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CONTROL OF IFR AIR TRAFFIC ALONG AIRWAYS USING FLIGHT PROGRESS BOARDS

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FOREWORD

This Circular contains air traffic control procedures for air traffic control personnel in controlling IFR air traffic along airways, using flight progress boards.

The procedures have been reproduced, with slight modifications to incorporate accepted ICAO terminology and references to appropriate ICAO texts, from those contained in the United Kingdom Air Traffic Control Instructions No. 3, Parts I and II. They are very similar to those in use in the United States of America.

The Fourth Special Meeting of the RAC Committee - European-Mediterranean Region, Paris - June/July 1952, recommended that these procedures be used in establishing instructions for the internal operation of area control centres controlling airways.

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PART I

AIRWAYS CONTROL OPERATING INSTRUCTIONS

CHAPTER 1

INTRODUCTION

1. The following procedures have been prepared showing the detailed operation of the Flight Progress Boards, the duties of the personnel employed on Airways Control, the manner in which Flight Progress strips are to be marked, etc.

2. The functions of the personnel, together with their titles are:-

3.3 The 'D' position operation - Airways Control Officer.

3.2 The 'A' position operation - Airways Assistant Control Officer.

CHAPTER 2

DEFINITIONS

BAY. A sloping panel of a Flight Progress Board unit.

BAY DIVIDER. An adjustable horizontal divider used to separate prepared strip-holders being held in suspense in the bays at the 'A' position.

DESIGNATOR. An approved abbreviation used to identify an airway, a reporting point or other location.

ENTRY FIX. The first notification of position made when a flight passes over a specified reporting point after entering a Sector.

EXIT FIX. The last notification of position made when a flight passes over a specified reporting point before leaving a Sector.

FLIGHT PROGRESS BOARD. A unit comprising sufficient Bays to accommodate positions 'A' and 'D' upon which are posted Flight Progress strips relevant to flights within a particular Sector.

SECTOR. A portion of the Control Area.

SUCCEEDING SECTORS. Sectors through which a flight will pass in the order of passing.

SUSPENSE BAY. The portion above the divider of a Bay at the 'A' position.

TRANSFER BAY. A portion of the first or fifth Bay used to transfer strip-holders containing flight data to an adjacent Sector.

Note. - It has not been considered necessary to define such words or phrases as:

ESTIMATE,
BOX (used in connection with Flight Progress strips),
FLIGHT PROGRESS STRIPS,
STRIP HOLDERS,

since a perusal of this document renders them self-evident.

CHAPTER 3

DUTIES OF AIRWAYS CONTROL OFFICERS

3.1 INTRODUCTION

The paragraphs which follow give detailed information on the duties to be performed in each of the positions of operation. The Centre Superintendent may assign supplementary duties to any of the positions.

3.2 POSITION 'A'

3.2.1 To study all weather forecasts and reports issued which relate to flights within his Sector.

3.2.2 To ensure that there is an adequate number of blank flight progress strips in readiness for accepting incoming flight data.

3.2.3 To receive Flight Plan information by telephone and post it direct on to flight progress strips as detailed in Chapters 4 and 5.

3.2.4 To keep the prepared strips in proper time sequence, with the earliest time at the lower end of the Bay.

3.2.5 To prepare flight progress strips for the reporting points within his sector together with an additional flight progress strip for the entry fix of the succeeding Sector as detailed in Chapters 4 and 5.

3.2.6 To transmit by telephone or other communication facility, Flight Plan data and Control information to other positions within the Area Control Centre or to adjoining Area Control Centres at the appropriate time.

3.2.7 To transfer prepared flight progress strip holders to the relevant 'D' position.

3.2.8 To monitor telephone information being transmitted and received by the relevant 'D' position, acknowledging receipt of information for which action is required by the 'A' position.

3.2.9 To answer all telephone calls for the Sector, alerting the 'D' position when the call is intended for the latter. If the 'A' position is dealing with a call when a second call is made, the 'D' position will accept the call when circumstances permit.

3.2.10 To initiate telephone calls on instructions from the 'D' position.

3.2.11 To remove and file flight progress strips which are returned by the 'D' position.

3.3 POSITION 'D'

3.3.1 To study all weather forecasts and reports which relate to flights within his Sector. To examine reports on the serviceability state of navigational aids within his Sector.

3.3.2 To ensure that the separation standards as laid down in paragraphs 3.1 to 3.4 of the PANS-RAC are applied to all clearances issued for flights within the sector for which he is responsible.

3.3.3 To issue all Airways traffic clearances and other Control messages either directly or through other positions of operation in conformity with the procedures and phraseology contained in Section 2, Chapter 3 of the PANS-RAC.

3.3.4 To keep the flight progress strips on the Flight Progress Board in correct time sequence.

3.3.5 To make revisions to ATC estimates as necessary immediately after a position report has been posted.

3.3.6 To maintain current expected approach times as required.

3.3.7 To transfer flight progress strip holders to the 'A' position when the information contained on a strip is no longer required for Control purposes.

3.3.8 To effect co-ordination with the appropriate Sectors, FIR Controllers, Aerodrome Controls, Approach Controls and adjoining Area Control Centres.

3.3.9 To keep the 'A' position of his Sector advised on aircraft performance in order to assist in current estimating.

3.3.10 To co-operate with Radar Controllers in accordance with relevant procedures.

CHAPTER 4

MARKING OF FLIGHT PROGRESS STRIPS

4.1 INTRODUCTION

Data are to be posted on the flight progress strips in black pencil. Corrections and revisions to information on a flight progress strip will be accomplished by drawing a line through incorrect data and re-writing it correctly adjacent thereto in the same box. No erasures are to be made.

4.2 COMPILATION OF FLIGHT PROGRESS STRIPS

Using the following diagram as a proforma, entries on the strips are to be made as under:

<table>
<tr><td rowspan="2">A
B</td><td rowspan="2">C</td><td rowspan="2">D</td><td>E</td><td>F</td><td>G</td><td>H</td><td rowspan="2">M</td></tr>
<tr><td>I</td><td>J</td><td>K</td><td>L</td></tr>
</table>

(A) ATC estimated time in hours and minutes, at which an aircraft is estimated to be over a reporting point. In the case of departing aircraft, the time at which departure is proposed is inserted. The hour is to be written in large figures. The position to which this time refers is placed in the upper right hand corner of the box, using the approved abbreviation.

(B) The time - in minutes only - at which the aircraft was over the position to which the strip relates. When an aircraft is holding over the position, this box is to be divided into two equal portions by a diagonal line ending in the lower right hand corner: the time over the position is then posted in the lower left portion and the time of leaving the position in the upper right portion. In the case of departing flight the actual time of take-off is inserted in this box.

(C) Altitude information in thousands of feet: entries are to be made in vertical columns commencing in the upper left hand corner. When a cruising level change is proposed between two reporting points, the cruising level of the preceding position is inserted in the upper right hand corner enclosed with a pencilled square.

If the proposed and actual heights differ, the actual height is inserted and circled: no cruising level marking is required when the actual and proposed cruising levels agree.

In assigning a cruising level, the proposed cruising level, together with such intermediate cruising levels for which reports are required are posted in correct sequence.

Upon receipt of a report leaving or passing through a cruising level, a horizontal line is drawn through that figure.

When reports on leaving the intermediate cruising levels are NOT required, an arrow indicating climb or descent is used; a horizontal line is drawn through the arrow only on receipt of a report of reaching the proposed cruising level or passing through a cruising level immediately adjacent to it.

(D) Aircraft identification in large outline near the centre of the box. The type of aircraft in the upper right hand corner using the approved abbreviation. Speed of aircraft in the lower right hand corner prefixed by the letter 'T' for filed true airspeed: when subsequent calculations enable the ground speed to be determined this is shown without a prefix.

The final strip for an arriving flight is to contain the four-letter abbreviation of the place of departure in the upper left hand corner.

(E) A downward arrow - indicating a "landing flight" - is inserted on the strip relating to an aerodrome and the preceding reporting point. An upward arrow - indicating a "departing flight" - is inserted on the strip relating to an aerodrome.

