Confidential Human Factors Incident Reporting Programme

FEEDBACK

Issue No: 42 **April 1997**

Editorial

CHIRP for Maintenance Personnel. The confidential reporting programme is to be extended to include Licensed Engineers and Approved Maintenance Organisations. This aspect of the programme is planned to commence with effect from 1 July 1997 and during the next month or so all new participants will receive full details of the Programme, including report forms similar to those already in use. The aim is to gain more information on maintenance related aspects of incidents involving safety than is presently available through the mandatory reporting schemes.

The success of this initiative will depend to a large extent on the confidence that the new participants have in the effectiveness and confidentiality of the system. The CHIRP Programme has served the professional flight crew community for over fifteen years and the air traffic control community for slightly more than ten years. During this period the programme has operated successfully without a breach of confidence. Your assistance in promoting this initiative with your engineering colleagues over the coming months will be most appreciated.

Reporting of Errors. A recent Human Factors seminar highlighted the difficulty in gaining information on seemingly unimportant errors, which are made during a normal flight operation/period of duty, but which can contribute to a serious incident when made in combination with other problems. One of the impediments to reporting minor issues is the procedure involved in completing and submitting a report form. In recognition of this problem, CHIRP has introduced a Freephone facility as a means of capturing more of the information which is undoubtedly available. The service is available to all participants in the Programme on a 24-hour basis using an answerphone. The Freephone number is **0800 214645**.

Feedback on FEEDBACK

- Stansted NDB. After due consideration of the CHIRP reports and other submissions on this subject, the decision to de-commission the SAN Non Directional Beacon has been reviewed. The review has led to a decision to commence the process to locate an NDB at Stansted to address the principal concern of situation awareness. It is regrettable that the extensive consultation process that preceded the removal of the former facility did not reveal the ongoing requirement and it is hoped that the effectiveness of the consultation procedures will be reviewed and amended as necessary.
- Student Air Traffic Control Officer Training. A recent business initiative within NATS has been the formation of a senior level Student Controller Working Group to consider how NATS may achieve a higher number of students succeeding in reaching validation standard. The Working Group will cover recruitment and selection, course content, use of simulators and the personnel aspects of the programme. The Group is scheduled to propose recommendations by mid 1997. If the aim of this review is achieved it will also address the major concern raised by a number of ATCOs last year.

INSIDE THIS ISSUE:

CHANGE OF ADDRESS?

Please notify us by:

- **POST:** FREEPOST, RAF SAM, Farnborough, Hants GU14 6SZ

or **FAX:** 01252 543860

or **E-MAIL:** kirstyb@chirp.co.uk

A Reminder on the Magazine Format:

The following fonts are used:

- Disidentified reports. These are reproduced with minimum text changes
- *CHIRP Comments are italicised*
- Verbatim Third Party responses are printed in SWISS type

FEEDBACK - Comments

The following comments have been received on two previously published reports related to confliction avoidance in North Sea operations.

North Sea Congestion - FB40

With reference to the article "North Sea Congestion" in Issue 40 October 1996, Page 6, I would like to point out that the reply to the Anglia Radar controller's observation/comments has completely missed the point.

We are all aware that aircraft transmitting to the Danger Areas can and do transit below Danger Area levels. What concerns us, is that when the range is notified to us as active 15,000 - 55,000 feet the range traffic, whilst supposedly operating within the confines of the range, without pre-warning drops out of the bottom levels of the range.

We realise it is Class G open FIR *(Flight Information Region)* airspace. However, it would be appreciated if we could be warned if traffic is expected to operate below base levels, so we can warn helicopters operating below the danger area, thus enhancing flight safety. Even if it is just switching on Mode C before passing the base.

My colleagues and I have witnessed a number of specific occurrences of this type.

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This matter was brought to the attention of Air Vice Marshal Elder Director Directorate of Airspace Policy, who provided the following response:

…….I understand that your queries relate principally to operations in the vicinity of North Sea Ranges and the ACMI Danger Areas 316 and 317 in particular.

My staff have researched this issue thoroughly and there is no record of any incidents associated with these areas. You will of course appreciate that high energy manoeuvring leaves little room for error and civil operators would be advised to avoid underflying these Areas unless it is operationally essential. However, the research unearthed the fact that the relevant RAF En-Route charts do not depict the lower limits of EGD 316/317; in addition, although the EGD 316 parameters are described in the list of airspace reservations, EGD 317 is omitted. This omission will be corrected on the next publication cycle and all future charts will indicate the upper and lower levels of these Danger Areas; I believe these measures should improve the situation……

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ATC Separation - FB 41

As a practising (many years and still not perfect) radar controller in the London TMA, I have much sympathy with your contributor - (FEEDBACK 41 - "ATC Separation"). We are all human, and the tragic Delhi incident has focused attention on this particular problem.

