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ACTIVATION OF A CONTROL AREA

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FOREWORD

The material contained in this Circular was submitted to the Fourth Special Meeting of the RAC Committee - European-Mediterranean Region, Paris - June/July 1952.

The Meeting recognized its value and after suggesting amendments, recommended that States use it as a guide in activating their control areas and that they bring to the attention of operators of their registry, the information contained in Section I, paragraph 1.

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SECTION I

Outline of basic actions in connection with the activation of a control area

Note 1. - Modification of the basic actions may be necessary, dependent upon local factors and the scope of operations to be conducted.

Note 2. - See Sections II and III for examples.

1. When a control area has been determined, it will be necessary to prepare a detailed operational plan for the area control centre, considering the following items:

- a) Number and adequacy of air navigational radio aids;
- b) Adequacy of available communications and possibility of implementing additional communications as required;
- c) The traffic density in the area to be controlled;
- d) The density of air terminals within the area to be controlled;
- e) The density of routes within the area;
- f) The density of aerodrome control towers within the area;
- g) The number of aerodromes where approach control service is provided;
- h) The type of aircraft generally operating within the area;
- i) The general meteorological conditions that prevail within the area;
- j) Whether other activated or proposed control areas are contiguous or adjacent to the area proposed.

In this connection, the competent authority should obtain all pertinent data concerning established facilities, existing procedures and practices and develop operational directives for the control of traffic in the proposed control area.

Note. - Some of the desired information may be available from maps, charts, manuals and other aeronautical publications. If not, it must be developed, approved and published as required.

Annex 11, in Chapter 3 and following Chapters, establishes basic principles to apply in the establishment and provision of air traffic services, relevant units, ancillary services, etc. The Procedures for Air Navigation Services - Rules of the Air and Air Traffic Services - contain operational practices to be used in the actual operation of air traffic control units in general.

For the actual operation of a given control area, a number of detailed local procedures and practices remain to be developed in the form of operations letters and memoranda to Air Traffic Services personnel, in connection with the following items (the information in such operations letters and instructions, which is of interest to the pilot in complying with air traffic control procedures, should be published in the relevant Aeronautical Information Publications):

1) Chart of Air Traffic Control Organization:

- a) Horizontal and vertical limits of the control area;
- b) Airways and terminal control areas, sectors of jurisdiction of various control positions, advisory routes, reporting points, transfer of control point, etc. (See chart at last page);
- c) Radio fixes;
- d) Reporting points (compulsory) (on request);
- e) Holding areas;
- f) Control zones - Controlled aerodromes;
- g) Distances between successive reporting points.

Note. - Separate charts will be required for airways or advisory routes and, on large scale, for terminal areas.

2) Minimum en-route instrument altitudes:

a) The approved minimum IFR altitudes for the various sections of the various controlled airways;

b) Special instructions concerning the clearance of aircraft to comply with these minima.

Note. - Attempt to establish only one set of minima for a given area.

3) ATS communications procedures:

- a) Criteria for delivery of flight progress reports for appropriate handling;
- b) Criteria for delivery of clearances for expeditious action by pilot and/or operators;
- c) Criteria for direct controller/pilot communications;
- d) Criteria for filing and forwarding of flight plans.

4) Specifications of reporting points:

- a) Radio beacons;
- b) Radio range stations;
- c) Radio range course intersections;
- d) Any other approved facility.

5) Holding specifications:

- a) Type of radio facility;
- b) Locations;
- c) Holding directions;
- d) Side (north, south, etc.);
- e) Minimum altitude;
- f) Type of separation including time and/or distance or lateral.

Note. - For example refer to 4 of Section II.

6) Clearance procedures for departing aircraft:

- a) Combined clearances and inter-centre co-ordination (see 1 of Section II);
- b) Special procedures for clearing via certain routes or airways;
- c) By-pass routes; optional re-routing due to traffic;
- d) Procedures requiring prior co-ordination with units providing approach control service and aerodrome control service.

7) Clearance procedures for arriving aircraft:

- a) Holding clearances for the various radio fixes approved for holding;
- b) Special routing procedures as required;
- c) Other special procedures.

8) Clearance procedures for aircraft en route crossing or joining a controlled airspace.9) Instrument approach procedures:

- a) Instrument approach procedures for all locations within the control area (All types of facilities and/or procedures);

(See Procedures for Air Navigation Services - Instrument approach to land - Doc 7087-OPS/585/1);

- b) Missed approach procedures;
- c) GCA procedures (as necessary);
- d) ILS procedures (as necessary);
- e) Any other approach procedures.

10) Approved separation:

- a) Areas wherein standard vertical and longitudinal separation is approved;
- b) Areas wherein vertical and longitudinal separation greater than standard is required;
- c) Lateral separation by prescribing different routes, right side or quadrantal separation, holding areas, etc.;
- d) Areas in which accepted longitudinal or lateral separation less than standard in PANS-RAC is applied.

11) Special operations letters:

- a) Handling of special military training flights while in control areas, temporary airspace reservations, special separation minima for aircraft in formation flights, etc.;

b) Special handling of jet-propelled aircraft - military and civil.

12) Emergency communication procedures:

a) Instructions to all concerned regarding alternate communications procedures to be used in case of local or long line interphone failure, teletype failure, radio failure, etc.;

b) Use of auxiliary power for radio, interphone, teletype, lights and other equipment;

c) Instruction concerning the action to be followed in case of an aircraft experiencing a communications failure.

13) Co-ordination

a) Co-ordination between the various sectors of the area control centre, supervisor's action;

b) Co-ordination between the area control centre and the aerodrome control towers, and between the approach control offices, when established, and the area control centre and aerodrome control towers;

c) Co-ordination between adjacent area control centres, foreign or domestic, etc.;

d) Co-ordination between area control centres and rescue co-ordination centres.

2. When the data and proposed procedures covered in I above have been prepared, including the necessary co-ordination with civil and military aviation interests, it should be made a part of the agenda for a comprehensive official ATS meeting of aviation interests concerned. After general agreement on all items is reached at the ATS conference(s) and the official results of the meeting (s) have had adequate distribution through appropriate channels, the proper authorities should indicate a date on which the centre will start "practice" control. Before starting actual control with new control units and ATS personnel, all centres should operate with a full complement of personnel for approximately three to four weeks on a practice status as follows:

1) All pilots and operating agencies should forward to ATS the position reports, flight plans, changes in levels of flight, routes, cruising speed and all pertinent control data.

2) As the times over the various check points are received from the flight, ATS staff should enter the times on a form for the various main routes showing distances between the various regular check points and

the total distance between terminals, and by use of a "time distance speed" computer enter the elapsed time and speed between check points and subsequently the over-all elapsed time between terminals and the average speed made good between the terminals. By following the above, controllers will soon learn and retain information on distances, time and speed for the various types of aircraft in relation to altitudes, check points, etc., in the control area.

By following the same procedure with slight alterations, the controllers (approach and centre) can learn and retain information on the average time various aircraft will use in making an instrument approach under various conditions.

The above is excellent for training purposes and will permit rapid estimates when actual control has started.

Sample of a calculation form:

Type of Aircraft	Point of Departure ICAOBURG	Docville	Annexburg	Pansville	RAC-ROA	Point of Arrival ICAOVILLE	Total	Remarks
		25 mls	31 mls	28 mls	42 mls	30 mls	156 mls	
		9 min	10 min	9 min	13 min	11 min	52 min	Instrument take-off
DC 3 (5000)	2:30 (OFF)	158 mph	180 mph	181 mph	182 mph	165 mph	170 mph	Visual en route and approach

3) The ATS personnel should post all data as though they were actually controlling the traffic, including estimates and the formulation of clearances and control instructions as necessary, except that clearances and instructions should not be forwarded to the pilots concerned.

4) If the operations are conducted in accordance with the above for a period of several weeks, instrument weather normally will be experienced and controllers will have an opportunity to "feel their way" on a practice basis. This will give them experience in posting, estimating, control and communications together with a general preview of problems which can be resolved prior to implementation of actual control. Moreover, such practice is very helpful to pilots and operators in that it gives each an opportunity to obtain experience and to make operational adjustments as necessary prior to the implementation of actual control.

When sufficient "practice" control has been exercised to demonstrate to the controllers that they are consistently receiving adequate and reliable reports

without undue delay and all concerned are aware of the major control problems and the relevant procedures and practices necessary to solve such problems, then the centre is ready to exercise actual control.

During the "practice" control period and the early stages of actual control, it will be very helpful and advantageous to all concerned if the ATS controllers visit all airports, facilities and operations offices both civil and military within their control area. This will give the controllers an opportunity to contact personally the people with whom they will be working, discuss various mutual problems, distribute pertinent control information, manuals, etc., and generally pave the way for a better understanding and a more efficient operation. These visits should be continued at regular intervals after the centre is commissioned.

3. The following should be kept in mind during the activation of a control area:

1) Efficient control of IFR traffic is not possible when the controller attempts to guess or predict the weather in which the flight(s) being controlled is operating or will be operating and issues control instructions only when he feels they would actually be necessary. This is very hazardous and confusing and if exercised will quickly result in a feeling of no confidence or trust on the part of the pilots. DON'T ATTEMPT TO PLAN ACTUAL CONTROL ON FORECASTS OR ASSUMPTIONS. ONLY THE PILOT KNOWS WHAT THE ACTUAL WEATHER IS AT ANY GIVEN TIME. THE CONTROL OF EN ROUTE IFR TRAFFIC SHOULD ALWAYS BE PREPARED AS IF IFR WEATHER CONDITIONS PREVAIL.

