

# FEEDBACK

Issue No: 62

April 2002

## AIRCRAFT SECURITY PROCEDURES

In the wake of the recent changes to flight deck/cabin security procedures, we have received a number of reports on this subject from both flight crew and cabin crew. As a matter of policy, we have decided not to publish reports commenting on specific security aspects in FEEDBACK, to protect the information and to avoid undue media interest in this subject.

The reports on the topic of flight deck/cabin security that we have received have been forwarded, with the reporter's consent, in a disidentified form to CAA (SRG) Flight Operations Department to permit the points raised to be made available to DTLR for review, along with information from other reporting processes.

We will be pleased to receive reports related to the new flight deck/cabin security procedures that a reporter elects not to submit through other reporting systems.

*The following report has been submitted by an Airline Safety Department representative:*

## FUEL FUMES - NOT A SAFE OPTION

Having read with interest the fuel fumes report in the last issue of FEEDBACK, it is timely to highlight a recent similar event that we experienced. Having looked at various safety databases it would appear that this type of event has occurred several times before with differing degrees of action taken by those concerned.

In our case the aircraft had gone AOG several hours prior to departure. Due to a breakdown in communication the flight crew were not informed that the aircraft was AOG and had managed to get onboard. As this was the first flight of the day, the APU had been started, and the air conditioning selected on. What no one knew was that the APU had developed an external fuel leak. The fuel leak was adjacent to the APU inlet and as a consequence fuel was sucked in and passed through the air-conditioning system. At approximately the same time the APU was started the flight crew boarded minus the Captain and the Senior Cabin Crew Manager. Once onboard the crew immediately noticed noxious fumes.

The Captain boarded approximately 10 minutes later followed closely by the Station Maintenance Manager (SMM). At this stage the cabin crew onboard had been exposed to the fumes for 10 minutes. The SMM then conducted an inspection outside to try and ascertain the source of the fumes. A ground support vehicle had been noticed parked at the back of the aircraft with its engine left running, so there was a suspicion this may have been the cause of the problem. When the SMM returned inside the conditions had deteriorated to such an extent there was mist coming out of the overhead vents. On the advice from the SMM the APU was shutdown and the crew evacuated from the aircraft. The cabin crew had been exposed to the fumes onboard for in excess of 20 minutes! The crew were subsequently taken to the airport medical centre for treatment.

With any serious incident there are many contributing factors. In this case the crew were not told that the aircraft was AOG, and were allowed to get on the aircraft. The crew also boarded without the Captain and the SCCM being present. This removed the leadership element. What was worrying, was the fact that although they recognised the fumes were noxious they did not take it upon themselves collectively or individually to remove themselves from the aircraft. In this case I believe the crew knew there was a problem but were waiting for someone of higher authority to make the decision to evacuate. Initial boarding of the aircraft should always include the Captain and SCCM. If this is done then the tech and cabin logs can be checked, an assessment of the work environment done and the applicable brief to the crew carried out. Only then should senior crew members go about other business that they may have away from the aircraft.

It is timely that we remind ourselves of the health and safety hazards that may exist on the aircraft. It is also timely that we remind ourselves that we are individually responsible for our own health and welfare in situations that we know are hazardous.

***Fumes in the main cabin may not be readily apparent on the flight deck. It is important that cabin crew are briefed to notify any member of the flight deck crew to permit an early decision to be made on whether to leave the aircraft or not.***

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## IF YOU NEED TO CONTACT US:

Peter Tait                      Director  
                                        Flight Crew/ATC Reports  
David Johnson                Deputy Director (Engineering)  
                                        Eng/Maintenance Reports  
Kirsty Arnold                 Cabin Crew Programme Manager  
                                        Circulation/Administration  
                                        Cabin Crew Reports

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**The CHIRP Charitable Trust**  
**FREEPOST (G13439)**  
**Building Y20E, Room G15**  
**Cody Technology Park**  
**Ively Road**  
**Farnborough GU14 0BR, UK**

**Freefone (UK only):** 0800 214645 or  
**Telephone:** +44 (0) 1252 395013  
**Fax:** +44 (0) 1252 394290 (secure)  
**E-mail:** Confidential@chirp.co.uk

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## CHANGE OF ADDRESS?

If you receive FEEDBACK as a licensed pilot/ATCO/maintenance engineer or medical examiner you will need to notify the relevant department of the CAA of your change of address and not CHIRP, details as follows - [ATCO/FC/ENG Licensing Department], CAA (SRG), Aviation House, Gatwick Airport South, West Sussex RH6 0YR

Flight Crew ..... Post - as above  
                                        Fax: + (0) 44 1293 573996  
                                        E-mail: fclweb@srg.caa.co.uk  
ATCO ..... Post - as above  
                                        Fax: + (0) 44 1293 573974  
                                        E-mail: maggie.marshall@srg.caa.co.uk  
Maintenance Engineer ..... Post - as above  
                                        Fax: + (0) 44 1293 573779  
                                        E-mail: eldweb@srg.caa.co.uk  
Authorised Medical Exam..... Post - as above  
                                        Fax: + (0) 44 1293 573995  
                                        E-mail: medicalweb@srg.caa.co.uk

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## REPRODUCTION OF FEEDBACK

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FEEDBACK is published quarterly and is circulated to UK licensed pilots, air traffic control officers and maintenance engineers, if you are not already on our circulation, and would like to be, please send your application in writing to Kirsty at the above address.

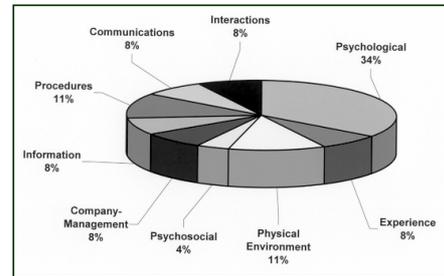
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# ATC REPORTS

ATC Reports received in Period: 4

Key Areas:



*In the past three months, we have received a number of reports from flight crews related to Winter Operations; a selection of these will be published in the October 2002 issue.*

*The following report raises a different aspect of Winter Operations, the safety of the present procedure by which ATC report the runway braking action.*

## RUNWAY BRAKING ACTION

I would like to comment about the increasingly unsafe way we are now operating during snow and ice conditions.

