, again, the 'default modes' on the flight guidance system often work against you in high workload situations without adequate annunciation of their engagement. I do not agree with the 'quiet cockpit' concept, as crew communication is paramount in order that each crew member knows what the other is ABOUT TO DO, rather than what he has done. During non-precision approaches (thankfully rare) the FGS logic and 'default' modes are a positive hindrance.

Reliability

The reliability of systems and over-reliance of crews on the automatics also appear as key issues in your comments.

ATP automatics have a large manual input, as, with time and proven unreliability, area nav has been disconnected from EFIS display. Poor electronics throughout the a/c have engineered a fairly mistrustful attitude of crews to the a/c, which is not all bad - at least there is more crosschecking and awareness than would be normal. Company procedures actively encourage manual hand flying and reversion to basic scan techniques as preparation for the presumed inevitable failures. The long awaited simulator will prove to be a massive assistance to training, provided it handles as badly as the real thing.

*

I spent a few years on 757. The moving map gave incorrect position on several occasions, and one time could have been very serious. Danger was avoided by my doing an auto go-around. Twice, ALL the screens went black for a few (5-10) secs. Several times the a/c turned the wrong way on ILS interception. I met many captains who liked, and trusted, the system, even when it was obviously not working correctly. I don't trust any systems, particularly computer systems. Automation is a

help but only that. I don't trust it AT ALL.

P.S. The 757 catchword was "What's it doing now?" Not due to bad pilot inputs, but it made its own mistakes, like several spurious auto go-arounds. What a surprise! To me, anything that is not 100% reliable is 100% unreliable. I don't trust automatics AT ALL.

Inexperience

Moving on from lack of trust to lack of experience. Pilots of both highly automated and not-so-highly automated aircraft voiced opinions on this issue.

Automation is here to stay. We'd be foolish to deny this. For experienced pilots, automation is a useful and stress-reducing tool, albeit with limitations (particularly on the 757 is the lack of SYSTEMS information in flight). Using excellent automatics in adverse weather is a definite plus for air safety.

But, and it's a big but, I'm worried that INEXPERIENCED pilots (straight out of training school) will not be able quickly to gain a mature sense of airmanship BECAUSE the automatics tend to loom too large in the way they operate the aircraft. The automatics smooth over their inexperience and, I think, instil in them a false sense of how good they are at operating the aircraft.

*

I believe there to be a conflict here in relation to age/experience and automation. Older pilots can probably cope with advanced automation, but will find the learning process much more difficult than the youngsters of the computer age. HOWEVER when it all goes tits up on a dark and stormy night and the aircraft is reduced to 1 engine and 1 ADF ... !! The conclusion as it strikes me is that the oldies (like me!) may have difficulty with the automatics but the youngsters may have equal (but different) difficulties when they fail.

The next report introduces a new problem - that of having to ignore the output from the automatics.

The flight director is very poor in pitch and demands exaggerated corrections - we are encouraged to ignore pitch indications on take off, but to still use it. Inexperienced pilots have great difficulty ignoring directions given by the F/D and I have seen them (and it) 'plunge off' into potentially dangerous flight paths. Personally I only use the flight director for take-off in the simulator and on line checks - when I'm compelled/encouraged to by company procedures. On the plus side - it is good for precision and non-prec. approaches in azimuth...

...The simulator presents the 'automatics' fairly accurately and is a very useful tool - we should have made more recurrent training on it - so as to practise ignoring the flight director!...Automatics are boring!

The last few reports raise general points on your feelings towards flight deck automation.

For me, automation is the best thing since sliced bread and I get as much kick out of a well executed, tidy, and economic approach in automatics as I do from a hand flown one. I got plenty of hand flying in the RAF but suspect that the new generation MAY have degraded skills but then we old men always think that anyway - come to think of it co-pilot landings have always frightened me!

People who criticise the automatics are always wanting to hand fly the aircraft because they CAN'T cope with rapid automatic programming 'cos they don't fully understand the system. They also turn off the flight director because they don't like what it's telling them.

