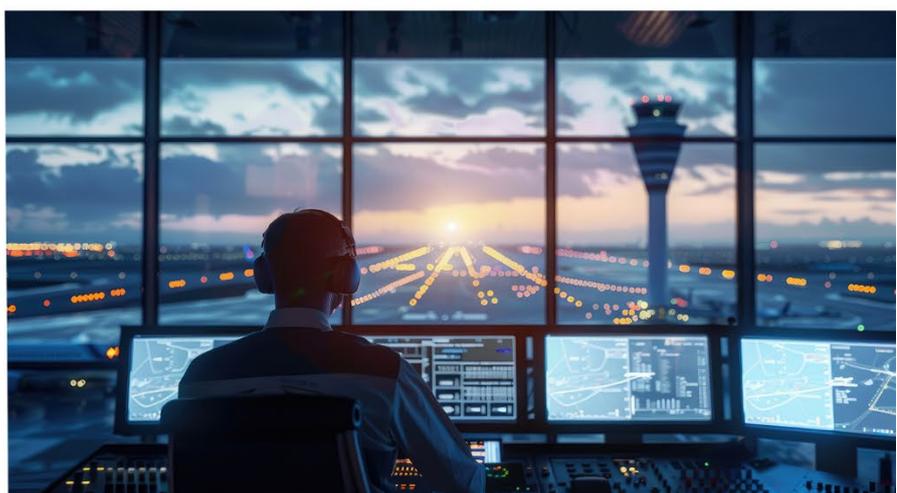




Air Traffic Services

The Assessor Handbook



ATS Assessor Handbook

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ATS Assessor Handbook**Amendment Summary**

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Issue 2.00	07 April 2022	Issued edition as controlled document
Issue 3.00	10 January 2023	Amendments to front cover and inside front page.
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Section 1

The Meaning of Competence

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1.0 What is Competence?

1.1 The Competent Controller

A competent controller is one who reliably and consistently performs to the required standard for the operational position. The words reliably and consistently are well chosen in that they convey the sense that the controller's performance should not vary markedly from day to day, although we are all subject to 'off' days! It is often argued that we should strive for perfection and, laudable as this is, we must remain pragmatic. The other item of note is that we refer to the operational position. A controller may be capable of achieving the required standard on one position but fails to achieve it on another. This should not label them a bad or poor controller. Any competence scheme should aim to maximise the strengths of the controller whilst not forcing them above their capabilities. Neither should it be used to stigmatise individuals or to remove their qualifications but rather, when deficiencies are noted, to find a way of improving their performance in order to retain their qualifications.

1.2 Initial Competence

The initial competence test (Validation) following college and unit training, is a quality control of the training process. Trainees are assessed throughout Training Organisation and Air Traffic Control (ATC) Unit training to ensure the completeness of the training and the trainee's suitability for working unsupervised. The Validation examination is a sample of practical work followed by an oral test of understanding which, in conjunction with the recommendation from the training organisation, demonstrates the individual's competence.

1.3 Ongoing Competence

Following Validation, the controller should continue to develop their skill and understanding but aviation is constantly maturing. Air traffic control equipment, techniques and standards are in a continual state of flux and therefore, it is essential that a scheme exists to ensure controllers keep up to date, improve their skills and understanding and, above all, do not fall into bad habits.

There are two methods by which we attempt to ensure ongoing competence, an annual check by the Regulator or by a Unit Competence Scheme (UCS).

1.4 Annual Check by the Regulator

This has historically been the method used, but it has two main failings. First, a marginal controller may be able to raise their game for the duration of the check whilst falling back when the Air Traffic Services (ATS) Inspector has left and second, the Inspector themselves will probably be out of practice and lacking in full familiarity with the ATC unit operation.

It does have a couple of advantages, though; it concentrates the minds of all subject controllers at least once a year, maybe forcing them to review their skills and knowledge and it does usually pick up on the really substandard controller who is unable to raise their game sufficiently for just one day.

The real problem with this system is that if someone is falling below acceptable competence it may be up to a year before it is picked up and acted upon, assuming an incident has not raised the alarm first.

On a more practical level, whilst Overseas Territory Aviation Authority (OTAA) Inspectors may be able to visit ATS units more frequently, the logistical challenges of an ASSI Inspector visiting an Overseas Territory (OT) means that visits can only be infrequent, all of the annual renewals of competence are grouped together and there is always a concern about the volume of traffic on the day. It isn't always easy to return to an OT the next week!

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1.5 Initial Check by the Regulator

The examinations and practical assessments for the initial issue of an Air Traffic Controller Licence and any unit endorsements associated with that licence, will always be conducted by an ATS Inspector from the appropriate regulatory authority. However, at the discretion of the appropriate authority, subsequent examinations and assessments may be conducted by the holder of an air traffic control assessor endorsement.

There are several good reasons for this but principally, the initial validation assessment is often the first opportunity which the Inspector will have to meet the candidate, conduct a thorough review of their On-the-Job Training (OJT) records and discuss their progress during live controlling. It also offers the opportunity to assess how effective the initial college training course was in preparing students for their role.

Section 2

The Unit Competence Scheme (UCS)

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2.0 The Unit Competence Scheme (UCS)

2.1 Introduction

This UCS has been in place for a long time in the UK and was originally a requirement of the European Aviation Safety Agency (EASA), although not a requirement of the International Civil Aviation Organization (ICAO). However, elements of the UCS concept are detailed in ICAO Annex 1 and ICAO DOC 10056 through continuation training and are applicable to the OTs. Validated unit controllers are trained as Assessors so that they can review the competence of controllers on an ongoing basis. This also accords with the unit approval under Overseas Territories Aviation Requirement (OTAR) 172, which requires that the ATC unit, amongst other things, ensures that all ATC staff are competent. The use of validated ATC unit controllers as Assessors helps to overcome the deficiencies of the annual check system in that the Assessor is familiar with local procedures and requirements, can demonstrate personal competence and is constantly available to monitor the day-to-day reliability and consistency of controllers' performances. Where deficiencies are noted remedial action, in the form of re-training, can be instigated promptly with the intention of keeping the subject controller up to standard.