2) Since the centre will be responsible for control of all IFR traffic in the area, the controller should be the first to be advised of all information or developments in the area relative to IFR traffic. To this effect, it is essential that communication channels are kept free. Therefore, it is necessary to keep all interphone and/or radio transmissions as brief as possible.

3) For preliminary planning purposes it will be helpful to consult the published flight schedules of the scheduled air carriers and list the arrivals and departures in time sequence at each terminal in the area. This will give the controller a picture of the regular traffic peaks, etc.

SECTION II

Sample of "operations letters" for the operation of a control area

Note 1. - The following examples cannot claim to cover all situations that may arise. They provide, however, a useful guide in the preparation of such operations letters as the circumstances may require.

Note 2. - The locations, routes, reporting points and facilities listed in the examples may be found in the ICAO North Atlantic Regional Manual - Doc 4500* - Radio Facilities Charts or in the relevant U. S. publications.

Note 3. - Attention is called to the fact that certain editorial arrangements have been made in the following examples in order to conform to ICAO terminology and that, therefore, the examples may be at some variance with the original from which they have been extracted.

1. - Example of an inter-centre operations letter for the co-ordination of clearances

EFFECTIVE: April 1, 1948

SUBJECT: Clearance Procedures, New York-Washington Routes

To facilitate the movement of air traffic between the terminal area New York or points North and the Washington terminal area or points South, the following clearance procedures shall be effected.

1. - TERMINAL AREA NEW YORK TO TERMINAL AREA WASHINGTON

A. Via Red Civil Airway No. 33

1. Clear aircraft to ARCOLA RANGE STATION only.

B. Via Green Civil Airway No. 5

1. Clear aircraft to BRANDYWINE RANGE STATION only.
Minimum altitude 5 000 feet.

* Secretariat Note. - The ICAO North Atlantic Regional Manual is now an obsolete publication.

II. - PHILADELPHIA TO TERMINAL AREA WASHINGTON

- A. Via Amber Civil Airway No. 7
1. Clear aircraft to the airport of destination, to maintain cruising altitude.
- B. Via Millville and Green Airway No. 5
1. Clear aircraft to BRANDYWINE RANGE STATION only. Minimum altitude 5 000 feet.

III. - TERMINAL AREA NEW YORK OR POINTS NORTH
TO POINTS SOUTH OF WASHINGTON

- A. Via Amber Civil Airway No. 7 South of Washington
1. Clear aircraft via Red Airway No. 33 over Arcola and Gordonsville to Richmond, thence via Amber Airway No. 7 to the destination, to maintain cruising altitude.
- B. Via Green Civil Airway No. 6 Southwest of Washington
1. Clear aircraft via Red Airway No. 33 over Arcola and Gordonsville to Richmond, thence via Green Airway No. 6 to the destination, to maintain cruising altitude.
- C. Via Green Civil Airway No. 5 Southwest of Washington
1. Clear aircraft via Red Airway No. 33 over Arcola to Gordonsville thence via Green Airway No. 5 to the destination, to maintain cruising altitude.
- D. Via Green Civil Airway No. 5 as the Routing on Departure
1. Should a routing via Green Airway No. 5 be considered more desirable to expedite a flight, aircraft shall be cleared over Millville and Brandywine to Doncaster, thence via Amber Airway No. 7 or Green Airway No. 5, whichever is applicable, in lieu of any of the foregoing route procedures.

Note. - Cruising altitudes over this route should be 8 000 feet or 500 feet on top.

IV. - TERMINAL AREA NEW YORK OR
PHILADELPHIA TO BALTIMORE

A. LaGuardia or Newark to Baltimore

1. Aircraft destined for Baltimore will normally be cleared via Red Airway No. 33 and Red Airway No. 29 to Baltimore, but shall not be cleared via Green Airway No. 5 west of Millville.

V. - PHILADELPHIA TO BALTIMORE -
SOUTHBOUND AND NORTHBOUND

A. Via Amber Civil Airway No. 7

1. Clear aircraft only after inter-centre co-ordination has been effected. Combined airways clearances shall be issued whenever possible.

VI. - WASHINGTON TO NEWARK

A. Via Amber Civil Airway No. 7

1. Clear aircraft to destination to maintain cruising altitude.

B. Via Red Civil Airways No. 20 and No. 33

1. Clear aircraft to ALLENTOWN RANGE STATION only.

VII. - WASHINGTON TO NEW YORK

A. Via Amber Civil Airway No. 7 and Red No. 3

1. Clear aircraft destined for LaGuardia or Floyd Bennett to destination to maintain cruising altitude.

B. Via Green Civil Airway No. 5

1. Aircraft destined for Mitchel Field shall be cleared to destination.
2. Aircraft destined for LaGuardia or Floyd Bennett shall be cleared to the Ambrose Intersection only.

VIII. - GENERAL

- A. Aircraft shall not be routed to LaGuardia via Red Civil Airway No. 33, nor to Newark via Green Civil Airway No. 5 without prior co-ordination.
- B. Aircraft proceeding beyond the New York Terminal Area shall be cleared to destination, specifying appropriate airways to define the routing.
- C. During period of instrument or borderline weather in either area, overall co-ordination between centres shall be accomplished with respect to best routings for aircraft.
- D. Inter-centre co-ordination will, as far as possible, be accomplished at New York and Washington by the Controller assigned to Flow Control. The Flow Controller will at all times keep adjoining centres advised of any unusual conditions, such as anticipated re-routing of aircraft due to weather and traffic, which would affect operations in such centre area.
- E. The southbound Washington by-pass routes and alternate airway routings to Terminal Area Washington need not be effected until such time as the Washington Flow Controller requests and, then, only for the specified periods of the request.
- F. Aircraft cleared short of destination shall be issued an expected approach clearance time immediately upon posting of flight estimates by the centre controlling the airport of destination.
- G. These procedures do not apply to nor affect high altitude flights (those operating above 12,500 feet).

(signed)

Chief, New York Area Control Centre

(signed)

Chief, Washington Area Control Centre

Approved:

(Competent authority or authorities)

2. - Application of right-side separation

SUBJECT: Right-side separation - Opposite direction traffic

A. Right-side separation is considered to be applicable on all civil airways controlled by the Chicago Centre with the following exceptions:

1. Green Airway No. 2 Between Madison and a point 25 miles northwest of Lone Rock.
2. Green Airway No. 3 Between Aurora Intersection and Lansing Intersection.
3. Amber Airway No. 5 Between Joliet and Milwaukee.
4. Red Airway No. 12 Between Joliet and South Bend.
5. Red Airway No. 14 Between Aurora Intersection and Lansing Intersection.
6. Red Airway No. 17 Between Fort Wayne and a point 25 miles east of Fort Wayne.
7. Red Airway No. 19 Between Fort Wayne and a point 25 miles south of Grand Rapids.
8. Red Airway No. 28 Between Wauconda Intersection and the Bangor Fan Marker.
9. Blue Airway No. 6 Between South Bend and a point 25 miles south of Muskegon.
10. Blue Airway No. 44 Between Fort Wayne and a point 25 miles southwest of Fort Wayne.

EXCEPTION: Right-side separation may be applied to aircraft being operated along the above-listed airways when it is known or has been definitely determined that such aircraft are, and will remain on opposite sides of the same course of a specified radio range during such time as lateral separation is required.

(signed)
Chief, Chicago Area Control Centre

Approved:

(Competent authority or authorities)

3. - Specific lateral separation procedures

EFFECTIVE: April 1, 1949

REVISED: April 20, 1949

SUBJECT: Right Side Separation - Pittsburgh Control Area

A. VAR/VHF FACILITIES

Right side separation shall be restricted to aircraft flying on visual courses indications.

B. L/MF FACILITIES

Right side separation shall not be used on any courses of the Pittsburgh Radio Range. Right side separation may be used on courses of other radio ranges lying within the Pittsburgh Control Area only when it has been definitely determined that the aircraft are, and will remain, on opposite sides of the same course of a specified radio facility during such time as lateral separation is required.

Note - When right side separation is used, all pilots concerned shall be instructed to remain "well to the right".

(signed)

Chief, Pittsburgh Area Control Centre

Approved:

(Competent authority or authorities)

4. - Lateral separation from holding aircraft

CRITERIA FOR ESTABLISHMENT OF AIRSPACE AREAS WHICH
WILL ENCOMPASS STANDARD FLIGHT HOLDING PATTERNS

INTRODUCTION

In order to provide a uniform criteria for the establishment of airspace areas which will encompass standard flight holding patterns, this standard has been developed by the Civil Aeronautics Administration.

DIRECTIVE

In accordance with the procedure for establishing technical aeronautical standards specified in General Order No. 56, the "Criteria for Establishment of Airspace Areas Which Will Encompass Standard Flight Holding Patterns", set forth herein is established as a Technical Standard Order.

This standard is the official Civil Aeronautics Administration GUIDE for establishing airspace areas for holding patterns and supersedes all existing flight holding pattern airspace area criteria which do not conform to its requirements.

When special conditions are encountered which make adherence to this standard unduly restrictive, waivers may be authorized at the discretion of the Regions.

