FEEDBACK

Issue No: 57 **January 2001**

EDITORIAL

ENGINEERS' WORKING HOURS

In recent issues of FEEDBACK we have published a number of reports from maintenance engineers concerned that excessive working hours could lead to fatigue-induced mistakes and errors being made in the workplace.

Following a review of CHIRP reports and other information, the Civil Aviation Authority has asked Professor Simon Folkard, of the University of Wales, Swansea, to undertake a survey of aircraft maintenance engineers' work patterns and to make recommendations as to good working practice.

The survey is being conducted independently of the CAA and this is an opportunity for engineers to contribute to this very important work. All licensed engineers will shortly be receiving a questionnaire from Professor Folkard. **It is most important that as many recipients as possible take the time to complete and return the survey form, prepaid, as soon as possible to the University of Wales. Your co-operation is invaluable to the success of this initiative and is very much appreciated.**

The results of the study will be placed in the public domain and further information will be published in a future issue of FEEDBACK.

GENERAL AVIATION FEEDBACK

Since the GA Programme started in 1999, GA FEEDBACK has been distributed on a quarterly basis with the GASCo Flight Safety Bulletin and more recently with the PFA magazine. A copy of the latest issue of the GA newsletter has been included with this issue for UK recipients of FEEDBACK.

If you would like to receive a hard copy of future issues of the GA newsletter, please contact the CHIRP office in writing. Also, if you can contribute a 'GA safety lesson learned' please let us know. GA FEEDBACK is published on our website.

NEW STYLE AERAD CHARTS

Over the last year or so, we have received a number of adverse comments about the style, format and contents of the new style Aerad charts. All of these were passed to Thales (formerly Thompson Racal) Avionics Ltd. Mr Brian Bristow Marketing Manager - Airline Services requested an opportunity to respond to some of the points raised:

Aerad's new style charts, large & small, were designed and introduced after the sale of Aerad by BA to Racal (now Thales Avionics) in 1997. Both sides recognised that the systems producing the charts at that time were too old to continue and change was inevitable.

Aerad went into a joint business venture with another chart supplier and therefore we are not complete masters in our house. We have to compromise on certain issues and we also inherited the other's technology.

There is much familiarity with Aerad's old style and most people liked them, however there have been many calls to us over the years to add other data such as approach minima to our charts. In addition, all Minimum Sector Altitude charts are now available with real Terrain contours instead, if customers so choose.

To address the Standard Instrument Departure (SID) point specifically: take any LHR SID – the page is slightly smaller (outside our choice due to the system), and there is now by popular request other data shown such as R/T frequencies etc at the top. The rest of the page is fully taken up with the SID plan, notes and the text. If the text is broken into two – horizontal & vertical – this will take up even more space that we don't readily have. The vertical story is well told on the plan and we shall shortly be showing all altitude restrictions in a special shaped box to highlight altitude data from all other data. These stand out well along the SID route, (especially the block altitude boxes.) The SID wording will be improved by using at/above/below instead of mnm etc. We would like to trial this text form for the next few months as more charts are converted and for us to receive more comment.

(continued on Page 2)

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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:

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Maintenance Engineer.....	(T): + (0) 44 1293 573700 (F): + (0) 44 1293 573779 E-mail: eldweb@srg.caa.co.uk
Authorised Medical Exam	(T): + (0) 44 1293 573700 (F): + (0) 44 1293 573995 E-mail: medicalweb@srg.caa.co.uk

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REPRODUCTION OF FEEDBACK

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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(Continued from Page 1)

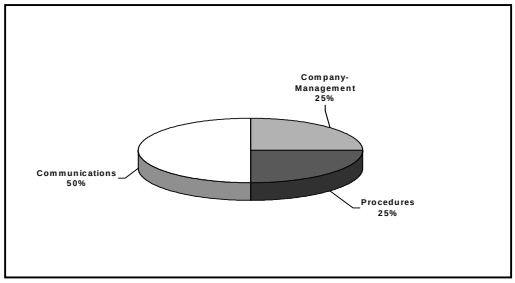
To try and address the comments we've had regarding the lack of contrast between bold and medium of the typeface print, we are experimenting with alternatives, in order to find one as close as possible to our original, which was very popular but no longer available. We are close to choosing one that is significantly clearer as it has a better contrast between bold and medium print.

Remember the new aerodrome chart spec is a result of many conversations with our business partner and our largest customer. It has been agreed and not just imposed. All feedback is welcome from pilots, and every part of the spec is available for review, even the SID texts. So if pilots feel strongly one way or the other, tell us. It adds weight to our conversations when we need to convince others. All CHIRP & Company voyage reports are forwarded to us if relevant to Aerad charts.

ATC REPORTS

ATC Reports received in Period: 3

Key Areas:



SECONDARY RADAR EXEMPTIONS

ATC units are occasionally asked to approve flights in controlled airspace on aircraft that have acquired through no fault of their own an unserviceable transponder down the route and need to complete the flight back to their engineering base. This system has up to now generally worked well and has suffered little abuse.

I was recently asked to approve such a flight and like many of my colleagues, having the commercial interests of the airlines at heart, we rarely if ever reject such a request from an operator. This flight was approved through UK airspace and, contrary to the UK AIP, into the London TMA. We have, up to now, generally ignored the above reference and taken it on our own backs to accommodate the commercial needs of our customers, hoping that it would be 'all right on the day', as requests for such flights are made up to one and a half hours beforehand and traffic prediction and density at the time of the actual flight is still, contrary to popular belief, not an exact science.

After making my last such approval it occurred to me that post-ACAS introduction such a concession might not be within my remit, and could this ATC discretionary decision effect the safe operation of the specified Airspace?