2.2 Ownership

The UCS is owned by the unit and approved by the regulator; it is the method by which the provider of Air Traffic Services (ATS) demonstrates that the controllers are competent. The UCS is required to have documented processes and records that are capable of being audited by the regulator.

2.3 Operation

Selected, validated and current controllers are trained to monitor the competence of other controllers on a regular basis, which can be by dedicated check or by continuous assessment. Both methods have advantages and disadvantages so the ideal system, would comprise a combination of both, using the strengths of one to cover the weaknesses of the other.

Continuous Assessment	
Advantages	Disadvantages
A constant assessment	How conscientious is the Assessor
Adverse trends detected earlier	Difficult to devote attention
Assessment under all traffic levels	Problem of single staffed positions
Unnoticed by staff	Problem recording observations
No resourcing problems	Problem with objectivity
Generally accepted by staff	

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Dedicated Check	
Advantages	Disadvantages
Assessor can devote whole attention	Only a snapshot
Assessor can give relevant de-brief and discussion	Representative traffic samples?
Examinee more responsive to de-brief	Late identification of adverse trends
Only method for single-staffed positions	Resourcing problems
	Noticed by staff

2.4 The Regulator's Function

ATS Inspectors will still visit the ATC unit but their function will be different. The Inspector's role is to audit the processes to ensure that they are being complied with and to sample the work of the Assessor.

2.5 Sampling

The process involves the ATS Inspector and the Assessor observing the work of several controllers on the unit and comparing notes. An audit of the UCS document and the associated records will also be conducted, after which an audit report will be written concerning the operation of the UCS, the competence of the local Assessors and the quality of the documentation. The report may contain non-compliances or observations for the attention of the ATC Unit.

It should be noted that the ATS Inspector is checking the operation of the UCS and the work of the Assessor rather than the controllers observed. Generally, any weakness observed will be left to the ATC unit to resolve. However, the Regulator cannot ignore serious safety errors or omissions and, if any are observed during the sampling process, they will be forced to act.

2.6 Methods of Monitoring ongoing competence

This is a crucial element of the UCS which relies heavily on a pro-active and thorough approach from the unit assessors. There are many ways of assessing or monitoring ongoing competence and here are some suggestions:

- a) Practical checks carried out by the local Assessor, involving an observation of the controller at all operational positions for which a validation or competence check is required.
- b) Theoretical questions on emergency situations as well as on documents or manuals displayed in the Tower, on a quarterly basis.
- c) Response drills at least once a month, involving the Rescue & Fire Fighting Services (RFFS).
- d) Read-back / hear-back sessions on a quarterly basis to ensure that controllers are using correct phraseology.
- e) Desktop exercises involving RFFS and other departments around the Aerodrome.
- f) Exercises to check the response or alertness of ATS, involving a call from any department to ATC advising of an incident.
- g) 'Escalating' emergency exercises whereby an incident commences with a minor issue and then progresses to a more serious event such as an aircraft accident or full emergency.

Section 3

The Assessor Roles & Practical Testing

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3.1 The Assessor Roles

Assessors may act in one of two roles:

- Validation Assessor.
- Unit Competence Assessor.

3.2 Qualities of an Assessor

You as a controller:

- Professionalism of the highest order, you cannot criticise others for faults you exhibit yourself.
- High personal standards.

Your dealings with people:

- Integrity and confidentiality.
- Understanding and wisdom.
- Respect and trust.
- Punctuality and fairness.

3.3 Qualifying as an Assessor

Assessors must complete an approved course of training. During the course they are prepared for the second stage of training which consists of at least two examination boards as a supernumerary member working under the supervision of an ATS Inspector, either during an annual renewal of competence or during an examination for the grant of a first or subsequent certificate of competence. One of the supervised assessments must always be for the annual renewal of competence. The prospective Assessor's conduct and examination technique is evaluated and further guidance given by the Inspector. Provided the supervised assessments are carried out to the Inspector's satisfaction, an endorsement to the ATC licence is issued permitting the holder to certify competence to examine for the grant of a first or subsequent certificate of competence and for annual renewal of competence.

3.4 The Validation Examination Board

During the examination for the grant of a first or subsequent certificate of competence, Assessors work as a team of two, sometimes three, with the Inspector acting as the Board Chair. One of the ATC unit Assessors will also have to be an On-the-Job Training Instructor (OJTI) to act as safety controller, unless another OJTI is also going to be part of the team.

3.5 What is the Board looking for?

Validation is principally confirming the views of the Training Organisation that an individual is capable of providing an air traffic service in an unsupervised role and seeks evidence of the following:

- **Sound in practical techniques and methods**

The way in which the controller operates conforms to the rules as published by ICAO, in the Manual of Air Traffic Services (MATS) and other locally promulgated procedures. Remember that just because the examinee does not tackle a problem in the same way you do does not mean it is wrong; it is only wrong when it does not conform to published procedures.

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- **Technical aids are used to best advantage**

The controller must be able to set up and use any equipment provided and should know when the equipment is falling short in performance and the actions required to obtain rectification.

- **Current and up-to-date understanding of procedures**

Failure to understand a published procedure is most likely to lead to errors in application with the attendant risks. Oral questioning should serve to demonstrate this understanding.

- **Good team working**

Remember the team goes beyond colleagues in the immediate vicinity. Adjacent ATC units and pilots are all part of the team.

3.6 Validation Examination Conduct - Notification

As with any test, the first action should be notification of the intent to carry out an examination. The regulator should be notified of the intention to conduct the examination and the date agreed for when the Inspector will be able to attend. A formal application for the examination should be submitted in sufficient time for the relevant documentation to be generated by Personnel Licensing.