Your (FEEDBACK'S) suggestion about offsetting aircraft laterally is one which could certainly not be used within the LTMA *(London Terminal Manoeuvring Area*), nor in much of UK airspace. Here, the tracks which aircraft fly are often a precisely judged requirement of separation. The aircraft which is climbing to below Aircraft B is in many cases on a radar heading to pass behind Aircraft C and in front of Aircraft D. Even if there was enough airspace to apply lateral separation between aircraft which are supposed to be vertically separated, this would present a considerable increase in workload, and while I have no wish to appear work-shy, adding tasks to an already demanding job is a way to ensure that existing parts of that job receive less attention than before.

There has been a suggestion that 2,000' be used for aircraft descending or climbing. This would not guarantee separation but would give controllers a better chance of spotting infringements. From a TMA point of view, that is not a welcome idea because of the wastage of valuable levels. Just think about the

effect on "laddering" traffic down in a stack!

As controllers we take "level busts" very seriously and do all in our power to prevent them.

1. We teach trainees to always listen to read backs and demand them when they are not forthcoming.
2. We should always specify a cleared level or altitude on first contact with departing aircraft.
3. Pilots should not receive level instructions in the same transmission with instructions to change frequency.
4. Controllers should never say "your traffic is at FL80", but rather "is 1,000ft above" or "is passing below you"

On the positive side, we consider it good practice, on occasions where aircraft are expected to level in close proximity laterally and a level of infringement could produce a serious and immediate safety risk, to reiterate the level instruction. Such as "Maintain FL120 on reaching. Traffic above - right to left". We like to believe that this is enough incentive for pilots to re-check the level they are stopping at!

Let's all be careful.

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The professionalism of ATCOs and pilots is not in question and the standards within the UK ATC structure are widely acknowledged as being among the best available. Notwithstanding this, it remains most important that procedures, separation standards and warning systems are designed so as to be tolerant of human error, since errors will continue to be made however good the individual, or the system.

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FB41 - Keeping Abreast of Change

I fully support the remarks made in FEEDBACK 41 under this heading.

I go even further and consider that it was nigh on criminal for the CAA to stop the free issue of AIC's *(Aeronautical Information Circulars*), they should revert to their former system of supplying AIC's free of charge to all professional licence holders as an essential part of the licensing service. This is one instance where the politicians' invention of a "self-funding" CAA is working against the best interests of air safety.

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For those pilots who do not have ready access to AIC's and pay an individual subscription for the information, it may be possible for the annual cost of the AIC subscription (£30) to be recovered from the Inland Revenue as an item of Allowable Professional Expenses.

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A Nasty Surprise - FB41

May I offer the following information and suggestions on the subject of this CHIRP report.

In the United Kingdom's airspace and over the North Sea:

1. The air space is designated as uncontrolled airspace - Class 'G'
2. The base of reliable RTF *(Radio Telephony)* cover by NATS ATSUs is 1500ft
3. The air traffic service provided to aircraft above 1500ft, and beyond radar cover, is only a Flight Information and Alerting Service with information on reported traffic i.e. a controller does not provide separation, nor does he/she 'allow' or 'clear' aircraft for any course of action in the open FIR
4. An air traffic service cannot be provided to aircraft below 1500ft with any degree of reliability
5. Position reports from aircraft, even if using GPS *(Global Positioning Systems)*, are liable to be in error by about 5-6nm when taken at the 95% confidence level.

In the light of the above, I would suggest that:

a) In position reports, aircraft should quote, Radial, Range, level and next reporting point. But, sadly, they do not.

b) Pilots should arrange their flights so that aircraft with less than 1000ft separation, maintain a horizontal separation in the order of 10-20nm.

c) The United Kingdom Directorate of Airspace Policy should make the North Sea airspace Class 'E' controlled airspace, and an Air Traffic Service should be provided utilising M-ADS *(Automatic Dependent Surveillance*), as the Norwegian CAA are doing.

Finally, it should be noted that the International Federation of Air Line Pilots' Associations (IFALPA) continues to designate the various sectors of the North Sea airspace: Deficient, Seriously Deficient, and Critically Deficient.

