

ATC

Number 53

Issued 30 September 2004

RUNWAY INCURSION PREVENTION - BRIEFINGS FOR AIRCRAFT OPERATORS

1 Introduction

- 1.1 As part of the CAA's continuing programme of assistance to aerodrome and aircraft operators in managing the risk of runway incursions, briefings to aircraft operators on communications procedures and taxiing procedures will shortly be distributed to UK operators.
- 1.2 Analysis of recent incidents has identified that poor communications procedures and distractions during taxiing operations have been contributory factors in a number of significant runway incursion incidents.

2 Purpose

- 2.1 To advise managers of air traffic control service provider organisations of the content of the briefings to aircraft operators on best practice to be applied for communication procedures and for taxiing procedures.

3 Scope

- 3.1 This ATSIN is addressed to air traffic service provider organisations that provide aerodrome control services.

4 Communications Procedures brief

- 4.1 The Communications Procedures brief presents a summary of the current best practice in RTF phraseology and communications procedures to be used during ground operations, with particular emphasis on activity on and at access points to runways.
- 4.2 The brief identifies differences between UK phraseology (specified in CAP 413 Radiotelephony Manual and, where appropriate, CAP 493 Manual of Air Traffic Services Part 1) and the international Standard phraseology specified by the International Civil Aviation Organization (ICAO).
- 4.3 The brief notes that, within the UK, pilots are expected to use the phraseology that incorporates UK differences, although air traffic service staff will respond appropriately to pilots who use the phraseology published by ICAO. Although no specific training is currently required for controllers in ICAO Standard phraseology where it differs from that used in the UK, experience shows that, in general, controllers are familiar with such ICAO Standard phraseology.
- 4.4 A copy of the brief is attached at Appendix A for information.

5 Taxying Procedures brief

- 5.1 The Taxying Procedures brief presents a summary of the current best practice for preparation and during taxying operations. The brief also covers communications during this phase of operations.
- 5.2 A copy of the brief is attached at Appendix B for information.

6 Recommended Action

- 6.1 Managers of air traffic control units that provide an aerodrome control service are recommended to review the attached briefs and to bring to the attention of their staff any material that may be of relevance to the unit's operations.
- 6.2 In particular, if the aerodrome is available to non-UK operators, it is recommended that controllers are familiarised with the ICAO Standard phraseology that may be used by some pilots where different phraseology is specified for use within the UK.

7 Queries

- 7.1 Any enquiries about the content of this ATSIN should be addressed to:
- Mr G Beaton
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Safety Regulation Group
Civil Aviation Authority
Aviation House
Gatwick Airport South
West Sussex
RH6 0YR
Tel: 01293 573370
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e-mail: gary.beaton@srg.caa.co.uk

8 Cancellation

- 8.1 This ATSIN will remain in force until 28 February 2005.

The following ATSINs remain current

<i>Number</i>	<i>Title</i>	<i>Relevant level of ATS</i>
1	<i>Introduction of the ATSIN scheme</i>	<i>All ATS</i>
4	<i>The Implementation of Safety Management Systems (SMS)</i>	<i>ATC</i>
15	<i>ACAS interface with air traffic control</i>	<i>ATC</i>
34	<i>The provision of approach radar control services by controllers who do not hold an approach control rating</i>	<i>ATC</i>
35	<i>Changes to the operational status of radar systems</i>	<i>ATC</i>
38	<i>Implementation of the new harmonised European ATC Licence</i>	<i>ATC</i>
41	<i>Runway Incursions – Use of Conditional Clearances</i>	<i>ATC</i>
43	<i>Report of the investigation into the mid-air collision over Ueberlingen</i>	<i>ATC</i>
44	<i>Area Navigation (RNAV) Procedure Applications</i>	<i>ATC</i>
45	<i>Availability of documents at operational positions</i>	<i>ATC</i>
46	<i>Single European Sky ATC</i>	
47	<i>Arrangements for the regulation of ATC units that are required to operate a Safety Management System</i>	<i>ATC</i> <i>ATC</i>
48	<i>Introduction of new RTF phraseology relating to aerodrome helicopter operations</i>	<i>ATC/FIS</i>
49	<i>Change to phraseology to be used when issuing avoiding action</i>	<i>ATC</i>
50	<i>Definition of terms relating to aerodrome helicopter operations, and changes to phraseology published for use by the offshore communication service</i>	<i>AGCS</i>
51	<i>Managing Estimated Off Blocks Time (EOBT) of flights departing UK aerodromes</i>	<i>ATC</i>
52	<i>Introduction of SAFETYCOM</i>	<i>All ATS</i>
53	<i>Runway incursion prevention - Briefings for aircraft operators</i>	<i>ATC</i>

Phraseology and procedures

1 Introduction

- 1.1 Runway incursions have been identified as a major hazard to the safety of aircraft worldwide. Whilst there are, invariably, a number of causal factors involved in each runway incursion, the high workload associated with operations in the vicinity of a runway and the limited potential to correct errors before a serious incident occurs are significant contributory factors.
- 1.2 This document reviews the phraseology used in the UK and elsewhere for operations on and around runways and sets out some guidelines for Standard Operating Procedures that should be used by aircraft operators.