Prior notification is also intended to permit the trainee and trainer time to review the current progress, to address any outstanding matters and for the trainee to clarify any areas of concern.

3.7 Validation Examination Conduct - Preparation

The Assessors will need to ensure that they are fully up to date with procedures. There is nothing worse than having the candidate point out that the procedure changed last Monday when you were unaware of it!

It is advisable for the Assessors to agree the areas they wish to cover during the oral part of the examination to avoid duplication of effort. Oral examinations should always include questions on 'core' knowledge (e.g. ICAO PANS-ATM, Doc 4444), local knowledge (Unit MATS and Exposition) and scenario-based topics (see also Section 5.1). The objective is for the assessor to be satisfied that a candidate possesses the level and breadth of technical knowledge required to support their practical skills without the need for reference to published material. It is the Assessor's/Inspector's decision on how many questions should be included in the examination but as a general indication, a minimum of 10 questions should be asked for an annual competence check and at least 20 questions for an initial validation.

Unless an OJTI safety controller has been requested, one Assessor will act as the OJTI during the practical examination and is therefore responsible for the safe operation of the position.

The other Assessor or the Inspector is not absolved of all safety responsibilities or duty of care but has more ability to keep detailed written records (see note-taking) during the practical test.

3.8 The Day of the Examination - Arrival

Assessors should arrive in good time and meet up with the candidate. At this point, a decision should be made on the best time to attempt the practical part of the examination taking into account the prevailing and expected traffic and other factors that may influence the successful conduct of the examination.

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3.9 The Day of the Examination - Briefing

The trainee should be briefed by the Board Chair on the conduct of the examination. The items to be included should at least cover:

- **Introductions**

If necessary, introduce any strangers and explain each person's role.

- **The aim of the examination**

This is a simple statement of the position on which the examination is to be carried out. It serves to ensure that both the Assessors and candidate are expecting the same thing and that the board is properly constituted.

- **The required standard**

There is no need to go through the standards in detail. A simple statement such as 'the required standard is a safe orderly and expeditious flow of traffic using standard procedures' is sufficient. Advise the candidate that safety will always take priority but they should work as they have just been doing under training and in accordance with normal operating procedures.

You are there to assess a representative level of traffic for that unit so there is usually no need to wait until the traffic situation becomes excessively busy or complex if that is unusual for the unit. Conversely, you will need to see 'enough' so once you are content with the candidate's performance, the practical check can be concluded.

- **Note taking**

Give a reminder that you will be taking notes, so writing does not mean a mistake has been observed.

- **Working practices**

The candidate should follow normal working practices, particularly with reference to teamwork. If a situation arises where normal practice would be to call for assistance, then the candidate should make the call. It is a valid examination area; teamwork is very important

- **Intervention**

You may need to intervene for a variety of reasons, not solely because the candidate has made an error. For instance, the safety controller may feel happier directly handling a situation because, if it goes wrong, the complexity of the situation may be beyond their ability to recover.

Beware resolving a situation and handing the traffic straight back to the candidate, invariably it is better to take a break to allow the candidate to compose themselves under these circumstances.

- **Emergencies**

This follows on directly from intervention, are you going to intervene or not? It is impossible to lay down a set of rules before starting the examination and the best course is to tell the candidate to respond to the emergency until you say otherwise. It is worth considering that under normal circumstances, any Air Traffic Control Officer (ATCO) experiencing an emergency, may need to ask for assistance from other team members so this should be taken into account if the situation arises

- **Any questions**

Is there anything the candidate would like to ask about the examination process before you begin?

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- **Is the candidate ready?**

The candidate is given the opportunity to withdraw if they don't feel up to the examination for personal or medical reasons. The examination can always be rescheduled but once the candidate has accepted the examination, they cannot subsequently try to claim personal factors in mitigation for a poor performance.

The briefing should not take more than a few minutes. Remember to keep it friendly, concise and try not to rely on the use of a checklist, it makes it appear more of an execution than an examination!

3.10 The Day of the Examination - During the Examination

Once the briefing is complete, the examination starts; you may wish to shadow the candidate through personal briefing and taking over watch. You may, however, allow the candidate to take over with the OJTI and arrive once they have settled in, when the safety controller will accept a handover from the OJTI. Try to keep a low profile and intervene only when safety demands. If the safety controller intervenes, they must make sure that the candidate is aware of the fact that they have, albeit temporarily, taken control of the position. Equally, if and when the safety controller hands back the position to the candidate ensure they are fully aware of the traffic situation and their responsibilities. You should not do anything to distract the candidate, such as talking to them or other persons in the vicinity.

* Tip: A good indicator is that when an ATCO is speaking on frequency or landline, they should be either writing, ticking or moving something (a Flight Progress Strip (FPS) for example). If that is not happening, perhaps they have missed something.

3.11 The Day of the Examination - Arriving at a Decision

Retire to a quiet, private area to consider what you have seen using the notes you have taken to assist in the process; remember that you are looking for a reliable and consistent performance meeting the requirements of the unit. The result must reflect the view of all the board members; there is no provision for a minority report, so you must stay put until you reach agreement.

Actions by the candidate may create areas for questions during the oral phase of the examination.

3.12 Working as a Unit Competence Assessor

In this role, the Assessor is responsible for monitoring controller performance throughout the year, not just on the day the certificate of competence is to be signed. Records should be kept, securely, as required by the scheme. Assessors should endeavour to make some notes, at least quarterly, irrespective of the scheme requirements covering: -

- Any comments or issues discussed with the controller
- Whether the controller has been involved in any incidents, the outcome of any investigation and any retraining, if given
- The dates and results of any dedicated practical tests and the dates, content and results of any oral tests
- The date of any continuation training, particularly training in unusual circumstances and emergencies and the result of any subsequent assessment or test
- Any items of particular note, e.g. a particularly difficult session that was well-handled, or an infrequently seen situation that occurred
- The date upon which the certificate of competence was renewed

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The Assessor should be proactive rather than reactive. Proactivity is the method by which we aim to raise standards by encouraging controllers, particularly juniors, who are doing a good job and identifying potential OJTIs or Assessors. Above all, don't be negative - look for the good and build on it, don't be the one who is constantly criticising.