SPECIFIC INSTRUCTIONS

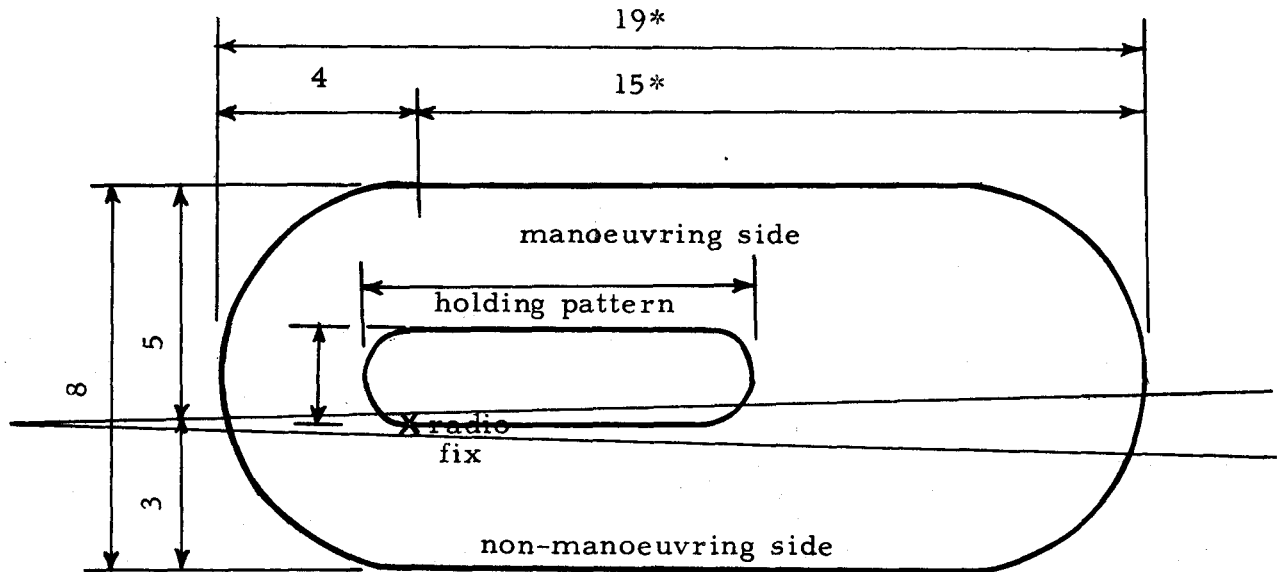
The airspace area which encompasses the standard flight holding pattern must be of sufficient width and length and so located with respect to a radio fix, that aircraft flying at speeds up to 180 miles per hour can be manoeuvred along the prescribed holding pattern track and maintain the required lateral and longitudinal clearance between the prescribed holding pattern track and the boundaries of the airspace area,

It will be the responsibility of Aviation Safety personnel of each region to flight check holding fixes required for air traffic control to determine the suitability of these fixes for holding purposes.

BASIC REQUIREMENTS

A. DIMENSIONS OF STANDARD FLIGHT HOLDING PATTERN. For the purpose of description it will be assumed that the holding pattern begins at the radio fix under still air conditions and at an air speed of 180 miles per hour. An initial standard rate turn (three degrees per second) in the prescribed direction for 180 degrees will be executed, followed by straight flight for two minutes, followed by a standard rate turn in the prescribed direction to the published holding track and return to the radio fix. This track will normally encompass an area of two miles in width and eight miles in length.

B. DIMENSIONS OF HOLDING PATTERN AIRSPACE AREA. The airspace area encompassing a holding pattern at a radio fix is race track shaped and will normally extend 19 statute miles in length and 8 statute miles in width. These dimensions and the shape of the area are as shown in the following page:



* Where one minute holding pattern airspace areas are established because of limited airspace or in order to expedite traffic, the length of the airspace area shall be reduced from 19 to 16 statute miles. This 3 mile reduction shall be made at the far end of the airspace area which reduces the 15 statute mile dimension to 12 statute miles.

(signed)
Competent authority

5. - Holding clearances and proceduresNEW YORK AIRWAY TRAFFIC CONTROL CENTRE OPERATIONS
LETTER NUMBER 12

EFFECTIVE: February 18, 1947

REVISED: January 15, 1947

SUBJECT: Standard Clearance and Holding Procedure,
New York Terminal Area

When instrument flight rule weather conditions prevail in the New York Terminal Area and approach sequences are being established, considerable time is consumed in the issuance of complete, detailed holding instructions to the pilots of aircraft concerned. Because the pilots of air carrier aircraft, engaged in scheduled operation within the New York Terminal Area, are required by the respective companies to become familiar with the standard holding points and procedures in use in this area, the issuance of complete, detailed holding instructions to such pilots is believed to be unnecessary.

The following definitions of Standard Holding Points and Standard Clearance Procedures have therefore been established with a view toward enabling controller personnel to exercise more efficient control over air traffic, effecting more efficient utilization of interphone and radio communications facilities and simplification of instrument clearance procedures.

STANDARD HOLDING CLEARANCE AND PROCEDURES

Section I

A. Standard Holding Clearance Procedure:

When the pilot of an air carrier aircraft receives and acknowledges a traffic clearance, including an expected approach time, or "no delay expected", as described herein, and such clearance is not cancelled or amended by later instructions, the pilot is to perform continuously the standard holding procedure specified for the point to which he is cleared until such time as further clearance is received and acknowledged.

In the event of two-way radio failure, the pilot will be governed by procedures outlined in 5.3.5.2 of Annex 2.

B. Standard Air Traffic Control Clearance:

1. (name of air carrier and trip number) is cleared to (location) to cruise at (specified altitude), cross (name of fix) at (specified altitude). Hold at (location) until (time), or until advised by (name of) Tower; or until advised by (name of) Approach Control on (blank) Kilocycles. Expect approach clearance at (time).

EXAMPLE:

"Eastern four is cleared to Metuchen to cruise at five thousand, cross Metuchen at three thousand. Hold at Metuchen until further advised. Expect approach clearance at one-three-four-one."

2. (Name of air carrier and trip number) is cleared to (location) to cruise at (specified altitude), cross (name of fix) at (specified altitude).

EXAMPLE:

"American five is cleared to Port Chester to cruise at six thousand, cross Port Chester at two thousand. No delay expected." (If no further clearance received, the pilot shall hold at Port Chester on a standard holding pattern.)

3. Amending traffic control instructions may be issued at the discretion of the controller concerned, as set forth in the ANC-IFR Manual of Operations.

Section II

A. INTERSECTIONS AND REPORTING POINTS:

<u>NAME</u>	<u>POSITION REPORT</u>	<u>HOLDING FIX</u>
Glen Cove	Non Compulsory	No
St. James	Compulsory	No
Yonkers	Non Compulsory	No
Paterson	Non Compulsory	Yes
Branchville	Compulsory	Yes
Lancaster	Compulsory	No
Little Ferry	Non Compulsory	No
Flatbush	Compulsory	Yes
Freehold	Non Compulsory	Yes
Mt. Holly	Non Compulsory	No
Ambrose	Compulsory	Yes
Coney Island	Non Compulsory	Yes
Forked River	Compulsory	No
Long Beach	Non Compulsory	Yes
Great Neck	Non Compulsory	No
Riis Park	Non Compulsory	No
Port Chester	Non Compulsory	Yes
Metuchen	Non Compulsory	Yes
Huntington	Non Compulsory	No

B. STANDARD HOLDING PROCEDURES:PATERSON

Holding will be accomplished on the northwest course of the La Guardia Radio Range between the intersection with the south course of the New Hackensack Radio Range and a point 2 minutes northwest. All turns to the north.

BRANCHVILLE

Holding will be accomplished on the northwest course of the La Guardia Radio Range between the intersection with the northeast course of the Allentown Radio Range and a point 4 minutes northwest. All turns to the south.

AMBROSE

Holding will be accomplished on the southeast course of the Newark Radio Range between the intersection with the southwest course of the Mitchell field Radio Range and a point 2 minutes southeast. All turns to the south.

LONG BEACH

Holding will be accomplished on the southeast course of the Floyd Bennett Radio Range between the intersection with the southwest course of Mitchell field Radio Range and a point 2 minutes east. All turns to the south.

FLATBUSH

Holding will be accomplished between the Flatbush and Maspeth Compass Locator stations utilizing ADF holding procedure. All turns to the left.

CONEY ISLAND

Holding will be accomplished on the southwest course of the La Guardia Radio Range between the intersection with the southeast course of the Newark Radio Range and a point 2 minutes south. All turns to the east.

NEW ROCHELLE

Holding will be accomplished between the New Rochelle Compass Locator Station and a point 2 minutes northeast. All turns to the west.

Note. - When the Compass Locator Station being installed at Rye, N. Y. is commissioned, aircraft holding will be accomplished between the New Rochelle and Rye Compass Locator Stations utilizing ADF procedures. All turns will be made to the left.

LA GUARDIA RADIO RANGE STATION

Aircraft not equipped to hold in the New Rochelle or Flatbush patterns may be held in the northeast course of the La Guardia Radio Range between the Range station and a point 2 minutes northeast. All turns to the west.

METUCHEN

Holding will be accomplished on the southwest course of the Newark Radio Range, between the intersection with the east course of the Allentown Radio Range (Fan Marker) and a point 2 minutes southwest. All turns to the west.

PORT CHESTER

Holding will be accomplished on the northeast course of the Newark Radio Range between the intersection with the northeast course of the La Guardia Radio Range (Fan Marker) and a point 2 minutes northeast. All turns to the west.