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The view of the Directorate of Airspace Policy was also sought on the question of the reclassification of North Sea airspace. The response was as follows:

……Turning to your latter point on whether I am considering any reclassification of airspace in the North Sea; at present, I have no changes in mind but my staff are tasked to identify improvements wherever possible. Operations over the North Sea are under continual review and Wing Commander Perfect AP6(DAP) chairs the Offshore Air Traffic Services Liaison Group which includes pilots, representatives from the helicopter operators and oil companies, and air traffic controllers. The centralisation of Air Traffic Services at Aberdeen by the end of the year will be a major change in arrangements; after the new organisation has had some time to settle down, my staff will again re-examine the system of air traffic services and routes over the North Sea.

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Which QNH?

On reading FEEDBACK 41, particularly the paragraph "A CRM Lesson to be Learned", it reminded me of a write-up on Regional QNH that I authored. I have made a few amendments and enclose a copy which you may wish to bring to the attention of your readers:

I would first mention that I was responsible for changes made to the Regional QNH some years ago after an Airmiss.

I brought the matter up at NATMAC after recording the Regional Pressure setting over the course of several weeks. The ATC representatives were horrified to find that aircraft had been penetrating the TMA at altitudes significantly higher than the controller realised because of differences between the local airfields and the Regional QNH settings. At this time there was no Mode C in use in general aviation aircraft. Within a short period, the Air Pilot was amended requiring the local QNH to be used when flying under the London TMA. Changes were also made to the Regional Forecast QNH by reducing the three hours ahead to two hours and the Chatham Region reduced in size.

For many years since, I have heard pilots quoting their altitude on the Regional QNH when transiting 100ft below sections of Airways with a QNH base and under Regulated Airspace. I have noticed up to several hundred feet difference between the Local QNH and the Regional Setting they state, they have therefore invariably been flying in controlled airspace, sometimes by over 500ft. Further, I have heard and been given the Regional QNH to set by ATC units at Cranfield, Bedford, Cambridge etc when flying immediately towards the adjacent TMA boundary.

It is my belief that the use of the Regional QNH is not only dangerous but unnecessary, since Aerodrome QNH values can be obtained by ATIS, VOLMET or RTF. Aerodrome QNH values provide reliable terrain clearance between aerodromes, and if the value is lower towards the route being flown, the next lowest ahead may be used.

I have flown with pilots who have been using the Regional QNH and when descending in IMC on reaching MSA have stated to me they will descend further because they know the Regional to be wrong - but by how much? I have always insisted on getting a local QNH to be sure that MSA is not compromised. Another danger if they guess wrongly.

I am led to believe that the UK is one of the few countries in the world using forecast values, although Australia does so but when the pressure difference exceeds 3mbs, this figure is deducted from the local QNH to provide the

Regional - this appears to be a much safer way of arriving at a Regional QNH.

I have flown many sectors over all sorts of terrain and continually update my Standby Altimeter so that on arrival at the destination, the Standby Altimeter will be within a millibar or so of the correct QNH. There is therefore an immediate alert if the altimeters are not reset or set to an incorrect Destination QNH value.

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The UK Aeronautical Information Publication (AIP) Section RAC 2-1 provides the following guidance in relation to altimeter setting procedures:

Para. 3.9 Airspace within all Control Zones (CTRs), and within and below all Terminal Control Areas (TMAs), Control Areas (CTAs) except airways and the Daventry and Worthing Control Areas, during their notified hours of operation, do not form part of the ASR forecast QNH system.

Para.3.10 When flying in Airspace below TMAs and CTAs detailed above, pilots should use the QNH of an adjacent aerodrome when flying below the Transition Altitude. It may be assumed that for aerodromes located beneath such Areas, the difference in the QNH values are insignificant. When flying beneath Airways whose base levels are expressed as Altitudes pilots are recommended to use the QNH of an adjacent aerodrome in order to avoid penetrating the base of Controlled Airspace.

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ATC Reports

Need to Know?

My main intention in submitting this report is not to highlight mistakes that foreign controllers or flight crew might make. Even in the best system errors occur. Professionalism is not about never making mistakes, but rather, having the ability to respond to unusual situations thus putting matters right. However, I have learned about a French ATC procedure, which I believe should be brought to the attention of pilots, many of whom may be unaware of the practice.

I understand that the French Air Traffic Control system permits filtering out all SSR codes except those aircraft operating legitimately. This means that the controllers are unaware of unsafe penetration of their airspace and therefore do not give information or avoiding action.

As a direct result of this suppression of data, I am aware that a serious incident was narrowly averted in a confliction between an aircraft which had entered French airspace and a second aircraft operating at the same level in French regulated airspace without positive control or clearance.

The French system has an ideology (and ideology is the right word) that controllers only see their own aircraft. A radar controller should see all aircraft in the vicinity of his sector. Filters are useful for removing noise and distraction - NOT information which may be essential to safety.