2 Phraseology and communications techniques

- 2.1 English is the primary language used for aeronautical communication and, indeed, it is the primary language for teaching aviation skills. Nevertheless, many aviators are not native English speakers, whilst those who are, may use a multitude of colloquialisms in their normal use of English. Aviation English is designed to facilitate concise communication using the English language in a way that will convey identical meaning to the native and non-native English speaker alike.
- 2.2 It is, therefore, essential that correct Aviation English be used for radio communication in order to ensure that the intended message is conveyed.
- 2.3 When specific phrases exist, it is essential that they be used and enunciated in a clear, concise, manner to preserve the meaning. Where no phrase exists, communication should use clear concise English.


3 Differences between phraseology in different States

- 3.1 The International Civil Aviation Organization (ICAO) sets standards for RTF phraseology. Like many States, the United Kingdom has notified differences to some of the phraseology published by ICAO.
- 3.2 The reason for the differences between UK and international standard phraseology is typically to avoid the possibility of misinterpretation or misunderstanding of standard phraseology by native English speakers or because experience has shown that the international standard phraseology has weaknesses in the UK environment.
- 3.3 Within the UK, pilots are expected to use the phraseology that incorporates UK differences, although air traffic service staff will respond appropriately to pilots who use the phraseology published by ICAO.
- 3.4 Where the phraseology to be used in the UK, shown in the examples in this document differs from the international standard phraseology, the differences are clearly indicated when the different phraseology is first used.
- 3.5 International standard phraseology is published in the ICAO Manual of Radiotelephony (Doc. 9432). The phraseology to be used in the UK is published in CAP 413¹ Radiotelephony Manual. Significant differences notified by States to ICAO


Standards, Recommended Practices and Procedures are published in the AIP for each State.

4 Conditional clearances

- 4.1 Conditional clearances, in which the controller issues an instruction that becomes valid after another event has occurred, have been identified as **a contributory factor in a significant number of incidents**, particularly in relation to clearances issued to aircraft in the vicinity of a runway.
- 4.2 It is essential that pilots fully understand the clearance that they have been given and the event that must occur before the clearance is valid. If a pilot is in any doubt whether he or she is cleared to enter or cross a runway, either when the clearance is issued or later, confirmation of the clearance must be sought from ATC.
- 4.3 Common causes of confusion are instructions that relate to a particular aircraft type when there are several aircraft of that type (or a number of aircraft that are similar in appearance, for example A319, A320 and A321) in the area. Similar confusion can result when an instruction relates to an aircraft operated by a specific company when there are several aircraft in that company's livery in the area (this can be a particular problem at an operator's home base).
- 4.4 Conditional clearances will take the form of the aircraft callsign, the event that must occur before the clearance is valid (including the identification of vehicle or other aircraft involved), followed by the clearance/instruction. For example,

 Southjet 534, after the departing
A319, line up runway 24

or

 Southjet 534, after the landing
B737, line up runway 24

*The international standard phraseology used when issuing a conditional clearance to line up uses the word **behind** rather than the word **after** that is used in the UK. The word order is also changed slightly - the international standard phraseology for the example shown above is 'Southjet 534, behind the B737 on short final, line up behind'.*

If there is any doubt about the identification of the aircraft that is the subject of the condition, pilots **must** obtain clarification from ATC.

- 4.5 Conditional clearances will not be used for movements affecting the active runway(s), except when the aircraft or vehicles concerned are seen by both the controller and pilot. Conditional clearances will normally relate to one movement only and, in the case of landing traffic, this will be the first aircraft on approach.

1. CAP 413 is available for viewing and download from the CAA web site (www.caa.co.uk).

5 Standard Operating Procedures

- 5.1 The use of Standard Operating Procedures (SOPs) will ensure that the correct terminology and phraseology are used at the appropriate times in a way that will not lead to misunderstandings.
- 5.2 Operations on, and around, runways are a critical phase of flight and commonly represent the time when traffic is most concentrated. RTF frequencies can become busy and the potential hazards of misunderstanding a message are great. The use of SOPs can ensure that errors do not occur.
- 5.3 In the following paragraphs, the items that should be considered in the development of SOPs, are highlighted.