We are now into our third winter season where controllers' hands have been tied, in that we can no longer pass pilots Mu meter readings after it has snowed and the snow is wet or slush is present. Pilots repeatedly ask us for the readings, so that they can make an informed decision about whether to make an approach or to divert and we would like to pass them, but someone three years ago suddenly decided the Mu meter was no longer reliable in slush or wet snow, even though the very same figures had been used for at least the last 20 years without incident in the UK.

Last winter I experienced this very situation, as follows. The weather at ### during the day had been getting worse and by the evening it was snowing quite heavily. I was on duty in the tower and three jets were inbound to ### all to arrive around the same time. It had been over 30 minutes since the last runway inspection so I requested the Airport Authority to do another. On entering the runway to start a Mu meter run I observed the vehicle skid on the threshold whilst doing a very slow speed. After the run the vehicle operator advised me it was 2-3mm of wet snow and therefore the figures for the braking action were not reliable. As I was extremely concerned at the vehicle skidding and the impending inbounds I requested the figures just for my peace of mind, only to be told they were at the bottom end of the "Poor" category of braking action.

The three inbound aircraft (two B737s and one F100) were informed that the runway was contaminated with 2-3mm of wet snow but that I was not permitted to pass the braking action figures. One B737 and the F100 elected for an approach. All the way down the ILS I was feeling more and more uneasy about these aircraft attempting a landing without the full information that I had received. The snow was still coming down quite heavily and I knew that if these aircraft landed there was a strong possibility of one of them skidding off the runway. I had no option but to paint the picture as black as it was but without actually telling the pilots the one bit of information that would have definitely seen them go around. Luckily, the first aircraft went around after listening to my "unofficial information", the second (F100) carried on until short final and also went around, at which point it was struck by lightning and we lost half of our airfield lighting, which was also struck.

CAA (SRG) has been approached about this on several occasions and has given a very "head in the sand" response. They stated that it "could" be dangerous to be passing pilots braking action figures that indicated that the braking action is better than it really is, in slush or wet snow. They seemed to have missed the point, in that, on this occasion the braking action figures were extremely poor and coupled with the visual cues that I had, I felt the pilots should be allowed to be told when the figures are showing a poor reading (i.e. err on the side of caution).

I feel controllers are being put in a very awkward position. Legally I am not allowed to pass the information, but, morally (Duty of Care - I think the CAA call it) I think I should be passing it. Will it take an aircraft skidding off a runway, with all the implications that can bring, before we see a common sense outcome?

As the ambient temperature of snow in this country is virtually always on the verge of slush, why, if the Mu meter has suddenly become so unreliable, are we bothering to use them at all. Or is it the case that no-one these days wants to take any responsibility for the equipment they produce and this is actually a case of "passing the buck" to the controllers, who are under enough strain without having to work out whether something is the "right" thing to do or the "legal" thing to do.

Lets get this sorted before someone dies!

***Mu meter tests to assess runway braking in conditions similar to those described in the report are known to produce readings that might be artificially high or low depending on the precise runway surface conditions that exist at the time of the test.***

***Notwithstanding this, given the frequency with which slush conditions are encountered in the UK during winter, if the reporter's interpretation is correct, the***

***present advice to ATCOs regarding the reporting of runway surface condition appears to be less than helpful to flight crews, particularly when other evidence as to the level of braking action might be available.***

***On the advice of the Advisory Board, the report has been passed to CAA (SRG) with a request that the present advice to ATCOs regarding the reporting of runway surface condition be reviewed prior to next winter.***

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### **INAPPROPRIATE INTERPERSONAL RELATIONS**

A human factors problem that I believe to be on the increase is a growing tendency observed primarily, with some of the 'low cost' airline operators, of flight crew reacting inappropriately to air traffic control clearances and instructions received.

These inappropriate reactions, perhaps more accurately described as inappropriate 'behaviour', usually take the form of overly-aggressive responses to what are perceived by flight crew as either unnecessary or unhelpful air traffic control instructions or clearances that are believed to inhibit the planned operation of the flight. Only on rare occasions do such reactions constitute a legitimate questioning of a clearance or instruction on the grounds of flight safety, something of which I would not only understand, but would entirely support on the basis of it being a valuable flight deck/ATC CRM/TRM interactive process.

Examples which have occurred recently include:

- Questioning on the R/T of the chosen traffic approach sequencing combined with an accusation that the aircraft in question was positioned 'number two' in the sequence because the crew were not UK nationals
- Failure to comply with assigned intermediate and final approach speeds prior to reaching 4 nm from touchdown (no adverse weather or unusual operating circumstances), resulting in a go-around by the aircraft involved
- Accusation that the Localiser Sensitive Area (LSA) was infringed during a Cat. 3 landing because of the observed position of the previous landed aircraft being allegedly within the LSA and a refusal by the flight crew involved to accept the explanation given, which confirmed that the LSA was not infringed and that the previous landed aircraft was holding in an approved position
- Frequent querying of the push-and-start order chosen by Ground Movement Control (usually, on the basis of Central Flow Management Unit-allocated Take Off times) and an aggressive attitude on the R/T when given the explanation by GMC, even when the

tactical situation involves only aircraft of the same company.

- Accusation that the IRVR values passed by ATC during periods of shallow fog, are “dangerously inaccurate” (notwithstanding that the IRVR system is fully calibrated and flight checked, thereby meeting all CAA operating criteria)
- Failing to fully comply with arrival noise abatement procedures combined with a dismissive response when the error is (as required) drawn to the attention of the flight crews involved.

