

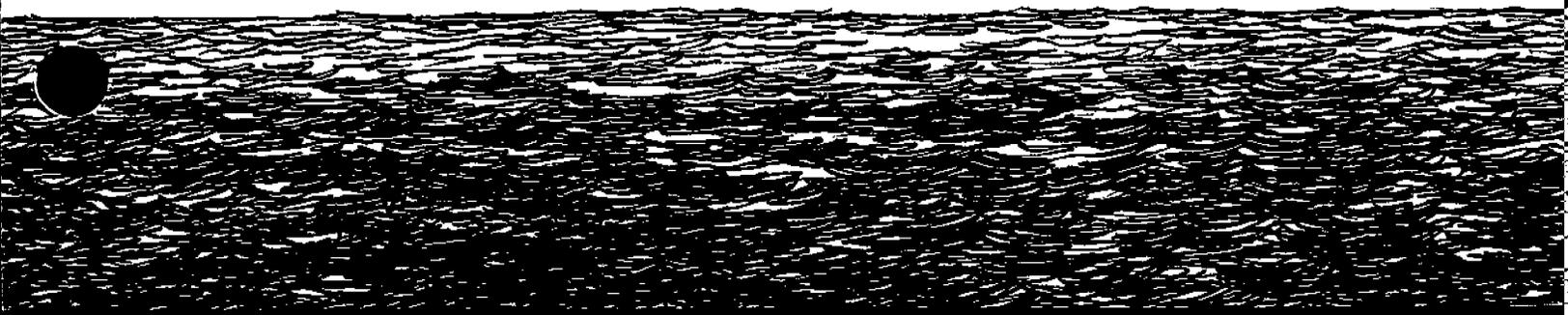
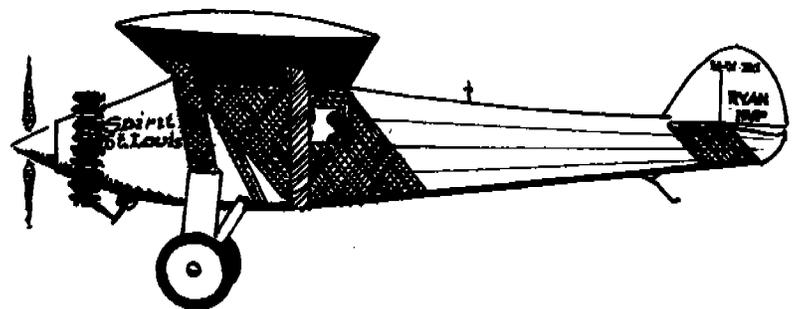


U.S. Department
of Transportation
**Federal Aviation
Administration**

7110.83B

Oceanic Air Traffic Control

June 1, 1988



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7110.83B

OCEANIC AIR TRAFFIC CONTROL



JUNE 1, 1988

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

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OCEANIC AIR TRAFFIC CONTROL

7110.83B

FOREWORD

This order prescribes standards and practices for providing air traffic services in international oceanic airspace delegated to the U.S. by the International Civil Aviation Organization. Controllers are required to be familiar with the provisions of this order and the current FAA Order

7110.65, Air Traffic Control, that pertain to their operational responsibilities. Controllers are expected to exercise their best judgment if they encounter situations not covered by these provisions.



John R. Ryan

Director, Air Traffic Operations Service

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CHAPTER 1. GENERAL

Section 1. APPLICATION

1-1 PURPOSE

This order prescribes air traffic control procedures and separation minima for use by personnel providing air traffic control services in oceanic airspace under U.S. jurisdiction. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered by this order or FAA Order 7110.65, Air Traffic Control.

1-2 DISTRIBUTION

This order is distributed to selected offices in Washington Headquarters, Regional Offices, the Technical Center, the Aeronautical Center, all International Aviation Field Offices, selected air traffic control facilities, and the interested aviation public.

1-3 CANCELLATION

Order 7110.83A, Oceanic Air Traffic Control, dated January 16, 1986, is canceled.

1-4 EXPLANATION OF MAJOR CHANGES

Because the basic Order 7110.83A has been effective for more than 2 years and warehouse is out of stock, it was decided to print a new basic version of this order. The major changes are listed below. If more information is desired, contact ATO-330.

a. 1-7. PUBLICATION DATES. Deletes the requirement that the effective dates of the changes to this order be coincident with those of 7110.65.

b. 1-20. WORD MEANINGS. Expands the application of *due regard* and *operational* from military aircraft commanders to include authorized state aircraft commanders, and requires that appropriate monitoring agencies be responsible for search and rescue.

c. 2-8. DEFINITION OF COURSES. Incorporates language which better reflects Order 7110.65; streamlines the definitions of *same*, *crossing*, and *reciprocal* courses; and clarifies the illustrations for subparagraphs 2-8b(3) and 2-8c.

d. 2-51. SEPARATION METHODS. Clarifies the procedures by adding *ground-based* in subparagraph c(2)(b).

e. 3-3. LONGITUDINAL SEPARATION (North Atlantic ICAO Region). Incorporates ICAO procedures in the North Atlantic ICAO Region as described in Doc 7030; restructures the paragraph into two sections—supersonic and subsonic flight; changes the term *entry point* to *common point*; clarifies the intent by adding the word *approved* to the phrase “by radar or other approved means;” MACH technique no longer has to be applied at the *common point* for subsonic flight; replaces the word *assigned* with *maintaining*; includes additional ICAO requirements for the use of 10 minutes longitudinal separation for subsonic aircraft; deletes the old subparagraph 3-3c(4) as redundant; and deletes the old subparagraph 3-3i as it is understood that minimum longitudinal separation must always exist whether the aircraft are climbing, descending, or in level flight.