6 General phraseology and guidance

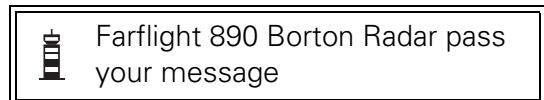
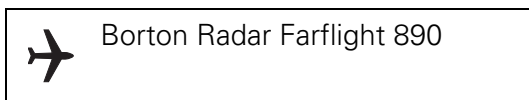
6.1 Abbreviation of callsigns

Ground stations

- 6.1.1 When satisfactory communication has been established, and provided that it will **not be confusing**, the name of the location or the callsign suffix of a ground station may be omitted.

Aircraft

- 6.1.2 When establishing communication, an aircraft shall use the full callsigns of both stations.



*The UK uses the term **pass your message** rather than the international standard phraseology term **go ahead** in order to avoid any possible misunderstanding that the aircraft is authorised to proceed.*

- 6.1.3 After satisfactory communication has been established and provided that no confusion is likely to occur, the ground station may abbreviate callsigns (see table below). A pilot may **only** abbreviate the callsign of his aircraft if it has **first** been abbreviated by the aeronautical station.

Full callsign	Abbreviation
GBFRM	G-RM
Speedbird GBGDC	Speedbird DC
N31029	N029
N753DA	N3DA
Midland 640	No abbreviation
* Piper GBSZT	Piper ZT

* The name of either the aircraft manufacturer or name of aircraft model may be used as a prefix to the callsign.

- 6.1.4 An aircraft shall not change its callsign type during a flight. **However**, where there is a likelihood that confusion may occur because of similar callsigns, an aircraft may be instructed by an air traffic service unit (ATSU) to change the type of its callsign temporarily.

6.2 Issue of Clearance and Read Back Requirements

- 6.2.1 A clearance may vary in content from a detailed description of the route and levels to be flown to a brief standard instrument departure (SID) according to local procedures.
- 6.2.2 Controllers will pass a clearance slowly in order to permit the pilot to write it down. Whenever possible, a route clearance will be passed to an aircraft before start up and the aircraft's full callsign will always be used. Generally, controllers will avoid passing a clearance to a pilot engaged in complicated taxiing manoeuvres and on no occasion when the pilot is engaged in line up or take-off manoeuvres.
- 6.2.3 An ATC route clearance is **NOT** an instruction to take-off or enter an active runway. The words 'TAKE-OFF' are used only when an aircraft is cleared for take-off. At all other times the word 'DEPARTURE' is used.
- 6.2.4 The stringency of the read back requirement is directly related to the possible seriousness of a misunderstanding in the transmission and receipt of ATC clearance and instructions. Read backs shall always include the aircraft callsign.
- 6.2.5 The messages listed below are **to be read back in full** by the pilot. If a readback is not received, the pilot will be asked to do so. Similarly, the pilot is expected to request that instructions are repeated or clarified if any are not fully understood.

Taxi/Towing Instructions

Level Instructions

Heading Instructions

Speed Instructions

Airways or Route Clearances

Approach Clearances

Runway-in-use

Clearance to Enter, Land On, Take-Off On, Backtrack, Cross, or Hold Short of any Active Runway

SSR Operating Instructions

Altimeter Settings

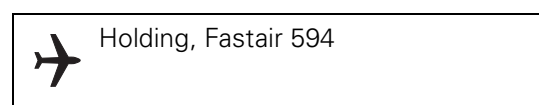
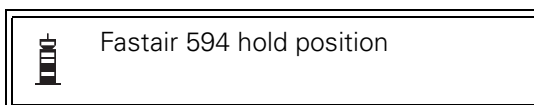
VDF Information

Frequency Changes

Type of Radar Service

Transition Levels


- 6.2.6 Items which do not appear in the above list may be acknowledged with an abbreviated read back.





*In the UK the term **holding point** is used to indicate a defined location rather than **holding position** which is used in international standard phraseology. This is to avoid any possible confusion with the instruction to hold position at the aircraft's current location (i.e. stop).*


6.2.7 **All taxi clearances contain a Clearance Limit; the aircraft must not proceed beyond the position nominated as the limit without further clearance.**

6.2.8 If an aircraft read back of a clearance or instruction is incorrect, the controller will transmit the word 'NEGATIVE' followed by the correct version.

 Fastair 594, taxi to holding point A2 via taxiway Alpha

 Taxi to holding point A1 via taxiway Alpha, Fastair 594

 Fastair 594, Negative, taxi to holding point A2 via taxiway Alpha

 Roger, taxi to holding point A2 via taxiway Alpha, Fastair 594

7 Aerodrome operations

7.1 Pre-start procedures

7.1.1 Initial checks should include radio serviceability, volume squelch etc.


7.1.2 Crews should obtain the route clearance from ATC. This must be read back in full and acknowledged as correct.


7.2 Departure Information and Engine Starting Procedures

7.2.1 When ATC pass the aerodrome information the pilot must readback the altimeter setting and runway-in-use. At airports where an ATIS broadcast is provided the pilot must also readback the ATIS identification letter.