I would not wish to give the impression that anarchy has broken out or that this problem is occurring more often than not; at the present time, it remains the exception rather than the rule. However, it is occurring with increasing frequency and in my judgment, is due in part to the aggressively commercial ethos that exists within some airline companies and which probably translates into extreme pressure on the flight deck to achieve programmed sector flight times. In consequence, flight crew frustration with anything that interferes with their ability to maintain the schedule, clearly, will occur; this frustration will manifest itself in different ways depending on the flight crew involved.

If CHIRP is able to assist in resolving this developing situation before it reaches a level with the potential to compromise safety, it would be extremely helpful.

***Most, if not all, major UK airports hold regular liaison meetings at which problems such as those described in this report can be discussed between Air Traffic Service and airline representatives. However, the effectiveness of these depends on regular participation by local operators.***

***As the reporter notes, the problems are infrequent. Raising awareness at this early stage might be helpful in reversing the trend.***

***A copy of this report has been forwarded to CAA (SRG).***

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## MILITARY/CIVIL CO-ORDINATION

Acting as ### Radar, I was providing a Radar Advisory Service to ABC123 (*commercial traffic*) transiting en route to Scotland.

At 14:15 I observed a military squawk (*transponder*) departing from ### and turning on to an easterly track. I checked the flight conditions of my traffic, which was IMC. At 14:17:20 I rang ### Military Radar on our direct line. At 14:17:35 my call was answered and I requested co-ordination on the military squawk, told to standby for controller. Whilst waiting, the military squawk was seen on a converging track and climbing.

14:17:50 avoiding action given to ABC123 on to heading 090°.

14:18:18 ### Military Radar console answered and I requested co-ordination, told to standby for controller.

14:18:36 transferred again.

14:18:53 military squawk observed through FL130, so terminated call. ABC123 told to resume own navigation to destination.

If no avoiding action had been given, separation would have been less than two miles at FL120 in IMC.

Whilst I know this is Class G Airspace, why, given that both military units had functioning radars, do they permit military aircraft to pass close to commercial traffic in IMC? This is at best poor practice.

My questions are:

- Why not give departing traffic a track/heading to fly to go ahead/behind
- Why do they not give 'not above FL110'
- Why not co-ordinate with this Unit!
- Why, when we are through to ### Military Radar and a request is made for co-ordination, do we get transferred to the Assistant, causing yet further delay.

This is just one of many occurrences.

***This report was passed to the Inspector Flight Safety (Royal Air Force). IFS (RAF) advised that the Military Radar unit referenced has landline access to all adjacent civil ATSU's. Landline calls are received by the Fighter Marshall (FM), a qualified controller, who transfers the call to the relevant controller subject to controller workload. The FM is unable to co-ordinate on the controller's behalf.***

***The conditions under which the military aircraft was climbing are not known and the civil controller's avoiding action was effective. However, given that the military controller's workload on this occasion would appear to have prevented him from co-ordinating with the civil controller for well over one minute, the reporter's suggestion that greater separation be provided from commercial traffic is worthy of consideration.***

## ATC COMMENTS

### WAKE VORTEX INCIDENTS

Regarding the comments made on this topic in FEEDBACK 61, I am a controller at a busy UK airfield and was disappointed to see that NATS has discovered upon reviewing its database that there have been a number of wake vortex reports submitted by pilots departing after B757 aircraft.

This is somewhat alarming, as we have constantly been telling concerned pilots that there are no records of such reports, whilst clearing them for take-off using the legal allowable wake vortex minima. As you can imagine, some ask for more time on the runway but at a busy airport this is not always convenient, especially if they are already lined up! Naturally as a flight safety issue is involved, every effort is made to accommodate the request. I have to say that many ATCOs make a great effort to maximise the separation between such pairings, particularly on days when wake vortex may be more prevalent, or when aircraft types are significantly different within the relevant categories.

Having read the reply to the wake vortex report I can only say that I am mystified by the comment made regarding encounters reported at LHR. What exactly is being said? Is there a significant problem? Should further work be done on the subject, are other states recording such information? etc etc.

In my opinion there appears to be a problem with the departing B757 being followed by a lower weight aircraft using the allowable one-minute separation.

It is important that pilots who have concerns regarding the situation advise ATC before accepting line-up clearance that they will require increased departure spacing.

***Regarding wake vortex encounters involving B757 aircraft as the lead aircraft, the NATS database indicates that at Heathrow, where the highest number of reported encounters occurred, the number and severity of the encounters are not significantly different from other aircraft types.***

***As noted in FB 60, there is an ICAO-sponsored initiative to commission a study to seek to establish common wake vortex separation standards in Europe; this will include the B757.***

***As we have previously emphasised, the reporter's final comment regarding the early notification of a requirement for increased spacing on departure is most important.***

## ANOTHER ENGINE INDUCED UPSET

Two letters regarding 'Engine Induced Upset' in FB61 prompt me to write, the incident fresh in my mind as I read FEEDBACK, which had arrived in my absence, and the occurrence was only two hours old!

Circumstances identical to the Flight Crew Comments letter.

A fine evening, light breeze, unlimited visibility - allowing an all too rare hand flown visual approach on Runway ## at a UK regional airport. Tower controller enquired of an aircraft at the Holding Point (Runway threshold not intersection) if he was 'Ready immediate'. Reply, "Yes". Tower, "Clear immediate take off".

We were passing 1500' QNH and told to continue approach. Landing clearance given at 100' AGL, as departing aircraft rotated. Severe flight path disruption experienced from 200' until touch down, despite the approach having been entirely smooth. When asked what type departing aircraft was, reply "A300" from controller who seemed blissfully unaware of the mayhem he had created! My aircraft, also an A300, was just about at max landing weight, therefore stable. I cannot imagine the effect on a twin turboprop, as described in the FEEDBACK report.

Will not allow such an occurrence to develop again. That is for sure!

***Very late landing clearances due to the proximity of a departing aircraft are undesirable from a flight crew standpoint for several reasons, one of which is the increased possibility of encountering this phenomenon. However, in the case of high intensity runway operations (HIROs) a late landing clearance may not be an unusual occurrence.***

***Conditions that increase the likelihood of encountering engine-induced turbulence during a landing are those described in this report.***

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## RUSHED APPROACH

Operating into ### (a long haul destination) to which approaches are often hot, high and rushed. First Officer was the Pilot Flying (PF) and the atmosphere was relaxed. We were slightly fast and high but within limits.