A PINK STRIP is to be used for a "crossing flight" and the intended crossing point is to be related to the reporting point which is geographically the nearer: e.g. - 10 mls. W. BRS.

(F) Time of arrival when required. If it is desired to record the time of clearance and time of arrival, this box is to be divided into two equal portions by a diagonal line ending in the lower left corner; clearance time goes in the upper left and arrival time in the lower right triangle.

(G) Pilot's estimated time over the position; this is shown as four figures when the hour differs from that shown in box (A).

(H) Abbreviation of previous reporting point, under which is inserted the actual time over that position.

(I) The route of flight as complete as necessary for Control purposes,
(J) including the point of departure and of first intended landing, using the
(K) approved abbreviations. On the 'clearance limit' strip for arriving aircraft, these boxes will be used (J) for the release point, and (K) for the expected approach clearance time.

(L) Time, place or altitude at which an aircraft has been instructed to contact approach control. This box is also used when effecting sector or Area Control Co-ordination.

(M) Control data, starting in the upper left hand corner, are to be indicated in accordance with the approved symbols, abbreviations and contractions. Traffic information, when issued, is also to be inserted in this box by writing the identification of the appropriate aircraft.

4.3 CHECK MARK

A check mark (√) is to be inserted opposite any data on this form to indicate that pertinent information contained thereon has been transmitted to the appropriate ATS Unit, and will be related to the information shown in box (L). The transmission of revised items is to be indicated by a check mark alongside each revision.

4.4 ABBREVIATIONS, SYMBOLS AND PHRASE CONTRACTIONS

4.4.1 The abbreviations, symbols and phrase contractions which follow are authorized for the use in making entries on flight progress strips, in copying or writing traffic clearances, flight movement reports, etc. They are not, however, to be used in the preparation of any message for delivery to other sections - for example, over the teleprinter network, for the meteorological sections, in official reports, etc.

A Cleared to Aerodrome (point of first intended landing).

F Cleared to a reporting point (fix).

H Holding instructions issued.

R Cleared to a Radio Range station.

I Cleared to ILS.

S Cleared to SBA..

Note. - When the clearance to a reporting point, range station, ILS or SBA contains holding instructions, the abbreviations F, R, I or S will not be used; the abbreviation H is to be followed by a hyphen and an abbreviation indicating direction from the position in which the aircraft has been instructed to hold; e.g. H - E; or H - NE.

 Cleared to leave Area Control Area.

X Cleared to cross the Airway in the vicinity of a reporting position

V Cleared over a reporting point - over flight.

 No delay expected.

RSYD Release subject to your discretion with regard to .....

CE Clearance expires .....

$\frac{\quad}{\text{(time)}}$ Release not before .....

WRC Well to right of the on-course signal.

RACE Request altitude change en route.

 Climb.

 Descend.

\- To: By: Less than.

( ) Alternative instructions.

$\underline{\quad\quad}$ Restrictions written below this line.

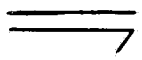
/ After passing.

 Aircraft has reported at an altitude other than that proposed.

 At least 500 feet on top of all clouds, haze, smoke or fog.

....x ..... feet or above.

Examples

 Joining flight

↓5/STW Descend to 5000 feet after passing Stockwood.

↑WRC/Woo Climb well right of the on-course signal after passing Woodley.

8 ↓ 5 / 1026 Maintain 8000 feet descend to 5000 feet at 1026.

VFR(7.5) Descend in accordance with Visual Flight Rules, if not possible maintain 7500 feet and advise.

CHAPTER 5

AREA CONTROL CENTRE ARRANGEMENTS

5.1 INTRODUCTION

The basic plan for operating Airways Control provides for one or more Flight Progress Board units, with operating positions on each side - termed the 'A' position and 'D' position. Each Flight Progress Board unit comprises five bays for each of these positions and each bay has one or more designators for the reporting points within a sector. When necessary the posting for an exit fix of an adjacent Control Area can be made on the entry fix strip in the space provided (box (h)).

5.2 DESIGNATORS

5.2.1 A designator strip is prepared for each reporting point required for the efficient control of Airways Air Traffic within the Control Area. Each strip, with the abbreviation printed on a contrasting background, is placed in the appropriate position in the correct bay.

5.3 REMOVAL OF FLIGHT PROGRESS STRIPS

5.3.1 Flight Progress Boards shall contain only such flight progress strips as are current and required for Air Traffic Control purposes. Strip holders are to be removed from the Boards as soon as the information contained on the strips is no longer required.

5.4 FLIGHT DIRECTION INDICATION

5.4.1 Flight Progress strips are coloured to indicate direction of flight: buff for eastbound flights (001 to 180 degrees T.), blue for westbound flights (181 to 360 degrees T.) and pink for crossing flights.

5.5 'A' POSITION OPERATION

5.5.1 Departing Flights:

5.5.1.1 Abbreviated Flight Plan messages are received by telephone from the appropriate agency (Clearance Office - Movements - Approach Control - Company - Pilot) by the 'A' position within whose sector, control will first be exercised.

5.5.1.2 This information is posted on the appropriate coloured flight progress strip and a second similar strip is prepared, omitting the altitude and route (which may be varied when clearance is subsequently issued), this information being inserted later.

5.5.1.3 The first flight progress strip is immediately transferred to the corresponding 'D' position.

5.5.1.4 This flight progress strip remains above the designator strip at the 'D' position until clearance is requested and issued, when it is placed in departure sequence until the departure time is received after which it is placed in time sequence. The 'A' position monitors the clearance and marks his flight progress strip accordingly.

5.5.1.5 The flight progress strip held by the 'A' position is temporarily retained in the "Suspense" bay.

5.5.1.6 When the departure time is received and posted by the 'D' position, the call is monitored by the 'A' position and is posted on the flight progress strip.

5.5.1.7 The 'A' position now prepares flight progress strips for the reporting points within his sector together with an additional strip for the entry fix of the succeeding sector if that sector is physically adjacent.

5.5.1.8 Transfer of control

5.5.1.8.1 When a flight will enter an adjacent control area, the ATC estimates for the entry fix and essential portions of the information contained on the flight progress strip should normally be transmitted by telephone to the adjacent sector of that area control centre 30 minutes before the flight is estimated to enter the area. This time is reduced when the departure point is less than 30 minutes flying time from the boundary of the adjoining control area.

5.5.1.8.2 The information to be passed is:

Aircraft identification and radio call-sign if different;

Type of aircraft;

Time at which the aircraft is estimated to be over the entry fix, or boundary;

Cruising level;

True airspeed;

Route;

Clearance limit when other than aerodrome of first intended landing;

Remarks as necessary.

5.5.2 Flights entering a Sector from another Sector.

5.5.2.1 Flight data are normally received from an adjacent sector - either by means of a prepared strip holder placed above the appropriate designator, or by telephone from an adjoining Area Control Centre.

5.5.2.2 If the aircraft will not enter the Sector for at least 30 minutes (or other locally prescribed time) the prepared strip is to be placed in sequence in the Suspense portion of the bay.

5.5.2.3 An estimate for the exit fix of an adjacent Sector is received from that Sector at least 30 minutes prior to the time of the estimate.

5.5.2.4 The 'A' position prepares flight progress strips for the reporting points along the route of flight within the sector.

5.5.2.5 As soon as the flight progress strips have been prepared, the 'A' position places them in the bay of the corresponding 'D' position.

5.5.2.6 As each prepared flight progress strip holder slides into place at the 'D' position, it rests above the designator strip for that bay: this indicates that the strip has not been sequenced.

5.5.2.7 At this point the responsibility for further handling of the flight progress strips shifts from the 'A' position to the 'D' position.

Note. - All action prior to the appearance of the prepared flight progress strip above the designator at the 'D' position has been handled by the 'A' position. The 'D' position has not so far been concerned in any way; the only strips under his surveillance are those representing active flights.