7.3 Pushback and Powerback

7.3.1 At many aerodromes at which large aircraft operate, the aircraft are parked nose-in to the terminal in order to save parking space. Aircraft have to be pushed backwards by tugs before they can taxi for departure. Some aircraft also have the capability to reverse from a nose-in position to the terminal under their own power. This procedure is known as powerback. Requests for pushback or powerback are made to ATC in accordance with the local procedures.

 Fastair 447 stand 27 request pushback/powerback

 Fastair 447 pushback/powerback approved




or,

 Fastair 447 negative. Expect one minute delay due B747 taxiing behind












7.4 Taxi Instructions

7.4.1 Taxi instructions issued by a controller will always contain a clearance limit, which is the point at which the aircraft must stop, unless further permission to proceed is given. For departing aircraft, the clearance limit will normally be the holding point of

the runway in use, but it may be any other position on the aerodrome depending on the prevailing traffic.

 Borton Tower Farflight 479P stand C22 request taxi for Walden	 Farflight 479P taxi holding point G2 runway 24 via taxiway Charlie QNH 967 millibars
	 Taxi holding point G2 runway 24 via taxiway Charlie QNH 967 millibars Farflight 479P

*In the UK the term **millibar** is used instead of the international standard **hectopascal**.*


 Borton Tower G-ABCD T67 at the fuel station VFR to Walden request taxi	 G-CD runway 06 QNH 1008 taxi holding point A2 runway 14 via taxiway Alpha
	 QNH 1008 G-CD request taxiway Bravo, and backtrack runway 06
	 G-CD taxi holding point B1 via taxiway Bravo
	 Taxi holding point B1 via taxiway Bravo G-CD
 Fastair 594 request taxi	 Fastair 594, taxi holding point A2 via taxiway Alpha, runway 27 for departure
	 Taxi holding point A2 via taxiway Alpha, runway 27 for departure, Fastair 594
	 Holding point A2 request cross runway 16, Fastair 594
	 Fastair 594, cross runway 16 at A2, taxi holding point A4.
	 Cross runway 16 at A2, taxi holding point A4, Fastair 594.

*Some States use the term **hold short** to indicate that the taxi route specified crosses a runway for which an additional clearance is required, for example 'Fastair 594 taxi holding point A4, runway 27, hold short of runway 16'.*

In the UK the instruction to 'hold short' is used in limited circumstances only, for example, where no holding point exists at the location that the aircraft is required stop (typically where two runways intersect and the aircraft is not to infringe the crossing runway). A taxi clearance issued in the UK will either include a clearance limit of a holding point prior to the intermediate runway or will include an explicit clearance to cross the intermediate runway, for example, 'Fastair 594 taxi holding point A4, runway 27, cross runway 16 at A2'. In some instances, where a specific hazard has been identified, the instruction to 'hold short' will be included in a clearance to reinforce the clearance limit, for example, 'Fastair 594 taxi holding point A2, hold short of runway 27R'.

7.5 Pre-Departure Manoeuvring


7.5.1 Meticulous care has been taken to ensure that the phraseology which is to be employed during the pre-departure manoeuvres cannot be interpreted as a take-off clearance. This is to avoid the serious consequences that could result if there were any misunderstanding in the granting or acknowledgement of take-off clearances.


 G-CD ready for departure


 G-CD line up

 Line up G-CD


7.5.2 When there are a number of aircraft in the vicinity of the runway access point or an aircraft is being instructed to line up at an intermediate access point to the runway, and possibility of confusion exists, the Holding Point designator will be included in the clearance to line up. If a pilot receives a clearance to line up that does not specify the holding point expected the pilot should confirm the clearance before entering the runway.


 Speedbird 856 ready for departure


 Speedbird 856 via C3 line up runway 16

 Via C3 line up runway 16 Speedbird 856

7.5.3 A clearance to cross a runway will include the position at which the aircraft is cleared to enter the runway.

 Speedbird 856 request cross runway 16

 Speedbird 856 cross runway 16 at holding point A3


 Cross runway 16 at holding point A3 Speedbird 856


If the controller cannot clearly see an aircraft that has been cleared to cross a runway, the pilot may also be asked to 'report vacated'.

7.6 Take-Off Clearance

7.6.1 Except in cases of emergency, messages will not be transmitted to an aircraft in the process of taking off or in the final stages of an approach and landing.