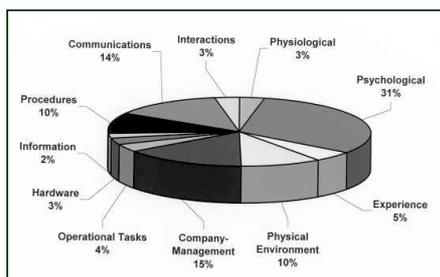
ATC requested a rapid descent as expected and when PF commenced the inbound turn, we were correctly configured but high. ATC offered S turns to lose the height; these were accepted. On completing this manoeuvre it became apparent that PF was making an approach to the left runway, whereas our clearance was to the right runway.

A Go around was flown and the subsequent landing was uneventful.

## FLIGHT CREW REPORTS

Flight Crew Reports received in Period: 35

Key Areas:



Points Learned:

1. Even in good VMC it's possible to lose situational awareness and once this has happened, it takes time to recover from the situation.
2. Good CRM is required at all times.

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### CIVIL/MILITARY CO-ORDINATION

Following a normal cruise at FL70 we departed Controlled Airspace on a direct track to ### (military airfield) under a Radar Information Service. Subsequently, we were handed over to ### Radar for initial descent into ###. At 4000', a fast moving jet was reported in my 6 o'clock position, climbing through my level. Unable to see behind, we saw a large jet pass overhead within 1000' climbing to a higher level. ### Radar asked, "Did you see it?" at which point we confirmed that we had. As I understood this traffic to be co-ordinated, I thought no more of it.

Some time after this occurrence, however, we learned that ATC had reported the now obvious AIRPROX on the traffic, a commercial regional jet that had been released from a nearby airport to an Area Control frequency on departure.

Whilst no serious incident occurred, it highlights the dangers of operating large commercial jet traffic in the Open FIR close to areas of significant military activity. A local enquiry has been initiated to confirm the full details of this close encounter and to improve communication with all operators.

***It is important that all AIRPROX incidents are reported, even if outside the stated deadline for submission, in order that the cause can be established, a clearer understanding gained of the overall level of risk and, where relevant, corrective action identified.***

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### LOSS OF COMMUNICATIONS

Since 11 September, my company has adopted a locked flight deck door policy. As a result of this, our only means of communication with the cabin crew is over our cabin interphone via the 'CABIN' selection on the Radio Management Panel (RMP).

The design of the RMP is such that, when a 'TRANSMIT' button is depressed, the associated receiver is automatically selected. However, a receiver can be selected by separately depressing its button, thus enabling more than one function to be monitored at a time. However, as far as the VHF selections are concerned, with ANR headsets it is normal to monitor only one frequency at a time i.e. the one that is being used for transmission. The consequence of this is that when a alternate 'TRANSMIT' selection is made, it de-

selects the in-use function (usually VHF 1) in transmit and also receive.

Thus, if VHF 1 is in use and being monitored, when the cabin crew call, the 'CABIN' button is depressed, which de-selects the monitoring on VHF 1. On two occasions now, I have needed to get involved in the conversation and have selected 'CABIN' also, without appreciating that we were both not monitoring our radio. This situation continued for at least a minute or two.

Perhaps I haven't thought about it before, but it seems to me that there has been an increase lately in pilots failing to respond to air traffic calls. Could our ATC colleagues comment?

I believe that, with these new procedures, we should have a completely separate cabin interphone system, which is not accessed via the RMP, thus removing the accidental cessation of monitoring the R/T frequency in use.

***Some operators have specific policies designed to avoid a situation where both pilots might not be monitoring the ATC frequency.***

***Within the UK, the number of recent cases of pilots failing to respond, although not significantly different from that previously, is a significant concern. More generally, it is understood that the Joint Aviation Authorities are fully involved in an investigation into loss of communication incidents in European airspace.***

***This is one of several reports that we have received describing difficulties associated with the changes recently introduced.***

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### EASY TO FORGET

The third 'Early' start and fifth in a block of five days duty, the previous being two 'Lates', then a positioning day by road.

Climbing out of ### we were cleared beyond the SID level off (FL60). I was Pilot Not Flying (PNF), the First Officer, experienced and very competent, was Pilot Flying (PF). We were given climb clearance and other information in the transmission and, as I was unfamiliar with the departure and it was just after take off, I was just monitoring, not writing anything on the PLOG (*Pilot Log Sheet*).

Passing FL130 with a high Rate of Climb, I noticed the First Officer had FL240 set in the 'ALT' window. As I opened my mouth to query it, ATC said, "ABC123, cleared FL190". We were passing FL138. I read back "Stop climb FL190" and ATC said "You were cleared to FL140, now cleared FL190".

I had no memory of the previously cleared level at all but my alarm bells rang when I saw FL240. So, as I had set a radar heading, I may have "dumped" the cleared level once I read it back - which we were both certain I did, as

transmitted. There was of course no written record and the altitude was set incorrectly without either of us picking it up in spite of SOP calls being made.

We have been subject to huge SOP changes without new manuals for reference. Crews have to rely on photocopying notices of the changes as they come out, and there has been a higher incidence of errors. This call has only changed the words to be used and is a basic procedure.

A very sobering event that I've never become even close to experiencing before. It made my blood run cold.

*The principal purpose of Standard Operating Procedures is to standardise human behaviour with the objective of reducing errors. SOPs should be designed to be effective in catching errors/omissions of this nature.*

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### EN ROUTE COMMUNICATIONS

It took the events of 11 September 2001 to wake up the Authorities to the dangers inherent in USA domestic airline security procedures.

Will it take a collision over Africa to get the desperately dangerous situation regarding HF communications corrected once and for all? Satellites exist, aircraft are equipped but airlines will not pay the money!