The following fixes are defined but are not to be used for holding:

Glen Cove

The intersection of the northeast course of Idlewild and the east course of the La Guardia Radio Ranges.

St. James

The intersection of the northeast course of the Mitchel Field Radio Range and the east course of the La Guardia Radio Range.

Yonkers

The intersection of the northeast course of the Newark Radio Range and the northwest course of the La Guardia Radio Range.

Lancaster

The intersection of the east course of the Harrisburg Radio Range and the southwest course of the Allentown Radio Range.

Little Ferry

The intersection of the northeast course of Newark Radio Range and the northwest course of the Mitchel Field Radio Range.

Mt. Holly

The intersection of the northeast course of the Philadelphia (Southwest) Radio Range and the southeast course of the Philadelphia (Northeast) Radio Range.

Coney Island

The intersection of the southwest course of the La Guardia Radio Range and the southeast course of the Newark Radio Range.

Forked River

The intersection of the northeast course of the Millville Radio Range and the southwest course of the Mitchel Field Radio Range.

Great Neck

The intersection of the northeast course of the Idlewild Radio Range and the northwest course of the Mitchel Field Radio Range.

Riis Park

The intersection of the southeast course of the Newark Radio Range and the southwest course of the Idlewild Radio Range.

Huntington

The intersection of the east course of the La Guardia Radio Range and the southwest course of the Bridgeport Radio Range.

Section III

A. MISCELLANEOUS

It may occasionally be necessary for air traffic control personnel to issue holding instructions at variance with those set forth herein.

In all such cases, complete, detailed instructions will be issued to pilots of aircraft concerned, and shall be issued in accordance with the provisions of ANC/IFR Manual of Operations.*

(signed)
Chief, New York Area Control Centre

Approved:
(Competent authority)

* ANC = Air Force-Navy-Civil Aeronautics Administration.

6. - Specific holding procedures within the New York Control AreaNEW YORK AREA CONTROL CENTRE OPERATIONS LETTER NUMBER 12
SUPPLEMENT 1

EFFECTIVE: June 1, 1947

SUBJECT: Standard Holding Procedures - New York Control Area

The following procedures, designed to standardize the use of existing facilities for holding en route aircraft in the New York Control Area, are intended to supplement the applicable provisions of the Federal Airways Manual of Operations, and are published for the information and guidance of all concerned.

If necessary, to exercise more efficient control, deviations from the defined holding procedures can be made at the discretion of control personnel - such deviations to be consistent with standard safe flight specifications.

Holding procedures previously defined in currently effective operations letters are omitted.

HOLDING PROCEDURES

Phillipsburg, Pa. - Hold on the West Course of the Phillipsburg Range between the range station and a point four (4) minutes West. All turns to the South. Minimum safe altitude four thousand (4000) feet.

Allentown, Pa. - Hold on the East and West Courses of the Allentown Range, between the range station and a point two (2) minutes East and West. All turns to the South. Minimum safe altitude three thousand (3000) feet.

Lancaster, Pa. - Hold on the East Course of the Harrisburg Range, between the intersection of the East Course of the range station and the Southwest Course of the Allentown Range and a point two (2) minutes East. All turns to the North. Minimum safe altitude two thousand five hundred (2500) feet. (This procedure to be used with caution.)

Williamsport, Pa. - Hold on the East Course of the Williamsport Range between the range station and a point four (4) minutes East. All turns to the North. Minimum safe altitude four thousand (4000) feet.

Wilkes-Barre, Pa. - Hold on the Southwest Course of the Wilkes-Barre Range between the range station and a point four (4) minutes Southwest. All turns to the South. Minimum safe altitude four thousand (4000) feet.

Elmira, N. Y. - Hold on the Southwest Course of the Elmira Range between the range station and a point four (4) minutes Southwest. All turns to the West. Minimum safe altitude four thousand (4000) feet.

Millville, N. J. - Hold on the Northeast Course of the Millville Range between the range station and a point four minutes Northeast. All turns to the East. Minimum safe altitude two thousand (2000) feet.

Philadelphia, Pa. - Hold on the Southwest Course of the Philadelphia Range between the range station and a point four (4) minutes Southwest. All turns to the South. Minimum safe altitude two thousand (2000) feet.

Freehold, N. J. - Hold on the Northeast Course of the Philadelphia Range between the intersection of the Northeast Course of the Philadelphia Range and the Southwest Course of the LaGuardia Range and a point two (2) minutes Southwest. All turns to the South. Minimum safe altitude two thousand (2000) feet.

New Hackensack, N. Y. - Hold on the North Course of the New Hackensack Range between the range station and a point four (4) minutes North. All turns to the West. Minimum safe altitude four thousand (4000) feet.

New Freedom, Pa. - Hold on the South Course of the Harrisburg Range between the intersection of the South Course of the Harrisburg Range and the Northeast Course of the Arcola, Va., Range and a point two (2) minutes North. All turns to the East. Minimum safe altitude two thousand five hundred (2500) feet. (Due to the proximity of this intersection to the New York and Washington Control Area boundaries, holding will be accomplished at this intersection only with the approval of both centres.)

(signed)
Chief, New York Area Control Centre

Approved:

(signed)
Competent authority

7. - Joint area control centre - aerodrome control tower letter
of operations for the provision of approach control service

PITTSBURGH AREA CONTROL CENTRE OPERATIONS LETTER NO. 3
PITTSBURGH AERODROME CONTROL TOWER OPERATIONS LETTER NO. 2

REVISED: EFFECTIVE FEBRUARY 15, 1950

SUBJECT: Approach Control Procedures - Pittsburgh Terminal Area

The procedures contained herein supplement those contained in the manual of air traffic control procedures - "ANC - PROCEDURES FOR THE CONTROL OF AIR TRAFFIC" and will govern the operation of Pittsburgh Approach Control Service in the handling of aircraft being controlled in accordance with IFR standards as outlined.

A. APPROACH CONTROL SERVICE (PRIMARY) HOLDING FIXES

1. FIX	<u>MINIMUM HOLDING ALTITUDE</u>
McKeesport	2600
Cecil	2500

B. APPROACH PROCEDURES

1. FAN MARKER APPROACH PROCEDURES

- a. Fan marker approach procedures may be applied from McKeesport or Cecil, depending upon weather, traffic or other pertinent factors.

2. SIMULTANEOUS APPROACH PROCEDURES

Simultaneous approaches from the Cecil and McKeesport holding patterns may be authorized when the ceiling and visibility are at or above 1400 feet and 3 miles respectively. When simultaneous approaches are being conducted, the following shall apply:

- a. From Cecil Holding Pattern - Aircraft shall be cleared as follows:

"(AIRCRAFT IDENTIFICATION) cleared to Pittsburgh Range Station descend to 2000 immediately after passing Cecil advise when contact (in visual reference to the ground). If not contact (in visual reference to the ground) at the Range Station, make right turn climbing to 2500 feet and return to Cecil. "

- b. From McKeesport Holding Pattern - Aircraft shall be cleared as follows:

"(AIRCRAFT IDENTIFICATION) descend to 2600 and advise when contact (in visual reference to the ground). "

- c. In the event both aircraft are contact (in visual reference to the ground) but do not cancel their IFR flight plans geographical separation shall be applied between McKeesport and the Pittsburgh radio range station.

3. TIMED APPROACH PROCEDURES

- a. Whenever adequate two-way communication between aircraft and the Approach Controller has been established, aircraft may be cleared for approach from Cecil or McKeesport, depending upon which primary pattern is in use, utilizing only time separation in accordance with the following procedures.

- b. The first aircraft will leave the holding fix at the time designated and will commence descent for a straight-in approach to the airport.
- c. The second aircraft shall be given a time check and cleared to descend to the altitude previously held by the first aircraft after the first aircraft has reported vacating that altitude, and be cleared to leave the holding fix INBOUND at the specified time (determined by the shortest time interval between approaches considered practicable).
- d. The third, and succeeding aircraft in the sequence shall be cleared to descend to the next level when preceding aircraft have reported vacating the lower altitudes.
- e. The time interval to be used between successive approaches shall be determined by the Approach Controller and is dependent upon the speed of the aircraft, existing weather conditions, the distance from the holding fix to the airport, type of approach and airport capacity. Under optimum conditions, a two-minute interval is the absolute minimum. The interval shall be increased as necessary in poorer weather conditions, or when a high-speed aircraft is following a slower speed aircraft, or when other than straight-in landings are being accomplished.
- f. Missed Approaches
 1. When timed approaches are being conducted from Cecil, alternate missed approach procedure, in accordance with the following shall be issued to the number one aircraft on approach in addition to the standard approach clearance:

"In the event of missed approach, climb straight ahead to three thousand six hundred, proceed to and hold at McKeesport."
 2. When timed approaches are being conducted from McKeesport alternate missed approach procedure, in accordance with the following, shall be issued to the number one aircraft on approach in addition to the standard approach clearance:

"In the event of missed approach, climb straight ahead to three thousand five hundred, proceed to and hold at Cecil."
 3. When timed approaches are in progress, the second aircraft on approach shall be issued no missed approach procedure and will be expected to execute the normal published procedure if approach is missed. As each aircraft becomes the number one aircraft in the sequence, following a completed approach, appropriate instructions contained in 1 or 2 above shall be issued.