Whoever heard of a CAT 3 hand flown approach anyway!

*

I feel the advantages of automated a/c are only really evident when the transition is backwards, as in my instance from 767-200 to 737-200. In busy European airspace the automatics allow 'time' to monitor the general picture outside. Obviously you do this in a non-automated a/c too - but assuming you are on top of the automatics there is 'more time' to monitor, and this must aid flight safety - and reduce pilot stress.

*

I spend too much time on the -200 doing complicated mental arithmetic, fiddling with thrust levers and tuning radio aids - time that could be better used in maintaining the aircraft's progress through an increasingly hostile environment!

I doubt if you will find many older pilots complaining about automatics. Those of us who have spent decades with 'clockwork' are fed up with it. Let's have some more automatics to help us!

*

The most often heard expression on the flight deck is no longer "what's it doing now" but "well I've never seen that before"

Finally, we'd like to thank everyone who took part in this survey. The following comment characterizes the words of many...

Well! I'm afraid I wasn't much help on that one, I suppose that's what comes of flying an airborne combine harvester for a living.

...so to those of you flying around in your combine harvesters thanks for your contribution. Our thanks also go out to all the 'glass cockpit' pilots and 'not-so-glass cockpit' pilots who took the time and trouble to complete the questionnaire and send in comments. If there is anyone out there who wants to send more comment, we'll be happy to receive it.

CLOSE UP RED TWO

Your last Chirp on IRS problems triggered my memory of an incident a few years ago - a classic mind-set!

After spending three days operating the same shuttle service, the last two sectors were out and back to a different destination. On the turnround at destination I put in the correct return route, but in the 'position' page of the FMC I typed in the shuttle destination in error rather than the current position. On trying to insert the stand No. it said it wasn't in the database, so I resorted to typing in 'ramp', although I thought it should have known the stand number. The IRS accepted this and the Captain didn't notice my error. Neither of us spotted the discrepancy on the MAP Display until we were airborne!

After being cleared direct to an en route VOR, and selecting that on the FMC, all the aircraft would do (obviously) is go direct from where it thought it was, i.e. the shuttle destination!

We resorted to 'Viscount' instrumentation of 2 VOR + 2 ADF for the rest of the flight, whilst the MAP Display 'formatted' on us, some 50 miles to the west! It made no attempt to update itself - probably because we were using the VORs in manual mode.

HOW HIGH DID YOU SAY?

The flight was en route from Scotland to Spain, and had been co-ordinated into my Sector at FL370 via airway UA251 (route GOSTA, ALVIN, EXMOR, BHD).

I was advised the mode "C" on Transponder was faulty, giving a Flight Level readout of FL379, but the aircraft had confirmed it was at FL370. The Sector Controller also rang to advise me the crew were unsure of their route after BHD, so I offered to give this, and the aircraft was transferred to my frequency.

I advised the crew of their route (via Airways and reporting points) after BHD, which was acknowledged.

Having flown from Scotland with "faulty mode C" I had intended to advise the next Controller of this prior to communications transfer, but I wondered if anyone had made any basic checks.

Having noted at briefing before coming on duty that there was an intense low pressure over Scotland, and 980 millibars having registered in my ageing brain-cells, I asked the following:- "You may think me rude, but can you confirm your altimeter is set at 29.92 inches". (The aircraft was USA crewed and I had handled this aircraft

recently and learned it was USA registered.) Having asked the question, there was a protracted pause before I received the response "Ah, gee - yes, we - aah - seem to be a little high here". The aircraft was then observed on height readout to descend from FL379 to FL370.

ALL WORK AND NO PLAY MAKES JACK...

REF CAP371 3RD EDITION (22.1 + DEFINITION 21): Newly introduced weekly duty hours limit of 55 hrs. (Overrun allowed to 60.) Definition of week - 7 days starting on a day set by operator. In my Company's case this is a Friday. By definition it is not possible to exceed the limits on a Fri/Sat/Sun or Mon - very handy to a Charter Operator!