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RT Phraseology

When sequencing and separating departing aircraft, it is often essential to use the phrase "Callsign, report passing 3000 feet". Several times in the last six months, I have received the reply "passing 3000 feet, Callsign" from the pilot.

This can lead to obvious confusion, but, being an old lag I have followed-up with either "Callsign, are you passing 3000 feet" or "Callsign, report your level". Generally the pilot has then replied "Callsign is passing #### feet, will call passing 3000 feet".

Although pilots and controllers are required to read back level instructions, I feel the reply "Callsign Wilco" is unambiguous and safer.

Through experience I have noted that a "parroted" reply usually signifies that the recipient has not fully grasped the significance of the question, will work it out later, but has given an answer! The situation is further exacerbated if the pilot's R/T transmission is clipped. "Wilco" may sound a bit World War II fighter speak, but it is still valid R/T phraseology and means "your last message received, understood and will be complied with".

If in doubt - ASK!

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A recent Supplementary Instruction to the Manual of Air Traffic Services Part 1 (No 3/97) refers to the same type of problem and is worthy of note by pilots as well as air traffic controllers:

Use of Standard RTF Phraseology by Controllers

Attention is drawn to the need for the use of standard phraseology when an appropriate 'standard phrase' exists. This is particularly important when the pilot involved is not speaking his or her native tongue. Several incidents, some involving losses of separation have occurred when controllers have modified the standard phraseology when communicating.

Controllers are also reminded that they are required to listen to and verify the accuracy of read backs by pilots. This is particularly important when either conditional clearances are issued or the transmission contains more than one level or heading; As a guide, a controller should not include more than three items of information that require a read back. If there is a language difficulty then this number must be reduced, if necessary items passed and acknowledged singly.

For the benefit of younger colleagues, WILCO continues to be listed as a Standard Speech Abbreviation. In the case of messages containing Heading, Level, and/or Speed information pilots are required to read back in full. (MATS Part 1 Appendix E and CAP 413 - CAA Radiotelephony Manual refers).

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Flight Deck Reports

Automated Flight Decks Training Effectiveness

Because of my own particular career progress I believe I have been more fortunate than many of my colleagues in my transition on to more complex aircraft and their associated systems.

Starting on a "basic" large turboprop I moved on to a "basic" jet, then came a few more "gizmos" on the ####, more still on the ####, and an advanced flight deck configuration on the type that I currently operate.

On all types since the "basic" jet I have observed some colleagues new to type struggling with various automated areas of the flight systems and have wondered why this basic problem was not discovered and corrected at the training stage. My sad conclusion is that the financial tail well and truly wags the modern British aviation dog.

The various "modern training systems" claim to shorten the time required (i.e. reduce costs) and management feel compelled to accept this dubious claim. "Need to know" is in; "chalk and talk" is out. "Just get the ARB exam behind you then we can get down to the business of learning". As complexity grows training appears to reduce. Line training is being used as cost effective continuation training - i.e. using revenue generating flights for training purposes - and in terms of gaining general and operational experience this is perfectly normal and acceptable. However, specific basic system tasks MUST be mastered at the basic training stage in simulators, not glossed over and left till line flying where they can be "tidied-up".

During line operations it is not a rare experience to watch the level of confusion grow until the auto pilot is disengaged and the aircraft hand flown simply because the pilot is unable to make the machine do what he requires via the automated systems. You may imagine various scenarios and the possible consequences of "uncontrolled" flight.

My experience of training on complicated automated aircraft has varied from excellent to poor. Training on the #### was a real delight - well paced for the individual and clearly determined to attain the appropriate high standard at each stage of the training process, before moving on to the next. This attitude was, I believe, the key to its success.

On the other hand I was profoundly disappointed on my conversion to the #### - but fortunately for me the #### proved an excellent transition which eased the process considerably. An overly concentrated and rushed ground school produced groups of bemused pilots who managed to "pass the ARB" but "knew nothing" of the aircraft and its systems. The flight simulator programme went at a less frenetic pace (and my group enjoyed the benefits of an outstanding instructor), but for many of my colleagues on other

groups the dramatic change and culture involved in the new integrated flight systems was inadequately covered by the training available. Rather quaintly, the final "flight" checks for the IR and Base check were hand flown and missed entirely the point of using automated integrated systems.

Too many of my colleagues who endured this so-called training considered the experience a nightmare (to be got through and then forgotten as quickly as possible) and which left them less than fully prepared for line training flights. Nevertheless all (almost) "passed" and thereby reinforced the mistaken belief that the system is a success. The delusion appears to be self-fulfilling.