Rely on your own observations rather than rumour. Don't listen to gossip and then rush off to berate a controller, seek out the facts and analyse them first. You may find that the gossip merchants have got it all wrong and the subject of the rumours is totally faultless!

When conducting a dedicated practical test, the Assessor should sit adjacent to the controller so that they can monitor the flight progress strip display used by the controller as well as the Radiotelephony (R/T) and telephone. If there is an overriding operational reason why this cannot be achieved the Assessor may monitor from a remote position, but the controller must be advised of the circumstances. Continuous assessment may be achieved by the Assessor observing the standard of air traffic service provided by those whose competence they will certify whilst working with them during watch-keeping duties. Effective notes should be kept to enable the Assessor to debrief the controller during the year and to support any action taken. If the Assessor has had insufficient contact with the controller to enable certification to take place, this should be delayed until a dedicated check can be carried out

At some time prior to certifying competence, an oral check must be carried out. The Assessor is also responsible for assessing the success of the controller's refresher training.

It is recommended that Assessors debrief controllers at least twice a year; one of which should be coincident with the annual renewal of the certificate of competence.

Assessors may include a review of an R/T sample of the controller in order to objectively focus on R/T procedures and phraseology.

3.13 What Are You Looking For?

The same four basic concepts apply as for a validation examination but remember the standard should never fall below the minimum acceptable level for first competence. Controllers should mature and improve. Cases where individuals converge toward the minimum acceptable are a cause for action. The minimum acceptable standard may alter in response to changing traffic patterns so, where the minimum acceptable standard needs to increase, assess whether controllers are keeping up with the current requirements

Controllers should continue to be:

- Sound in practical techniques and methods
- Using technical aids to best advantage
- Up to date in their understanding of procedures
- Demonstrating good team working

3.14 Dedicated Practical Test Conduct - Notification

As with any test, the first action should be notification of the intent to carry out an examination. The regulator does not need to be notified of the intention to carry out a dedicated practical test.

Prior notification is intended to permit the controller time to review the current situation, to address any outstanding matters and to clarify any areas of concern. Ideally, about a week to ten days' notice should be given. The Assessor will also be able to prepare for the task ahead.

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3.15 Dedicated Practical Test Conduct - Preparation

As with a Validation examination, the Assessor will need to ensure that they are fully up to date with procedures.

Except when the dedicated practical test is carried out in response to licensing action by the regulator, e.g. a provisional suspension, a valid controller under test bears responsibility for the safe operation of the position. This does not absolve the Assessor from their duty of care if they see something that they feel the other controller has missed.

3.16 The Day of the Assessment - Arrival

The Assessor should arrive in good time and make the watch and the controller aware that they are present. At this point, a decision should be made on the best time to attempt the assessment taking into account the prevailing and expected traffic and other factors that may influence its successful conduct.

3.17 The Day of the Assessment - Briefing

The controller should be briefed by the Assessor on the conduct of the assessment. The items to be included should at least cover:

- **Introductions**

Unlikely to be required but introduce any strangers and explain each person's role.

- **The aim of the examination**

This is a simple statement of the position on which the examination is to be carried out. It serves to ensure that both the Assessor and controller are expecting the same thing.

- **The required standard**

There is no need to go through the standards in detail, just advise the controller that they should work as they usually do and in accordance with normal operating procedures.

- **Note taking**

Give a reminder that you will be taking notes, so writing does not mean that a mistake has been observed.

- **Working practices**

The controller should follow normal working practices particularly with reference to team working. If a situation arises where normal practice would be to call for assistance, then the controller should make the call.

- **Intervention**

You would not normally expect to have to intervene during a competence assessment. However, if you are the only valid controller, in the event that the check is post-licensing action, you may feel happier directly handling a situation because, if it goes wrong, the complexity of the situation may be beyond your ability to recover, and you will be the safety controller in this instance.

- **Emergencies**

This follows on directly from intervention, are you going to intervene or not? It is impossible to lay down a set of rules before starting the assessment; you are normally assessing a competent controller and they should respond to the emergency appropriately; if you are dealing with a post-licensing action assessment you may feel the need to intervene. There are no hard and fast rules, and each circumstance will have to be judged at the time.

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- **Is the controller ready?**

As with a Validation, the controller should be given the opportunity to withdraw if they don't feel up to the assessment for personal or medical reasons. The assessment can always be rescheduled but once the controller has accepted the assessment, they cannot subsequently try to claim personal factors in mitigation for a poor performance.

3.18 The Day of the Assessment - Arriving at a Decision

Retire to a quiet private area to consider what you have seen using the notes you have taken to assist in the process. Remember you are looking for a reliable and consistent performance meeting the requirements of the unit.

3.19 Poor or Declining Performance

When an Assessor observes a decline in a controller's performance, it is imperative that the controller and unit management are informed when the problem is first identified. Using your notes, and in consultation with other Assessors to ensure that your interpretation is correct, set a plan of action to improve the controller's performance.

The plan should set agreed, precise targets and time limits for the controller to meet and a method, commonly a dedicated practical check, by which success is established.

If we consider say, a case of poor R/T phraseology, having identified the problem, discuss it with the controller concerned and set a target date by which the phraseology must have reached an acceptable standard. Do not make it an empty threat. If you say you want to note an improvement in a particular length of time, make sure you check and debrief the controller when the time is up. Notify the management that you have concerns and what you have done; equally, let them know if and when the problem is resolved.

In the case of a major concern, unit management may need to institute more formal re-training.