E.G. pilots A + B both work 12hrs on 12hrs off. A starts on Weds and works 7 days. Although he works 84hrs, he only does 60hrs in the Co. week and stays 'legal'.

B starts on Fri and does same, by Tues he has clocked up 60hrs in the week and cannot work on Weds and Thurs.

How come B can be deemed to be more fatigued than A?

DECK DAZZLE

Two separate items of Deck Lighting problems:-

1. There appears to be a conflict between D of T and CAA requirements in that there are white lights illuminating the helideck which constantly destroy any night vision on landing/takeoff.

2. At times the lighting is non standard in that instead of bulbs, neon strips are used. The problem is that whilst the deck lighting (purple/amber) is excellent the design is such that there is a white downward pointing neon strip which is only partially shielded and shines onto the white deck edge strip so that half of one's aiming circle is destroyed. Closure rates are very hard to judge. Everyone complains, but if nothing happens when one writes people just will not bother.

There have been a number of last second overshoots, but as this is part and parcel of helicopter operations it becomes the norm. This will be the third winter of battle against the D of T lighting and I am personally fed up of climbing into stygian darkness with quite often dazzle blindness.

The CAA tells us that this is a recognised problem with which pilots can cope without difficulty. Is it correct in this assumption?

“WHAT'D HE SAY?”

Approaching from the west. Approach instructed “Report visual before joining. Expect clearance to join downwind left-hand for Runway 31, QFE....”.

Reported visual and told to call Tower. Tower instructed us to “Join downwind left-hand for Runway 13, QFE....”. The other pilot and I both wrote this down independently, and read it back. In view of the previous message I wondered whether to query it, but this ATC is usually pretty good, so I decided I might have mis-heard the previous.

Approaching the airport boundary I decided on descending dead-side and crossing the live at circuit height. Just about airport boundary we saw an aircraft on short finals for 31, and I called to confirm that we were cleared to join downwind for 13.

Tower called back rather irately “You were cleared to join downwind left-hand for 31”. There was just time to turn sharp right and join “very late downwind” for 31.

There was an obvious hazard since we were flying directly across the real downwind leg at circuit height. There was also a lot of potential embarrassment, distraction and reduction in confidence for all concerned.

Another classic human error which has always existed with 31:13 runways since the advent of radio control. Transpositions or swaps of position are one of the commonest types of error in short term memory, and there's no doubt this will happen again. Worth watching out for though.

On duty as Aerodrome Controller at a busy training airfield after being on shift since lunchtime but actively controlling for only just over an hour due to enough staff (for a change) and closed positions. At about 1730 local plugged into the TWR position to allow a day shift controller to leave a little early. At about 1820 the third afternoon shift controller asked if I wanted a break which I declined and it was agreed with the remaining afternoon controller (the senior ATCO) that he could, earlier than is usual, go home. At this point it was understood that my colleague and I would swap over the usually busier TWR position and Radar as required. It turned out that both positions were too busy for us to exchange and as we were now alone there was no chance of a break.

For the next 3 hours there was about 180+ runway movements and I had been, I feel, working well. During

a slight lull in traffic, I relaxed a little and took some refreshment. Almost immediately I was presented with about 8 light a/c inbound from all directions within 5 miles of the field. I was confident of my order of traffic and everything was clear in my mind except that I was continually mixing up two callsigns. One of those a/c had an experienced pilot on board, the other had a student pilot. My constant confusion between these a/c resulted in the student pilot positioning for the wrong runway and almost causing an emergency situation. The other pilot, quite rightly, was getting exasperated with my constantly confusing instructions creating an atmosphere of apprehension among the other pilots on frequency.

I ended that shift feeling ashamed and embarrassed. It was certainly unprofessional of me to subject myself to that length of time plugged in. I was ashamed because after all the shouting that has been done on our behalf regarding the length of time controllers should work without a break, I had willingly allowed people to go home early just because I felt guilty about the small amount of work I had done in the first part of the shift.

*

WHETHER RADAR?

I would like to agree with the radar controller's letter in the last issue. It is imperative that the UK's radar equipment be improved as soon as possible.