SSR is no longer a tool for the sole use of ATC and since the introduction of TCAS I am sure many crews (and controllers) are thankful for the warnings of this equipment, the operation of which totally relies on other traffic carrying a serviceable transponder. I then questioned my right to allow such a non-SSR flight and deny many aircraft of an important anti-collision tool. According to the ANO I am legally within my rights to approve such a flight. The UK AIP states ' where it does not impinge on the safe operation of the airspace involved' and 'does not apply to London TMA'

Legal or not, I wonder how we stand should the unthinkable happen and the aircraft that I approved without SSR be involved. Had I, by this decision invalidated the last and final anti-collision tool of one of the aircraft? Had I impinged the safe operation of the airspace, had I endangered the safe operation of other operators? Legally no - morally yes, or with a clever Barrister - legally guilty. Who knows?

I think it may be time to reassess these procedures in the light of new technology even if it does penalise the occasional operator who gets caught out with a U/S transponder. I invite discussion on this matter.

The following summary has been compiled following discussions with CAA Directorate of Airspace Policy (DAP):

The Air Navigation order (ANO) provides the legislation for the carriage of SSR equipment within UK airspace and the AIP lays down the conditions under which it is to be operated.

The UK AIP GEN 1.5.3 Para 1.3.3 provides for the exemption of carriage and operation of SSR:

An exemption, other than on an individual flight basis, will only be granted by the CAA (DAP) Airspace Utilisation Section (AUS) in exceptional circumstances.

In specific cases where a short notice exemption from the carriage and operation of SSR is required by an operator, the application for an individual flight may be made direct to the ATC unit responsible for the airspace, excluding London TMA airspace. Entry will be at the discretion of the ATC authority provided it does not impinge on the safe operation of the airspace. For short notice exemptions within London TMA airspace, the AIP states that the request must be made through AUS.

The procedures in the event of a transponder failure either prior to departure or whilst on route are detailed in the UK AIP ENR 1.6.2 Para 3:

In the event of a transponder failure, the ATS unit is to be advised as soon as possible and they will then take appropriate action to handle the flight. In the case of a failure prior to departure ATC may modify the time of departure, route or flight level. A failure after departure or en route could result in a return to the departure aerodrome or diversion to a more suitable aerodrome from that planned, although ATS units will endeavour to provide for continuation of the flight in accordance with the original flight plan. ENR 1.6.2 paragraph 3.3 states that "temporary failure of the SSR Mode C alone would not restrict the normal operation of the flight'.

CAA (DAP) has noted that as transponder carriage requirements change, coupled with requests to discontinue primary radar in certain scenarios, it will be necessary to ensure that the procedures for the handling of aircraft with u/s transponders remain appropriate

It is important to note the difference between the two AIP references. GEN 1.5.3 refers to a flight in which a transponder is not fitted, whereas ENR 1.6.2 details the procedures following a transponder failure, when this occurs at other than a maintenance base. In the latter case, which is that referred to in the report, the relevant ATC managers are permitted to approve flights into the London TMA in accordance with Unit procedures, without reference to AUS.

Finally it should be remembered that the policy for carriage of ACAS within the ECAC region currently does not include aircraft weighing 5700kg or below/fitted with 19 seats or less, although carriage of ACAS in such aircraft is recommended.

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CLASS F - A DIFFERENT PERCEPTION

ABC123, operating from Scotland to London, was climbing out to FL250 on an Advisory Route (ADR) receiving a Radar Advisory Service.

I observed a military Squawk *(Transponder Code)* 1### manoeuvring east of the ADR at various levels and eventually FL235 before descending.

Traffic information was passed to ABC123, but there was no need for advisory headings. As the Squawk 1### tracked southwest towards ABC123 on a constant bearing, I gave advisory turns of 20 deg to the right followed by a further 30 deg. Squawk 1### reached FL235 before turning behind and descending below ABC123 continuing to manoeuvre briefly below and behind. The military aircraft crossed the ADR more than once.

This not untypical incident on an ADR forced a passenger-carrying aeroplane into the open FIR. The military aircraft was operating under the control of an

AEW aircraft, presumably an E3 operating at FL290 less than 30 miles away.

Presumably the AEW aircraft "called the traffic" to the aircraft he was directing. Neither the AEW aircraft nor any Air Defence Unit requested information on ABC123, established on an Advisory Route, likely to be a passenger-carrying aircraft, displaying an SSR code and being provided with a service by this Area Control Centre.

I understand the operator in question does not record occurrences of this nature. The pilot commented it was about time the ADR was upgraded to airway status. If there are no complaints then some argue there is no problem. This is a complaint.

I make a careful distinction between Military ATC and Air Defence Fighter Controllers. We have a close and generally effective working relationship with the former. With the latter we have none.

The report was passed to the Inspector of Flight Safety (RAF) who has provided the following comment:

The RAF use of E3 aircraft to control Air Defence (AD) activity is increasing and a great deal of time and effort goes into planning the activity so that its impact upon civilian flying is minimised. The majority of air defence activity in the UK is based around three elements: Tornado Fighters, E3D Sentry and the Air Surveillance and Control System (ASACS) ground sites based at Buchan in Northern Scotland and Neatishead in East Anglia.

The E3 and Tornado radars combine to give an excellent air picture and in addition the E3D can also exchange its tactical air picture with Tornado F3s via IFF and datalink. However, they do not work autonomously, but under the overall control of an ASACS controller.

Civilian controllers can request confirmation or traffic information from Buchan and Neatishead via direct landline access.