It's no good saying, "we told you so" at the subsequent inquiry. Pilots are constantly filing Safety Reports regarding this problem. No one is taking any notice - YET.

P.S. For Africa read also areas of the Far East and the Indian sub-continent.

## FLIGHT CREW COMMENTS

### RT DISCIPLINE (FB61) - A CORRECTION

As an ex-ATCO and now an airline pilot I take great care to ensure I always use correct RT phraseology. I was annoyed, therefore, to read the article entitled 'RT Discipline' in Issue 61 of FEEDBACK as it contains several fundamental errors.

Although the first part of the article is acceptable the references at the end regarding the use of the word 'to' is blatantly wrong. Much research has gone into the use of certain words and the CAA Published CAP 413 as a definitive guide to the use of RT Phraseology.

The word 'to' MUST be used when the climb/descent clearance contains an altitude and must be OMITTED when the instruction includes a Flight Level. The use of the word 'to' is specifically applied in order to differentiate between altitudes and Flight Levels.

It is irresponsible of CHIRP to publish un-verified articles such as this as it only reinforces bad practice.

I would urge you to print a correction to these errors in the next issue.

*The reporter's comments regarding the use of the word 'to' are correct. (CAP 413 Chapter 3 Para. 3.2.3 refers)*

*Regrettably, I missed this point when the report in FEEDBACK 61 was reviewed.*

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### FLIGHT BRIEFING FACILITIES (FB 61)

I have been involved in this area, amongst many others, since 1960 both in the UK and abroad, as flight crew and ground staff, including training and management roles.

With the advent of automation and the 'mean and lean' operating philosophies, we progressively saw the demise of the AIS Flight Briefing Officer (similarly the face-to-face Forecaster); these being replaced by a sterile multi PC and associated teleprinter equipped self-briefing unit.

In principle there is nothing intrinsically wrong with this as long as the automated unit is overseen and run by properly trained 'operationally aware' personnel. Unfortunately in general this is not, however, the case. These self-briefing set ups are looked after by computer people who only have a 'layman's knowledge' of what information should be available to the pilots using them.

Unless the local airlines take it upon themselves to programme these units with their own company specific databases to produce the NOTAMS required by their crews the difficulties encountered by the writer of the CHIRP letter will continue.

It all comes down to the terms of the AOC whereby the CAA leave it to the Carrier to fulfil the requirements and they in turn either have their own in-house NOTAM Briefing systems or they rely on the information being available in these self briefing units, where for the reasons outlined by the previous writer, frequently it is not.

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### MORE TAXIING CONFUSION

#### (1)

Edition 61, submission entitled "Taxi Routings". It's obvious that the airport being discussed is ###, where I happen to be based. I can confirm that the taxi instructions are very difficult at this airport, a problem exacerbated by the layout of the place, obviously. The example given was fairly typical, and only once one becomes quite familiar with the place can one taxi with confidence.

### (A Swiss airport) always seems to create the same problems, and it is rare to make a visit there without making some sort of mistake and being told off by ATC! This is supposed to be a super duper shiny new model of efficiency, but in fact it is a complete pain in the butt, with complex routings, blue and orange taxiways in addition to the myriad of lettered taxiways, and horrific holding point delays (35 mins the other day).

Whilst I accept that taxiing with care poses very few risks, the whole system of taxi instructions at many airports really needs to be looked at again as they often cause confusion, doubt and cock ups! This appears to be another case like the Euro, where "one size fits all" is most inappropriate.

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**(2)**

I would like to comment on the report 'Taxi Routings' in FEEDBACK 61.

As a Captain based at ###, I immediately recognised this report as referring to this airfield. In fact, I often use the very series of stands to which the reporter makes reference.

Ever since the ICAO standard of taxiway and holding point numbering was introduced, I feel that safety has been seriously eroded. The reporters instructions were, "Left on Hotel, hold abeam Hotel Lima, when cleared, it will be Hotel to Hotel Quebec, right onto Charlie east for forty three left". Under the old system the same taxi instructions to that pilot would have been "On outer taxiway hold at Link 6 - when cleared Link 8 to C43L" Far more explicit, and less ambiguous.

However there is a far more sinister problem lurking. I attach a copy of the ### taxi chart for illustration.

The number of non-English (1st language) pilots operating out of this airport is increasing dramatically. In low visibility there is a risk of a disorientated pilot placing his aircraft inadvertently on the active runway due to the fact there are two sections of taxiway with the same ICAO identification. The blocks 21 to 43 are designated "HK" and since there is an adjacent holding point on the runway in line with these blocks ie. block 21 to runway this is also called "HK".

You can easily imagine a scenario when at a busy peak time, an unfamiliar pilot vacates the runway 23 at, for example, "HE" and is given instructions to taxi along "Hotel" at "HK", turn onto taxiway "Juliet" at "Hotel Quebec", turn right onto "Charlie East for 43L". If the poor guy's first language is not English, he has to interpret this, and I feel that when slightly disorientated by poor visibility he could easily taxi along "Hotel" and spot the sign for "HK" on his left hand side and immediately turn for it - taking him back onto the active runway.

Of course red stop bars will be illuminated - but the risk is there, and has been exacerbated by the introduction of these ICAO holding points and taxiway designators. To emphasise this, the same two points in question on the old system were Holding Point "R" and "Link 5". I don't think it takes a genius to work out which is less ambiguous and therefore safer.

I did point this holding point problem out to the then Senior ATC Officer when he was riding on the jump-seat of my aircraft some couple of years ago. Unfortunately he was leaving the post the very next week, so I guess it got lost.

Having noted the report in FEEDBACK 61 - and immediately recognising it as ###, I felt it prudent to raise this problem again.

I consider that ICAO has in fact eroded Flight Safety by the adoption of these holding point and taxiway designators.