Time spent in a simulator flying a series of short, mock line flights, without a series of system failures to simply grasp the practical operational use of the automated systems would prove invaluable. However, the training tool - the simulator - is rarely used for this purpose: too expensive; too boring; not enough "going wrong" for the macho types.

The real objection to carrying out this type of training exercise is of course COST, and so "training" will continue on aircraft on line flights with all the restrictions on experimenting with the systems to really get to grips with "just what the hell is happening".

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Automated flight decks and their associated systems have been progressively developed over the past 20 years. Regrettably, some aspects of these designs have been advanced by manufacturers and avionics engineering specialists without fully understanding the requirements of line pilots. Several recent studies have identified specific areas where this has been the case, such as Mode Selection/Annunciation, and have provided better guidance to manufacturers on what is acceptable for the presentation of flight deck information and the operation of future aircraft. This guidance has been broadly welcomed by manufacturers.

It has also been recognised by a number of organisations that flight crew training, both initial and recurrent, has not kept pace with the development of flight decks/systems and it is a cause for concern that some pilots do not receive adequate training to cope with the multitude and variety of problems that can, and do, occur on modern aircraft. It is hoped that operators will review their training syllabi in the light of this information to ensure that flight crew are competent to deal with all possible contingencies in the operation of their aircraft.

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It Can and May Happen to Anyone……

I have been flying helicopters for considerably more than 15 years, with many of them spent as a Training Captain.

It had been a very long and busy day, during which I had flown procedures which were once very familiar to me, but which I had not flown for some years.

The First Officer was the handling pilot during a busy night approach.

Just prior to landing, I had a very strong feeling that something was wrong, I simply said: "Stop! Hold it! Something's wrong!" and looked around the cockpit.

We were in a 15 foot hover.

There were no green lights indicating that the wheels were down and the undercarriage selector was up.

I lowered the undercarriage and we did our Approach and Finals checks again.

It is only when you have been in this situation that you know how humbling it can be, particularly after 15 plus years flying.

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Road Hog?

I thought that you might be interested in the following events which happened on the way from the Far East to UK.

We were cruising in Far East airspace westbound to UK. Another similar type *(Non UK airline)* was a few miles behind us level at the next lower Flight Level.

The other pilot was very impatient to climb through our level and/or get ahead of us and requested a direct routing to a waypoint (after an 80 degree right dogleg) up ahead. The request was refused but the read back was nevertheless taken as a clearance for the direct routing. Shortly after, ATC picked up the track error and the other aircraft agreed to turn back on course.

Rather than intercept the airway as soon as was practical the other aircraft paralleled the airway roughly 4-5nm right of track and by this stage slightly behind us. A further request for climb was made with our aircraft "in sight", despite the fact that the previously mentioned 80 degree right turn was now about five minutes away and would have resulted in our tracks converging.

Following the dogleg and with the next ATC frequency, the other aircraft made a further request for climb with us in sight. At this stage we were 1-2 nm behind his 4 o'clock position, not a very good situation for maintaining visual separation. Any climb clearance would have clearly resulted in not only inadequate separation, but a very strong possibility of flying through his vortex wake.

The other aircraft never appeared on our TCAS which might indicate that his altitude squawk was OFF as ATC had allocated a transponder code. The ATC controller performed correctly throughout and refused all the aircraft's requests. For those unfamiliar with the area they do like you to fly centreline.

In my experience on the trans-Siberian routes, this airline's pilots in particular sometimes behave like those drivers who tailgate you in the fast lane. They fly with their "foot down" and expect everyone to get out of the way. Incidents such as this make me wonder if some of this airline's pilots have learned the importance of patience in Flight Safety.

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Situation Awareness

WX poor up to 5000ft, cloud base about 350ft, we were cleared to line up and as we did we were given 'immediate' take off clearance with no reason. As we applied Take off power and started to roll, another aircraft reported four miles DME on the ILS. During the take off roll I considered the situation to be OK, as I assumed he intended to land, but as we were climbing through 1200' he called "Going around".

It was obvious that the other aircraft was training, as he was given no further clearance, nor were we. As we reached our initial cleared altitude we heard him call level at the same altitude! The Captain and I looked at each other, we must have been thinking the same thing - just where was the other aircraft? At no time did ATC warn us or tell us anything about this other traffic.

After discussing the matter, we decided to seek further information from the ATC unit. We were simply assured that there was no risk.

There may well have been no risk, but we still didn't know. Unknowingly, ATC put us in a position where we thought things were wrong. Had we known the other aircraft intended to go around we would not have accepted the 'immediate' take-off clearance. We felt that ATC could have given more information and subsequently should have responded positively to our genuine concern.