Where Public Transport and military operations are conducted independently in and around Class F Airspace, effective co-ordination between the relevant controlling agencies is an important contribution to safety.

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LOCAL SIDETONE

Traditionally the side-tone in controllers' headsets is generated by the receiver picking-up the actual transmission from the ATCO and thus is a positive indication that his/her messages are being transmitted.

In the New En Route Centre it is proposed to generate the sidetone synthetically:

I am worried about the introduction of local side-tone into NATS and I hope you can put my mind at ease.

What will replace the controllers' ability to know when distortion or break-up occurs? When they are transmitting now, they hear it on the return from the receiver but with local side-tone all they will hear is internally generated on-site and they will have to rely on the flightcrew telling them they are loud and clear. This may be acceptable when aircraft are a certain distance apart but on the approach to major UK airports I have my doubts.

When asking about local side-tone I have been told that NATS & SRG are in agreement with the procedures. What are these? Do they state what monitoring is required for Transmitter/Receiver failure? How it is reported back to the Controller and how long does it take to respond? I come to work each day and see a poster with an Ostrich with its head stuck in the ground and the words "Don't let this be your attitude to safety".

After seeing how the Rail companies and the Health & Safety Body allowed the accident at Paddington to happen, I feel I should put my concerns in writing, so that I can be officially told that all my worries are for nothing.

The reporter's concern was represented to NATS and CAA (SRG). NATS commented as follows:

The use of locally generated sidetone at the Swanwick Centre has been made necessary by unavoidable sidetone path delays introduced by the ground communication network. These delays cause off-air sidetone to present itself as an echo, which is distracting to the controller and, depending on the length of the delay, can make it difficult for the controller to speak intelligibly. The effects of the sidetone delay could, therefore, adversely affect controller performance.

Several options were explored in order to find a solution to this problem. The issues surrounding all of the potential solutions, including use of local sidetone, were examined at length by all of the engineering, ATC and safety disciplines involved with provision of air-ground-air communications for the Swanwick Centre. It was concluded that local sidetone operation, which totally overcomes sidetone delay, is the only viable solution and its use presents no additional risk in comparison with off-air sidetone, for the following reasons:

- The purpose of a radio channel is to exchange intelligible speech information between ATCO and pilot. The quality of this function is checked by the correct read-back by the pilot of each instruction received from the ATCO, thus giving continuous and immediate monitoring of channel usability by the end user. This process will be unaffected by the introduction of local sidetone operation.

- Reliance on the quality of off-air sidetone reception to confirm the system performance of a multi-station radio channel can be misleading: It merely confirms a radio path between a transmitter and receivers on only one leg of a radio channel. Transmissions from the other legs could be weak, distorted, broken or, at worst, off frequency, whilst being masked by the returns from the good leg.

CAA (SRG) is continuing to monitor this matter.

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FLOW RATES

Last year at this unit we experienced a multiple series of computer flops, which were more difficult to handle than the many breakdowns of the past because of two factors:

1. The increased traffic levels we now often control overwhelmed the wings support staff in the period before the reduced flow rate became effective.
2. The new instability of the code-callsign pairing, during the computer failures, created the real possibility of controller mistakes and disorientation.

In the period after the computers were recovered a note was placed on the wings position not to input a particular route message, otherwise the computer would crash. Perhaps our management had a dispensation from SRG that Murphy's Law didn't apply to air traffic control!

During weekend duties following the failures, watch managements decided to exceed the standard flow rate. Often this is a reasonable, calculated risk when conditions are good, but so soon after the computer failures? There appeared to be a tendency to risk taking by some, not all, traffic and watch managers. The sector with which I was involved had a very different pattern of traffic at the weekend compared to weekday working. About three quarters of the traffic was climbing and descending out of the major British airports and there were multiple conflict points and no general direction of traffic. On a Saturday, it was not a case of morning and evening peaks but working at capacity from morning to evening.

On one occasion, both the morning and afternoon watches were operating with minimal staffing, which meant some controllers had to work flat out for 90 minutes and consequently one or two were getting rather ratty. The more proactive crew chiefs only allow watch management fast flow rates when they have sufficient staff to give everybody a break after 60 minutes. In this case, the flow rate that was applied meant nine to 10 aircraft should enter the sector every 15 minutes and with the longish length of most routes, that meant about eight to 10 aircraft in the sector at any one time, and no more than 17 in a 15-minute period. But as always delivery was very uneven, so uneven I suspected "extras" and slot busting were adding to the peaks. A very able and experienced controller coped very well with his 90 minutes at the "coal-face". I noted the computer was indicating that in his last 15-minute period he had 24 aircraft airborne in his sector. In each of the two previous 15-minute periods the computer counted 22 aircraft. In his 90-minute period he had handled about 70 aircraft.

After he had been relieved, he commented he was feeling very tired. I asked him if he could have handled an emergency or another similar unplanned event, his reply was, "No way".

What lessons can we learn from this? I think that everyone should take a closer interest in flow rates, decline to accept excessive rates and take the time to file overloads when they are fully stretched with normal traffic for more than a few minutes. The definition of an 'overload' is insufficient spare capacity to handle an emergency.

This and other related concerns have been passed to both NATS and CAA (SRG).

ATC COMMENTS

TOO FEW REPORTS

Thank you for the usually excellent CHIRP once more. I would however like to point out that ATCO reports seem to be getting less and less coverage. (FEEDBACK 56 - seven reports received, only two covered and one comment). Pilot reports 45 received, can't be bothered to add up all the ones printed! Engineering six items!