4. In the event of a missed approach, approaches utilizing only time separation shall be suspended by withholding approach clearance from # 3 aircraft, until weather conditions improve, or until both missed approach altitudes are again available.
- g. It should be understood that the utilization of timed approach procedures to expedite straight-in approaches from a holding fix shall not compromise the expected approach times of other aircraft which will execute a different type of instrument approach. For example, the timed approach sequence from McKeesport must be interrupted to permit an aircraft holding at the Pittsburgh Range Station to start a range approach at its expected approach time.

C. STANDARD RADIO RANGE INSTRUMENT APPROACH

1. When an aircraft is not equipped to hold elsewhere, or upon request of the pilot, aircraft shall be held at the Pittsburgh Radio Range Station.
2. Aircraft which will execute a standard radio range approach shall be handled in accordance with the following procedures:
 - a. Fan marker and/or timed approaches shall be interrupted.
 - b. Aircraft shall be laddered down to 3500/3600 feet at the Pittsburgh Radio Range Station, depending upon whether the east or west pattern is being utilized.
 - c. When straight-in approaches from the McKeesport pattern are being conducted, aircraft executing standard radio range instrument approaches shall not be cleared to start an approach until the landing of the preceding aircraft, inbound from McKeesport, is assured. As soon as the landing is assured, the aircraft executing a standard radio range instrument approach shall be descended to 2500/2600 feet immediately and cleared to commence approach.
 - d. Aircraft in the McKeesport or Pittsburgh Radio Range east pattern shall not be descended below 3600 feet until the landing of the aircraft executing a standard radio range approach is assured.

(signed)
Chief, Pittsburgh Area Control Centre

(signed)
Chief, Pittsburgh Aerodrome Control Tower

Approved:
(Competent authority)

8. - Joint civil-military departure procedure

ATLANTA AREA CONTROL CENTRE OPERATIONS LETTER NO. 10

EFFECTIVE: February 1, 1951

SUBJECT: Special Departure Procedure - Dobbins Air Force Base,
Marietta, Georgia.

1. Purpose: The purpose of this agreement is to establish a procedure to expedite instrument flight rule departure of aircraft from Dobbins Air Force Base. Responsibility of Atlanta Area Control Centre shall be limited to aircraft operations conducted within its control area.
2. Scope: This procedure shall be applied to aircraft of which the pilot has specifically requested this procedure. The scope of application of this procedure is limited to aircraft making take-off on runways 10, 15 or 18 and making right turn, and on runway 28 with climb as outlined in paragraph 3.C.
3. Flight Procedures:
 - A. Flight Plans: Standard flight plan filing procedure shall apply, and pilots requesting this flight procedure shall so indicate by including the phrase "Special Departure Procedure" in remarks of flight plan.

Note. - This should be published in AIPs.
 - B. Take-Off: Immediately after take-off aircraft shall proceed to and utilize the west course of Navy Atlanta radio range station. Altitude of 3,000 feet shall be maintained until three minutes past the north course of the Campbellton radio range station, and clear of control area.
 - C. Climb: Aircraft shall maintain an altitude of 3,000 feet until clear of control area, then climb on the west course of the Navy Atlanta radio range to altitude specified in traffic clearance. Traffic clearance will contain information as to point aircraft will enter control area, route to return to flight plan course, etc.
 - D. Communications: Continuous two-way communication normally will be maintained between the aircraft and Dobbins Air Force Tower during climb to assigned altitude, unless other arrangements are made for individual flights.
4. Clearance: The application of this procedure shall be indicated by the phrase "Special Departure Procedure" in traffic clearance.

5. Separation Standards: Standard separation will be provided by the Atlanta Area Control Centre for operation while within control areas and control zones.

(signed)
Base Commander
Dobbins Air Force Base

(signed)
Base Operations Officer
Dobbins Air Force Base

(signed)
Chief, Atlanta Area Control Centre

Approved:
(Competent authority)

9. - Joint civil-military jet flight penetration procedure
within a controlled airspace

WASHINGTON AREA CONTROL CENTRE OPERATIONS LETTER NO. 1
RICHMOND (BYRD FIELD) AERODROME CONTROL TOWER OPERATIONS
LETTER NO. 2

EFFECTIVE: June 1, 1949

SUBJECT: Operation of Military Jet-Propulsion-Type Aircraft -
Byrd Field, Richmond, Virginia.

I. - INTRODUCTION

1. Purpose: The purpose of this letter is to establish procedures designed to expedite the movement of military jet propulsion type aircraft destined to or departing from Byrd Field, Richmond, Virginia, during weather conditions requiring instrument flight rule operation, during climb and/or descent under the conditions specified herein.
2. Scope: The scope of the procedures contained herein apply to the operation of military jet propulsion type aircraft in the following categories:
 - a. Formation and individual flights by jet propulsion type aircraft of the 2235th AF Reserve Training Centre and/or the Virginia Air National Guard, Byrd Field, Richmond, Virginia.

- b. Itinerant military jet type aircraft, operating singly or in formation, destined to or departing from Byrd Field, provided that arrangements are made by the 2235th AF Reserve Training Centre Headquarters or the Virginia Air National Guard Headquarters to handle such aircraft as a formation, or singly.
 - c. When circumstances warrant the clearing of five or more jet propulsion type aircraft, the maximum in each flight will be four. Each flight will comply with the procedures outlined herein.
3. Authority: Competent military authority has assumed responsibility for deviations from the standard separation minima prescribed in the Manual of Operations (Air Force-Navy-CAA Procedures for the Control of Air Traffic) with respect to the operation of jet propulsion type aircraft in formation, in so far as separation between aircraft in formation is concerned while operating in accordance with instrument flight rules.
 4. Weather Minima: These procedures will not be used when ceilings are reported below 3,000 feet and/or visibilities less than three (3) miles, unless military expediency dictates otherwise.

II. - FLIGHT PROCEDURES

1. Flight Plans: At least thirty (30) minutes prior to the proposed take-off time, Operations, 2235th AF Reserve Training Centre or, Operations, Virginia Air National Guard will file abbreviated flight plan information with Richmond Approach Control and Richmond Interstate Airway Communications Station. This information will consist of the aircraft or squadron identification, number and type of aircraft, cruising altitude, route of flight, destination, proposed take-off time, and the elapsed time of the flight.
2. Penetration Flight Channel:
 - a. Prior to take-off, Richmond Tower will obtain clearance from the Washington Area Control Centre.
 - b. Procedure: After take-off, flights will assemble and proceed VFR to Bon Air, Virginia. At this point, flights will turn to magnetic heading of 260 degrees, and homing on the Lynchburg Radio Range Station, will start penetration climbing to cross the Lynchburg Range at assigned altitude. After passing Lynchburg, flights will turn on course as indicated in their approved flight plan. Intervals of penetration will not be less than three minutes between flights. Richmond Approach Control will be advised when flights start penetration of the overcast and when assigned altitude has been reached.

3. Letdown Flight Channel:

- a. Prior to arriving over the Lynchburg Radio Range Station, flights will obtain clearance for descent from the Washington Area Control Centre and proceed to the Lynchburg Range at their assigned altitude. Upon arrival over the Lynchburg Radio Range Station, flights will take up a magnetic heading of 080 degrees, fly straight and level for two (2) minutes, and, clear of all airways, letdown will then be started straight ahead, homing on the Richmond Range Station, descending to cross the Richmond Radio Range Station at 3,000 feet. Flights will maintain 3,000 feet and after passing Richmond, continue on letdown heading and descend to 2,000 feet. Flights will depart Lynchburg Range with at least three (3) minutes separation. Flights will advise Richmond Approach Control when leaving assigned altitude at Lynchburg Range, when over Richmond Range, and when VFR. If flights are not contact at 2,000 feet, the aircraft will climb to 4,000 feet on letdown heading and advise Richmond Approach Control immediately.
- b. All altitudes at and below 4,000 feet at the Richmond Radio Range Station, the Richmond ILS outer marker and the Chester Intersection, shall be kept clear of other aircraft operating on IFR flight plans until jet aircraft on letdown procedures have:
 1. Cancelled their IFR flight plan, or
 2. Reached the Richmond Radio Range Station and are at 3,000 feet or below, permitting use of the higher altitudes, or
 3. Have completed their approach.

4. Emergency:

- a. If weather reports indicate weather below minimums for letdown, the flight commander will advise of alternate airport and route of flight desired
- b. If insufficient fuel supply is available to proceed to an alternate airport, the flight commander will declare an emergency and advise Richmond Approach Control.

III. - COMMUNICATIONS

Continuous two-way radio communication normally will be maintained as follows:

1. During take-off and landing, contact will be maintained with Richmond (Byrd Field) Tower.

2. Prior to penetration and letdown, contact will be established with and maintained with Richmond Approach Control. In the event flights are unable to contact Richmond Approach Control during these procedures, contact will then be maintained with either Richmond Radio or Lynchburg Radio. These facilities will keep Washington Area Control Centre and Richmond Approach Control advised of the progress of the flights.
3. In the event of two-way radio failure, the flights will be governed by the radio failure procedures as prescribed in Civil Air Regulations, Part 60 and AF Regulations No. 60-16.

IV. - CLEARANCES

Clearances for the aircraft operating in accordance with the procedures set forth herein will be issued by the Washington Area Control Centre. Standard procedures and phraseologies shall apply except that the following phraseologies shall be utilized in lieu of specific climb or descent instructions:

1. Penetration: Standard penetration procedure.
2. Letdown: Standard letdown procedure, if not contact at (specified altitude), climb to 4,000 feet, maintain heading of 080 degrees and advise Richmond Approach Control immediately.