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Low Visibility Procedures

Low Visibility Procedures were in force at ### *(European Destination)* although RVR's *(Runway Visual Range)* had recently improved to 800 metres (CAT I). Landed using CAT III procedures. Access to the terminal required vacating at the end of the runway, in accordance with the LVP procedure, and crossing the parallel runway. As we turned to vacate the runway, we heard another aircraft being cleared for take off on the adjacent parallel runway. We had not made a radio call as to our position and had the fog been thicker we could have crossed the parallel runway by accident as the other aircraft was making its take off roll. ATC did instruct us after we had called "Vacated the runway" to hold clear of the parallel runway which we did. The visibility was good enough to allow us to see the other aircraft pass in front on its take off roll. We were then cleared to

cross the parallel runway before the departing aircraft had called airborne.

What worried us was that ATC had made assumptions twice about the position of aircraft during LVPs. It is possible that the visibility had improved sufficiently for ATC to be able to see the aircraft take off but when LVP's are in force surely we all have to abide by them.

We felt that this situation although probably legally within the letter of the law was potentially very dangerous.

As an aside, ATC had been communicating frequently in a different language to other aircraft, which also reduced our situational awareness. Had the aircraft taking off not been British, we might have been totally unaware of the danger of crossing the other runway.

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More Haste.....Less CRM.

During a multi-sector operation, poor weather combined with refuelling and passenger loading delays had resulted in us running more than hour behind the planned schedule. At our next destination, Captain came under pressure from management to make up as much time as possible.

When passengers onboard and baggage loaded, Captain anxious to make up time. He details me with paperwork, loadsheet etc. He tells me not to rush, he'll do the Start, Afterstart and Taxi *(Checklist Procedures)*. I notice that we are moving off on one engine and tell him that I am not happy about it, he then starts badgering me about missing calls from ATC Ground Control. The taxi distance is quite short and I had difficulty in completing the loadsheet in time. On reaching RWY ##, ATC offer us an immediate departure. The Captain tells me that the checks are all complete. I give him the Take-off Speeds, he asks me if I'm happy to go. I start to have a quick look around the cockpit to make sure nothing has been missed. He calls "Take off Power". I tell him I'm not quite finished, Captain interrupts, calls "Take off Power - There is an aircraft on finals - lets go!"

I set take power and call "Power Set". As we're rolling down the runway, I continue my scan and notice that the flaps are still up! I quickly select take off flap and call "Rotate" a short while after. Apart from the normal calls and checks and communications with ATC, the sector was completed in stony silence.

The unnecessary pressure put on us by the company, undoubtedly played a major part in this situation, reducing the Captain's CRM and eventually mine.

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ATC Procedures

Two comments on ATC procedures; one a very minor blemish on an otherwise superb service, the other an old chestnut on a barely adequate service which has caused fatal accidents in the past.

The excellent and professional ATC at ### is marred by the habit of departure tower giving line-up clearances several aircraft ahead. E.g; "Line up after the third 757 from the north departs".

Position in the departure queue information is very gratefully received, but please keep the line-up clearances to just one, or at most two, aircraft ahead.

Having had a little moan at the best ATC in the world, is there any way to put pressure on the US to stop giving clearances to land when there are actually two or three landing aircraft ahead and one or two to take off. A clearance should mean that you are CLEAR to do something, not that the tower have no objections!

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ATCO Familiarisation

Over the past several years of flying jet transport aircraft I have seen a considerable increase in the amount of ATC R/T that is being transmitted to aircraft at critical stages of take off and landing

These offending messages are usually of a non-essential nature, which seems to indicate that the ATC controllers are becoming less aware that, during the

minute or so immediately after take off (and also during a similar period just prior to touch down), pilots should be allowed to concentrate on lookout and instruments without interruption. In other words, let them get on with the business of flying the aircraft safely during those critical first and final moments of flight.

Typically the messages consist of a minor change of track, heading or altitude which, in actual fact, either make little significant difference to what the aircraft will do in the initial stages of flight, or could just as well be left until the aircraft is safely climbing through the acceleration altitude. To add to the problem, pilots on first contact with the London Control frequency are required to state their Callsign, the name of the SID *(Standard Instrument Departure*) and the cleared altitude (even though the SID contains an altitude schedule). At a stage of flight when we need R/T calls to be as short as possible, so as to cause the absolute minimum distraction from the vital task of flying the aircraft, one can only wonder why it is necessary to repeat information which the London controllers could just as well be made aware of from other sources.