5.6 'D' POSITION OPERATION

5.6.1 Immediately a flight progress strip is placed above a designator, the 'D' position places it in proper time sequence below the designator commencing from the lower part of the bay. In the case of a departing flight however, the first flight progress strips remains above the designator until a clearance is requested.

5.6.2 Position reports over all the reporting points within the Sector are received either directly from the aircraft, by telephone, or by other means of communication. This information is posted in the correct 'box'.

5.6.3 Revisions to estimates are made by the 'D' position but only within the Sector allotted.

5.6.4 The transfer of control for flights entering a Terminal Area should be made in time to enable the inbound clearance to be issued at least five minutes before an aircraft is estimated to reach the appropriate Transfer Point or such other position as is specified in the procedures concerned.

Phraseology: "Contact .... (call sign) on .... (frequency) at .... (time or place) for further instructions"

5.6.5 Revision of estimates

5.6.5.1 If a flight is scheduled to enter an adjacent area, information concerning any revision of estimate of three minutes or more shall be forwarded to the adjacent area control centre, normally by telephone.

5.6.6 Approval Requests

5.6.6.1 When an aircraft is scheduled to enter another Control Area within less than 30 minutes (or other prescribed time for passing this information), and the first reporting point is in the adjoining area, an "Approval Request" should be made to that Area Control Centre and co-ordination effected before issuing a clearance.

5.6.6.2 Centre procedures may be established whereby the submission of an "Approval Request" is made the exception rather than the rule. In this event it will be the responsibility of the Centre to which an "Approval Request" would normally be submitted, to notify the adjacent Area Control Centre, should Approval Requests be needed over any given period.

5.7 PHRASEOLOGIES ASSOCIATED WITH TRANSFER OF CONTROL

5.7.1 Each telephone communication is to be preceded by a term indicating the type of message to follow, such as "Flight Plan - "Clearance" - "Estimate" - "Revision" - "Approval Request".

5.7.1.1 Estimate: Identification of aircraft
Type
"Estimated over .... (place) at .... (time) at .... (cruising level)"
Speed "(Filed or amended true airspeed)"
Route
Clearance limit, when other than the aerodrome of first intended landing
Remarks as necessary.

5.7.1.2 Revision: Identification of aircraft
Type
"Now estimated over .... (place) at .... (time)"
"Revised ground-speed (if different from that previously given)".

5.7.1.3 Approval Request: Identification of aircraft
Type
"Expected departure from .... (place) at .... (time)
"Requests .... (feet) via .... (route)"
Filed true airspeed.

(If adjacent Area Control Centre does not approve altitude proposed, an alternative is obtained. Clearance will then commence with "Unable to approve .... (desired cruising level) on account of .... (reason)". Then follow with clearance using alternative.)

5.8 OPERATION OF TELEPHONE

5.8.1 Telephone facilities between the different Air Traffic Control Units within a Control Area, between adjacent Area Control Centres will be provided to ensure a rapid voice communications service for the exchange of information pertinent to the control of air traffic. Authorized communications follow in the general order of importance and transmission of messages should be governed by the relative importance of the contents to the control of air traffic rather than by rigid adherence to the order listed.

5.8.1.1 Emergency Communications: Concerning accidents, suspected accidents and situations directly endangering life and property.

5.8.1.2 Movement and Control Messages: When two or more movements or control messages are on hand for transmission their precedence shall be in the following order, except that the order may be modified by consideration of the time element involved and their relative importance to the control of air traffic.

a) Clearances and Instructions;

b) IFR Movement Messages:

Flight Plans
Progress Reports
Arrival Reports

5.8.1.3 VFR Movement Messages.

5.8.2 Conversation shall be as brief and concise as possible, without hesitation and in a uniform flow of language. Clear and distinct enunciation is necessary, with special attention paid to numerals.

5.8.3 Messages of a lower degree of importance may be interrupted for the transmission of more important messages: for example the continuous transmission of a series of Flight Plans may be interrupted for the transmission of an Air Traffic Control clearance. Transmissions are to be terminated by the announcing of the sender's initials.

APPENDIX A

CALCULATION OF EXPECTED APPROACH TIME

1. Reference is to be made to the PANS-RAC

Paragraph 4.2.6	page 63 and page 64
Paragraph 4.2.7	page 63 and page 64
Paragraph 4.2.8	page 64
Paragraph 6.2.1.3)	
Paragraph 6.2.1.4)	page 120
Paragraph 6.2.1.5)	
Paragraph 6.2.2.1	page 120
Paragraph 6.2.2.2	page 121

2. It will be seen that Approach Control is to keep the Area Control Centre currently informed of the average time-interval between successive approaches.

3. The calculation by the 'D' position handling inbound traffic, is based on the time taken for the lowest holding aircraft to make its approach.

4. This time-interval is then added to the time at which the first aircraft checked over the holding point, thus giving the expected approach time for the second aircraft. The sequence is continued for the remaining aircraft and the expected approach times amended from time to time as necessary.

5. Below is given an example showing five aircraft, using an assumed time interval of four minutes; this example should be read as on the Flight Progress Board, from bottom to top.

Time over Holding Point	Expected Approach Time	Mental Calculation
1000	1002	(Add 4 mins: giving 1002 for 5th aircraft)
0958	No delay expected	(At a glance it will be seen that by adding 4 mins. it will leave the 4th aircraft clear.)
0945	0947	(Add 4 mins: giving 0951 for 3rd aircraft)
0943	No delay expected	(Time interval of 4 mins. added to 0943 gives 0947 for 2nd aircraft)

APPENDIX B

FLIGHT PROGRESS STRIPS DISPOSAL AND COMPILATION OF AIRWAYS DATA FOR RECORD PURPOSES

1. - GENERAL

1.1 The strip-holders are returned by the 'D' position via the chute to the 'A' side of the Flight Progress Board. At periods when there is a lull in activities, the 'A' position will collect these strip-holders and remove the strips.

1.2 On the under-side of the bays there is a container for used strips, bearing the name of each reporting point within the Sector. The strips are to be sorted and placed in the appropriate container.

1.3 At the end of the day's work the strips are to be removed from these containers and the Daily Operations Sheet completed.

1.4 The strips for each reporting point are to form a separate bundle and then the whole wrapped together and dated on the outside.

1.5 Each day's working as shown by the strips, is to be retained in the same way as the present aircraft movement chits.

2. - DAILY OPERATIONS SHEET

2.1 The object of this record is to determine the volume, type and growth of traffic using Airways in order to ascertain the necessity for modifications to the distribution of work-load, the adequacy of the facilities provided, the provision of additional equipment or the reduction of any items - all with the ultimate aim of improved efficiency.

2.2 The first need is for a daily summary of activities in its simplest form, showing the work-load on each Sector. Therefore the Daily Airways Operations Sheet should show along the top the name of each designator in use.

2.3 Down the left-hand side of the Sheet we will have the class of aircraft handled - British Civil, Military, Foreign. Each will be self-evident from the call-sign used and shown on the strip.

2.4 The extent to which these aircraft use the Airway can be broadly described as wholly on Airway, partially on Airway (joining traffic), and crossing Airway; so that if each class is subdivided accordingly we shall have a complete record of

Total number of aircraft worked at each designator
Class of aircraft
Extent to which an Airway is used
Total number of aircraft using an Airway

2.5 At the end of each calendar month a consolidated Return will be submitted together with comments and suggestions.

APPENDIX C

INSTRUCTIONS FOR AIRWAYS COMMUNICATORS AND AIRWAYS COMMUNICATION PROCEDURES

1. - INTRODUCTION

1.1 For the purpose of these procedures the Air Traffic Control Officer engaged in the control of aircraft along the Airway will be termed the "Airways Control Officer". This term is deemed to include also the Radar Controller at the Air Traffic Control Radar Unit. The Telecommunications operator employed on the R/T channel is termed the "Airways Communicator".

1.2 The details given in this appendix cover only the duties, functions, etc. of Communicators and Telecommunications procedures.