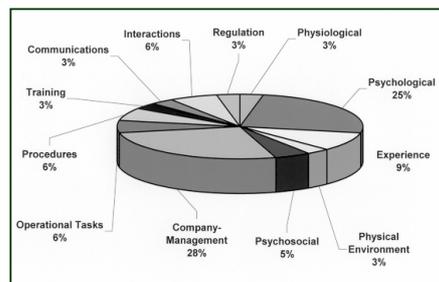
*Some aspects of the ICAO standard for designating taxiways and holding points are mandatory; others are not.*

*These reports and previous similar reports have been passed to the relevant senior ATC manager and Head of Aerodrome Standards Department CAA (SRG).*

## ENGINEERING REPORTS

Engineering Reports received in Period: 12

**Key Areas:**



### SHIFTS, FATIGUE & FITNESS

*Simon Folkard, Professor of Psychology, Body Rhythms and Shift Work Centre, University of Wales, Swansea, who has been studying engineers' working hours and shift patterns for CAA (SRG), is due to report soon. This CHIRP report details some of the problems still being experienced in this area.*

Our Company has a 12-hour shift pattern and it can be hard to adjust when changing from night to day shift routine. I have found it difficult to sleep properly on occasion to the extent that I have felt unfit to go to work. Others working this shift system have had the same

problem. However, the Company attitude is such that when we fill in self-certification forms we will not put in the real reason for the absence but other, non-controversial but untrue reasons, to avoid any confrontation.

The implications here range from AN47 and Human Factors to Human Resource Management.

***It is understood from CAA/SRG that the report referred to above is now in draft form and should be published in the not too distant future.***

***Some Pilots and Cabin Crew are also reporting similar problems in relation to reporting sick, a situation not helped by the present economic pressures in the Industry.***

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### **MANNING & MISTAKES**

The company I work for was recently obliged to change working practices following an incident with Human Factors implications. Engineers were being pulled from hangar maintenance work to do other Line tasks. The hangar checks they were doing were being carried out in unfavourable and unsuitable Line hangar conditions, rather than the more suitable Heavy maintenance hangar.

After the last incident, an aircraft due a major check was brought into the Heavy maintenance hangar. Personnel from Line maintenance were designated to work on this aircraft with no interruptions allowed for ad-hoc line tasks: so far so good.

Because they were dedicating men to work on this aircraft, Line maintenance manpower was depleted. So what have the Line supervisors been told to do if they run short of manpower? They are instructed now to take Heavy maintenance personnel onto the Line to cover manpower shortages.

In essence no one seems to realise that they have not sorted out the problem at all, just shifted things around.

***Interruptions to maintenance tasks in progress are well known as potential sources of error and hence safety hazards. As reported, the changes would not appear to have resolved this problem.***

***Keeping work progress sheets up to date is a positive way of keeping track of tasks in the event of such interruptions and reducing the risk of errors.***

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### **UNDER SUPERVISION?**

The aircraft appeared, as planned, for a pre-arranged component change. Manpower levels and the workload dictated that the change would not be commenced that day, but would wait until the following day. The flight

crew had been informed that it was a long job and it might not be ready for their intended departure time.

On the second day, the component change was commenced by two mechanics only one of who had any experience, and then only minimal, on the aircraft type. The only A+C licensed engineer for the type was too involved with another aircraft to supervise/inspect this task adequately, so the Maintenance Manager (A+C type rated) provided the supervision/inspection for the work.

There were a couple of (Human Factor) problems with the job,

1. The Maintenance Manager was supervising/inspecting from his office, relying on the mechanics to figure out how to do the job and get on with it.
2. Speed, the flight crew were expected.

The flight crew then arrived and waited right next to the aircraft/engineers until it was ready.

The component sub-assembly had been incorrectly assembled by the totally inexperienced mechanic, but spotted by the Maintenance Manager. This was rectified, but the aircraft was late being declared serviceable.

The two mechanics were subsequently disciplined. The Quality Manager does not see it as a Quality matter and yet the Maintenance Manager has got away with disciplining the mechanics for not doing his job correctly, i.e. not adequately supervising the mechanics.

***During the CHIRP Advisory Board discussion on this report, the Chief Inspector of Air Accidents remarked that the circumstances described in this report, inexperienced staff, poorly supervised and under pressure, leading to the mal-assembly of a component, were classic in type to similar circumstances identified in a number of previous accidents and serious incidents investigated by the AAIB.***

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### **CLEANLINESS & SAFETY**

***Do you know what cleaning fluids are being used on your aircraft, by you and by your contract cleaning companies? Read on...***

The aircraft arrived at 0100Z with ETD at 0540Z. The aircraft was positioned on stand for passenger offloading/loading, maintenance, cleaning etc.

At approx 0200Z the aircraft was fully powered electrically, APU running and engineers performing minor maintenance i.e. defect rectification and daily inspection checks on the aircraft. Cleaners gained access to the flight deck and proceeded to clean the instruments and control panels using plastic spray bottles - three-off not identified - to spray liquid onto the display units, switches controls etc., totally oblivious to the maintenance activities in hand.

When questioned, they were ignorant of the liquid in the spray bottles, and appeared to have very little knowledge of the switches/levers etc. on the flight deck or their effect if operated. The liquid used left stains on the display units that subsequently had to be cleaned off.

The cleaning company involved was stopped from carrying out this type of flight deck cleaning on other aircraft, by the then Quality Manager, approximately two years ago due to the risk to aircraft and personnel safety but this appears to have now been forgotten.

The flight deck cleaning procedures by this service company on a "live" aircraft during a ramp turn-round, raises serious safety concerns:-

1. The safety of maintenance personnel working on the aircraft at the time.
2. The safety of the aircraft, considering the lack of aircraft knowledge and expertise of the personnel concerned.
3. The effects of the liquid used for cleaning, on switches, caution and warning lights, control transducers etc.
4. The legality of the certification for checks and rectification that have been carried out, prior to untrained personnel carrying out their activities in the flight deck.
5. The authority of a cleaning company to overrule a previous decision by a Quality Maintenance Manager.

***It is implicit in JAR OPS that responsibility for monitoring this activity and the materials used is that of the operator; it is recommended that this aspect of the operation is checked.***

## **ENGINEERING COMMENTS**

### **ORGANISATIONAL RE-ENGINEERING**

As the governing body responsible for the safety of aircraft maintenance in the U.K, the CAA should be consulted or informed when an employer intends to make job cuts, as has been all too often the case over the last six months.