From discussions with ATCOs over recent years I gather that they are not nowadays required, or given the opportunity, to undertake PPL *(Private Pilot Licence*) training. Similarly, whilst many airlines are willing and even eager to offer jump seat flights so as to familiarise ATCOs with the airline operating environment, the ATCOs themselves are discouraged from taking this up as it would usually have to be done in their off-duty time and, in many cases, they would have to meet any travel costs from their own pockets.

I fear that this lack of understanding on the part of ATCOs, of what pilots really need from them whilst their aircraft are closer to the ground, could well be a contributory factor in an accident unless steps are taken to do something about it.

We cannot rely on the so-called liaison between operators and the ATC organisation that currently take place, because that is done between senior personnel on both sides. The really effective solution is to restore close liaison, on the flight deck, between pilot and ATCO.

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Although student controllers no longer receive training to PPL standard, a structured two week familiarisation training programme, which includes 15 hours flying training, is incorporated within the NATS Student Controller Training Course. NATS also provide a familiarisation flight scheme which is available on a voluntary basis to all NATS controllers and a two week Customer Awareness Course for more experienced ATCOs.

Most major non-NATS units also encourage controllers to undertake familiarisation flights, in conjunction with local operators. In cases where staffing levels do not easily enable controllers to undertake familiarisation in company time, some units reimburse travelling/out of pocket expenses for this activity.

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GPWS - On or Off!

The aircraft is fitted with a rudimentary GPWS which frequently goes off unnecessarily - but only on the approach where it could be a real warning.

There is a disable switch on the roof and normal procedure is to look for the position of the switch before flight and, if it is at "OFF", assume that it has "been giving trouble" and leave it off. It had become a non-SOP SOP!

I write to call attention to the occasional "lip service" equipment that is met in some older aircraft, as revealed by other CHIRP reports.

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ATIS - In a Tizz!

My sphere of operation is UK and Europe mainly on night operations and therefore not in amongst the hustle (hassle) and bustle of day operations. On more than one occasion in the recent past I have complained about the speed at which Airport ATIS information is delivered.

This has elicited the response of "I'll look into it", from the ATC station. The next night, yes you guessed it, two and a half

loops later the complete ATIS message is copied down! Is it only me with a problem, or do the day time operators have the same grief ?

Is it possible that more information could be inserted into the ATIS transmissions and more up to date information be given as in Special Reports e.g. Radar U/S procedural approaches to RWY XX in force, Wind shear Slight/Mod/Severe, Recent Heavy rain, deep water patches on runway etc?

Without going overboard, I am sure that the ATIS can be made more effective for the benefit of everyone.

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Whereas most pilots practice rejected/continued take off procedures during simulator training, few are called upon to make a critical decision - for real - at around V_1. The following report is an extract taken from the ***Transport Canada Aviation Safety Letter (Issue 1/97)*** *and offers considerable food for thought on this important subject:*

V_1 Decision

In the context of a balanced-field takeoff, V_1 is defined as the speed at which, after recognition of an engine failure, the pilot must have initiated action to reject the takeoff in order to stop on the runway remaining. At V_1, hands come off the throttles and the takeoff must be continued. But here comes the rider on the V_1 decision.

The takeoff should not be rejected once the aircraft has passed V_1 unless the pilot has reasons to conclude that the airplane is unsafe to fly. A rejected takeoff after V_1 guarantees that the aircraft will run off the end of the runway.

At V_1 plus a microsecond or two, all hell breaks loose. A thunderous explosive bang is heard by everyone on board and by witnesses two miles away. It is followed by more bangs and major airframe vibrations. At this point, the "Fates" say, "In this microsecond, the decision you make will make you a hero or a goat. If you are wrong, you and hundreds of people could die. If you are right, except for a brief frightening moment, everyone will live happily ever after. If you hesitate in this microsecond, the decision will be taken from you".

In Vancouver, on October 19, 1995, a McDonnell Douglas DC-10-30ER captain had to make this microsecond decision. He rejected the takeoff at V_1 plus two seconds. The brakes smoked as the aircraft ran off the end of the runway. The nose gear collapsed in the soft ground. But after the dust settled, none of the 257 people on board were hurt.

When the explosive bangs were heard, the captain thought: "BOMB". At the time, the captain's decision was logical. He doubted the airworthiness of his aircraft. Yes, there was expensive bent metal, but there were no injuries, no loss of life. After the decision, the entire crew performed flawlessly. (See Air Safety Letter 1/96, When Things Go Wrong - Doing It Right).