7.6.2 Controllers will use the following phraseology for take off.


 G-CD cleared for take-off


 Cleared for take-off G-CD

7.6.3 For traffic reasons a controller may consider it necessary for an aircraft to take off without any delay. Therefore, when given the instruction 'cleared for immediate take-off', the pilot is expected to act as follows:


a) At the holding point: taxi immediately on to the runway and commence take-off without stopping the aircraft.


b) If already lined up on the runway: take-off without delay.

 Fastair 445 cleared for immediate take-off


 Cleared for immediate take-off Fastair 445


7.6.4 For reason of expedition, a controller may wish to line-up an aircraft for departure before conditions allow take-off.

 Fastair 445 via holding point A1 line-up and wait runway 26 one aircraft to depart before you from holding point A2


 Via holding point A1 line-up and wait runway 26, number two for departure, Fastair 445


7.6.5 In high traffic density operations an aircraft may be issued with a conditional clearance to line up.

 Fastair 445 after the landing MD80, line up


 After the landing MD80 line up Fastair 445

7.6.6 When several runways are in use and/or there is any possibility that the pilot may be confused as to which one to use, the runway number will be stated.


 Fastair 345 runway 09 left cleared for take-off


 Runway 09 left cleared for take-off Fastair 345

7.6.7 Due to unexpected traffic developments or a departing aircraft taking longer to take-off than anticipated, it is occasionally necessary to rescind the take-off clearance or quickly free the runway for landing traffic.


 Fastair 345 take-off immediately or vacate runway


 Taking-off Fastair 345


 Fastair 345 take-off immediately or hold at the holding point


 Holding at A2 Fastair 345

7.6.8 When an aircraft is about to take-off, or has commenced the take-off roll, and it is necessary that the aircraft should abandon take-off, the aircraft will be instructed to cancel take-off or stop immediately; these instructions will be repeated.

 G-CD hold position, cancel take-off
I say again cancel take-off,
acknowledge

 Holding G-CD


 Fastair 345 stop immediately I say
again Fastair 345 stop immediately,
acknowledge


 Stopping Fastair 345

7.6.9 When a pilot abandons take-off he should, as soon as practicable, inform the tower that he is doing so. Likewise, as soon as practicable, he should inform the tower of the reasons for abandoning take-off, if applicable, and request further manoeuvring instructions.

7.6.10 The runway may be obstructed when the aircraft makes its 'final' report at 4 nm or less from touchdown but is expected to be available in good time for the aircraft to make a safe landing. On these occasions the controller will delay landing clearance.

 G-CD final


 G-CD continue approach surface
wind 270 5


 Continue approach G-CD

The controller may, or may not, explain why the landing clearance has been delayed but the instruction to 'continue' IS NOT an invitation to land and the pilot must wait for landing clearance or initiate a missed approach.

7.6.11 A landing aircraft may be permitted to touch down before a preceding landing aircraft which has landed is clear of the runway, provided that:

- a) the runway is long enough to allow safe separation between the two aircraft and there is no evidence to indicate that braking may be adversely affected;
- b) it is during daylight hours;
- c) the controller is satisfied that the landing aircraft will be able to see the preceding aircraft which has landed, clearly and continuously, until it is clear of the runway; and
- d) the pilot of the following aircraft is warned. (Responsibility for ensuring adequate spacing rests then with the pilot of the following aircraft.)

 Fastair 345, runway 28, land after
the B737, surface wind calm


 Land after the B737 Fastair 345


*In the UK the term **land after** is commonly used to indicate that an aircraft is authorised to land on the runway subject to the conditions shown in paragraph 7.6.11. At a small number of UK aerodromes and in other States an aircraft may be cleared to land before a previous departing aircraft has passed the end of the runway or a*

previous landing aircraft has vacated the runway if there is a reasonable assurance that the runway will be clear when the aircraft reaches the runway.


7.7 Missed Approach


- 7.7.1 Instructions to carry out a missed approach may be given to avert an unsafe situation. When a missed approach is initiated, cockpit workload is inevitably high. Any transmissions to aircraft going around will be brief and kept to a minimum.

 Fastair 345 go around I say again go around acknowledge

 Going around Fastair 345


- 7.7.2 In the event of missed approach being initiated by the pilot, the phrase 'going around' shall be used.


 G-CD going around


 G-CD Roger


7.8 Runway Vacating and Communicating After Landing

- 7.8.1 Unless absolutely necessary, controllers will not give taxi instructions to pilots until the landing roll is complete. Unless otherwise advised, pilots should remain on tower frequency until the runway is vacated.