2. - THE FUNCTION OF THE COMMUNICATOR

2.1 The Airways Communicator acts as the assistant to the Airways Control officer in the handling of communications.

2.2 Although each has clearly defined duties the success of the communications organization and, in fact, the Airways organization as a whole, depends to a large extent on the team spirit between the communicator and controllers together with the need for the exercising of good signals discipline on the R/T channels, and in this respect the Communicator will play a large part.

2.3 While it has been indicated above that the Communicator and Controller (both 'A' and 'D') should work together as a team, it should be understood that the 'D' Controller (who is in charge of the Airway) is the "head man" of the team.

3. - THE DUTIES OF THE COMMUNICATOR

3.1 To be responsible for the efficiency of the Air/Ground Communication channel(s) under his control from both the technical and operational aspects.

3.2 To maintain the telecommunication watch on the channel.

3.3 To maintain the telecommunication log. This requirement will only exist until such time as automatic recording equipment is installed.

3.4 To maintain the Telecommunication Working log. This abbreviated log to permit an easy reference to traffic handled on the channel will be kept after recording equipment is provided to cater for 3.3 above.

3.5 To ensure that R/T Recorder belts are changed at regular intervals. The changing of recorder belts is the function of the duty Radio Mechanic but the communicator can materially assist in ensuring that no recorder is allowed to overrun its allotted time.

3.6 To handle all company operational traffic. Further detail on this is given later.

3.7 To handle all AIS (Aeronautical Information Service) traffic. Further detail on this is given later.

3.8 To handle Meteorological Traffic. Further detail on this is given later.

3.9 To make routine broadcasts. Further detail on this is given later.

3.10 To alert the Airways Control officer as necessary.

3.11 To maintain close liaison with the Airways Control officer at all times.

3.12 To inject time into R/T recorders at 15-minute intervals. This requirement will cease when automatic time injection systems are provided.

4. - LOCATION OF THE COMMUNICATOR

4.1 The Communicator will be positioned in the Air/Ground Radio Room (which will be suitably screened to reduce noise level) and will be located as near as possible to the Airways control operating positions.

5. - FACILITIES PROVIDED FOR THE COMMUNICATOR

5.1 In order that the Communicators can efficiently discharge their duties the following facilities will be provided. Those items which are centrally positioned in the room and not provided at each operating position are marked with an asterisk.

5.1.1 Facilities for transmission and reception including facilities for checking signal strengths and balancing lines etc.

5.1.2 Intercommunication facilities between himself and the Airways Control officer.

5.1.3 Ticket Tube facilities for message handling (when these already exist)

5.1.4 Telephone facilities via PBX.

5.1.5 Teleprinter to Company office or to an agreed delivery point.

5.1.6 Pneumatic Tube to AIS and Meteorological offices via Tube Exchange*.

5.1.7 Teleprinter for receiving messages for transmission to aircraft*.

5.1.8 Typewriter.

6. - GENERAL OPERATING PROCEDURES

6.1 Traffic on the aeronautical fixed service and/or the aeronautical mobile service will be handled in conformity with the operating procedures in Annex 10, Part III supplemented in (certain) regions by the pertinent provisions of Doc 7030.

6.2 ATS Messages.

6.2.1 It will be the normal procedure for the Airways Control officer to deal direct with aircraft in respect of ATC messages transmitted and received on the VHF R/T channels.

6.2.2 The Airways Control officer is provided with a split headset to enable him to hear aircraft transmissions while using a telephone. Occasions will arise when, having heard an aircraft call, he will be unable to answer that call immediately and under these circumstances the aircraft should be answered by the Communicator who, having logged the message, will advise the Airways Control officer of it by intercommunication as soon as possible thereafter.

6.2.3 The inability of the Airways Control officer to answer ATC calls immediately may be due to several causes such as issuing instruction by landline (e.g. clearance before departure, co-ordination of air traffic movements with adjacent centres, sectors, zone co-ordinators or FIR Controllers) and at night time when one Controller may have two airways to

guard he may be transmitting an ATC message to another aircraft on a different frequency.

6.2.4 It should be noticed that the line telephone communication required of Controllers in respect of each aircraft is of the order of two minutes per hour and therefore with 12 aircraft per hour operating along an airway 24 minutes of the hour of the controllers time could be spent on the telephone.

6.2.5 In order that the Communicator may be able to determine whether or not he should acknowledge the unanswered call he should allow a period of 5 seconds to elapse after the end of the aircraft's transmission before answering the aircraft.

6.2.6 The Communicator should also take into account the nature of the aircraft's message when framing his reply since the message content may vary from a plain statement (position, time, altitude, forward estimate etc.) to a complex request involving altitude changes, speed variations joining or crossing clearances etc.

6.2.7 Whenever an aircraft message indicates that control permission, instruction or advice in respect of ATC messages is required the Communicator answering the call under the circumstances indicated above should advise the aircraft "Standby for Controller" and immediately acquaint the Airways Control officer of the nature of the message.

6.2.8 The transmission to an aircraft of ATC messages (instructions, clearances and advice) will be made direct by the Airways Control officer in accordance with current ATC Instructions and detailed instructions for the particular airway for which the communication is being used. The Communicators should make themselves conversant with the current ATC Airways procedures.

6.3 "Company" Operational Messages.

6.3.1 It will be the normal procedure for the Communicator to deal direct with aircraft and operating agencies in respect of "Company" operational messages transmitted and received on the VHF R/T channels.

6.3.2 In order that there shall not be any duplication of messages passed to aircraft and to avoid the transmission of information to the aircraft which may be contrary to ATC instructions the Communicator should, through the Radio Watch Supervisor, co-ordinate any messages having a direct bearing on the safety and regularity of Air Traffic with the ATC Watch Supervisor.

6.3.3 Messages from the company for transmission to the aircraft will normally be received in the Air/Ground Radio Room by either teleprinter or pneumatic tube. The Communicator, on being satisfied that the message

is acceptable for transmission will, having regard to the priority of other traffic on hand, transmit it directly to the aircraft. If there is any doubt as to the suitability of the message in respect of its contents action should be taken as in 6.3.2 above and if necessary the message referred back to the company by the Radio Supervisor.

6.3.4 The Communicator, on receiving a message from an aircraft addressed to the company or agency or if the message by arrangement is normally sent to the company or agency, will first log the message and then despatch by teleprinter to the company office direct or to some point from which rapid delivery to the company office is normally effected.

6.3.5 If the message received from the aircraft is of such a nature that it concerns air traffic control the Communicator will advise the Airways Control Officer initially by intercom and follow it with a written copy if this is requested.

6.3.6 It is intended, when more fully trained Communicator staff are available, and more experience obtained of the system that the procedures in para. 6.3.4 shall be amended in that the Communicators will be expected to take down the incoming message directly on to the teleprinter and thereby dispense with the need for the initial logging.

6.4 Meteorological Messages

6.4.1 It will be the normal procedure for the Communicator to deal direct with aircraft and the Meteorological Office in respect of messages transmitted and received on the VHF R/T channels though co-ordination with ATC is necessary in certain cases.

6.4.2 The Communicator should acquaint the Airways Control Officer of the contents of messages containing Meteorological information which are received from aircraft.

6.4.3 Messages from aircraft containing Meteorological information should be despatched to the Meteorological Office by the means provided in the Radio Room i.e. by teleprinter or pneumatic tube whichever is appropriate.

6.4.4 Meteorological messages for transmission to aircraft whether in reply to requests from aircraft or as a routine broadcast will be handled by the Communicator. It will be necessary for the text of the message to be checked with the ATC Watch Supervisor by the Radio Supervisor before transmission. Arrangements are to be made with the Meteorological Office for Meteorological information to be made available to the Communicators simultaneously with that given to ATC.

6.5 AIS Messages

6.5.1 Messages regarding the state of aeronautical facilities transmitted and received on the VHF R/T channels will normally be dealt with directly by the Communicator who will co-ordinate action with the Airways Control Officer, and Stations concerned when necessary.

6.5.2 Messages regarding the serviceability of facilities, transmitted by the aircraft, will be passed directly to the Airways Control Officer and the Radio Supervisor. This is particularly important in respect of the serviceability state of Radio facilities provided along the Airways.