I operated to Geneva last week - huge CBs towering all about the area. Stopped cabin service early/strapped pax in/briefed them for what was to be a rough approach.

As we neared the area and I was about to start asking for avoiding headings Geneva Radar took us off on a nice heading, passed between some of the worst, around another down onto a quite smooth approach. All I had to do was monitor our position and watch. I was quite relieved to have missed them all. How? Geneva have WX Radar too

It made my day ...and easier too. The UK esp. LHR/LGW NEED it if only to relieve everyone's workload.

This question has been asked of the NATS in the past and the

answer has been that Controllers do not need the capability to see wx as it clutters the screen, even though the capability is technically available. Not all controllers agree.....I've just read in Feedback No. 22 a reference to radar showing weather on it.

Here all radar displays (civil ones) are weather free. This means a) You have no warning of severe weather with aircraft flying to avoid weather and thus no chance to reduce the flow of aircraft thru' your sector or get another controller in to split the sector. b) As quoted you often turn aircraft into weather which is there on your radar display.

There were on trial TVs positioned around the room with the exact same picture colour as well as seen on BBC TV updated every 20mins - I think. This helped situations a) and b) and was accordingly withdrawn as the cost was too much for the advantage given!

At Maastricht ACC (Eurocontrol) they simply press a button and any severe weather is shown as hachured lines overlaid on their radar display.

Unfortunately not enough new technology has been installed in the last few years and sadly that that has doesn't work properly.

An example is cross-coupling R/T frequencies so everyone on both freqs hears everyone else - but it's faulty and we're not allowed to use it.

It seems that, as always, innovations have to be seen to be cost effective. Perhaps, however, there is still some room for debate on this one.

*

OLD AND BOLD

I have your Feedback number 22 to hand. After the war we used to operate unpressurised, very noisy Yorks all night from Cairo via Malta to London without the benefit of weather radar, an integrated instrument system or track holding auto-pilot. We then positioned to Hurn. If we had been offered a modern jet, four sectors in a 12 hour day we would have thought Christmas had come!!!

Faced with three or four longish duties how many pilots maximise their rest period by taking some exercise, having only a little to drink and a light meal, read a book and give themselves a chance to get eight hours sleep?? Ten per-cent?? I also feel that the problem of night flying is not properly faced by the unions. In Germany I flew 14 days by day, 4/6 landings and then the same pattern at night. The co-pilots would only do two or three nights on the trot. Guess who always fell

asleep on the last sector.

The two weeks continuous night flying was not good for one's social life but was much better than if one switched from days to night every three days. We still had two days off a week. No problem.

I also had a period in my career when I flew B707s and B737s at the same time. An on limits landing after a twelve hour sector on the 707 was much more of a strain than the fourth landing on a 737 after a similar duty period. Something to do with time zone change, lack of landing practice and hours of boredom in the cruise mode.

My own view has always been that the greatest asset to reducing fatigue is a stable roster. Time off must be protected by standby and on-call crews. Unions must accept that introducing more and more limits is usually counter productive. Rosters will always find some way of getting the work done. Better to start with a clean sheet with a working party to see how best each 28 day period should be divided. When CP of an overseas company I had a system whereby at the end of a series of duty the pilot would request his next start of duty. Overtime was paid after 80 hours, on standard times, and the only complaints I received was lack of overtime. Standard pay was in excess of that paid in the UK.

Providing a duty is known sufficiently in advance to allow proper preparation a 12 hour, four sector day in a modern jet is just not over-work. No way near. But if people keep saying it is then pilots will begin to feel tired.

You may recall that Bader was given just such a clean sheet. Even he became completely bemused by the conflicting pressures. The result was that his solution did not stand the test of time.

*

QFE or QNH?