 Fastair 435 vacate left

 Vacate left Fastair 435

 Fastair 435 runway vacated

 Fastair 435 contact Kennington Ground 118.65

*In the UK the instruction to **contact** another agency indicates that details of the flight will be known by the next agency; this is not necessarily the case in other States.*

8 Further information

- 8.1 Queries about phraseology should be addressed to:
Rod McGregor, ATS Standards Department; telephone 01293 573731,
e-mail rod.mcgregor@srg.caa.co.uk.
- 8.2 Queries about runway incursion hazards should be addressed to:
Stephen Andrews, Aerodrome Standards Department; telephone 01293 573256,
e-mail stephen.andrews@srg.caa.co.uk.
- 8.3 Further information about runway safety and runway incursion risk management can be found on the CAA website at:
www.caa.co.uk/srg/safety_initiatives/default.asp?page=2370

Issued by

Civil Aviation Authority, Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR
www.caa.co.uk

Flight Crew Best Practice

1. Planning for taxi operations

- 1.1 The taxi phase should be treated as a “critical phase of flight”. The key-point in the prevention of runway incursions is to apply better preventative measures during the taxi-phase. Reduced workload will provide for increased attention to the taxi phase and allow an updated and accurate positional and situational awareness. This situation can be further enhanced by assigning one crew member to progressively monitor the progress of the flight against the aerodrome chart where crewing levels allow this

2. Airport familiarisation

- 2.1 Departing from or coming into an airport can be prepared well in advance. A thorough planning for taxi operation is essential. This preparation should be done at the gate or prior to starting descent.
- Prepare the necessary charts for taxi and have them available for use at all times during the taxi phase.
 - Take some time to study the airport layout. Very often some system can be found in the naming of taxiways. Use the ATIS information and your previous experience to determine the possible taxi routes. Do this prior to pushback, or before workload increases.
 - Remember to review the latest NOTAM for both the Departure and Arrival airport for information concerning construction or taxiway/runway closures. Visualise this information on the charts.
 - Standard taxi routes are used more often at busy airports. Review the routes you can expect.
 - Pay special attention to the location of HOT SPOTS. These are unique or complex intersections and runway crossings where runway incursions have taken place in the past, or areas of the runway or associated taxiways which are not visible from the Control Tower. Know what runways you will encounter between where you are and where you are going.
 - Plan timing and execution of check-lists, so that no distractions occur when approaching and/or crossing runways; i.e. all eyes outside during this phase.
 - Conduct detailed briefing for all flight crew members, especially during night and low visibility operations i.e. include “extra eyes” where available.

3. Briefings

- 3.1 The before take-off briefing should be simplified as much as possible. Where possible, conduct pre-departure check-lists when the aircraft is stationary. Several taxi items can be covered during the before start briefing at the gate. The briefings during taxi can be limited to a summary of the highlights and the items which have been altered since the before start briefing. This should also be done during the descent briefing.
- 3.2 The before start and descent briefing should also contain a complete review of the expected taxi routes with special attention to the HOT SPOTS. Pay special attention to temporary situations such as work in progress, other unusual activity and recent changes in airport layout. During this part of the briefing, refer to the airport charts and visualise all available information.

- 3.3 An added benefit can be if other crew members are familiar with the airport and have some recent taxi experience at the aerodrome. Local habits can be “good to know”.
- 3.4 Our memory is “constructive”. That means that we have the tendency to fill in the blanks. Ensure yourself that you follow the clearance or instruction that you actually received, and not the one you expected to receive.
- 3.5 **Be aware that the expectations established during the pre-taxi or pre-landing planning can be significantly altered with a different and unexpected clearance. Remain flexible.**
- 3.6 The following additional check list may assist with briefing preparations:
- ◆ **Conduct a briefing for all flight crewmembers**
 - ◆ **Familiarise yourself with the airport layout**
 - ◆ **Plan timing and execution of checklists**
 - ◆ **Review NOTAM’s**
 - ◆ **Flight crew should fully understand all departure briefing items**
 - ◆ **Assigned taxi route should be briefed as thoroughly as an instrument approach**
 - ◆ **Airport diagram should be readily available to all flight crew members**

4. Taxi procedures

4.1 Clearance

- 4.1.1 The receipt of any clearance and the taxi phase itself requires the complete attention of all flight crew on the flight deck. If necessary, write down complex taxi-instructions and cross-check the instructions against the airport chart. Clear up any uncertainties about your clearance or your position on the surface before the start of taxi.

IN CASE OF DOUBT: ASK.

- 4.1.2 All flight crew members must monitor the clearance for taxi, take-off and landing, and must be “in the loop” at all times when runway operations are in progress.

4.2 Public Address announcements

- 4.2.1 Public Address announcements or company frequency use by flight crew members should be transferred from the taxi phase to a moment before engine start-up or push back.
- 4.2.2 If you need to leave the ATC frequency, then notify your other flight crew members. Afterwards, be briefed by the other crew member of what you have missed.