6.5.3 When any unserviceability report of any Radio facility is transmitted by an aircraft the Radio Supervisor will contact the station responsible for the operation of the facility, advise them of the report received and ascertain the probable duration of the fault. Subject to the conditions in Standing Telecommunication Instructions the Radio Supervisor should inform AIS, the Communicator and ATC in accordance with current procedures.

6.5.4 The transmission of messages to aircraft concerning the state of facilities along the airways will be made normally by the Communicator after the text has been checked with the ATC and Radio Watch Supervisor. The detail regarding the nature of these transmissions is not yet finalised.

7. - TYPES OF MESSAGES TO BE HANDLED ON AIRWAYS

Indicating the broad division of responsibilities between the Communicator and the Airways Control Officer in respect of answering aircraft calls and enquiries, and transmissions to aircraft.

7.1	Broadcasts	Broadcast made by:
	1. Meteorological Data	Communicator
	2. AIS Data	Communicator
	3. Time checks (preceding R/T Met. broadcasts)	Communicator
	4. Emergency	Airways Control Officer or Communicator

7.2	Ground Air/Messages	Transmission normally made by:
	1. Air Traffic Control Clearances	Airways Control Officer
	2. Holding Instructions	Airways Control Officer
	3. Requests for flight conditions	Airways Control Officer and/or Communicator

Ground/Air Messages (contd.)	Transmission normally made by: (contd.)
4. Issue of expected approach time	Airways Control Officer
5. Essential Traffic Data	Airways Control Officer
6. En-route Data	Airways Control Officer and/or Communicator
7. Replies to non ATC requests	Communicator
8. Replies to ATC requests	Airways Control Officer
9. Emergency calls	Airways Control Officer
10. Instructions from Company	Communicator
11. Air Traffic Control Time Checks	Airways Control Officer
12. Altimeter Setting	Airways Control Officer

7.3 Air/Ground Messages	Answers or Replies given by:
1. Position Reports	Airways Control Officer or Communicator
2. Forward Estimates	Airways Control Officer or Communicator
3. Information of flight conditions	Airways Control Officer or Communicator
4. Requests for altitude changes	Airways Control Officer
5. Altitude vacating reports	Airways Control Officer
6. Cancellation of IFR Flight Plans	Airways Control Officer
7. Reporting when leaving Holding Points	Airways Control Officer or Communicator
8. Filing Airborne Flight Plans	Airways Control Officer
9. Emergency Calls	Airways Control Officer
10. Requests for Company Instructions	Communicator
11. Information for Company	Communicator
12. Requests for Met. Data	Communicator

PART II

GENERAL PROCEDURES

1.- INTRODUCTION

1.1 The procedures to be used by Airways Air Traffic Control Officers are based on the PANS-RAC.

1.2 The object of the following instructions is to

(a) show the division of the Airways into Sectors,

(b) describe the manner in which co-ordination is to be effected with other ATC units,

(c) set out items of special importance concerning each Sector.

1.3 The Airways are fully detailed in appropriate AIP's.

1.4 It is not intended to operate Airways Control on the basis of hard and fast lines of demarcation of responsibility for sections of the Airway, since the objectives of Air Traffic Control can only be achieved by constant and close liaison between all Sectors.

1.5 Co-ordination is an all-important factor in achieving the main objectives of the Air Traffic Control Service, and it must be remembered that true co-ordination means much more than can be expressed in terms of rules or instructions. It implies, for example, that clearances, instructions, altitude allocation, timing, reporting etc. are all related in order to ensure a constant and smooth flow of traffic safely, and at the same time imposing the least possible strain on the system or on an individual. (See Chapter 6 of PANS-RAC.)

2.- EQUIPMENT AND DISPLAY

2.1 The Flight Progress Board assembly consists of double-sided units of standard pattern, each equipped with the necessary landline facilities for communication with the appropriate units. Where direct tie-lines are not available, communication is to be made by making use of any other channels.

2.2 On the Airways Control Officer's side of Flight Progress Board provision is made for VHF/RT air-ground communication. Each position is equipped with a head-set which is to be worn throughout the period of duty.

2.3 Each R/T channel will be manned by a Communicator of the Telecommunications staff remote from the Flight Progress Board; amongst the duties of the Communicator will be the responsibility for keeping a

continuous watch on the channel and for ensuring that incoming calls are answered: full details are contained in Part I, Appendix C.

2.4 A readily visible Table is to be available at each position for estimating purposes: this Table is to show the time-speed relation between adjacent Reporting points within each Sector. This may take the form of

(a) Name of Reporting points and distance between them, Number of minutes at one-minute intervals, Ground-speed corresponding to the above intervals

e.g.:

BRISTOL - STRUMBLE

(mins.)	26	27	28	29	30	31	32	.....
(speed)	212	205	197	190	184	178	172	.....

Alternatively, the following type may be provided: this consists of a slide containing pairs of adjacent Reporting points which register against the time taken for ground speeds at 5-knot intervals:

175	17	27	5	7	11	6	
180	17	25	5	7	10	6	
185	16	25	5	6	10	6	
	SAL	STR	NPT	BRS	STW	COM	) Slide
G/s	STR	NPT	BRS	STW	COM	WOO	

2.5 A modified type of Dalton Computor is also provided for calculation of ground-speeds etc.

2.6 A map is also to be displayed, showing pertinent information for each Sector.

3. - SEPARATION STANDARDS ON RADIO RANGES

3.1 Altitude changes, when effected on Airways having radio ranges call for special consideration in that no lateral (right-side) separation is deemed to exist within FIFTEEN nautical miles from the associated range station.

3.2 Lateral separation of opposite-direction flights for altitude changes BEYOND 15 miles from a range station is to be effected by using the instruction:

"Climb (or "Descend") well to right of the on-course signal.

giving essential traffic information when necessary: the latter is to be issued in the following form:

"Traffic is .... (direction of flight) .... (type of aircraft) Over .... (or Estimated over) .... (Nearest crossing position): at .... (time) .... (altitude)."

3.3 Essential traffic information following the instruction to "Climb/Descend well to right of Course" will only be passed when it has been requested by the pilot-in-command or when practicable and deemed necessary by an Airways Control Officer. Essential traffic is, however, to be posted on the appropriate Flight Progress strip, check-marking when it is passed to a pilot. Clearance to 'airways' aircraft will be related to known IFR aircraft only in so far as such aircraft constitute flights joining or crossing airways as described in this instruction.

4. - CONTROL PROCEDURES

4.1 General

4.1.1 In the following description of the operational procedures for each of the positions, the Airway Control Officers' side of a Flight Progress Board will be referred to as the 'D' position and the Assistant Airway Control Officers' side as the 'A' position. The number which follows a letter indicates a Sector of the Airways.

4.1.2 The duties and operational procedures for the 'D' and 'A' positions are set out in Part I, Chapter 3: the procedures which follow are complementary to those Instructions.

4.1.3 In the event of any of the operating positions having a tempo rary excess of work, the Watch Supervisor will even out the work by a re-allocation of duties or by augmenting an operating position. Similarly, whei conditions permit the handling of two or more positions by one Control Officer, an adjustment of personnel distribution may be made

4.1.4 The following are definitions of new terms used on the Airways System:

"Contact Point" - the position, time or altitude at which an arriving aircraft is to ESTABLISH COMMUNICATION with Approach Control.

"Release Point"- the position, time or altitude at which an arriving aircraft COMES UNDER THE JURISDICTION of Approach Control.

N.B. In certain instances these two Points may coincide.

"Transfer Point" - Reporting point in the vicinity of a Terminal Area where the control of aircraft is transferred from an adjacent Airway Sector.

4.1.5 The separation standards as detailed in paras. 3.1 and 3.2 of the PANS-RAC are to be applied to all traffic under the jurisdiction of the appropriate 'D' position by the issue of instructions or clearances in the manner described in Section 2, para. 3 of the PANS-RAC.