I find the items you cover always provide me with something to learn/think about, but as an ATCO I feel that there are nowadays too few ATCO items. You did talk (I think?) of a separate CHIRP, sometime ago. I don't think that this is a good idea, but I really do think more ATCO reports are needed. We all learn from each other's items but you need to strike a better balance.

Recent issues of FEEDBACK have published fewer reports submitted by ATCOs. The principal reason for this has been that, while the total number of reports received from ATCOs has remained essentially constant at around 30 reports a year, more recently they have referenced a smaller number of issues.

There is some evidence from the content of the ATC reports we now receive that ATCOs are perhaps becoming less willing to spend valuable 'spare time' penning a CHIRP report on 'a lesson learned' from which their colleagues might benefit, and only report when they feel particularly strongly about a specific

issue. In the latter case, more than one individual will often submit a report on the same issue.

I can well understand this attitude given the increase in personal workload that many ATCO's have experienced in recent years; however, if you can find the time to send us your 'safety lessons learned', we will publish as many as we can.

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RE: THE PAUSE THAT CONFUSES (FB 56)

As a very old ATCO, may I point out that you still have it wrong! What the tower meant to say was 'At 4000ft, turn heading 030°'. I would wait for the readback before giving the frequency change but there again, old age has made me cautious!

As a golden rule, I always teach my trainees 'Give the condition FIRST, then the instruction'. This stops pilots reacting to, and reading back, the instruction whilst the controller is still adding the condition

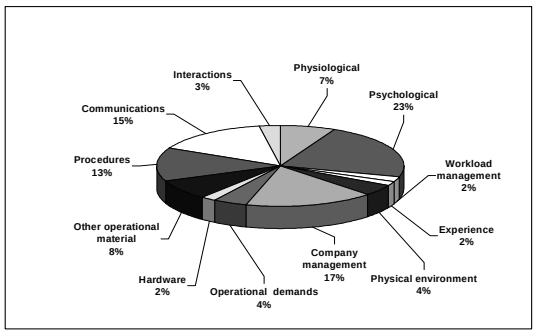
Thank you for an excellent magazine. I always learn something from every issue.

This is just one of many 'hits' I took over this item, which was reproduced from our US counterpart's newsletter and referred to a US ATSU. The comment on the terminology was the reporter's, not mine - however, this was obviously not made sufficiently clear.

FLIGHT DECK REPORTS

Flight Deck Reports received in Period: 36

Key Areas:



A HURRIED DEPARTURE

As part of my captaincy training I was scheduled to fly a night sector with a Training Captain in the right seat. The weather was poor, heavy rain and very windy. When at the hold for Runway ## we were cleared to enter and backtrack on the left side to permit an aircraft that had just landed to pass us and clear the runway. I was having difficulty seeing the left edge runway lights. The Training Captain was watching me, and the other aircraft. At this point we received our departure clearance but it did not register with me as my full concentration was on not going off the runway or hitting the other aircraft! Then ATC said "Expedite backtrack, aircraft on finals at five miles", so we scampered down the runway, turned and took-off as quickly as we could. We transferred to ### Radar, and reported passing 3,000 ft. ATC responded that our clearance had been to 2,500 ft! We descended towards 2,500 ft, but were then quickly given further climb clearance. We were upset with ourselves, and discussed the matter, concluding that:

1. ATC was no doubt being helpful to get us off before the landing traffic.
2. The Departure clearance had been given fairly late, when we were fully occupied, in poor weather conditions
3. We needed to rush because of the approaching aircraft and did not discuss the clearance.
4. We would have been better to decline to backtrack until after the approaching aircraft had landed.

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TOO QUICK ON THE BUTTON?

I was six miles finals at a major French airport behind another UK operated twinjet that, at the time of the incident, was at around two miles from touch down and with a 500' cloudbase was probably not visible to those on the ground. Both of us on approach to RW ##.

The tower controller cleared another aircraft to line up on RW ##. As soon as the words delivering that clearance were out of his mouth, he presumably realised his mistake, and without releasing the transmit button told the same aircraft to hold position.

For the second part of the ATC transmission, i.e. rescinding clearance to line up, there was another station transmitting, I do not know who and I do not know what they were transmitting because I could only hear the tower rescinding the line up clearance. It was my bet, however, that the aircraft cleared to line up was acknowledging that clearance, whilst the tower was retracting the clearance.

I was obviously IMC and could not see what happened next, but when the tower queried what the aircraft moving onto the runway thought it was doing, the aircraft replied he had his line up clearance and was so proceeding. The line up clearance was cancelled for a second time and we all lived happily ever after, although the tower controller sounded a bit shaky.

I would not presume to talk about any aspect of ATC procedures but there may be a few points in this incident for us tyros. We all like to be slick in our RT procedure and if you can get in there as soon as the man releases

his transmit button with your acknowledgement then that is extremely professional - isn't it? Just make sure he has said everything he wants to say. Mind you the pace of RT transmissions nowadays is such that it is impossible to sit there and have excessive gaps between the end of a transmission to you, and then your acknowledgement.

I was taught as a boy to always inspect the final approach before moving onto the runway. I even caught myself paying lip service to that requirement on one or two occasions. Of course with a cloudbase of below 500 feet, or even during LVP's *(low visibility procedures)*, there may not be a lot to see, so the only thing you can do is to build up a mental picture as you taxi out of what is on finals by listening to who is on frequency and how many aircraft are on finals, together with a rough picture of where they are on finals.

I am aware of how difficult this has become as we taxi out, since we are doing checks, receiving clearances, Loadsheet updates, then playing with the FMS for a minute or two, updating the performance with the new weights from the radio loadsheet, and getting off by the slot time which has just passed. There is little capacity to listen to radio transmissions that are not directed at you, but I am not too keen on anyone landing on top of me, as happened at LAX a few years back - any suggestions?