We were made redundant recently (with our employer using the all too familiar September 11/downturn in business story as justification). As we packed up our tools and left, unlicensed, non type-rated contractors were kept on to supplement the pitifully depleted workforce. Within a month it became apparent to management that too many people had been let go, so some more unlicensed, non-type rated contractors were employed! These contractors, and company apprentices are being supervised by and having their work signed for by just a few fully qualified staff. What happens then when there are line defects that require those licensed staff? Or during holiday periods? Or to cover absence

due to sickness? Who will cover and certify these people then?

Depleting an engineering company's skill base like this cannot help but alter the capabilities of that company, capabilities laid down to and accepted by the CAA. As such it is not unreasonable to expect the Regional Surveyor to examine these new staffing levels in detail.

All too often we hear of employers slashing full time jobs and then offering their maintenance out to contract agencies. It's time that this practice was regulated by the powers that be in the interest of safety, not economy. Apart from jeopardising standards, and morally neglecting loyal employees, there is a legal aspect, in that it is illegal to make a person redundant and then employ another to carry out that same job. In fact it is the job that is made redundant NOT the person - interesting then that so many maintenance organisations have a requirement for so few licensed aircraft engineers!

***The CAA made the following comment to this report:-***

In the majority of cases the CAA is fully aware of the effects of the industry operational downturn on staff levels compared with pre September 2001 levels. Many aircraft have been put into storage in the US desert airfields, aircraft that are older models in the fleet, therefore a significant number of potential maintenance hours have been lost at this time.

Whilst undesirable for those affected, downsizing is inevitable at times to ensure an organisation's continued survival. To do otherwise would lead to the loss of all jobs and not just some. It is also appropriate in certain circumstances to alter the balance of staffing ratios, licensed to unlicensed. It should be noted, however, that unlicensed does not mean incompetent since the requirements of JAR 145.30 in relation to using competent staff for maintenance tasks remains. The CAA cannot prescribe a set level of licensed staff against unlicensed due to the variability of the operational commitments.

Using contract staff to complement permanent staff levels has been a significant element of the UK industry scene for many years. It is likely to remain so for the foreseeable future. The CAA has previously defined certain criteria against which the use of contract staff and the approved organisations have a clear responsibility for the activities such staff carry out on their behalf.

We have conducted a brief review of the various changes that have occurred in the UK geographical areas. It is clear that third party maintenance providers have been the hardest hit since they were largely dependent upon the contract work from operators. Due to the nature of the forced changes, however, and the continuing uncertainty, the situation has necessarily remained fluid although the CAA has at all times re-iterated the need to continue to comply with the relevant requirements of JAR-145 to maintain approval. In some instances there

has been a measure of adjustment where proposals did not quite work out as originally envisaged. It is incumbent upon the local engineering management to ensure that safety is not compromised during such instances.

In the meantime the CAA will need to remain vigilant and prepared to react to changes in the industry that could impact the airworthiness of aircraft.

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### **MORE ON SECURITY & SAFETY**

I can only concur with what other reporters say; I also waste valuable company time with security control, especially at this time of year when my various personal and vehicle passes expire.

I get the impression that we (the Airline) are there to serve Security and not the other way round. They find it inexplicable that we can't predict three weeks in advance that an aircraft is going to break down on a certain day and time so we can give them 7-days advance notice in triplicate.

What I especially don't understand is why you need to have a company vehicle tested separately for airside pass issue, when the same authority runs them. I have a vehicle pass for one base but still have to get the car tested for two others, even though they're all managed by the same company. It's like being stopped at the outskirts of Leeds because your vehicle was MOT'd in Sheffield! Yet, I can have my personal pass registered on the security systems at all the locations.

Even so, that process is such that you may as well have applied for an entirely new one, rather than ask one unit to fax details to another; such is the lack of inter-station communication.

Here at base, transport will insist on replacement (before return to service) if they find a cracked reflector lens on one of our vans, (whilst hoping they receive the trade). Fair enough. At the time of writing though, the Duty Engineer tells me he has counted five such cracked lenses on the airport's vehicles parked in the yard, below our line office.

This brings me to the point of integration and having a common pass. The common exchange of personal profile details between all UK airports (at point of application) would surely be beneficial in clamping down in times of emergency. Surely when someone registers with one UK airport, the others ought to have the details also, although I appreciate that no database is secure in this day and age.

***It is understood that DTLR are still considering the options for standardising airport passes and other associated matters.***

***We continue to receive reports of delays and frustrations regarding airport access.***

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## **CAA (SRG) FLIGHT OPERATIONS DEPARTMENT COMMUNICATIONS (FODCOMS)**

The following CAA (SRG) FODCOMS have been issued since January 2002:

CAA (SRG) Flight Operations Department Communications are published on the CAA (SRG) website - [www.srg.caa.co.uk](http://www.srg.caa.co.uk)

### **4/2002**

1. Operations Manual Requirements for the British Formula 1 Grand Prix Event, Silverstone 7 July 2002

### **5/2002**

1. Training and Checking Required for a Public Transport Helicopter Night Qualification, for Flight Crew Whose Licence Does Not Include an Instrument Rating
2. Helicopter Single Pilot Night VMC Public Transport, When an Autopilot has Become Unserviceable

### **6/2002**

1. Eyesight Damage Caused to Ground Crew by the Flashing of Landing/Taxi Lights by Aircraft on the Ground
2. Aircraft Loading
3. Maintenance of Cargo Retention Equipment

### **7/2002**

1. Flight Deck Interphone Aural Alert Suppression Systems
2. Drager Protective Breathing Equipment (PBE)
3. AOC Applications and Variations (Commencement of Cabin Crew Training)
4. Fire and Smoke Training
5. In-flight Lithium Battery Fires
6. Reduction in the Number of Cabin Crew
7. Airworthiness Notice Number 79 - Type III & IV Exit Placards

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### **CABIN CREW FOOTNOTE**

Pre-September 11 it was the habit of cabin crew to clear the flight deck (cups, food etc) at the start of the descent or certainly before seat belt signs came on. However, with the new door policy, top of descent is perhaps now not the best time if it is a two pilot operation: perhaps a Notice to give pilots and cabin crew a clear-up time e.g. pre-top of descent briefing? Expecting pilots to leave their seats as they start the descent to open the door for cabin crew is not the best time, however, cabin crew do need to check that the flight deck is clear.