3.20 Doubt About Competence

Where competence has been called into question by the Assessor, unit management may need to prevent the controller from operating. Neither management nor the Assessor can withdraw a certificate of competence, only the regulator has that power. If there is a real concern that unit management should inform the regulator, but unit management are reluctant to do so, the Assessor may make direct contact with the appropriate ATS Inspector. Following investigation, the regulator will institute licensing action, if appropriate. If a controller has been involved in an incident the regulator must be informed, and licensing action may ensue.

Whatever the reason for questions to be raised about an individual's competence, the Assessor will be expected to provide evidence. This is where the records play a major role. From the written evidence, the Assessor should be able to provide a considered and verifiable opinion as to the controller's competence. In the event that a controller involved in an incident is found to be in some way responsible, a likely method for restoring competence is re-training and a subsequent satisfactory Assessor check.

3.21 Post Incident Involvement

Following an ATC incident, the Assessor may be asked by unit management to give a professional opinion on the competence of the controller concerned. Unit management will probably ask an Assessor to assist in the initial unit investigation to determine probable cause and whether there is any ATC culpability. The Assessor may also be asked to give advice on any medium or long-term action to be taken when a controller has been involved in an incident.

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Section 4

Note Taking

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4.0 Note Taking

4.1 Why Take Notes?

Notes enable you to make and support your decision. You may feel, and be perfectly correct, in thinking that you can remember what the candidate just did, but can you do this with equal ability two or three weeks after the event? Remember, you may be called upon to show that your result was based upon sufficient evidence and to support the assertion that the controller was competent. Above all, remember that taking notes should not adversely affect your ability to monitor the safety of the situation and to take corrective action where necessary.

4.2 Note Taking Basics

Over a period of time, you will produce a myriad number of examinations on different candidates for various reasons. In order that you can identify which is which, it will be necessary to record certain basic information.

The date, candidate's name and which examination (Rating, Renewal position etc.) is being carried out are fairly obvious but there may be other factors to include.

Start and Finish times - Show that the candidate was given sufficient time to demonstrate their skills and understanding without being asked to work for an inordinately long period (local fatigue rules apply) and may in the event of an unforeseen occurrence, unserviceabilities or incident, reported after the event, show that the examination was carried out at a time when the event would not have affected it.

Weather conditions - these may make an otherwise simple situation more difficult, and allowance may be made for this. Equally, it provides evidence that the candidate is able to function in less favourable conditions as is required of a competent controller.

Equipment unserviceabilities - both airborne navigation and ATC equipment unserviceabilities affect the controller's workload. Allowance should be made but, once again, it is a requirement that a competent controller makes allowance and adjusts techniques to minimise the effects.

Traffic level and complexity - we all know that the number of aircraft handled is not the sole determining factor in workload, note should be taken, and allowance made, for situations that test the limits of the even the competent controller's skill.

4.3 Note Taking Techniques

There are many ways by which a written record of an examination can be made. The main criteria to meet is that the method you use must work for you and must not be so labour-intensive that it distracts you from the prime purpose of assessing the candidate's performance at the time.

Three possible methods are described here, each with its own advantages and disadvantages; however, you may have an alternative method that you prefer, which is perfectly OK too.

a) Direct Notes

In this case the notes are written directly across the page. Significant times are recorded together with details of what happened using a form of standard strip marking symbols. This represents just one flight and would in real life take up a couple of lines on a Letter sized note pad. The details recorded above show that at 1006Z ANG604 called for and was given start approval. There is no record that the temperature was given nor is there a reference to any automatic terminal information service (ATIS) information. The aircraft was later given taxi instructions to Alpha for runway 26, QNH 1023. The aircraft read back QNH 1013 which was not corrected by the candidate. The

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Standard Instrument Departure given was Dart 1A Squawk 5542, the aircraft read back a squawk of 5552 which was, in this case, picked up and corrected by the candidate. When ready for departure, the aircraft was instructed 'behind the landing B737 line up and wait behind' which was a good use of a conditional clearance. The flight became airborne at 1015, Approach was informed and the aircraft was transferred to the Approach frequency at 1017. The candidate failed to pass traffic information on a visual flight rules (VFR) flight VP-OBL before transfer; neither did they tell approach. For example:

NAME: A TEST DATE 20/12/17 TWR			
START 1000 - FINISH 1100			
(06)	ANG604 S	A 26 1023	1013 (-RBK)
(DAR 1A 5542)	A/C R/B 5552	/ 737 LU&W	(+EXP)
AB 15	APC C	119.7 /17	(- TFC VP-OBL)

b) Tee Sheets

When Tee sheets are used each aircraft's information is recorded in a Tee square. A number of Tee squares are drawn, or pre-printed, on a sheet of paper. Significant events are usually circled, numbered and catalogued at the foot of the sheet. It should be possible to review every heading given and level allocated etc. from the records. For example:

VP CCD C150	
2000VFR	TPRG / TAPA
#2376✓	N/E own nav
Q1023✓	NOTES: TAPA✓ TFC INFO MON123✓

In this case, VP CCD has departed VFR at 2000ft, QNH 1023, heading north-east on own navigation to Antigua. The QNH and squawk have been read back correctly, Antigua co-ordination has taken place and traffic information has been passed on MON123. So far, the candidate is doing well!

c) Significant Event

Both the preceding methods require a high degree of office-keeping which increases the workload of the Assessor. This may be detrimental to understanding the traffic situation and in the case of the safety controller is a severe disadvantage. Recording just the significant events reduces the workload and should enable the safety controller to stay abreast of the traffic. For example:

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DATE: 19/12/17	
NAME: B WIGGINS	ADC/129.07
START: 0740	FINISH: 0825
TIME	EVENT
0741	VP BBO NO QNH CHECK
0746	BVI800 NO CNFM OF ATIS ON 1ST CONTACT
0750	MON4125 WRONG R/B FREQ SPOTTED ✓
POOR COORD FROM AREA	
HVY RAIN SHWRS IN VICINITY	

4.4 The Approach to Practical Examining

There is a definite mind-set applicable to practical examining. As a qualified controller you are, in all probability, looking at the situation and deciding what you would do given the same circumstances. For instance, you may observe a departure and conclude that you would lift the heading restriction and confirm the cleared level of FL60. The candidate has obviously reached the same conclusion and on first contact with the flight says: "Anguilla six oh four no heading restriction climb to six zero" Excellent you think, but was it? The phraseology used was incorrect. Where was the station identification? Was that climb to FL60, 6000ft or FL 260? Are we about to witness a level bust?