An enforced stop at the Holding Point is not such a bad idea with all checks and procedures complete, even if it may make you late.

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MORE ON FLAPS

A relatively long turnround, everything well ahead of the game, no Take-off slot required. As PF, I carefully brief for a Flap 3 takeoff on a limiting runway at max RTOW (our usual flap setting is Flap 2).

Suddenly we are issued a slot, with a takeoff time five minutes before we are scheduled to push back. We can make it, just.

Taxying out, I ask for Flap 2. PNF selects Flap 2 without query. Before takeoff checks, PNF says "Flap?", I reply "Flap 2 checked". The take-off seems fine. Only when I ask for Flap 1 after take-off does it dawn on me that we should have had Flap 3, not Flap 2!

I can't believe that we both missed it, having briefed so carefully. In mitigation, concentrating on a tight slot is always fraught with danger. Also, our company has no specific SOP for checking the flap setting. It should be obvious airmanship, but from now on I'm always going to crosscheck not just the flap lever and flap indicator, but also the MCDU PERF page even when I "know" the required flap setting.

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AN UNEXPECTED TURN!

We discussed the following events immediately on landing and, in the following days, within our company but I now submit them for the benefit of the wider aviation community.

We were conducting stalls as part of a flight test in a light twin. We were VMC and just beneath the cloud base at approximately 3,000ft QNH.

I was acting as observer, noting stalling speed, entry characteristics etc on the flight test report form but failed to observe the flight instruments, in particular a discrepancy in Manifold Pressure readings between the left and right engines.

Had I been looking more carefully, I would have noticed residual power on the left hand engine; this led to the aircraft entering a spin to the right on stalling with gear and flap selected.

Conventional spin recovery technique was not effective but the captain with great presence of mind managed to recover by opening up the right engine.

Although this initially put the aircraft in a spin to the left, control was finally regained by juggling the throttles - albeit at 1,200ft QNH.

I did notice the discrepancy as the captain closed the throttles for landing!

The lessons:

1. Scan the flight instruments during manoeuvres if you are acting as an observer.
2. 3,000ft is too low to be stalling on any occasion but especially in a flight test in a twin!

Many flight-test related accidents are the result of failing to consider all of the possible outcomes from a test and consequently failing to ensure that prevention/recovery strategies are adequate. As the reporter notes, a key precaution is to ensure that adequate height is available to permit a safe recovery.

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FLIGHT TIME LIMITATIONS

Over the past year or so, we have received an increased number of reports related to aspects of Flight Time Limitations. Two particular areas of concern have been cited. The first is that the current definition of a 'Week' (CAP 371 Section B Para. 21), which permits a fixed wing operator to specify the starting time of the 'Week' on which an individual's maximum duty (55 hours) is based. The second is the scheduling of a mixture of 'Early' and 'Late' Flight Duty Periods within a sequence of FDPs, particularly in association with a Six-day on, Two-day off roster pattern.

FTL WEEK (1)

I would like to discuss with you the number of working hours each week that commercial pilots are expected to do. I understand that the EU wished to restrict the working week to 45 hours, whereas the Civil Aviation Authority (CAA) restricts us to 55 hours. This is all very reasonable, however, there is a loophole in the system, as my enclosed roster clearly shows, that allows us to work up to 90 duty hours in one week.

The essence of the loophole is that the company week is Monday to Sunday, but my working week is say Thursday to Wednesday, as shown diagrammatically below. Since my week crosses two 'company weeks', I can work up to the company fortnight maximum.

Company fortnight max 90 hrs

Company Week 1 max 55hrs - Week 2 max 55hrs

My working week max 90hrs

It is axiomatic that I will get fatigued according to the working week that I work, not some artificial company week. Pilots in my last company complained to the CAA about this loophole and were told that the 55-hour limit should prevail, the wording being applied in this case was simply to make the administration easier for companies. They stated that if there were systematic abuse of this regulation by companies, they would change the system. Unfortunately, the abuse continues.

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FTL WEEK (2)

Company Roster defines a 'Week' as Monday to Sunday. Maximum Hours - 55.

My rostered duty as follows:

Wednesday	Four sectors	11.30hrs
Thursday	Two sectors	7.00hrs
Friday	Four sectors	8.30hrs
Saturday	Two sectors	5.50hrs
Sunday	Four sectors	11.25hrs
Monday	Four sectors	11.25hrs
Tuesday	Four sectors	11.25hrs
Total		67.05hrs

Is the roster legal? Yes

Is the regulation sensible?

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EARLY/LATE DUTIES (1)

This report is not specific to one event but I feel it necessary to highlight the effects of long-term fatigue in some airlines and particularly this company. I feel I have now reached a level of fatigue from which it is impossible to recover on the allocated days off. While there is no doubt that the rostering is legal it appears that it is the pattern of six days on and two days off, which starts with three or four late duties (they are often in excess of ten hours long) followed by a midday duty and then 13 hours later by an early report (0450Z) is what makes a 50 hour "Week" so exhausting.

Part of the pre-flight brief now includes which day of the 'week' a pilot is on, as two "Day Six" pilots flying together are not a good combination. On the particular day cited the result was a catalogue of mistakes, mostly minor, and including many missed radio calls and requests for ATC to please repeat instructions. This roster pattern is not a "one off", in fact this week my roster goes from an early to late and back to early again in the space of four days. I am concerned that sooner or later there will be an incident, as I know I am not an isolated case, the majority of my colleagues are feeling the same. It only takes a small stress in one's private life to turn a very tired pilot into an exhausted one. Indeed the fact that one is constantly tired puts a stress on one's family relationships, which does not help performance at work.