Approved:

(Competent civil authority)

(signed)

Chief, Washington Area Control Centre

(signed)

Chief, Aerodrome Control Tower

(Competent military authority)

(signed)

Commanding Officer,
Virginia Air National Guard,
Richmond (Byrd Field)

SECTION III

SPECIAL PROCEDURES FOR UXBRIDGE AIR TRAFFIC CONTROL CENTRE

[Note. - These being a sample of procedures applicable to a specific case, no attempt has been made to align the terminology and abbreviations with RAC documents.]

1. - INTRODUCTION

1.1 The special procedures detailed in this Part III refer to Airways under the jurisdiction of Uxbridge ATCC, and supplement the General Procedures. (See Attachment No. 2 to the Procedures for Air Navigation Services - Rules of the Air and Air Traffic Services.)

2. - SECTOR ALLOCATION

2.1 In order to distribute the work load as evenly as possible, Sectors have been allotted as follows:-

Sector One

Green 1 : Between the SE FIR boundary and the Chatham Range
Red 1 :
Amber 2 : Between the SE FIR boundary and the Chatham Range
Red 2 : Between Ashford and Sevenoaks
Blue 1 : Between the S extremity and Sevenoaks.

Sector Two

Inbound traffic to the London Control Zone from the Transfer Points until under Approach Control jurisdiction.

Sector Three

Issue of departure clearances for traffic leaving the London Control Zone.

Sector Four

Red 1 : Between the SE FIR boundary and the Dunsfold Range
Amber 1 : Between the SE FIR boundary and the Dunsfold Range.

Sector Five

Green 1 : Between the SW FIR boundary and the Woodley Beacon

Amber 1 : Between the Northern FIR boundary and Beacon Hill

Amber 2 : Between Daventry and Woburn Sands.

NOTE: Traffic overflying the London Control Zone will not be regulated by Sectors 2 or 3, but by the Sectors concerned for the route being flown, making full use of Sector co-ordination.

Special attention is drawn to paragraph 5.3. on adjacent altitude separation.

3. - SPECIAL PROCEDURES FOR SECTOR ONE

3.1. General.

3.1.1 For navigation between North Foreland/Manston and Coxyde on Green 1 aircraft will use the two non-directional beacons at these positions; no lateral separation is afforded on this section of the Airway by these facilities. No altitude changes which involve passing through an occupied altitude can be made except as provided in paragraphs 2.2.1.3.2.(3) and (4) of UK ATCI No. 1. These circumstances indicate the potential use of a supplementary Control Radar Station.

3.1.2 Particular attention is drawn to the facility to be used on the Airway between the Chatham Radio Range station and North Foreland/Manston radio-beacon; the eastbound route is via the right side of the Chatham Range East leg, and the westbound route is via the right side of the Dunsfold Range North East leg.

3.1.3 It is to be noted that Amber 2 - from the boundary of the SE FIR as far as the Chatham Range station is normally reserved for traffic flying in a northerly direction.

3.1.4 See paragraph 8 for use of London Radar.

3.1.5 To assist identification of traffic inbound through ABBEVILLE by a Supplementary Control Radar Station, aircraft are to be requested to give their time over Abbeville if they have not done so in their initial call.

3.2. Liaison with the Paris Air Traffic Control Centre

3.2.1 Flights entering Amber 2 from the Paris Airway

3.2.1.1 An ATC Estimate for ABBEVILLE will be received from the Paris ATCC. After passing that position, the aircraft will be instructed to

contact "London Airways". The transfer of control is to be effective at the SE FIR boundary.

3.3 Liaison with the Amsterdam Air Traffic Control Centre,

3.3.1 Flights entering the Amsterdam Area from Red 1.

3.3.1.1 An ATC Estimate for the SE FIR boundary is to be passed to the Amsterdam ATCC. 5 minutes before ETA at the SE FIR boundary the aircraft is to be instructed to contact Amsterdam ATCC. The transfer of control is to be effective at the SE FIR boundary.

3.3.2 Flights entering Red 1 from the Amsterdam Area.

3.3.2.1 An ATC Estimate for the SE FIR boundary will be received from the Amsterdam ATCC. 5 minutes before ETA at the SE FIR boundary the aircraft will be instructed to contact "London Airways". The transfer of control is to be effective at the SE FIR boundary.

3.4 Liaison with the Brussels Air Traffic Control Centre.

3.4.1 Flights entering the Brussels Area from Green 1.

3.4.1.1 An ATC Estimate for NORTH FORELAND/MANSTON is to be passed to the Brussels ATCC. After receipt of the North Foreland/Manston position report, the aircraft is to be instructed to contact Brussels ATCC. The transfer of control is to be effective at the SE FIR boundary.

3.4.2 Flights entering Green 1 from the Brussels Area.

3.4.2.1 An ATC Estimate for COXYDE will be received from the Brussels ATCC. After passing that position, the aircraft will be instructed to contact "London Airways". The transfer of control is to be effective at the SE FIR boundary.

3.5 London Control Zone.

3.5.1 Inbound aircraft: These are to be handed over to the 'D2' position in time to enable a clearance into the Zone to be issued not less than five minutes before ETA at

The Chatham Range station - (via Red 1 or Amber 2)

The Sevenoaks Marker - (via Amber 2 and Red 2).

3.5.2 Outbound aircraft: Instructions or information necessary for inclusion in initial clearances are to be co-ordinated with the 'D' position.

3.6 Issue of Regional QFF

3.6.1 The SE Regional QFF is to be passed to aircraft on entering an Airway or on making first contact, whichever is the earlier.

3.6.2 Box 'M' of the Flight Progress strip is to be annotated with the value given.

4. - SPECIAL PROCEDURES FOR SECTOR TWO (LONDON CONTROL ZONE)

4.1 The standard routes to be followed, together with Reporting Points, are shown in the Air Pilot, ATC, Chapter IV, Section C. All clearances issued are to contain sufficient route information to ensure definition of the flight path to be followed.

4.2 Clearances are to be issued not less than 5 minutes before an aircraft is estimated to reach one of the following Transfer Points:

Woodley	for entry from the West via Green 1
Dunsfold	for entry from the South-west via Red 1
Sevenoaks	for entry from the South-east via Amber 2 and Red 2
Chatham Range	for entry from the East via Red 1, and for entry from the South-east via Amber 2
Woburn Sands	for entry from the North via Amber 2
Beacon Hill	for entry from the North via Amber 1.

4.3 The 'D2' position is responsible for establishing separation of arriving flights between the above Transfer Points and the Release Point.

4.4 The following Clearance limits may be used:

Epsom Radio range for London/Croydon traffic

Watford Radio range for Northolt/Bovingdom traffic.

The minimum initial altitude available to 'D2' at the Epsom Range is

- 4,000 ft. when landings at London are to the West.
- 5,000 ft. when landings at London are to the East.

The minimum initial altitude available to 'D2' at the Watford Range is

4,000 ft.

4.5 Under conditions of approach sequence, aircraft cleared to one of the Range station holding points will be RELEASED to the respective Approach Control upon reaching that holding point, unless Approach Control has requested the 'D2' position to retain control of aircraft holding above a stated altitude. In other cases aircraft may be released to Approach Control at other points except when transit or other traffic is a factor.

4.6 When an altitude has been reserved at a Reporting position for a departing flight, a Flight Progress strip is to be inserted under the appropriate designator with identification, altitude and time as the minimum information.

4.7 Special attention is to be paid to the necessity for providing adequate separation between flights on the routes detailed in paragraph 5.3. When longitudinal separation is not applicable, vertical separation is to be provided for the period stated, unless under Radar Control.

5. - SPECIAL PROCEDURES FOR SECTOR THREE
(LONDON CONTROL ZONE DEPARTING AIRCRAFT)

5.1 The standard routes to be followed, together with Reporting Points, are shown in the Air Pilot, ATC, Chapter IV, Section C. All clearances issued are to contain sufficient route information to ensure definition of the flight path to be followed.

5.2 The altitudes at which aircraft are required to cross Reporting Points are to be determined by:

The provision of separation standards
Aircraft performance
Co-ordination with the 'D2' position,

5.3 Special attention is to be paid to the necessity for providing adequate separation for flights on the undermentioned routes: when longitudinal separation is not afforded, vertical or lateral separation is to be provided for the period stated, unless under Radar Control.

5.3.1

Route

Separation to be
provided from
aircraft holding at

A1: DAV:BEA:DUN WAT By "Well right of the on-course signal" between Beacon Hill and Chertsey.

	<u>Route</u>	<u>Separation to be provided from aircraft holding at</u>
A1: DAV:BEA:DUN (Contd)	EPS	By "Well right of the on-course signal" between Burnham and Dunsfold Range.
A1: DUN:BEA:DAV	EPS	Vertical separation between Dunsfold Range and Burnham.
	WAT	Vertical separation between Burnham and Beacon Hill.
A2: WOB:BPK:CHA	WAT	Vertical separation between Woburn and 5 mins. SE BPK.
CHA:BPK:WOB	WAT	Vertical separation <u>OR</u> "Well right of the on-course signal" between 5 minutes SE of BPK and WOB.
R1: CHA:DUN	EPS	Vertical separation between Sevenoaks and Dunsfold.
DUN:CHA	EPS	By "Well right of the on-course signal" between Dunsfold and Sevenoaks (<u>See Note i</u>).
B2 WOO:ASH	EPS	Vertical separation between Woodley and Sevenoaks
ASH:WOO	EPS	Vertical separation between Sevenoaks and Woodley.
B1: SEV:WOB	EPS	Vertical separation between Sevenoaks and Kilburn.
	WAT	Vertical separation between Kilburn and Woburn.
WOB:SEV	WAT	Vertical separation between Woburn and Kilburn.
	EPS	Vertical separation between Watford and Sevenoaks.