In retrospect, his hands were off the throttles, and the airspeed had passed V_1 when the No. 1 engine failed. With just an engine failure, he could have safely continued the takeoff, dumped fuel, and returned for an uneventful landing. The trouble was that the crew did not recognise the explosive and repeated bangs as compressor stalls and an engine failure. One can only speculate as to what would have happened to that engine had the takeoff continued. But a reject decision at V_1 plus leaves no doubt - you are going off the end.

Here is the accident sequence as reported in TSB's A95H0015 accident report. The departure had been delayed for 75 minutes because of a problem with the No. 2 engine thrust reverser. The problem could not be rectified, so, under the aircraft's Minimum Equipment List, the thrust reverser was disabled and the aircraft cleared to fly. (The locked-out reverser would not have kept the aircraft on the runway. The accelerate-stop distance would have been 134 feet shorter-still off the end, but less distance through the soft ground and the nose gear may not have collapsed).

The aircraft was cleared for takeoff. As it moved out onto the runway, power was advanced for a rolling takeoff (the rolling takeoff did not affect the eventual result).

By 80 knots, the power levers were positioned to the takeoff power range. The second officer called, "Thrust set", as the aircraft accelerated to 95 knots. The first officer called V_1 at 164 knots. Two seconds later, there was a loud and startling bang followed by airframe shudder and considerable vibration. The captain called reject and retarded the throttles. The first officer advised the tower of the reject. The second officer manually deployed the spoilers, which activated the wheel autobrakes as the aircraft reached a peak speed of 175 knots.

When it became clear that the aircraft could not be stopped on the runway, the captain steered the aircraft to the right to avoid hitting the approach lights. The aircraft ran off the end at about 40 knots. As it rolled through the soft ground, the nose gear collapsed. It stopped about 400 feet past the declared end of the runway and about 225 feet past the end of the paved area off the end of the runway.

As the aircraft stopped, the flight attendant in charge reported to the cockpit for instructions. After checking with the tower for signs of fire, the captain ordered completion of the evacuation checklist and made the evacuation announcement over the public address system. With minor hitches caused by passengers attempting to take their carry-on baggage with them, the evacuation went smoothly.

Detailed investigation showed that the No. 1 engine had suffered a series of blade failures resulting in compressor stalls. The explosive bangs heard were not recognised by the crew as compressor stalls. Major studies by the FAA and Boeing of rejected takeoffs have found that a number have involved crew uncertainty about the aircraft's airworthiness, uncertainty caused by unidentifiable loud bangs and vibrations that were later determined to be indications of engine stall or failure. The majority of inappropriate crew reactions to benign engine malfunctions involved loud noises. So the problem becomes one of experience, training and timing:

- None of the DC-10 crew members had ever experienced a compressor stall of this magnitude;
- Engine and aircraft manufacturers have no specific information on the characteristics of high bypass ratio engine compressor stalls. They offer no such information in operational and training manuals or other guidance material on these symptoms; and
- Current simulator and ground training programs do not provide the knowledge. Typically, engine failures are signalled by one or more of: a pronounced yaw, an engine fail light, engine instrument indications, and an announcement by the first or second officer of the nature of the emergency. Compressor stalls are simulated by a series of muffled thumps. Training courses are now changing to ensure that flight crews operating high bypass ratio engines can correctly identify and respond to compressor stalls or surges. TSB investigators considered that the V_1 definition in the DC-10 flight manual might have been ambiguous, implying that even after V_1 some time is available for the pilot to reject. That definition is being reviewed, not only for the DC-10, but for all of the company's aircraft. Rewording will also highlight the consequences of a rejected takeoff initiated after V_1.

Load Control - One added passenger, 23 more pieces of baggage, more fuel than planned, and a shorter taxi time than planned all meant that the aircraft began its takeoff roll not under max gross, but almost 3000 pounds over. Not significant when dealing with a 590,000 pound aircraft; it's less than half of one percent. Nevertheless, the company has since tightened its load control.

Checklist - To improve rejected takeoff performance, the company has amended its checklist to ensure that the second officer "deploys the spoilers without command" as soon as the throttles are closed. This eliminates any potential delay that could result from relying on the selection of reverse to deploy the spoilers to activate the auto-brake system.

Minimum Equipment List (MEL) - Although the locked-out thrust reverser was not a factor in this overrun, the company has amended its MEL to require that, when the aircraft is at high weight and/or runway limited, both the captain

and the chief pilot must agree before the aircraft can be dispatched with a disabled reverser. V_1 is a cast-in-concrete fly/no-fly decision speed. But could all these lessons have been learned if the captain had continued the takeoff? Would they have been? On second thought, maybe the captain was right.

The company calculates the cost of the accident at $15 million to repair the aircraft. Add all the associated expenses and the actual cost approaches $40 million. You can learn the lessons free.

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