Finally I would like a medical opinion on this pattern of rostering, as I always understood that to bring a shift start forward every day was the way to cause maximum fatigue. Is this not so? Several times during the last few months I have been in the position of going to sleep at midnight on Day 1, operating the midday duty on Day 2 and getting up at 0400 Local on Day 3. This cannot be healthy.

Is attention to human factors in aircraft operation no longer considered important?

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EARLY/LATE DUTIES (2)

The Company roster is six days on and two days off. This means for the six days on, day one a late start, gradually getting earlier throughout the week, and finally starting on 'Earlies' (Two days before the incident I had done over 90 hours in the previous month). The roster then provides two days off, but nobody I know can seriously recuperate in those two days off.

So Day Six, at about 1045 UTC having been on duty for only six hours, I awoke when the senior cabin attendant opened the flight deck door, and I saw the other pilot was still asleep. Unfortunately, with only two flight deck crew this meant nobody had been awake on the flight deck.

I know for my part I had had a good night's sleep but the long term effect of being rostered to just within the legal limit is now starting to show. I am concerned the CAA doesn't seem to be aware of the problem, and what the long-term health effects might be.

These and other similar reports have been made available, in disidentified form to CAA (SRG) Flight Operations Department and are being considered.

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ALTITUDE CLEARANCES

In the recent past we have received two reports questioning the issuance of altitude clearances in relation to Standard Instrument Departures (SIDs) and Standard Arrivals (STARs).

(1)

The aircraft was to be positioned between two UK regional airports and the airways clearance was issued whilst taxying out. "ABC 123 is cleared to AAA on a ### departure FL60". This was read back by the First Officer and I then queried whether we were cleared to FL60 or maintain 4000 feet as per the Standard Instrument Departure. The controller read back the clearance as given previously, but the way in which it was given, the altitude/level could be misunderstood because what should have been said was "expect FL60 when cleared by radar". The new Aerad charts have a note "Do NOT exceed 4000 until cleared by ATC" but how many foreign operators would be absolutely clear as to what was required? I suggest that this is an incident waiting to happen.

Is it necessary to give the expected FL60 anyway especially as at other UK airports, no level is indicated when the clearance is issued?

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(2)

I am writing to point out an area of ambiguity in altitude clearances, which has long puzzled me. When flying a SID or STAR containing altitude constraints, and the controller gives an altitude clearance, does that mean go straight to the cleared altitude or obey the SID/STAR constraints on the way to the cleared altitude?

For departures (in the U.K. and Europe at least) the convention seems to be to go straight to the cleared level, although I have never found any written guidance, pilots always do so and controllers never query this.

For arrivals the situation is not clear. The Timba 2B arrival into LGW has a constraint to be level at FL160 at Bexil. We are often given a clearance to be level at FL160 by Bexil. Well before Bexil we are then handed over to another controller who gives us a clearance to below FL160 without mentioning the constraint at Bexil. Some pilots stick to the FL160 constraint, some pass Bexil well below that. I have, a number of times, asked the controller on the day if the constraint still applies. The answer on some occasions is yes, on some occasions no.

On an organised visit to LATCC a few years ago I asked about the constraint at Bexil and was told by a senior controller that they expected us to comply with the constraint even if it was subsequently not mentioned.

So at last I had the answer - that the convention for arrivals is different to that for departures - not very satisfactory, but at least I knew where I stood at LGW. (What about other airports?)

However, I subsequently saw a quote in the Independent Pilots Association newsletter, from the Manual of Air Traffic Services Part 1 (the controller's bible I believe), stating that if a constraint is not mentioned in subsequent clearances it no longer applies!!!

It is time that pilots and controllers are given decisive and clear guidance on altitude clearances and for pilots to have easily available information on the situation at all airports they are likely to operate from.

In the UK, there is an important difference between a SID and a STAR procedure in respect of altitude information. Whereas SIDs contain specific altitude instructions, which must be complied with, STARs contain altitude information for descent planning purposes only. In the case of a STAR the actual descent clearance is only that issued by ATC. This is clearly stated on the STAR charts published in the UK Aeronautical Information Publication (AIP).

In the case of both SIDs and STARs the correct procedure for ATCOs when issuing an amended clearance is the same and is detailed in the Manual of Air Traffic Services (MATS) Part 1, Section 1, Chapter 4, Para 6, which states:

Amendments to Clearances

When an amendment is made to a clearance the new clearance shall be read in full to the pilot and shall automatically cancel any previous clearance. Controllers must be aware, therefore, that if the original clearance included a restriction, e.g. 'cross ABC FL 150 or below' then the issue of a revised clearance automatically cancels the earlier restriction, unless it is reiterated with the revised clearance.

CAA (SRG) advises that this instruction was added to MATS Part 1 in 1997 to clarify the situation regarding amended clearances for controllers. Please note that the MATS Part 1 statement is contrary to the reporter's understanding of the advice given at LATCC, although this might have been prior to 1997.

FLIGHT DECK COMMENTS

Continuing the theme of flap mis-selection (Page 7) we received the following comment on the subject:

GETTING THE WORDS RIGHT (FB 56)

My sympathies lie with this reporter - it is amazing how distractions on a taxi-out, i.e. radio load-sheets, passenger problems, runway change to a closer holding point, plus a slot time and/or an immediate take-off clearance can

distract from the fundamental task. Been there, done it (some years ago now), luckily the Take-off configuration warning saved our bacon on that occasion and, these days, I'm much less inclined to rush anywhere.