Note i = Also vertical separation from aircraft holding at Crowborough.

5.3.2 Separation between aircraft on Amber 1 and on Amber 2

Eastbound: Vertical separation to be provided until

- (a) aircraft on A1 reaches Beacon Hill,
- (b) aircraft on A2 is 3 minutes past Woburn.

Westbound: Vertical separation to be provided from the time

- (a) aircraft on A1 reaches Beacon Hill,
- (b) aircraft on A2 is 3 minutes SE of Woburn.

5.3.3 Separation on Blue 1 from aircraft on Amber 1 and on Amber 2

Westbound: Vertical separation to be afforded

- a) when 3 minutes SE of Woburn from aircraft on A1,
- b) north of Sevenoaks from aircraft on A2.

5.4 The standard longitudinal separation between aircraft outbound from the London Control Zone may be reduced to a minimum of 5 minutes unless such aircraft are proceeding beyond one of the following Reporting Points at the same altitude on tracks which diverge by less than 30°:

Ashford - Beacon Hill - Crowborough - Dunsfold - Chatham -
Woburn - Woodley.

Reference should be made to Air Pilot Part I, Chapter 2, and to U.K. ATCI No. 10, Chapter 2, regarding separation standards applicable to aircraft under Radar Control.

6. - SPECIAL PROCEDURES FOR SECTOR FOUR

6.1 General.

6.1.1 It should be noted that the continuation of Amber 1 to Paris south of the SE FIR boundary is reserved by the French authorities for traffic flying in a southerly direction.

6.1.2 See paragraph 8 for use of London Radar.

6.2 Liaison with the Paris Air Traffic Control Centre.

6.2.1 Flights entering the Paris Airway from Amber 1

6.2.1.1 An ATC estimate for SEAFORD is to be passed to the Paris ATCC. After receipt of the Seaford position report, the aircraft is to be instructed to contact Paris ATCC. The transfer of control is to be effective at the SE FIR boundary.

6.3 London Control Zone.

6.3.1 Co-ordination is to be effected with the 'D2' position and the 'D3' position.

6.3.2 Inbound aircraft: These are to be handed over to the 'D2' position in time to enable a clearance into the Zone to be issued not less than 5 minutes before ETA at the Dunsfold Range Station.

6.3.3 Outbound aircraft: Instructions or information necessary for inclusion in initial clearances are to be co-ordinated with the 'D3' position.

6.4 Co-ordination with the Channel Islands Control Zone Authority

6.4.1 Flights entering the Zone from Red 1.

6.4.1.1 An ATC Estimate is to be passed to the C.I. Zone Controller 30 minutes before an aircraft is estimated to reach the Zone boundary, and will include an ETA for that position.

6.4.1.2 5 minutes before ETA at the Zone boundary the aircraft is to be instructed to contact Jersey Zone Control. The transfer of control is to be effective at the Zone boundary.

6.4.2 Flights entering Red 1 from the Channel Islands Zone.

6.4.2.1 The Zone Controller will pass an Estimate for the Zone boundary 30 minutes before an aircraft is estimated to reach that position. Where due to short flying time between the departure aerodrome and the Zone boundary this is not possible, the Zone Controller will obtain an "Approval Request" from the 'D4' position before clearing an aircraft to enter the Airway. Transfer of control is to be effective at the Zone boundary.

6.5 Co-ordination with the Southampton Control Zone Authority,

NOTE:- Aircraft bound for Hurn Airport not equipped with Eastleigh Approach frequency may communicate direct with Hurn Approach.

6.5.1 Aircraft flying within the Southampton Control Zone at altitudes of 5,000 ft. or above, will be regulated by Sector 4, without co-ordination with the Zone Controller. Flights between 4,000 and 5,000 ft. are to be co-ordinated with the Zone Controller, whose responsibility within the Zone extends up to and includes 4,000 ft.

6.5.2 Departing aircraft: 'D4' will issue Airway clearances in so far as Airway traffic is concerned and the Zone Controller will provide additional departure instructions to ensure separation from other traffic within the Zone under his jurisdiction, together with instructions to contact "London Airways" on leaving the Zone.

6.5.3 Inbound aircraft.

6.5.3.1 When the entry altitude is 4,000 ft. or below, clearance to enter the Zone is to be issued not less than 5 minutes before an aircraft is estimated to reach the Zone boundary. In the case of Westbound flights, this will be

after passing HASLEMERE. In the case of Eastbound flights clearance will be issued at a time calculated from the ETA at the Hurn Range Station. Before this clearance is issued, 'D4' is to co-ordinate the flight with the Zone Controller with respect to the contents of the clearance message, which will be governed by the traffic situation within the Zone, and aircraft are to be instructed to contact the appropriate authority as agreed with the Zone Controller.

6.5.3.2 After this co-ordination 'D4' will clear aircraft either to

The Hurn Range Station
The Eastleigh SBA Outer Marker

or other agreed holding point within the Zone.

6.5.3.3 When transit flights and other traffic conditions permit, aircraft may be RELEASED to Approach Control before reaching the clearance limit.

6.5.3.4 When the entry altitude is above 4,000 ft. aircraft will be cleared to one of the following clearance limits:

The Hurn Range Station
The Eastleigh SBA Outer Marker.

Transfer of control to the Zone Controller, and change of frequency is to be effected when aircraft are cleared to descend to 4,000 ft.

6.5.4 Traversing flights.

6.5.4.1 For flights at 5,000 ft. and above no co-ordination with the Zone Controller is necessary.

6.5.4.2 Flights below 5,000 ft. are to be co-ordinated with the Zone Controller and relevant information exchanged before the clearance is issued. The appropriate Flight Progress strip marking is to be made indicating that such co-ordination has been effected.

6.5.5 Vertical separation between Airway and Zone traffic.

6.5.5.1 IFR flights for which no co-ordination has been made between the Zone Controller and 'D4' are not to be cleared by the Zone Controller above 4,000 ft. This is in order to afford vertical separation from Airway flights at 5,000 ft.

6.6 Issue of Regional QFF.

6.6.1 The SE Regional QFF is to be passed to aircraft on entering an Airway, or on making first contact, whichever is the earlier.

6.6.2 Box 'M' of the Flight Progress Strip is to be annotated with the value given.

7. - SPECIAL PROCEDURES FOR SECTOR FIVE

7.1 See paragraph 8 for use of London Radar.

7.2 Liaison with Shannon Air Traffic Control Centre.

7.2.1 Westbound flights: An ATC Estimate for STRUMBLE is to be passed to Shannon ATCC as soon as possible after the receipt of an aircraft's Bristol Range position report; any subsequent revisions are to be passed as soon as possible after they have been made.

7.2.2 Eastbound flights: Shannon ATCC will forward an Estimate for SALTEE 30 minutes before an aircraft is estimated to enter Green 1.

7.2.3 Altitude changes: Between Strumble and Saltee, no altitude change will be approved except in an emergency, in which event the appropriate Centre is to be informed immediately.

7.3 Liaison with Preston Air Traffic Control Centre.

7.3.1 Westbound Flights on Amber 1: An ATC Estimate for LICHFIELD is to be passed 30 minutes before the time of the Estimate; where this is impracticable due to the short flying time involved, an "Approval Request" is to be submitted to Preston ATCC before clearing an aircraft into the Sector. Instructions to an aircraft to contact "Preston Airways" are to be issued after the receipt of the DAVENTRY position report, and will include the time when this call is to be made; this time will not be later than the ETA at N FIR boundary.

7.3.2 Eastbound Flights on Amber 1: A similar procedure to that described above will be carried out by Preston, except that

- a) the ATC Estimate will be for DAVENTRY,
- b) instructions to contact "London Airways" will be issued after receipt of the LICHFIELD position report.

7.4 London Control Zone.

7.4.1 Co-ordination is to be effected with 'D2' and the 'D3' positions.

7.4.2 Inbound aircraft: These are to be handed over to the 'D2' position in time to enable a clearance into the Control Zone to be issued not less than

five minutes before ETA at

Woodley Beacon
Beacon Hill Marker
Woburn Sands Marker.

7.4.3 Outbound aircraft: Instructions or information necessary for inclusion in the departure clearances are to be co-ordinated with the 'D3' position.

7.5 Co-ordination with Bristol (Filton) Control Zone Authority.

7.5.1 Inbound aircraft: Clearance is to be issued not less than 5 minutes before an aircraft is estimated to reach Stockwood (westbound) or Newport (eastbound). The clearance limit will be either,

The Bristol Range Station
The Outer Marker of the Filton ILS
The Outer Marker of the Whitchurch SBA

or other agreed holding point within the Control Zone.

7.5.1.1 Aircraft are to be instructed to CONTACT Approach Control after passing STOCKWOOD or NEWPORT, according to the direction of flight. Except when over-flying or other traffic is a factor, inbound flights will be RELEASED to Approach Control after passing Stockwood or Newport; this may be at a specified time co-incident with these positions or at a specified altitude.