5. Taxi Best Practices

- 5.1. Only one pilot can control the aircraft during taxi. However, as in flight, the pilot not in control of the aircraft has the important task of monitoring the taxi and assisting his colleague.
- 5.2 Cancel check list activity when crossing and entering runways. Maintain full concentration of all flight crew members on the runway traffic situation.
- 5.3 Never cross red stop bars when lining up or crossing a runway, unless in exceptional cases where the stop-bars, lights or controls are reported to be unserviceable, or some other plausible explanation is received, and a clear, unambiguous and positive clearance has been given to cross the red stop bars.

- 5.4 When entering any runway, check for traffic (left and right) using all available surveillance means e.g. all eyes on the flight deck, the Airborne Collision Avoidance System, radar etc.
- 5.5 When cleared to line up and/or when crossing any runway, position the aircraft in a right angle with the runway where possible, in order to better observe the other traffic, both arriving and departing.
- 5.6 Taxi defensively - Do not rush. The higher your ground speed, the less time you have to react, manoeuvre the aircraft and avoid an obstacle. High speed also results in greater distance and time required to bring the aircraft to a complete stop.
- 5.7 When you receive a clearance to taxi to a point beyond a runway, this clearance does not automatically include the authorization to cross that runway. Each taxi clearance beyond a runway should contain an explicit clearance to cross the runway or an instruction to hold short of that runway.
- 5.8 Adopt the sterile flight deck concept whilst taxiing. During movement of the aircraft the flight crew must be able to focus on their duties without being distracted by non-flight related matters. Ensure cabin crews are aware of this requirement if it is not a Standard Operating Procedure.

Sterile Flight Deck:

This may include, but not be limited to, calls received from non-operational areas (e.g. company), entry onto the flight deck (e.g. cabin crew) and extraneous conversations not related to the current phase of flight. It is generally accepted, that such a period of time commences;

- Departure: when the aircraft starts engine/s and ceases when the aircraft reaches 10,000ft above the departure aerodrome elevation or 'top of climb'.
 - Arrival: when the aircraft reaches 10,000' above the arrival aerodrome elevation until the engine/s are shut down after landing.
 - Any other times decreed by the operator. (e.g. in flight emergency, security alert etc)
- 5.9 Use all your aircraft lights to help controllers and other pilots to see you. Fixed navigation lights and taxi light should be on whenever the aircraft is moving. Landing lights, logo and strobes (where fitted) should be turned on when entering the active runway or when cleared for take-off.
 - 5.10 Check your audio box and volume adjustment whenever a frequency change is made.
 - 5.11 Ensure all flight crew are on the appropriate frequency until all runways have been vacated after landing.
 - 5.12 After the landing, vacate the runway as soon as possible, but not by turning onto another runway, unless specifically instructed to do so.
 - 5.13 When the aircraft has vacated the active runway, be prepared to stop to resolve any questions about the ATC clearance or about the aircraft position.
 - 5.14 Anytime you feel uncertain about the location of the aircraft position on the movement area, STOP the aircraft, advise ATC, and ask for clarification. Take the question out of the flight deck.
 - 5.15 If necessary request progressive taxi instructions.
 - 5.16 Pilots should avoid stopping on a runway unless specifically instructed to do so, or in an emergency.

5.17 The following check list may assist with best practice preparations:

- ◆ If necessary write down taxi route
- ◆ Assign crew member to progressively follow aircraft position on chart
- ◆ Follow company SOP's in regard to exterior lighting when taxiing and cleared for take-off – where possible, maximum illumination.
- ◆ Sterile Flight Deck during taxi
- ◆ The visibility required for taxiing may be less than the Runway Visual Range
- ◆ Be alert for Mandatory Signs / Markings / Stop bars and Runway guard lights
- ◆ Look for visual aids (Taxiway location information and destination signs)
- ◆ Designate a crew member to look for and report signs / markings and keep track of location against the aerodrome chart
- ◆ Conduct pre-departure checklists when the aircraft is stationary
- ◆ Use STANDARD radio phraseology
- ◆ Receive explicit clearance before crossing any runway
- ◆ READBACK all runway crossing or hold short clearances using correct phraseology
- ◆ DO NOT ALLOW flight crew to be rushed by any party (ATC or Company)
- ◆ LISTEN to clearances issued to other aircraft
- ◆ NEVER cross red stop bars when entering or crossing a runway unless contingency measures are in force, e.g. to cover cases where the stop bars or controls are unserviceable.
- ◆ Before entering or crossing any runway CHECK FOR TRAFFIC!!
- ◆ No checklist activity crossing any runway
- ◆ Ensure correct understanding of the ICAO phraseology "Taxi to holding position ".