However, the procedure described (selecting flap as a memory item after the After Start Checklist has been completed) which was specifically introduced to reduce the likelihood of this occurrence would be much more robust if the 'Select Flaps' item actually was the last item of the After Start Checklist. I've suggested it but the big wheels turn exceeding slow and only an input from your good selves would seem to have any hope of making this simple change to the procedures.

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DISCRETION (FB56)

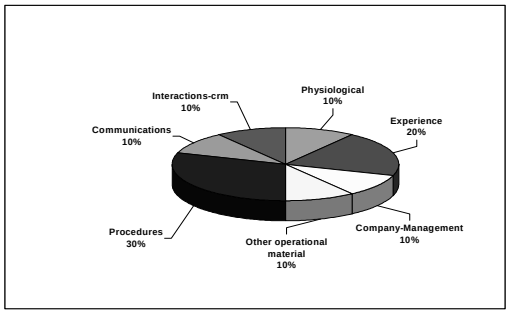
A number of reports in FEEDBACK have described cases in which pilots have been placed under pressure to exercise their discretion to conduct a flight. A solution to this problem is to request that a telex/fax/e-mail message be sent confirming the instruction to use Discretion.

In my experience, this has often resolved the question of the acceptability of the company position.

ENGINEERING REPORTS

Engineering Reports received in Period: 7

Key Areas:



MORE ON FMC UPDATES

This is the second report we have received in recent months on this topic. This report is a good example of an Engineer not accepting custom and practice and being prepared to question a procedure.

Throughout my career, as an apprentice through to an Avionic Licensed Engineer, I have had it drummed into me, regarding the careful control and critical attention to software that is loaded onto aircraft computer systems. This, however, by contrast, is contradicted every 28 days when the regular Flight Management System (FMS) update takes place.

The disks we receive are just placed in a box. We have no idea regarding the source, or authenticity, of the data on the disk or the quality of the disk. There appears to be no control. Surely something as critical as FMS software must have more stringent controls considering its importance regarding aircraft operation and performance.

There is no traceability of the disk either by stores release or accompanying documentation showing the disk as checked, approved equipment. This I find totally unacceptable, particularly when no one really seems to care when questions are asked, except the Engineers carrying out the update.

At present, the method of distribution for the FMS update disks is that the new disks are given to Engineering from the Flight Operations department. From Engineering, they are distributed to various other offices by hand as a bunch of disks wrapped in a rubber band, before being given to the required maintenance areas.

Another example of what happens on a regular basis with software concerns defect investigation and the Flight Management Guidance Computers (FMGC). We have various occurrences on the fleet that require the FMGC to be interrogated to trouble-shoot various flight defects. I am often requested by investigating Engineers, who are unlicensed, to extract software from their Computer LAN *(Local Area Network)* onto a disk and put this into the aircraft's onboard data loader to extract information from the FMGC's. Knowing how everybody has access to the LAN and how corrupt the data can become, I find it hard to believe they expect Licensed Engineers to carry out this task. Many do refuse. I feel it is necessary for this kind of software to be removed from the LAN and controlled properly, if it is to be used in this manner.

The report was passed to the operator with the reporter's consent. A company investigation confirmed that the handling of disks used to update the FMCs was not adequately controlled. An improved procedure has been introduced.

With regard to the possibility of corrupt software being used to interrogate FMGCs, the Operator has noted that the aircraft system to which the reporter referred and similar systems on other types are designed in such a manner to prevent any access to the basic aircraft operating system architecture from external software used for interrogating the FMGC.

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OUTSTATION- OUT OF SIGHT, OUT OF MIND?

I have worked at this particular outstation for several years and have never seen a CAA Surveyor. We have

had visits from the Regulatory organisations of several countries in this time. Why no visit by UK CAA?

When I leave at the end of my time here it will leave only one qualified Engineer on the station, to cover an aircraft type that has over 100 transits each month and more than 20 overnight Checks.

The Manager, to save money and drive down costs, has, after training, given Company authorisations to FAA A&P licensed mechanics. When has the UK CAA agreed that a UK licence is not required any longer in Europe and that an FAA A&P licence is accepted as the qualification for the issue of authorisations to certify UK registered aircraft?

To meet AOC requirements, vehicles, aircraft jacks, nitrogen rigs, should all be serviced and checked at regular periods and proper records kept. Again, to cut costs, this is not being carried out correctly.

Work periods; in the time I have worked here, I have never ever worked five days with the same start/finish times. In the same period, I have been rostered to work every weekend; to get a weekend off I have to put in a leave request.

We handle a number of different airlines here, but there is lack of overall training and therefore a shortage of type cover, so that there cannot be a proper rotating shift system.

The reporter's concerns were investigated. As to the allegation that A&P licence holders were authorised to certify UK registered aircraft, this was not substantiated. Such qualifications are only acceptable for the certification of UK registered aircraft in the USA.

In relation to the oversight of outstations, CAA (SRG) provided the following comment:

Where an organisation has an overseas facility the CAA will include the site when exercising oversight of the organisation's activities.

For a single overseas site the CAA endeavour to make a minimum of one visit every two years depending upon the amount and complexity of the work undertaken at the site. Where an organisation has multiple overseas sites, the CAA will establish a programme of visits in conjunction with the organisation concerned. In addition to their visits, the CAA reviews the reports raised by an organisation's own Quality Assurance Department, who also have a responsibility for monitoring overseas sites as part of their quality checks.

It can be seen therefore that through a combination of visits and review of quality assurance reports the CAA satisfy themselves that an organisation's overseas facilities continue to function satisfactorily.