7.5.2 Traversing flights: These are to be co-ordinated with Filton Approach and relevant information exchanged before clearance to cross the Zone is issued. The appropriate Flight Progress strip posting is to be made indicating that such co-ordination has been effected.

7.5.3 Vertical separation between Airway and Zone aircraft: IFR flights for which no co-ordination has been made between Filton Approach and Airways Control, are not to be cleared by Filton Approach above 4,500 ft.: this is in order to afford vertical separation from Airway flights at 5,500 ft.

7.6 Green 1 RAF Instrument Flying Area.

7.6.1 There is a RAF Instrument Flying Training Area which extends from the vicinity of Compton to the Stockwood Marker in which RAF aircraft may be flying in IFR conditions up to and including 4,500 ft. Therefore, for flights below 5,000 ft. on this section of Green 1 it will be necessary for 'D5' to ensure that a safe flight path can be provided.

7.6.2 The person filing a Flight Plan which includes an altitude below 5,000 ft. for this section, is required to notify the Centre 1 hour before the proposed departure time. From the information received, 'A5' is to prepare the initial flight progress strips in the approved manner, one of which is to be placed on the 'D' side as soon as possible, drawing attention to the proposed flight.

7.6.3 'D5' - or, if so instructed, 'A5' - is to telephone the RAF Co-ordinator for the Instrument Flying Training Area (the RAF Duty ATCO at Gloucester ATCC) and request altitude clearance, as follows:-

"Request (Direction of flight) Airway altitude clearance for (aircraft ident.) from (time of entry) to (time of leaving) at (altitude)".

7.6.4 The flight progress strip is to be marked to show that this co-ordination has been made, using box (L) for this purpose.

7.6.5 When the RAF Co-ordinator has taken action, he will inform Airways Control as follows:-

"Airways altitude cleared for (direction of flight) (ident.) from (time of entry) to (time of leaving) at (altitude)".

7.6.6 When the aircraft has reported over STOCKTON (Westbound) or COMPTON (Eastbound) the time over is to be passed to the RAF Co-ordinator Gloucester.

7.7 Co-ordination with Birmingham (Elmdon) Approach Control.

7.7.1 Inbound Aircraft: Clearance to Elmdon is to be issued not less than 5 minutes before ETA at DAVENTRY. In order to do this, the 'D5' position is to consult Approach Control with respect to the contents of the clearance, which will be governed by the Elmdon traffic situation. After this co-ordination, 'D5' will clear aircraft to:

The Outer Marker of the ILS/SBA

or other holding point agreed with Approach Control.

7.7.2 When traffic conditions permit, aircraft may be RELEASED to Approach Control after passing DAVENTRY.

7.7.3 Departing Aircraft: 'D5' will issue Airway departure clearance in so far as Airway traffic is concerned, and Approach Control will provide

additional departure instructions to ensure separation from other traffic under its jurisdiction, together with instructions to transmit the DAVENTRY position report to "London Airways".

7.8 Issue of Regional QFF.

7.8.1 When position reports are made at the following, the appropriate Regional QFF is to be passed to the aircraft, and the value written in box 'M':

Strumble Beacon (for Eastbound flights) - SW QFF

Bristol Range (for Eastbound flights) - SE QFF

Compton Marker (for Westbound flights) - SW QFF

Daventry Beacon (for Westbound flights) - N QFF.

8. - USE OF LONDON RADAR

8.1 When traffic density on the Airways listed below is such that by the application of standard Airway separation delays would be incurred, the services of London Radar are to be employed. The following conditions govern this special use of London Radar, and provided these conditions are fulfilled, the consent of the pilot-in-command does not need to be obtained:-

8.1.1 When radar separation standards are used, London Radar will operate in accordance with Chapter 2, Part I of the Air Pilot, and Chapter 2 of A. T. C. I. No. 10.

8.1.2 Before aircraft leave radar control either (1) lateral separation by divergent track of 30 degrees or more, or (2) standard vertical separation, will be established.

8.1.3 Outbound aircraft proceeding beyond the reporting points listed in Column 3 below on tracks with less than 30 degrees divergence will not be cleared through such reporting points at the same altitude with less than 10 minutes longitudinal separation.

8.1.4 No inbound aircraft will be cleared through the reporting points listed in Column 3 below at the same altitude as a preceding aircraft with less than 10 minutes longitudinal separation, unless both aircraft have been identified by, and are under the control of, London Radar.

<u>1</u>		<u>2</u>		<u>3</u>	<u>4</u>
Green 1	between	Chatham	and	Manston/N Foreland	Sector 1
Red 1	"	Chatham	"	Manston/N Foreland	" 1
Amber 2	"	Chatham	"	Ashford	" 1
Red 2	"	Sevenoaks	"	Ashford	" 1
Amber 2	"	Dunsfold	"	Seaford	" 4
*Red 1	"	Dunsfold	"	Hurn Range	" 4
Amber 1	"	Beacon Hill	"	Daventry	" 5
Amber 2	"	Woburn	"	Daventry	" 5
Green 1	"	Woodley	"	Bristol Range	" 5

(There follow Special Procedures for Air Traffic Control Centre Preston and Manchester Zone Control Scottish etc., similar in character to the preceding ones.)

* Effective with the introduction of Red 1 West of Dunsfold.

APPENDIX

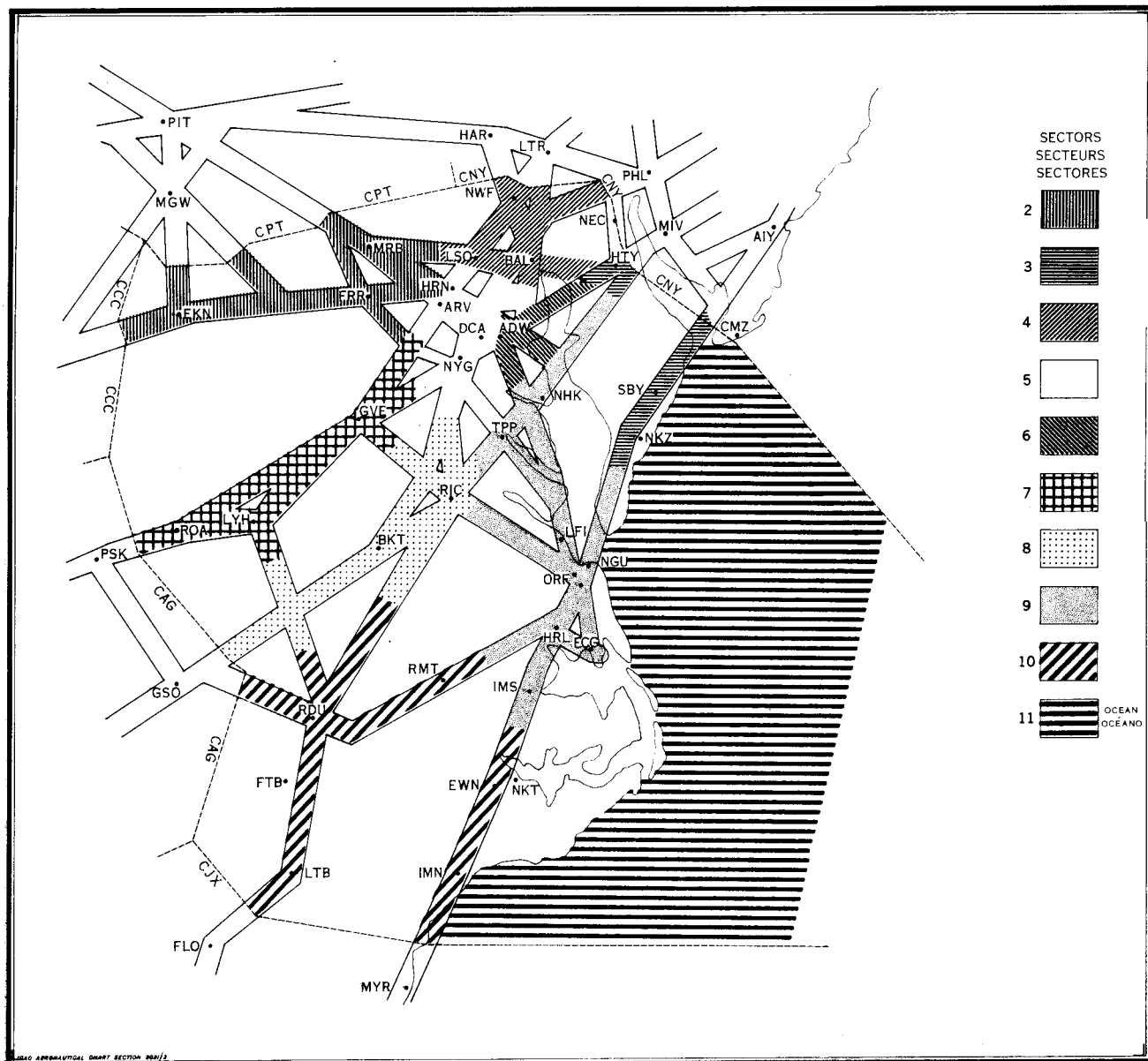
APPENDICE

SECTORS OF JURISDICTION OF CONTROL POSITIONS
IN A CONTROL AREA

SECTEURS DE JURIDICTION DES POSTES DE CONTRÔLE
DANS UNE RÉGION DE CONTRÔLE

APÉNDICE

SECTORES BAJO LA JURISDICCIÓN DE LOS PUESTOS DE CONTROL DE UN ÁREA DE CONTROL



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