4.1.6 The transfer of control to the Sector responsible for issuing a clearance to flights entering a Terminal Area will be made in time to enable to inbound clearance to be issued at least five minutes before an aircraft is estimated to reach the appropriate Transfer Point or such other position as is specified in the procedures for the Sectors concerned. Phraseology:

"Contact .... (call sign) Airways on .... (frequency) at .... (time or place) for further instructions."

4.1.7 The cancellation of an IFR Flight Plan is only acceptable when the pilot-in-command uses the expression" .... Cancel IFR Flight Plan". It is not permissible to assume cancellation when a pilot says, for example, "Now VFR" as this is,, in fact, a report on flight conditions. If, exceptionally, there is doubt as to a pilot's intention, it is permitted to ask "Do you wish to cancel your IFR Flight Plan" - but no invitation to cancel is to be made either direct or by inference.

4.1.7.1 When Airways Control is in possession of Information that IFR weather conditions are likely to be encountered along the route of flight, a pilot cancelling his IFR Flight Plan is to be advised of this in the following manner:

"IFR conditions reported (or 'forecast') in the vicinity of ...."

4.1.7.2 Cancellation is to be denoted on a Flight Progress Strip by inserting in larger letters "VFR" in box 'd', and all subsequent strips within the sector: discretion is to be exercised in the removal of the relevant Flight Progress strips, and will be governed by such items as volume of traffic, previous cancellations, likelihood of a subsequent clearance being requested, etc.

4.1.7.3 The concerned A T C unit or adjacent Sector is to be notified as soon as possible when an IFR Flight Plan has been cancelled.

4.1.8 When the time taken for a flight between Reporting points results in a variation of three minutes or more in the A T C Estimate,

succeeding Estimates for that flight are to be amended and any information previously passed to an adjoining Sector or Area Control Centre is to be revised.

4.2 Departing Aircraft

4.2.1 Flight Plan information will be telephoned to the 'A' position within whose Sector control will first be exercised, thirty minutes before the proposed departure time. The contents of the Flight Plan will be given in the following order, preceded by the statement "Eastbound" or "Westbound" Flight Plan:

Aircraft identification and, if different, radio call sign
Type of aircraft
Place of departure
Desired altitude /s and route
Point of first intended landing
Proposed true airspeed at cruising altitude
Proposed time of departure

4.2.2 The 'A' position will prepare Flight progress strips in accordance with the procedures described in Part I, Chapter 5, para. 5.5.1.

4.2.3 This pre-flight information is to be in front of the 'D' position sufficiently in advance of the proposed departure time to permit of his examination of the situation at each of the reporting points along the route of flight so as to enable him to determine the type of clearance he will be able to issue.

4.2.4 When a departing aircraft calls for an Air Traffic Control Clearance to proceed on an airway, this will be obtained by Aerodrome Control from the 'D' position, through the unit providing Approach Control Service at the aerodrome of departure, if different from the Aerodrome Control Tower; phraseology:

"Request Clearance for .... (aircraft identification)"

4.2.5 The Air Traffic Control clearance issued by the 'D' position is to include crossing altitudes at reporting points, cruising altitudes, adequate routing and other instructions relative to the proposed flight

4.2.6 It is important to note that after the initial clearance has been issued it will hold good as far as a pilot is concerned until it is amended by Air Traffic Control in order to effect separation or in order to comply with a pilot's request for a change in Flight Plan.

4.2.7 If a Flight Plan is filed for IFR for the first portion of the flight and VFR for the remainder, the aircraft will be cleared to the point at which VFR flight is proposed.

4.2.8 The standard routes are to be used between the departure point and entry to an Airway unless, under certain conditions, an alternative route would obviate delay or afford greater safety.

4.2.9 The desired cruising level contained in the Flight Plan is to be included in the initial clearance unless traffic considerations preclude the use of this altitude, in which event the opening phrase will be:-

"Unable to approve .... (altitude) on account of traffic,"

and an alternative altitude offered in the clearance. The Flight Progress strip is to be marked showing conflicting traffic when this information is issued.

4.2.10 Whenever a delayed departure due to traffic congestion is foreseen by the Area Control Centre, the concerned Approach Control is to be notified of the extent of the expected delay.

4.2.11 The time of take-off is to be specified by the Area Control Centre only if this is necessary to ensure adequate separation. If the time of take-off is not specified, Approach Control is to determine this with respect to other traffic under its jurisdiction. The Area Control Centre will, when necessary, regulate departure times by terminating a clearance with:-

"Clearance expires at .... (time)." or

"Release not before .... (time)."

4.2.12 An Area Control Centre is to issue a warning at the end of a departure clearance in respect of aircraft movements within a Control Zone whenever the intended flight paths conflict. This will usually occur:

(a) in regard to departures or proposed departures from other aerodromes within a Terminal Area;

(b) in regard to same or other aerodrome's released inbound flights.

This warning is to enable the respective aerodromes to co-ordinate the flights under their jurisdiction by obtaining additional aircraft reports or by making use of Radar surveillance. Phraseology:-

".... release subject to your discretion with regard to .... (ident.)

.... (aerodrome) .... (direction of flight) departure (Proposed departure or inbound) at .... (time)."

The strip marking for this is - R S Y D (followed by aircraft identification).

4.2.13 The direction of take-off, turn after take-off, altitude and route to be followed will be at the discretion of Approach/Aerodrome Control, having regard to aircraft under its jurisdiction and in conformity with the Air Traffic Control clearance.

4.2.14 On departure, the time is to be telephoned to the appropriate 'D' position.

4.2.15 Since it will be necessary for Approach Control to retain communication with departing flights - for effecting separation, receiving position reports, etc., - aircraft will be instructed to change to the appropriate Area Control channel only after these conditions have been met. In any case, an instruction to change to the Area Control frequency is to be issued before an aircraft reaches the first reporting point of a Sector, or at a pre-determined altitude. Where necessary, procedures for specific Terminal Areas will be shown under Special Procedures for the Sector concerned.

4.3 Arriving Aircraft

4.3.1 The Area Control Centre is responsible for the provision of standard separation of known IFR flights until they have been RELEASED to Approach Control. The Area Control Centre may, however, instruct an aircraft to CONTACT Approach Control before reaching the RELEASE POINT in order to expedite traffic handling. In such cases, Approach Control may issue information or instructions to an aircraft without reference to the Area Control Centre, provided such instructions

(a) are not effective before reaching the Release Point;

(b) do not involve climbing above the altitude at which an aircraft is released;

(c) do not involve divergence from the approved route of flight unless co-ordinated with the Area Control Centre.

4.3.2 Approach Control is responsible for the provision of standard separation of known IFR flights from the time or place at which aircraft are released by the Area Control Centre until such traffic is in visual reference to the ground and/or is handed over to Aerodrome Control.

4.3.3 Clearance into a Terminal Area is to be issued not less than five minutes before an aircraft is estimated to reach a position in the vicinity of the area boundary: where necessary, these positions are detailed for each Sector. Clearance to an arriving aircraft is to include:

(a) Clearance limit
(b) Route
(c) Altitude instructions
(d) Holding instructions when necessary
(e) Position, time or altitude at which to CONTACT Approach Control*
(f) Expected approach clearance time.

e.g.: ".... cleared to the Watford Range via Maidstone and Brookmans Park, cross Maidstone at 8,000 ft. Brookmans Park and Watford Range at 6,000 ft. - descend immediately after passing Maidstone. Contact Northolt Approach after passing Brookmans Park - No delay expected."

4.3.4 Under approach sequence conditions, the Area Control Centre will normally clear aircraft to the holding point within the Terminal Area at or above the lowest cruising level which has been notified by Approach Control, and subsequent arriving aircraft at 1,000 ft. higher intervals. This Clearance limit will then be the RELEASE POINT for such aircraft unless by prior arrangement the Area Control Centre retains jurisdiction of holding aircraft above a stated altitude.

4.3.5 After co-ordination with Approach Control, the Area Control Centre may clear

(a) the first of a sequence of arriving aircraft to a facility on the aerodrome rather than to a holding point (e.g. for a straight-in approach)

(b) arriving aircraft to other holding points to hold until further advised by Approach Control

and such aircraft may be RELEASED to Approach Control at other points having regard to transit or other traffic.