6. Communications (See CAP413 and ICAO Annex 11)

6.1 Language

6.1.1 The use of Aviation English in a busy and complicated environment should be encouraged as much as possible. The use of a common aeronautical language not only improves communication but also improves the situational awareness of all the flight crew listening out on the frequency and trying to build the picture of the traffic situation.

6.2 Proficiency

6.2.1 Conducting and comprehending radiotelephony communications requires competence with standard phraseology as well as general proficiency in the language used for communications. Speaking slowly is essential when operating in foreign regions. If you slow down your speech rate, the response may be slower and clearer too. Complex and long instructions, incorporating more than one executive instruction, are difficult to absorb and understand, especially when delivered at a high rate as is common in a high traffic density environment. Even if the same language is used everywhere, some essential differences between States remain.

6.3 Phraseologies

6.3.1 UK phraseology is contained in CAP413, which follows ICAO Annex 11.

6.4 Read Backs

- 6.4.1 Any readback requires a hear-back. In order to complete this “communication loop”, the read-back must be complete and clear. Always include your call sign. This is the only way to assure that clearances and instructions are well understood. This is essential in all voice communications. In case of hold short, crossing, take-off or landing instruction readback, always include the runway designator. Read back the full clearance. “Roger” is not a readback.

6.5 Listen out

- 6.5.1 Listen out on the frequency at all times. Try to visualise the other traffic in the vicinity. Know what runways you will encounter between where you are and where you are going. Be particularly attentive to all clearances and instructions issued to traffic involving those runways.

7. Other communication best practices

- 7.1 Be extra attentive when another aircraft with similar call sign is on the frequency.
- 7.2 When instructed to follow other traffic, this does not automatically include the clearance to enter or cross a runway. Each aircraft requires a specific clearance to enter or cross any runway. If in doubt, seek clarification: ASK
- 7.3 If you are cleared to “line up and wait”, then only a short delay on the runway should be anticipated. If you find yourself in this position for more an extended period, advise about your position and seek clarification: ASK.
- 7.4 Both pilots should monitor the frequency and agree upon the acceptance of a clearance to taxi, cross a runway, take-off and land on a nominated runway. Any misunderstanding or disagreement should be cleared up immediately by contacting ATC for clarification: ASK.
- 7.5 The use of headsets increases the readability of communications with ATC and within the flight deck.
- 7.6 Ensure the correct setting of the audio panel, especially after any temporary switch in audio sources.

8. Situational Awareness

- 8.1 Situational awareness is about knowing where you are and where you want to go, as well as building the picture of the traffic in the vicinity. Even during daylight and in good visibility, people get lost. Even worse is the situation where you assume you know your position, but find yourself elsewhere. At times of darkness and Low Visibility, additional care must be taken to ensure that accuracy in navigation on the ground and the highest degree of situation awareness is undertaken by all members of the flight crew.
- 8.2 The following check list may assist with maintaining situational awareness:
- 8.3 Before Starting the Approach:
- Obtain all needed information
 - Brief planned primary runway exit and taxi route
 - Eliminate as much distraction as possible
 - Have airport diagram available for instant use
 - Maintain situational awareness on final at night
 - Listen for other aircraft clearances

9. Visual aids

- 9.1 Charts, signs, markings and lighting: These are all aids to assist in determining your position. A high level of awareness must be maintained to observe and respond to mandatory signs and markings. A correct knowledge of all the symbols and signs is therefore a must. All the visual information that is available should correlate with the actual situation. Gathering visual information and the constant questioning and cross checking of your position is the task of the entire flight deck crew. A crew member who is in doubt or does not agree with the situation must speak-up.
- 9.2 A head down situation during taxi should be limited to the minimum possible. All eyes should be outside the flight deck whenever possible.
- 9.3 When a pilot not taxiing the aircraft focuses on the instruments in the flight deck, he/she is not able to monitor the progress of the aircraft. Before undertaking head-down actions advise the other pilot, so that added emphasis can be placed by the navigating pilot on maintaining navigational accuracy and situational awareness.

10. Other aids

- 10.1 The flight deck traffic display (TCAS) is a good tool to detect traffic approaching and departing a runway. Remember, an aircraft may be departing from an intersection closer to the landing threshold out of sight, due to restricted visibility, or line of sight limitations. Use your heading display or compass to confirm the runway or taxiway alignment with the information available from the charts. If fitted, use the ILS centreline guidance system to confirm the correct runway alignment.
- 10.2 ALWAYS have a good look out; scan the entire runway and approach in both directions before entering a runway. Do not rely on somebody else in ATC to look out for you. If in doubt: **ASK**