In essence, ask what should have been done, how may it have been done and was it done using correct techniques and procedures.

When conducting a dedicated practical check or examination, the Assessors should position themselves adjacent to the candidate so that the R/T, telephones and data displays can be easily monitored. If there is an overriding operational reason that prevents this then the controller should be made aware of the situation.

In all cases where a validation examination is taking place, at least one valid controller should be situated at the operational position and in a position to take over control if necessary. Try to avoid 'crowding' the candidate by sitting too close and/or constantly looking over their shoulder. It may be necessary to see what is written on FPS periodically but try not to do this every time the candidate says or writes something.

As a valid controller yourself, you will appreciate that candidates will look for any indication from the Assessor as to how the examination is going. It is in everyone's interest to avoid making 'off-the-cuff' remarks or casual statements which may reflect (perhaps inaccurately) on the progress of the examination. Wherever possible, try to remain impassive and give no indication of your feelings. Remember that even a casual 'good' or 'well-done' may give the impression that the candidate has done sufficiently well to pass the practical check when the balance of the performance at the end of the assessment may not support that.

4.5 Security

Your notes are private and confidential, do not leave them lying around so that some well-meaning person can misinterpret what you have written and, by discussing your comments, prejudice the examination.

Section 5

Oral Testing

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5.0 Oral Testing

5.1 Purpose

Oral testing serves four main purposes:

Test understanding and appreciation – this is by far and away the most important use for oral testing. Does the candidate understand any risks associated with a particular course of action and how they are mitigated?

Confirm practical application - once the Assessor has witnessed the controller in action it is an opportunity to determine whether the performance was as the result of positive understanding of the task and the rules governing operation.

Confirm required knowledge - this takes on lesser importance than understanding. If the candidate understands their subject and can apply the knowledge practically, pure knowledge is of little significance but, and it is a big but, there are certain things (e.g. “what is the standing agreement”) that fall under the heading of pure knowledge and are essential to achieving accurate performance of the task. That said, the candidate must have sufficient ‘basic’ knowledge in the wider aspects of ATS, to perform their operational role successfully and safely. Naturally, it is important to be well-versed in local procedures, but any candidate must still have retained the basic PANS ATM ‘rating’ knowledge that they may not have reviewed since their initial training course (see also Section 3.7).

Test subjects not covered elsewhere - in a well-designed unit training plan, all eventualities should be covered, equally, through a competence year, most normal situations will occur; but sometimes they don’t! In the absence of simulation facilities, it will probably be necessary to question the candidate in depth on such subjects. It really should be considered a last resort and strenuous attempts made to test all subject areas by practical demonstration. Desk top exercises for emergency training are an example of a valid use of oral testing of a subject not covered elsewhere.

5.2 General Principles

Human factors play a large part in the oral assessment process as the question-and-answer situation is usually associated with a misdemeanour – “Morning James, do you know how fast you were driving there?” - rather than anything positive. It is imperative that the Assessor presents himself to the candidate as a caring individual rather than an inquisitor.

Adopt a non-aggressive posture, relax yourself and that will help the candidate to relax.

Look interested, there is nothing worse than a questioner who looks as if they have heard the same old rubbish so many times that they are about to go mad; sitting with hands clasped at the back of the neck or on the head is a prime example!

Keep eye contact, not the frozen fix or steely stare but enough to avoid looking shifty, how many times have we heard ‘I don’t trust them, they wouldn’t look me in the eye’ said of people?

Be encouraging, “that’s interesting tell me more” keeps the candidate talking without indicating whether the answer is correct or not.

Avoid interruptions, from others or from yourself. Select a quiet place and, if necessary, put up a “Do Not Disturb” notice. Do not break the candidate’s line of thought by interrupting unless they are obviously well off the point. In this case, can you be sure the way you worded the question could not be misinterpreted? Play it safe, interrupt saying: “I am sorry, I may have misled you there”, or words to that effect, and rephrase the question. If the candidate still gets it wrong, then they probably do not know the correct answer.

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5.3 Questioning Techniques

These suggestions are designed to avoid the possibility of a candidate misinterpreting your question. They still will from time to time but that all part of life's rich pattern.

To start, write down the questions, not in full but with the salient points so that you know what you are trying to ask without reading from a script. Even experienced Assessors do this to keep them on the straight and narrow rather than wandering all over the place and ending up with a fragmented test that is difficult to mark.

Avoid the use of book phrases or lists as they result in a book answer rather than one which demonstrates understanding. Book phrases or lists do however have a place in that they get the candidate talking, so they can be used sparingly. Try to keep the candidate talking for 85% of the time and talk a little as possible yourself.

Convert theory to practice. Air Traffic Control is basically a visual art and by putting scenarios to the candidate, with the use of diagrams, enables you to assess how the candidate analyses the situation and reacts to it and most importantly why they react in a particular way. There are nearly always several solutions to any given scenario - does the candidate really understand what they are doing?

Break down large subjects and use probing questions that encourage the trainee to talk. The well-known quote from Kipling goes "I keep six honest serving men (they taught me all I knew); their names are What and Why and When and How and Where and Who". For instance, rather than asking what is meant by co-ordination, which will inevitably result in just a definition; try "Who carries out co-ordination?" or "Why is co-ordination carried out?"

Indicate subject changes, e.g. "I have finished with co-ordination; now let's talk about radar identification". If you don't do this, you run the risk of the candidate trying to answer identification associated with co-ordination and not quite getting the answer you were looking for.