4.3.6 In no case is an aircraft to be RELEASED to Approach Control until

(a) all aircraft at a lower altitude have also been released to it

(b) it has reached an altitude below the upper limit of a Terminal Area.

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* This should be given with the control clearance if practicable; otherwise, it should be given as soon as practicable afterwards.

4.3.7 After the issue of an inbound clearance to an aircraft, the Area Control Centre is to keep Approach Control promptly advised using the phraseology for "Releases to Approach" described in Part I, Chapter 5.

4.3.8 Approach Control is to keep the Area Control Centre promptly advised on

(a) the lowest vacant altitude on a holding point available for Area Control Centre use,

(b) the average time interval between successive approaches,

(c) revision of the expected approach time issued by the Area Control Centre when Approach Control calculations show a variation of three minutes or more,

(d) (when necessary) - the time at which a released aircraft established communication with Approach Control - phraseology:

"... (aircraft identification) in contact with Approach Control .... (time)"

(e) the arrival time over the holding point when there is a variation from the estimated time of five minutes or more,

(f) all available information relating to overdue or unreported aircraft,

(g) cancellation of IFR Flight Plans. If altitudes at a holding point are affected by such cancellation, Approach Control will state the aircraft identification and altitude of the top aircraft under its jurisdiction,

(h) missed approaches whenever they affect approach sequence time or when re-routing is entailed, in order that subsequent action may be co-ordinated.

5. - CO-ORDINATION BETWEEN AREA CONTROL CENTRES

5.1 The transfer of air/ground communication contact to an adjoining Area Control Centre is normally to be made five minutes before the time at which an aircraft is estimated to reach the control area boundary.

Phraseology: "Contact .... (control) at .... (time or place) for further instructions"

5.2 The responsibility for the control of air traffic remains with the Area Control Centre in whose control area the aircraft is operating until the time the aircraft is estimated to cross the boundary of that control area. It is emphasized that the area control which is in contact with an aircraft not having yet entered its control area, as provided for in 5.1, shall not alter the clearance of such aircraft unless this has been co-ordinated with and agreed by the preceding area control centre.

Phraseology:

Request - "May we change .... (alteration proposed) of .... (aircraft identification)"

"May we assume control of .... (aircraft identification)

Answer -
(if affirmative)
(a) for specific approval:
"Agreed to .... (alteration of clearance) of .... (aircraft identification)"

(b) for blanket approval:
"Consider .... (aircraft identification) under your control at .... (time or place)"

(if negative)
(a) for specific approval:
"Unable to approve .... (alteration of clearance) of .... (aircraft identification)"

(b) for blanket approval:
"Unable to release .... (aircraft identification)"

6. - CO-ORDINATION WITH TERMINAL AREA AUTHORITIES

6.1 Chapter 6 of the PANS-RAC describes how such co-ordination is to be effected. The extent of the required co-ordination between an Area Control Centre and specific Terminal Area authorities is detailed in the Special Procedures for the Sectors concerned.

7. - CO-OPERATION WITH RADAR UNITS

7.1 The Radar Unit operates as an integral part of the Area Control Centre with which it is associated.

7.2 In so far as Airways are concerned, Airways traffic transferred to the control of the Radar Unit will be regulated on the same basis as the Airways procedures in that:

7.2.1 No alteration to an Airway clearance or instruction will be made without first obtaining the approval of the Area Control Centre.

7.2.2 The same frequency will be used by the Radar Unit, the Area Control Centre and the aircraft, until transfer of control to another ATC unit.

7.2.3 Reports from aircraft will be posted on the flight progress strips by the Area Control Centre.

7.2.4 Requests from aircraft will be dealt with by the Area Control Centre through the Radar Unit, except for such information as is locally available to the Radar Unit.

7.2.5 Instructions and en-route clearances to an aircraft will be issued by the Area Control Centre through the Radar Unit.

7.3 The services of a Radar Unit may be used as follows:-

7.3.1 When the Radar operator observes the presence of a hazard on the Radar screen.

7.3.2 When a pilot requests control by a Radar Unit.

7.3.3 When an Area Control Officer considers that additional safeguards to maintain and ensure separation can be achieved and when traffic movements can be expedited by its employment.

7.4 Operation: Taking the foregoing in the same order:-

7.4.1 The Radar operator is to take such action as is necessary to restore safety, and will notify the Area Control Centre of the action taken.

7.4.2 Much will depend on the circumstances attending a request from a pilot, i.e. failure of navigational equipment, avoidance of unfavourable weather, etc., and on the prevailing conditions, such as temporary or partial failure of a ground navigational aid, the traffic situation, etc. In the absence of sound reasons (for example if the aircraft is outside the coverage area, if the Radar Unit has reported that for Technical reasons aircraft in certain sectors cannot be located and identified, or that the request is made when the Radar Unit is not operative) a pilot's request is to be granted after having agreed this with the Radar Unit.

7.4.3 When, for Area Control Centre purposes, an aircraft is to be transferred to a Radar Unit, the consent both of the pilot concerned and the Radar Controller, are necessary. Examples of such cases are:-

When opposite-direction altitude changes are involved, especially when lateral separation by a radio-range facility cannot be effected.

To facilitate clearance for joining, leaving or crossing Airway flights.

FIR flights which are adjacent to Airways.

7.4.4 The Radar Unit can, in addition, assist the Area Control Centre WITHOUT the transfer of control, by passing requested information on the relative position of aircraft, for example:-

(a) when opposite-direction aircraft have actually passed (see 3.4.2.2 of the PANS-RAC);

(b) position of aircraft;

(c) variation to issued clearances, instructions, etc.

7.5 Procedures:-

7.5.1 Departures: When an Airways 'D' position is ready to issue a departure clearance, he will alert the Radar unit by 'flashing' the telephone key. The Radar Unit will then monitor the clearance as issued. When departure time is received, the Airways 'D' position will notify the Radar Unit and check-mark the Flight Progress strip in box 'L'. When the aircraft calls the Radar Unit at the en-route reporting points, the 'D' position will post the Airways information in the usual way. Altitude changes, instructions, etc. to conform to standard separation and to Airways procedures, will be issued by the Airways 'D' position through the Radar Controller.

7.5.2 En route: -Before the Airways 'D' position transfers an aircraft to the Radar Unit, either on request by a pilot or for Airways control purposes, the following will be passed:-

"Eastbound/Westbound Transfer: Can you accept control of .... (identification) .... (type) at .... (or 'estimating') .... (place) .... (time) .... altitude en route from .... to .... via .... Estimated ground speed .... ?"

The Radar Controller will reply, if affirmative:-

"I can accept control of .... (identification) at .... (time)."

The Airways 'D' position will then instruct the pilot:-

"Contact .... (call-sign of Radar unit) on this frequency at .... (time) for further instructions."

and inform the Radar Unit:-

"Consider .... (identification) under your control at .... (time)."

7.5.3 The regulation of flights is to conform to the clearance which is issued by the Airways 'D' position through the Radar Unit. Airways 'D' position will conduct normal liaison with the appropriate Centre for passing ATC Estimates etc., and Approach Control for 'Releases' etc.

8. - CROSSING AND JOINING FLIGHTS

8.1 General: Information will be received either by a pre-Flight Flight plan or an abbreviated airborne Flight Plan: the former will be posted on a Flight Progress strip by the 'A' position and transferred to the 'D' position, the latter will be posted direct on to a Flight Progress strip by the 'D' position when made on the VHF R/T channel for the Sector.

8.1.1 The place at which an Airway is joined or crossed is to be related to the nearest Reporting point and a Flight Progress strip prepared for that position and for subsequent en-route Reporting points as necessary.

8.1.2 When the 'D' position requires additional information on an airborne request, this is to be obtained before clearance is issued; e.g. "What is your destination?" or "What is your present endurance?".

8.2 When an in-flight request to cross the Airway is made, the information will include the following:-

Aircraft identification and, if different, call-sign
Aircraft type
Track (true)
Place and estimated time of crossing
Desired crossing altitude
Ground speed.