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*The following report was originally published in the Transport Canada Aviation Safety Newsletter 'Vortex' - Issue 1/2002 and provides food for thought for both engineers and pilots.*

### **PLAYING THE ODDS - THE ART OF THE PRE-FLIGHT INSPECTION**

With the morning coffee and pre-flight briefing out of the way, the instructor asked the 50-hr student to prepare his Bell 47 for the day's first flight. After completing the daily inspection and refuelling, the student summoned the instructor, who told him to go ahead and get the aircraft started and warmed up-he'd be along in a moment.

Shortly after the student had the ship running, the instructor headed across the tarmac and climbed in. They passed the next 15 minutes reviewing the details of the lesson and doing pre-flight checks, then departed the ramp into the clear sky. Two minutes into the flight, at approximately 700 ft AGL, the aircraft suddenly started a spin to the right, then pitched down and began a spiralling descent. Witnesses said that it appeared the pilot was unable to recover and control was lost. The 47 hit the ground in a steep nose-down attitude, and both occupants were fatally injured.

The afternoon before, a 100-hr inspection had been carried out on the ship by two of the company's maintenance personnel, a veteran aircraft maintenance engineer (AME) and a relatively experienced apprentice. The 100-hr inspection includes, among other things, the flushing and replenishing of the tail rotor gearbox oil. While the AME conducted other portions of the inspection, he assigned the oil change to the apprentice, who set out draining the gearbox and examining the oil for metal contamination. When all tasks on the 100-hr inspection check sheet had been initialled, the lead AME signed the inspection in the aircraft journey logbook. The check sheet item that called for draining and filling the tail rotor gearbox oil had been initialled by the apprentice as being complete.

The accident investigation revealed no evidence of oil in the tail rotor gearbox, and it was determined that it had overheated from lack of lubrication. The subsequent failure of the gears had caused the loss of tail rotor thrust and yaw control. The drain plug was still lock wired in place. As with many accidents, this one wasn't caused by any one particular person or action, but a chain of unlikely events culminating in tragedy.

- The failure to refill the gearbox.
- The apprentice initialled the check sheet before the entire task was completed.
- The AME did not verify the work of the apprentice.
- A student pilot didn't check, or incorrectly read, the sight glass.
- The instructor, who had been notified of the previous day's maintenance action, elected to allow the student to perform the pre-flight, then joined him in the aircraft after it was running. Was it the school's policy to allow students to do the daily inspections by themselves following maintenance? What is your school's policy?

From a pilot's perspective, what can be learned from this accident? The most obvious lesson would be the value of a thorough pre-flight inspection

Here are some other examples sharing this theme:

- A Bell 206B was coming out of maintenance, and a pilot was called in for a test flight. A few minutes into the flight, the main rotor departed the aircraft, and the crash

killed them both. The mast nut had been removed for the maintenance action, but not re-installed.

- The pilot of a Britten-Norman Islander airplane was getting ready to head home with his passengers after an overnight stay in a coastal community. The passengers were very experienced flyers and always helped the pilot install and remove the winter covers and control locks, just like they did on this morning. When they finished, they got in the airplane and prepared to leave for home. As they left the runway, the airplane continued to pitch up and eventually stalled and crashed, resulting in one fatal and two serious injuries to the occupants. Investigation revealed one of the elevator control locks had been left installed.
- In the morning during his daily inspection (DI), the pilot of the Long Ranger noticed the engine bay drain was slow to empty when he bled his airframe fuel filter, indicating the drainpipe was clogged. Upon arriving back at base that evening, he reported the problem to maintenance personnel. The next day, it was raining hard while he did his pre-flight inspection, so he decided to forego draining the tank sumps into a clear pan as he usually did to inspect for water. After all, with all the rain the pan would already have water in it, so the test would be useless. Instead, he drained fuel on the ground for a while. He noticed the engine drain worked well, though-maintenance had obviously been good to their word. Soaking wet, he got in and started the ship normally. After a minute or so, the engine began to surge and flamed out. The aircraft was brought into the hangar, and four gallons of soapy water was drained from the fuel tanks. In the attempt to clear the drainpipe blockage, the AME had placed a high-pressure hose over what he thought was the engine drain, one of several drain and vent pipes located in that area. When the desired result wasn't achieved from that pipe, he eventually found the correct one and cleared the blockage. The first one was the fuel tank air vent.
- And how about this one: The 212 pilot noticed during his DI that the ship's large aluminium Mag-Light was missing from its usual hiding place. Assuming someone had used it and neglected to put it back, he carried on with the day's operations. During the pre-flight the following day, something about the main drive shaft troubled him; it looked "different" somehow, so he summoned the engineer for a closer look. The mechanic reached down, felt around for a while, and retrieved the flashlight that had disappeared the previous day, only now it had the paint worn off it from rubbing against the shaft.

All of these incidents were the result of human error, which will never be eliminated. All had, or carried the potential for, serious outcomes. Likewise, all could have been prevented by a good final look at the ship before flight. Most of the time everything is in order, but playing the odds in this game can have grave consequences, and eventually your luck will run out. It should be in-grained in all student pilots from the very beginning that a complete pre-flight is a must for the duration of their careers, and that a good walk-around is required before each and every flight.

Maintenance action on the aircraft makes it even more imperative, and checking someone else's work is not only prudent but also necessary in the aviation business. While it is common, indeed at times necessary, to place our trust in others, mistakes are made everyday. At best they cause embarrassment, but all too often the results are tragic.