Wx conditions as I recall were something like this: 010/20-38, 5k, 5/500, 8/800. Runway 34 with SRA offered. Our limits 500QNH, 1500 RVR. Radar descent to 1700ft, then vectored onto RW 34 approach with advisory heights given for final approach. Broke cloud about 1000ft QNH but continued to accept the radar approach. From being visual with the runway until DH I noticed that we were well UNDER the VASI glideslope. The controller had been giving us heights based on QFE. He had never asked whether we would be on QFE or QNH and in fact had not even given us the QFE....*The standard SRA is given on QFE; QNH (with the controller doing the sums) available on request.*

SLOT TIMES AGAIN

I have written to you before about the most insidious danger afoot in aviation today - 'SLOTS'.

Your article by an airline pilot who criticises the French VFR flight rules may be valid, but there are always other sides to every story. We in Business Aviation are constantly refused reasonable slot times which can prevent our high powered executives etc. achieving important meetings, maybe bringing affluence and employment to many. If no slot time is forthcoming and there is an alternative method of meeting a deadline - please do not criticise us for using it and proceeding VFR.

I have been told twice in as many weeks by European ATC 'slot' allocators "Do not blame us, it is your British Air Traffic who cannot cope".

Surely, the answer must lie in the provision of more exit/entry points into the UK, especially for aircraft who have no requirement to use Heathrow or Gatwick - and until our Air Traffic authorities wake up and provide us in the Business and Executive/Charter world a reasonable chance of fulfilling our essential role, then we will be forced to continue as second rate Air Traffic citizens and go VFR with its risk to all concerned.

CHIRP has also had comments from Airline Pilots who have experienced no problem about getting back into the UK but have had great difficulty in getting into Europe. For example:

It is probably the worst kept secret in European Scheduled/Charter Operation that the majority of pilots quietly ignore allocated slot times at various handover reporting points further on 'up the road'. For instance MOST Iberian Peninsular, Italian and Greek airfields allow you to depart 'according to your slot'. This means in reality arriving at the required point up to 75mins early (I have done it). Not a murmur from the French/UK ATC. This is an approx saving of 7,500 pounds (no commission). Flt Managers clearly don't want to know. Punctuality is the God. If you bother to enquire the projected reason for the delay, UK ATC 'blame' the French who blame the Italians who blame the French who positively blame UK ATC..... Naturally all this is done in full radar contact and carrying extra fuel for that enforced rest in a Toulouse jail! What is really happening? I have never had to hold when arriving early, unlike so called scheduled slot times. To sum up, slots are enforced ex-UK but not inbound and consequently lost time can be made up on a round trip.

The consistent inconsistency with these problems seems to indicate that all may not be well with the present capabilities of the system but we would like some more specific examples please. A number of operators seem to be ignoring slot times and causing ATC problems but it may be just that they have failed to synchronise their watches.

*

THE REVERSE IS TRUE

F/O handling - ex flight engineer re-mustered with absolute minimum in flight single engined aircraft time. (Trained on glass cockpit with only 150 hours pilot time, on singles.) ILS approach, cloud base 300 feet, drizzle.

Disconnected auto pilot at outer marker - his instrument flying immediately rough - broke out very high on profile - pulled off power - GPWS momentary sink warning - and fast VREF + 18k over fence. He floated. Touched down finally well in - but plenty of runway remaining.

He seemed reluctant to even select any reverse due noise abatement procedures rigidly adhered to by the Company - (including only 30 degree flap landing) - and after urging, he gingerly got up to 50% N1 - negligible deceleration. Planned VREF 142 knots - and two thirds down runway - his lack of deceleration processes meant speed too fast for comfort. I took control at 120k IAS - applied maximum braking and antiskidded to a stop 300 feet from end.

Nil reverse (or idle reverse only) is very common technique amongst many European Operators purportedly due adherence to noise abatement policy, with most times accompanying heavy manual braking to make turn offs. Rigid standardisation usually means airmanship and common sense go out of window. Reverse thrust in big fan engines is NOT noisy - but companies + check captains still interpret regulatory advice too narrowly. There is a potential danger in not using NORMAL reverse thrust and relying heavily on brakes only. To avoid the terrible Company sin of deviating from standard (right or wrong) procedures - I believe regulatory authorities should delete all restrictions to use of normal reverse thrust on landings - anywhere. Noise abatement regulations scare companies into rigid compliance, thus paying lip service to flight safety.

