



**Guidelines
for
ATS Upgrade Training**

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1.2 Purpose

The purpose of this document is to provide information and possible lines of actions to prepare for the introduction of new CWPs

The main user of this document should be the person in charge of the preparation and training of operational staff to the CWP

Other users could include the different experts or managers that will deal with this training issue

This document should also be used as a source of information between the different categories of people involved in these training activities (training managers, course planners, instructors, manpower managers, operational heads)

1.3 Scope

The TSG recognised that system upgrade training is of great importance to many nations at present and will be of great importance to other nations in the future. This document is based on the practical experience of planners of system upgrade training

4. TRAINING PLAN

4.1 Reasons to Create a Training Plan

A training plan details an outline of the training requirements, methods of achievement and time scale for achievement

It is an essential part of the planning for an extensive training program. It should enable everyone concerned in the training task to know their roles and the training that is to be given.

A training plan will show

- WHO needs training,
- WHAT subjects you are going to train people in,
- HOW you are going to train them,
- WHEN you are going to train them,
- HOW LONG the training will take

One training plan may contain information for several different target groups of people. It is important that each person be made aware of the training plan they are going to follow. In some cases it may be easier to produce an overall training plan and then individual sub-plans for the various target groups.

This Chapter contains an outline of the contents of a training plan. An example from the UK CAA is included in Annex A of these guidelines.

NOTE - The suggestions shown here are only guidelines and you will need to add or subtract other items to suit your own needs.

4.2 Identify Who Requires Training

4.2.1 General

Identify the different target groups of people that will require training, e.g.

- Planning Controllers,
- Radar/Tactical Controllers,
- Flight Data Personnel

NOTE - In some cases a change of role may also be required and this must be identified.

4.2.1.1 The Skills Gap

The "Skills Gap" identifies the training that is required, i.e. the gap between the current skills and the required skills, and identifies the training task.

4.7.2 Description of Checkout/Validation procedures to be used

Define success/fail criteria and validation procedures before use of the equipment in an operational environment

Define the assessment methods to be used. These will normally fall into one of the following categories

- performance test,
- continuous assessment,
- written assessment,
- verbal assessment,
- no assessment

An example is described in Annex A

4.8 Other Considerations

4.8.1 Marketing

For members of staff a period of change always brings about uncertainty and concern. It is important that the training plan is properly "marketed" to the staff members.

At all times information and training courses must be presented professionally, a regularly produced newsletter or magazine helps to inform everyone of progress.

4.8.2 Training Strategy

The success of system upgrade training will depend on thoroughness including the minimum of change to familiar practice. Any alternative strategy may result in additional stresses being placed on ATC operations.

Although it is inevitable that the introduction of new equipment will mean some changes to the existing method of operation, major changes to the ATC environment should be avoided.

Major changes to the ATC environment could be introduced once controllers are familiar with the new equipment, or alternatively, could be introduced prior to commencement of system upgrade training.

4.8.3 Impact on Other Training

4.8.3.1 Ab-Initio Training

During the system upgrade training, ab-initio training may have to be curtailed.

Training resources may not be sufficient to handle both the upgrade training and routine training. The impact on routine training may be severe and advance planning could be measured in years.

5.7 Real Time Simulation

5.7.1 Introduction

Real time simulation is the traditional method of teaching operational ATC procedures. It is labour and time intensive.

It is probably still an essential part of training for new radar display equipment.

The simulator must accurately represent the operational equipment if it is to be of the greatest value.

5.7.2 Uses

Practice of operational ATC situations following training in new tasks and equipment.

5.7.3 Advantages

Allows risk-free practice of all required skills in real time.

Shortens OJT.

Incremental levels of difficulty are presented in a logical (and controlled) sequence.

5.7.4 Disadvantages

Relative high cost.

Resources such as pseudo pilots and controllers for feed sectors may be required.