Listen for hooks. These are throw-away lines or statements that lead to a further question. Throw away lines may cover a lack of fundamental understanding so don't let the candidate bluff their way through. Beware of letting the candidate throw out a hook that they want you to pursue because they want to divert you from a subject area they are weak in to one where they are more secure.

5.4 Things to Avoid - Interruptions

We have already cautioned against interruptions but equally avoid closed questions, i.e. those that have yes/no type answers. They are open to guessing and will usually result in a one-word response. It is a natural reaction - try asking someone if they know how to get to the nearest supermarket and they will probably say yes, but if you ask them to tell you the way to the nearest supermarket, they will probably give you directions or say that they don't know. Examinations are no different in this respect. Also try to avoid opinion (subjective) questions; the candidate may hold an opinion contrary to yours based on very sound facts. How are you going to mark their answer?

There are a few definite things to avoid:

- Do not indicate the degree of difficulty: "I'll start you with an easy one". All questions are easy if you know the answer and impossible if you don't. Imagine the candidate's frame of mind if your easy one is something they don't know.
- Don't put doubt in the candidate's mind – "Are you sure?" - if the answer is correct there is no point and, if not, rephrase the question. If the answer is still wrong move on to something else; don't labour the point.
- Don't leave the candidate in silence, get them to talk through their thoughts as it will give you an insight into the way their mind works.

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- Don't get into arguments, if there is disagreement leave the subject until later and then resolve it. If necessary, after the examination you can refer to documents or seek further advice.
- Don't let the candidate see your answers; it's amazing how adept they can become at reading inverted writing. Equally, don't give the answer away in any other way, the most usual is by saying something such as "what about emergencies" which will doubtless result in the 'yes of course' response indicating "I knew that all along but it was so obvious I didn't think it was worth mentioning".

5.5 Judging the Answer

To every question there is a full answer with every punctuation mark in its place. But in most cases, there is a lesser answer that will satisfy the Assessor that the candidate has a sufficient grasp of the subject. It is this answer we are seeking and once it has been given there is little point in pressing on. The candidate has 'passed' however much more you wring out of them and there are plenty more topics that need covering. However, do remember that some questions, separations etc., of course need the full answer. When you have an answer, consider is it sufficient? If it is, move on; if not, probe a little, but if the extra is not forthcoming don't spend all day on it, move on again. Maybe you have been given something that bears no relation to the question asked; does this indicate a lack of understanding? If it does, then the answer is wrong. You are not there to pick out the relevant bits and discard the rest; that is the candidate's task. Finally, of those bits that were missing from the full answer were there any that would adversely affect safety? These are important and show an incomplete understanding.

To summarise there is:

The full answer	Pass
The acceptable answer	Pass
An answer with additional irrelevant facts included	Fail
An answer with safety critical facts wrong or missing	Fail

It is best not to use pass marks. Just think of it this way – if I had ten aircraft and allowed two aircraft to collide that's an eighty percent success rate for the application of separation. Nobody would consider this Satisfactory. Consider the quality and fullness of the answers given and whether or not the candidate has demonstrated a good understanding of procedures and their application in the practical environment.

Section 6

Debriefing

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6.0 Debriefing

Once the examination/assessment procedure and the report have been completed, it is time for the controller and, in the case of a Validation, the Training Organisation to be advised of the result. The Assessor is only required to detail the findings, they are not specifically required to make training recommendations. If training is required to overcome any failings the training organisation should decide the best course of action to remedy any shortcomings and they will require detailed observations upon which to base their plans.

For Validations, the chairman will give the debrief; for Assessor checks the Assessor will give direct feedback.

6.1 Format of the Debrief

The debrief is basically the same as a full OJTI debrief and follows the same format.

6.2 Good Points

Highlight the good points - the debrief should not be entirely negative.

6.3 Less Good Points

Work from the really bad to the less bad but be constructive. Identify the cause of the problem not just the problem. Any one can say "You lost separation there", but what is needed is the reason why, so that action can be taken to rectify the problem.

6.4 The Result

In respect to a Validation, this is what the candidate, and possibly others have been waiting for all along. It can be the first thing given if you feel that the rest of the debrief will not be lost in the resulting euphoria or depression. In some cases, it may be a good idea to give the result and leave a short break before the reasons are given. Sometimes, after a failure, it may be necessary to have a further, more detailed, debrief the following day. In respect to an annual renewal of competence the same rules apply – most controllers expect to pass, but they will still want to be reassured that they have. If they haven't, then it will need careful handling as they may be very upset and/or angry.

Remember that we will not accept the excuse of "feeling a bit off colour" at this stage if the candidate is unhappy with the result; they were given the chance during the briefing to withdraw with honour.

6.5 Invite Comment

Discussion during the debrief with a candidate about both the good and bad points of an examination can be very worthwhile. It can help gain a better understanding for all of you in respect to how the examination unfolded and it can be surprising how candid controllers can be about their performance.

Section 7

Human Factors

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7.0 Human Factors

Although it is the last chapter in this book, Human Factors are not the least important. The examination process is a stressful time for both the candidate and the Assessor. The Assessor has most control over the situation and should attempt to reduce the stress level sufficiently to gain a representative view of the candidate's performance. Stress will never be totally removed but a little stress can act in the candidate's favour. Slight stress is known as arousal and actually improves performance, but individuals vary in their reaction to stressful situations. Some peak earlier than others and pass from arousal into stress when performance deteriorates rapidly. Going beyond this stage brings us into the realms of clinical stress which is a recognised medical condition. Stress may be detrimental factor during examinations, and it should be watched for and offset.

Human Factors relate to the study of people in their living and working situations, their relationship with machines, procedures the environment and other people.