Anybody else out there find this is a significant problem?

Feedback on FEEDBACK

Regarding the chap with finger trouble (Feedback 22)...The "young lady" (!! does your correspondent refer to male co-pilots as "young gentlemen"?) was unlikely to be as coy as her captain, whose awareness of her sex seems to have overridden his professional competency; he should have acted according to accepted procedure. Whilst ostensibly outlining a problem, your correspondent is in fact taking a swipe at co-pilot inadequacy; in particular, by recounting the tale of his (misplaced) gallantry he is seizing an opportunity to stress what he perceives as FEMALE co-pilot inadequacy, thereby revealing his own 'right stuff' prejudices. We know about the problems co-pilots have with such captains, and this co-pilot's response seems typical of the sort of error which can arise in such circumstances; she was very likely all too well aware of her captain's attitude.....*And.....*

Having just read the latest copy of Feedback, I feel compelled to write to you.

I am a Base Training Captain flying Boeing 737-300 aircraft. I have been a captain on large transport aircraft for 10 years now and have been involved with airline training for 9 years.

I have to say that I am absolutely astounded at the ignorance and total lack of professionalism displayed by some of the pilots making reports to you.

For example, Finger Trouble on page 4; I can remember a veteran pilot and training captain, who came in for a lot of unwarranted 'flak' from line pilots for being too 'pedantic', berating line pilots for using hand signals 10 years ago! I cannot believe that ANY airline operations manual encourages the use of hand signals on the flight deck. If it does I would suspect the qualification and experience of the pilot writing the manual. A lot of pilots do not seem to realise the importance of accurate communication both on and off the flight deck. Most operators have a "One to Go" call but also state that there is no objection to anticipating the call, e.g. "Fifteen hundred to Go" especially if a possible RT call is expected or indeed if the rate of closure is higher than average.

Point two is what the hell is the FO doing selecting Flap 1 when: a) She is the flying pilot (non flying pilots make gear, flap selections on command) and b) above the flap limiting speed! All in all this whole incident (and I have heard of several similar in various companies) reeks of slap happy gung-ho operation, lack of training and sheer lack of imagination as to what can go wrong and WHY we have SOPs.

What about the feature below? "Don't Confuse Me With Facts, My Mind is Made Up!" Why did the crew not have the London Area Chart available when operating in this area? There is no excuse for blaming this one on ATC. If they had not been to Luton before, they should have had a good look at the charts and the area well before getting there and used a bit of common sense and had all the relevant charts available. If they were familiar with Luton there is even less excuse. I would suggest that most foreign crews would have made a much better job of it - having done their homework before.

Now to "I'm Not Lost..." Has this pilot not heard of Airmanship or Captaincy? I say by all means be helpful but blow these people on the ground that ask for the impossible - surely better to miss the night jet ban and remain safe. The company probably ended up in this situation because of poor management - why crash your aeroplane just for them! Anyway, if he was on standby why wasn't he nearer the airport if there was going to be major 'transport' delays - who's kidding who? I am sure a lot of this rushing has been caused by these infernal ATC slots and operations assuming supersonic turnaround times - I am amazed that there aren't a lot more incidents of this nature.

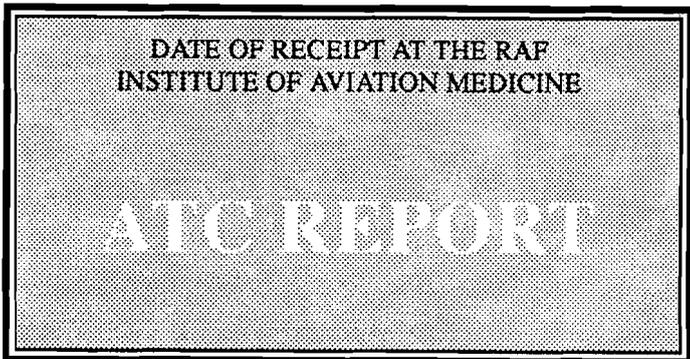
"More Haste - Less ..." P5. Do these pilots have professional licences? WHY don't they know that, normally, transponders are operated on accordance with ATC instructions, especially use of the Ident facility?