ENGINEERING COMMENTS

REPETITIVE DEFECTS (FB 56)

Could you please clarify for me a sentence in issue 56. Under the heading "Repetitive Defects & Sign-offs" your comments (blue boxed) state that, "In the case of a repetitive defect that has not been cleared after 3 attempts, the procedure requires that the aircraft be removed from service until the defect is rectified."

Could you tell me whose procedure you are referring to, the Companies or the Regulators?

This was one of several queries on this topic. After further consultations with CAA (SRG), the following is, hopefully, a somewhat clearer explanation of the situation.

Under JAR/OPS (M) the Operator has to state how defects, including repetitive defects, are to be dealt with. The procedure to satisfy this requirement may vary with the characteristics of the particular operation, long/short haul, high/low frequency etc. A typical UK operator could be expected to take in-depth action after the third attempt at rectification fails within a period of 7/10 days. A lower frequency of operation may call for such action after three attempts in one month.

We apologise for the previously imprecise wording.

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DUPLICATE INSPECTIONS

I note from FB 56 that there are moves afoot to revise the duplicate inspection requirement (controls and vital points)

I feel that my experience qualifies me to add some input to this debate and wish to apprise you of some instances that justify why the procedure should be retained, indeed, reinforced.

1. During annual inspection the removal of panels surrounding the rudder pedal connections revealed that a clevis pin connecting a recently renewed cable to the pedal lever had been inserted fully into the fork but the split pin lay alongside on the lower floor surface, obviously never having been used. Log entries made no reference to any duplicate inspection and I cannot believe that two independent engineers would have missed so obvious a defect.
2. A nearby engineering base calls upon me to attend for duplicate inspections perhaps as many as two dozen times per year. On two separate occasions in the last three years I have been able to draw attention to defects that the principal signatory had not been aware of, once for a frayed control cable and once for a loose ball-end lock nut.

3. The same engineering base provides an engineer to attend when I require duplicate inspections. In the same period as the incidents above, this person has been able to draw attention to at least two defects of which I had not been aware, once for a missing hinge pin containment feature and once to the binding of a ball-end during articulation.

It is my firm belief that the value of a second opinion in the final inspection of vital points and controls is a significant and effective contribution to the enhancement of operational safety and I shall continue to seek the back up and 'check' which this facility affords, no matter the regulatory obligation to do so.

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TRAINING AND EXPERIENCE

With regard to the recent item on "Engineer Training" I can fully empathise with your reporter. As a contractor I am continually coming across recent "students" of the various UK training organisations.

Until recently these students appeared with unpressurised airframes and piston engines and were therefore unable to do much damage to themselves, expensive aircraft or more worryingly, others. They are now appearing with Aeroplanes 2, Gas Turbines and "X" Electrics and with the current shortage of licensed Engineers are being put into positions for which they have no experience, knowledge or ability. The CAA show they have no concept of the current situation by talking of a licence being "but a building block" and companies only authorising people following wide ranging experience on the job. Maintenance companies are so desperate for Licensed Engineers that they are approving people as they walk through the door straight from courses, be it ab-initio or type.

As to student training records and the CAA's hope that "this is not being done "blind"" - it is! I am sure I can vouch for any number of Engineers who have been approached by students hopefully waving a book, the contents of which have just been copied from someone on the previous intake.

But worst of all is the final CAA response. The typical answer guaranteed to raise the blood pressure whenever any complaint is levied, "no-one has complained before". We have, and it's time you listened.

CAA (SRG) Engineer Licensing Department was invited to comment:

The respondent clearly believes that any basic licence granted is a testament to an individual's ability to carry out any maintenance task on any aircraft without further training. This could not be further from the truth.

We should emphasise that the basic licence is the starting point, to be built upon with training and experience on different aircraft types as the individual progresses through his or her career. Even when the type rating or authorisation is issued there can be no guarantee that the individual has experienced every defect or system anomaly that they are likely to come across.

The CAA recognises the risk that companies may try to make up for the shortfall in engineers by using relatively inexperienced licence holders as quickly as possible. In most cases, however, it is licensed engineers themselves in appropriate positions of authority recommending and authorising these staff. Since they are certifying under the company's approval it is appropriate that the responsibility lies with them.

Turning to student records, students need supervision and this is possibly given where the mechanics or licensed engineers may be already hard pressed to keep on top of the workload. Notwithstanding this, having gained what experience they can, at licence application, students have completed a portfolio of experience verified and countersigned by a licensed engineer. Now the licence holders (referees) are either satisfied with the competence of their charges and sign the records as they go along or they should not sign for tasks they have not been involved in at all.

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CAA (SRG) FLIGHT OPERATIONS DEPARTMENT COMMUNICATIONS

The latest CAA (SRG) Flight Operations Department Communications have been issued since October 2000:

12/2000
1. Aircraft loading incidents and their prevention

13/2000
1. Letter of Consultation: Proposal to Introduce a System of Accreditation for Instructors of Crew Resource Management (CRM)

14/2000
1. Letter of Consultation: Proposal to Amend the Air Navigation Order 2000 and The Air Navigation (General) Regulations 1993 in respect of the wx/light conditions that must exist for single power unit, fixed wing operations.

15/2000
1. Temporary Exemption for carriage of Infant Flotation Devices for infants between 3 months and 12 months

16/2000
1. Introduction of Rectification Intervals into all MELs

17/2000
1. Precision-RNAV Procedures
2. Licence Skill Tests (LST)/Licence Proficiency Checks (LPC): Instructions to Authorised Examiners
3. Incapacitation Procedures-Donning of Oxygen Masks
4. CRM Instructor Accreditation - Industry Forum (Feb 2001)