May introduce incorrect procedures and actions if it does not exactly replicate the operational equipment.

5.8 Use of Operational Equipment

5.8.1 Introduction

Following installation of new operational equipment there is normally an extended period of testing before it can be used operationally.

During this period, time should be allowed for use of the full system for final training.

During the same period, the equipment may also be used for shadowing.

5.8.2 Advantages

Allows practice on the new operational equipment.

May reveal faults that were not previously apparent.

NOTE - System testing inevitably does not reveal all the system problems. Use of the full system for shadowing and final training can often reveal unforeseen problems.

5.8.3 Disadvantages

May not be available due to installation and testing.

6. DOCUMENTATION

6.1 General

Extensive documentation will be required to support the training This Chapter briefly covers documentation that it may be necessary to provide It is not a comprehensive list

6.2 Training Plan

This will be a comprehensive document identifying all the training requirements and the methods of achieving them

For ideas on contents see the Chapter on the training plan in these guidelines

6.2.1 Checklist of Pages

As the contents of the training plan may change, it is suggested that a checklist of pages is established

Each page should be dated and a record kept on this checklist of the number of each page and the date of issue

Records should be kept of training plans issued and any issued amendments

6.3 Training Manual

The provision of an individualised training manual for every person involved is strongly recommended

Such a manual would contain all the required training notes and information for a particular person's training route map (see note 1)

Production of slightly different manuals for radar controllers, planning controllers, tower controllers etc , could be considered but adds to the administrative workload Alternatively, a comprehensive manual could be produced with clear guidelines as to which sections are applicable to which role/task

The contents of any manual will depend on the specific equipment and any operational changes being made The headings given in this manual are a guide and should be added to, subtracted from or modified to suit individual needs (see note 2)

NOTES

- 1) People are often apprehensive about new technology and the training they will receive The provision, at an early stage, of a manual showing what training they will receive may well allay apprehension It also shows that training has been planned, which can establish the credibility of programme
- 2) Much of the system information can be obtained from the manufacturers handbooks and specifications In many cases the information contained in these, although accurate, is in a format that makes study by an individual controller difficult This manual should thus contain the information in an easily readable format The information should also be limited to that directly required by the controller

7.4 Flight Data Processing

7.4.1 Target Audience

Controllers and ATC staff handling FPLs and flight data

7.4.2 Course Aim

A detailed explanation of FPL and flight data processing associated with the system

7.4.3 Course Contents

Only the broad headings of contents are given

The following represents items that could form course contents

- equipment used
 - computer system,
 - input terminals,
 - output devices,
 - strip printers, electronic data displays
- relation with RDP equipment,
- FPL reception,
- methods of inputting FPL data into the system,
- storage of FPLs,
- FPL phases and states,
- the different phases in the life of a FPL,
- terminology for these phases or states,
- FPL activation and subsequent handling (see note 1),
- how a FPL is activated,
- transfer of FPL data between sectors,
- transfer of FPL data between units,
- strip printing
 - when printed,
 - where printed,
 - types of strip
- FPL modifications allowed (see note 2),
- modifiable system parameters (see note 3),
- details of times when FPL actions take place,
- system failure procedures (detail the procedures to be followed when the automated system, or part of the automated system, fails),
- diversion and holding procedures

7.8 Co-ordination Procedures

7.8.1 Target Audience

Radar and planning controllers

7.8.2 Course Aim

A detailed explanation of the co-ordination procedures and techniques to be used with the new system

7.8.3 Course Contents

Only the broad headings of contents are given

The following represents items that could form course contents

- co-ordination procedures
 - automated procedures,
 - manual procedures
- hand-over procedures
 - automatic hand-over procedures,
 - semi-automatic procedures,
 - manual procedures
- modifiable system parameters (e.g. hand-over proposal, transfer of FPL estimates to adjacent units)

NOTE - A system contains a multitude of such parameters. Those directly affecting the controller should be identified and detailed here

7.8.4 Training Methodologies

Suggested training methods for this course are

- classroom/training notes,
- time controlled simulation,
- CBT

7.8.5 Documentation

Co-ordination procedures should be accurately detailed in the Manual of Air Traffic Services (MATS) or such similar document. Where procedures change at the time of new equipment introduction, it may be appropriate to include the new procedures in the Training Manual. After operational implementation, they can then be transferred to the standard documentation.