I am sorry to whinge on but as an instructor pilot I am absolutely appalled at the amateur approach some pilots have to the job. I am NOT talking as the holier than thou training captains of the past - yes, I know, even I can make mistakes! However, there is no doubt in my mind that standards have gone down over the last few years. My advice to all those pilots out there would be to read and learn your SOPs and stick to them! LISTEN to the advice your training captain gives. Copilots new to jet transport operations - don't assume you've got it hacked after one summer season - there's a lot more to the job than you think - especially when things go wrong. It takes the average pilot AT LEAST 5 to 7 years in the right hand seat to be able to say he's seen most things but REMEMBER you have NEVER seen everything. Captains, remember you are not immune - keep your own standards high and draw your copilot's attention to the fact whenever you are aware of operating below this high standard. Finally, please do not think I am against Feedback - quite the contrary but please don't let the reports be complaints about the System when it is the reporters who are mainly at fault!

GUARANTEE NO RECORD OF YOUR NAME AND ADDRESS WILL BE KEPT

NAME -----
 ADDRESS -----

 PHONE No -----



We ask that you give your identity only to enable us to contact you if we are not clear about any part of your account. In any event this part of the form will be returned to you, as soon as possible, to confirm that we have received your report.

YOURSELF	THE INCIDENT	
HOW LONG AN ATCO	DATE	ATC SERVICE(S) BEING PROVIDED
HOW LONG AT PRESENT UNIT	TIME	IN WHAT TYPE(S) OF AIRSPACE
ON DUTY AS	LOCATION & NEAREST REPORTING POINT	USING WHAT TYPE(S) OF RADAR
HOW LONG VALIDATED ON THIS POSITION	TYPE(S) OF AIRCRAFT INVOLVED	WEATHER
	AIRCRAFT IFR OR VFR	

Please use this space to write your account, using extra paper if you need to

SEND TO: CONFIDENTIAL REPORTS, FREEPOST, RAF IAM, FARNBOROUGH, HANTS. GU14 6BR
 YOU CAN ALSO OBTAIN MORE DETAILS BY TELEPHONING ALDERSHOT (0252) 24461 Ext 4375

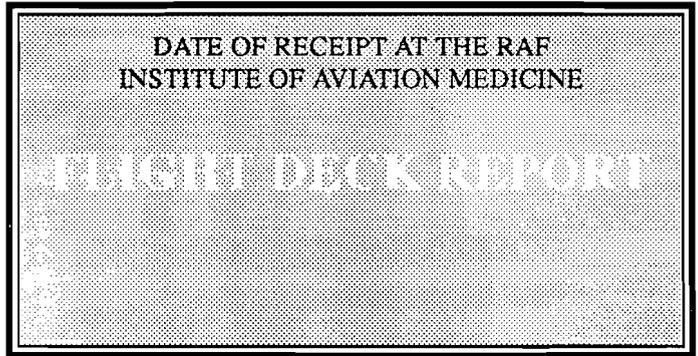
IMPORTANT

If you did not receive this copy of FEEDBACK direct to your home please let us know so that your name and address can be added to our mailing list.

GUARANTEE NO RECORD OF YOUR NAME AND ADDRESS WILL BE KEPT

NAME -----
 ADDRESS -----

 PHONE No -----



We ask that you give your identity only to enable us to contact you if we are not clear about any part of your account. In any event this part of the form will be returned to you, as soon as possible, to confirm that we have received your report.

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

SEND TO: CONFIDENTIAL REPORTS, FREEPOST, RAF IAM, FARNBOROUGH, HANTS. GU14 6BR

YOU CAN ALSO OBTAIN MORE DETAILS BY TELEPHONING ALDERSHOT (0252) 24461 Ext 4375

IMPORTANT

If you did not receive this copy of FEEDBACK direct to your home please let us know so that your name and address can be added to our mailing list.