8.3 When an in-flight request to join the Airway is made, the information will include the following:-

Aircraft identification and, if different, call-sign
Aircraft type
Position, altitude and relationship to cloud
Estimated time at point of entry
Desired altitude/s on the Airway
Route and point of first intended landing
Airspeed.

8.4 Clearance is to be issued as soon as the necessary scrutiny has been made following an in-flight request; if it is not possible to issue an immediate clearance to such request, the pilot is to be advised:-

"Expect clearance in .... minutes."

8.5 All clearances are to conform to the current separation standards, therefore if the requested time or altitude conflicts with Airways traffic, an alternative course of action is to be offered, e.g. by varying the altitude, time or place of entry.

8.6 Clearances will be issued as follows:-

(a) "...., cleared to cross (Airway designation) at .... (position) Maintain .... (altitude) while in Control Area ...."

together with any necessary instructions, such as "Report crossing" - "Cross not later than ...." etc.

(b) " .... cleared from .... (joining position) to .... (point of first intended landing) via .... Maintain .... (altitude) while on Airway ...."

together with any necessary instructions.

APPENDIX A

ABBREVIATIONS FOR USE BY APPROACH CONTROL

1. In the operation of Airways Control, telephone messages to Approach Control take standard forms such as are shown in Part I Chapter 5.

2. It has been found in practice that messages of a routine nature can be taken down at the same speed as that at which a clearly spoken transmission is made, by the use of approved abbreviations, contractions and symbols.

3. In general, the abbreviations shown below have been devised so as to be self-evident: the use of these abbreviations is to be confined to the types of messages received from Area Control and must not be used in the preparation of any message for delivery to other Units, in Report, etc.

C	Cleared to .....
R	Radio range
M B	Main Beacon
O M	Outer Marker
A	Airport
═══	While on Airway
↓	Descend to .... (altitude) immediately
↑	Climb to .... (altitude) immediately
↓	Descend to .... (altitude) at .... (time)
↑	Climb to .... (altitude) at .... (time)
↓	Descend to .... (altitude) immediately after passing .... (place)
↑	Climb to .... (altitude) immediately after passing .... (place)
═══╗	Join Airway

R L	Report immediately on leaving (altitude)
R R	Report immediately on reaching (altitude)
W R C	Well right of the on-course signal
T F C	Traffic is ....
Q C E QCE	Expect Approach clearance at .... (time)
(or) ⋀	No delay expected
X	Cross .... (reporting point)
RSYD	Release subject to your discretion with regard to (aircraft)
~~M~~>	Maintain .... (altitude)
C E	Clearance expires at .... (time)

Examples:

Clearances

a) Plain version: G-ABCD cleared to Shannon via Green Airway One - Maintain 6,500 feet while on Airway - cross Woodley at 3,000 feet - climb immediately after passing Woodley - Report leaving 4,500 feet.

Written as: G-ABCD C EINN G1 ~~M~~>6.5 ═X WOO 3
↑WOO RL 4.5

b) Plain version: G-ABCD cleared to Shannon via Green Airway One - Maintain 8,500 feet while on Airway - cross Woodley at 3,000 feet - climb well to right of course after passing Woodley - Traffic is eastbound Viking over Compton at 1043 at 5,500 feet descending.

Written as: G-ABCD C EINN G1 ~~M~~>8.5 ═X WOO 3
↑WRC WOO TFC E VIK ETA COM 1043 @ 5.5↓.

c) Plain version: G-ABCD cleared to Bristol (Filton) Airport via Green Airway One - Maintain 6,500 feet - Cross Woodley at 3,000 feet - release subject to your discretion with regard to Northolt westbound departure G-GHIK at 1124.

Written as: G-ABCD C GDFA G1 ~~M~~>6.5 X WOO 3 RSYD GACA. W DEP G-GHIK 1124.

Releases (Inbound)

a) Plain version: G-ABCD a Constellation - Released to Approach Control at 0924 - Cleared to and estimating Woodley at 0947 at 5,000 feet. Expected approach clearance time 0958.

Written as: G-ABCD CON. APC 0924 C ETA WOO 0947 @ 5 QCE 0958.

b) Plain version: G-ABCD a Constellation - Released to Approach Control at 1430 - Cleared to and estimating Woodley at 1435 at 4,000 feet. No delay expected.

Written as: G-ABCD CON APC 1430 C ETA WOO 1435 @ 4^.

APPENDIX B

ABBREVIATION FOR AIRCRAFT TYPES

The following are approved for use in marking Flight Progress strips: aircraft types such as DC4 - DC6 etc., need no abbreviation.

Argonaut	A R G
Ambassador	A M B
Anson	A N S
Brabazon	B R A B
Comet	C M T
Constellation	C O N
Consul	C S L
Convair	C V R
Dakota	D A K
Dove	D O V
Halifax	H A L
Hastings	H A S
Hermes	H E R
Lancaster	L A N C
Languedoc	L D C
Liberator	L I B
Marathon	M A R
Rapide	R A P
Stratocruiser	S T R A T
Tudor	T U D
Viking	V I K
Viscount	V I S
Wayfarer	W A Y
York	Y O R

APPENDIX C

AERODROME ABBREVIATIONS

There are several aerodromes which may need to be shown on Flight Progress strips and for which no recognized abbreviations have yet been issued. Some of these are listed below, with abbreviations which may be used for strip marking; in cases where an official abbreviation has been issued for an aerodrome, this is to be used - e.g. GACA: GDFA: GASA etc.

Andover	AND
Aylesbury	AYL

APPENDIX D

DESIGNATOR ABBREVIATIONS FOR AIRWAYS

A 1 :	Prestwick Range	PWK
	New Galloway	NGY
	Dean Cross	DCR
	Warton	WAR
	Wigan	WIG
	Burtonwood Range	BWD
	Knutsford Intersection	KNU
	Congleton	CON
	Lichfield	LIC
	Daventry	DAV
	Beacon Hill	BEA
	Burnham	BUR
	Chertsey	CHE
	Dunsfold Range	DUN
	Seaford	SEA
	Dieppe	DIE
A 2 :	Daventry	DAY
	Woburn Sands	WOB
	Brookmans Park	BPK
	Chatham Range	CHA
	Ashford	ASH
	SE FIR Boundary	FIR(A)
	Abbeville	ABB
A 4 :	New Galloway	NGY
	Lanark	LAN
	Falkirk	FAL
B 1 :	Woburn Sands	WOB
	Watford Range	WAT
	Kilburn Intersection	KIL
	Sevenoaks	SEV
	Crowborough	CRO
B 2 :	Falkirk	FAL
	Dalry Intersection	DAL
	Kintyre	KIN

G 1 :	Saltee	SAL
	Strumble	STR
	Newport	NPT
	Bristol Range	BRS
	Stockwood	STW
	Compton	COM
	Woodley	WOO
	Chatham	CHA
	North Foreland	NFD
	SE FIR Boundary	FIR(G)
G 2 :	N FIR Boundary	FIR(W)
	Point Lynas	PLY
	Wallasey	WAL
	Burtonwood Range	BWD
	Oldham (abeam)	OLD
	Ottringham	OTT
	N FIR Boundary	FIR(E)
R 1 :	S Boundary SE FIR	FIR(R.S.)
	Hurn Range	HUR
	Ibsley	IBS
	Haslemere	HAS
	Dunsfold Range	DUN
	Sevenoaks	SEV
	Chatham Range	CHA
	Abeam North Foreland	NFD
	E Boundary SE FIR	FIR (R.E.)
R 2 :	Woodley	WOO
	Chertsey	CHE
	Epsom Range	EPS
	Sevenoaks	SEV
	Ashford	ASH
R 3 :	Portaferry	PFY
	Isle of Man Range	IOM
	Wallasey	WAL
	Whitegate	WHI
R 5 :	Lanark (abeam)	LAN
	Prestwick Range	PWK
	Kintyre (abeam)	KIN

Note:- Aerodromes are to be shown by using the approved abbreviations, e.g. GALA, GJBA, GGRA, etc.

- END -

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