A .5 INTRODUCTION

A .5.1 Background

The success of the transition from the old centre to the new centre operations will depend on thorough training involving a minimum of change to familiar practice. Any alternative strategy would result in a risk to the safety of operations. To achieve this there will be no major changes to the old centre sectorisation and procedures from the end of [date]. It is planned that the new centre operations will commence on [date] requiring about [number] civil controllers, about [number] military controllers and about [number] civil and military assistants.

The objective of the ATC training is to convert ATC staff from the old centre operations to the new centre operations. There are some major differences between the two modes of operation. However, some tasks remain almost unchanged.

A .5.2 Purpose

The purpose of this paper is to document the training planned for the transition from the old centre to the new centre.

A .5.3 Scope

This paper will identify the tasks and associated staff for whom training is required. It will detail where and when this training is to take place in order to achieve the project date.

A .5.4 Whom

Although the largest part of the training is for the core ATC staff, mainly the controllers who will perform the radar/tactical and planner tasks, there are many other functions to consider. The preliminary work that has been carried out on the ATC Manpower Plan has identified the following staff who will require training:

- controllers who will assist with systems acceptance and operational testing,
 - simulation support specialists who will form the core team for the training and development unit,
 - key trainers,
 - On-the-Job Training Instructors (OJTI) who will assist in the operational work-up phase and then train the other ATC operational staff,
 - civil ATC operations room supervisors,
 - local area supervisors,
 - specialist flow management staff,
 - radar/tactical and planner controllers,
 - ATC assistants,
 - ATC briefing office staff,
 - military ATC staff, including assistants,
 - pseudo pilot operators/blip drivers,
 - controllers who will staff the feed sector positions.
-

The schedule should be as follows

Date	Sector
15-19 xx	AAA - GGG
22 - 26 xx	GGG - MMM

For each of the proving courses the following staff will be required

Staff	Source
25 civil controllers	OJTI practical training team
10 assistants	Assistant practical training team
6 military controllers	New centre military trainers
8 civil feed controllers	Retired controllers
2 military feed controllers	Old centre military
27 pseudo pilots/blip drivers	New centre simulator support staff
NOTE - It is assumed that the OJTI practical training team will hold the appropriate old centre validations	

The risks to the project in not carrying out this proving period is that the organisation and management of operational conversion training courses will not have been checked before the courses begin, the quality of the documentation will not have been assessed and the practical training team of OJTI and assistants will not be familiar with the course format and the exercise content

A .8 COURSE APPROVAL AND ASSESSMENT OF CONTROLLERS

A .8.1 General

In order to approve the preparation for operational conversion training courses, [State] Licensing Authority staff will need to see the following for each course

- the timetable of lessons and practical exercises, including details of self study arrangements (CBT),
- student and instructor guides including course objectives, lesson plans and visual aids,
- details of any practical exercises,
- forms to be used to record results of performance tests, verbal and written assessments

The operational conversion training courses will be assessed by continuous assessment and in order to approve these courses [State] Licensing Authority staff will need to see

- the timetable of lessons and practical exercises,
- student and instructor guides including course and terminal objectives, lesson plans and visual aids,
- details of practical exercises,
- assessment guide showing milestone assessment objectives and forms to be used to record results of milestone assessments

During the operational conversion training courses members of the OJTI practical training team, qualified as assessors, will carry out the milestone assessments. The assessments will be verified by members of the old centre training section and moderated by the staff from the [State] Licensing Authority

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