7.1 Human Error

Human beings make errors, but we are very good at lateral thinking; this is our greatest advantage over a machine. Controllers should always be on their guard against errors and Assessors should watch for errors that could potentially result in an avoidable incident. It is all too easy to blame the individual but there are many factors that contribute to human error, for example:

- Is the equipment performing to specification or is it creating an extra workload that acts as a distraction?
- Is the interface between human and machine easy to use or could this, in itself, lead to mistakes?
- Are the procedures clear and unambiguous or are they open to misinterpretation?
- Is the working environment, temperature, noise, lighting conducive to creating distraction?
- Has training been effective?
- What about the disruptions to circadian rhythms brought about by shift working?
- Are there any personal factors, domestic problems or ill health?
- What about the relationship with management?

Any of these factors, acting negatively, can make it more likely that a controller will make an error.

7.2 Categories of Errors

For convenience, errors can be put into categories:

Slip - The intention was correct, but the execution was faulty. Most commonly this is associated with allocating a level that is occupied because the controller was aware of the traffic but became fixated with that level rather than the vacant one. For example, "I'll climb below the 100" rather than "I will climb to 90" and the clearance comes out as "Climb to Flight Level 100"

Lapse - Not doing something that should be done, like clearing an aircraft to a level but omitting to add the "be level by" restriction.

Mistake - Doing what was intended but the plan was faulty in the first place; basically an error of judgement or poor technique.

Violation - A deliberate action against rules or procedures. This is rare but the competence of controllers who make this type of error is certainly called into question.

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7.3 Factors Affecting Competence

Competence and confidence are inexorably linked. Any factor that affects a controller's confidence in their ability results in a corresponding decrease in competence. Similarly, over-confidence has a negative effect upon competence.

Stress has already been shown to have an adverse effect but more sinister are the subtle effects of technological change particularly when associated with ageing which, in itself, is associated with a decrease in performance. Bad habits cause a decrease in competence, and involvement in incidents may lead to a loss of confidence. A controller who is struggling may become depressed and may resort to excessive drinking or even drug taking. The use of recreational drugs may have a detrimental effect on competence.

Ultimately, any of these will lead to increased stress and so we have come full circle.

7.4 Recognising Stress

There are several tell-tale signs that an individual is becoming stressed.

Visual or cognitive narrowing - concentrating on one particular aspect when others are in need of attention

Limited information intake - only getting part of the information passed, say as part of a co-ordination, or even refusing to talk to others "because I am too busy"

Premature hypothesis - the smart term for jumping to conclusions based in all probability on limited information intake

Over-adherence to plans - we all know the best laid plan can go wrong and so we alter our plan to suit; the stressed individual will not accept that the plan is wrong despite all the evidence and will probably become even more stressed as a result

Failure to Monitor Plans - this follows on from the previous heading "of course it will work, I don't need to watch it" in all probability they are afraid to watch because they know it will all end in tears

Solving the Easy Problem - "I can do this; I'll leave the difficult until later and perhaps it will go away"

Regression - it worked before: this is a recognised problem when individuals under stress revert to what they first learnt rather than new updated procedures. It is very evident in the use of old R/T phraseology and is a sign that things may be getting out of hand

Ultimately, the overstressed individual may exhibit signs such as excessive smoking or drinking, over or under eating. Sleeplessness, tiredness or lack of energy, short temper or a lack of concentration can also be indicators of stress. Assessors should look out for these signs and, if concerned, should try to determine the underlying reason in an attempt to resolve the problem.

7.5 Human Factors in Action

Finally, let us look at a very simple example of human factors in action. The requirement for readbacks is very explicit, they are a safety device that should, when correctly applied, ensure that mistakes are picked up and corrected.

The controller formulates an instruction and passes it to the pilot who, having understood the message, reads it back to the controller. If either the initial instruction or the readback contained a mistake the controller should note and correct it before trouble ensues.

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Taking the simplest example, the controller instructs an aircraft to change frequency say to 128.7 but mistakenly says 127.8. The pilot reads back 127.8 and the controller notes and corrects it. It matters not who made the error. If the controller passes 128.7 but the pilot reads back 127.8 and the controller notes the error and corrects it all is still well; but human nature may play a part. The pilot may, because they fly the route regularly, think the frequency was wrong but may be reluctant to query it just in case it changed yesterday, and they had not read the NOTAM. If the controller is not listening to the read back the mistake may go unnoticed. The controller may be expecting a correct read back and hear what they expect rather than what was said. Once again, the error goes unnoticed. Worst of all the controller may notice the error but think it was just the pilot getting the numbers confused and do nothing about it "after all it's on their chart isn't it".

A simple error such as this may at the very least, be inconvenient, but it may lead to even worse situations if the aircraft is out of contact for a substantial period. Imagine how much worse if the error was in a heading or level which, because the controller was under stress and not monitoring the plan, went unnoticed for several minutes.

Many controllers will claim they can listen to a read back and talk on the phone simultaneously without a problem. This is not true! What happens in reality is that the individual switches attention rapidly between the two, filling in the gaps with what they expect to hear. Answering the telephone whilst listening to a read back is one of the prime causes of missing errors; missed or incorrect readbacks are one of the prime causes of ATC incidents.

7.6 Fatigue

Rosters provided for ATS staff are structured to provide proper rest periods between shifts. When conducting assessments or competency checks, you should consider how long that candidate has been on duty for. Formal examinations should always be structured to comply with the unit Fatigue Risk Management System (FRMS) and if doubt exists as to whether an examination can be completed in time, then take a break away from the operational position.

Ideally, practical assessments should be scheduled to take advantage of planned traffic and if the opportunity arises, use typical breaks (lunch, for example) as a division between the practical and oral elements.

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Images, clockwise from top left:
St Helena Airport (credit: Graham Isaac, Worley Parsons); Ramp checking in Anguilla, Apron at Beef Island, BVI; Anguilla ATCOs;
Oil Nut Bay Helicopter, Virgin Gorda, BVI; BN2 Approach to Montserrat.