f. 3-4. LATERAL SEPARATION (North Atlantic ICAO Region). Adds “west of 55 degrees West” to subparagraph 3-4c(2) to reflect ICAO Doc 7030.

g. 4-3. LONGITUDINAL SEPARATION (Caribbean ICAO Region). Replaces the word *assigned* with *maintaining* in subparagraphs 4-3a(2) and (3) to reflect ICAO procedures with reference to MACH technique.

h. 4-4. LATERAL SEPARATION (Caribbean ICAO Region). Reflects ICAO wording.

i. 5-3. LONGITUDINAL SEPARATION (Pacific ICAO Region). Allows 15 minute longitudinal separation using MACH technique between aircraft which have passed the oceanic entry point to reflect a current ICAO procedure.

j. 6-3. LONGITUDINAL SEPARATION (North American ICAO Region—Arctic CTA). Deletes the requirements for the application of MACH technique at the entry point and for aircraft to be assigned a Polar Track Structure route in order for MACH technique to be used; adds the term *common point* with reference to MACH technique.

k. 6-4. LATERAL SEPARATION (North American ICAO Region—Arctic CTA). Describes lateral separation other than 90 NM to reflect ICAO procedures.

l. Appendix A. OCEANIC CONTROLLER GLOSSARY. Adds a definition of *Oceanic Published Route* to differentiate between types of routes in international airspace.

m. Appendix A. OCEANIC CONTROLLER GLOSSARY. Adds a definition of *State Aircraft*.

1-5 EFFECTIVE DATE

This order is effective June 1, 1988.

1-6 RECOMMENDATIONS FOR PROCEDURAL CHANGES

a. Personnel should submit recommended changes in procedures to their Facility Advisory Board (FAB). Where no FAB has been established, recommended changes should be submitted directly to facility management.

b. Recommendations from other sources should be submitted through appropriate FAA, military, or industry/user channels to FAA Headquarters, Director, Air Traffic Operations Service (Attn: ATO-300).

1-7 PUBLICATION DATES

This order and its changes are scheduled to be published on an as needed basis.

1-8 RELATIONSHIP TO FAA ORDER 7110.65

a. The Director, Air Traffic Operations Service, prescribes the standards and procedures for air traffic services within the domestic airspace overlying the United States (U.S.), the District of Columbia, Puerto Rico, U.S. possessions, and offshore airspace including territorial waters. Procedures for the provision of air traffic control services within U.S. domestic airspace are prescribed in FAA Order 7110.65.

b. International standards and practices for air traffic services in oceanic airspace are agreed to by member states of the International Civil Aviation Organization (ICAO). These standards and practices are implemented by the "appropriate ATS authority" of each State. In the United States the Associate Administrator for Air Traffic is responsible for implementing standards and practices for air traffic services in oceanic airspace under U.S. jurisdiction.

c. This order contains the standards and practices for use in providing air traffic services in oceanic airspace. Oceanic procedures and minima in this order either do not appear in order 7110.65, differ from those in 7110.65, or are repeated for clarity and understanding. For those matters not covered by this order, the provisions of 7110.65 shall apply.

1-9 PROCEDURAL LETTERS OF AGREEMENT

Procedures/minima which are applied jointly or otherwise require the cooperation or concurrence of more than one facility/organization must be documented in a letter of agreement. Letters of agreement only supplement this handbook. Any minima they specify must not be less than that specified herein.

1-10 OCEANIC NAVIGATIONAL ERROR REPORTING (ONER) PROCEDURES

FAA Order 7110.82 contains procedures for reporting and processing navigational errors observed by ATC radar for aircraft exiting oceanic airspace.

1-11 thru 1-19 RESERVED.

Section 2. TERMS OF REFERENCE

1-20 WORD MEANINGS

As used in this order:

- a. *Shall*, or an action verb in the imperative sense, means a procedure is mandatory.
- b. *Should* means a procedure is recommended.
- c. *May* or *need not* means a procedure is optional.
- d. *Will* means futurity, not a requirement for application of a procedure.
- e. Singular words include the plural.
- f. Plural words include the singular.
- g. *Aircraft* means the airframe, crew members, or both.
- h. *Miles* means nautical miles unless otherwise specified.
- i. *Course*, *bearing*, *heading*, and *track* information shall always be magnetic unless specifically stated otherwise.
- j. *Time*, when used in context of a clock reading, is the hour in Coordinated Universal Time (UTC). Change to the next minute is made at the minute plus 30 seconds, except time checks are given to the nearest quarter minute.
- k. Flight in accordance with the *due regard* or *operational* option obligates the authorized state aircraft commander to:
 - (1) Separate his aircraft from all other air traffic; and
 - (2) Assure that an appropriate monitoring agency assumes responsibility for search and rescue actions; and
 - (3) Operate under at least one of the following conditions:
 - (a) In visual meteorological conditions (VMC); or

(b) Within radar surveillance and radio communications of a surface radar facility; or

(c) Be equipped with airborne radar that is sufficient to provide separation between his aircraft and any other aircraft he may be controlling and other aircraft; or

(d) Outside controlled airspace.

1-20k Note. — A pilot's use of the phrase *Going Tactical* does not indicate *Due Regard*. An understanding between the pilot and controller regarding the intent of the pilot and the status of the flight should be arrived at before the aircraft leaves ATC frequency.

1-20k Reference.—The above conditions provide for a level of safety equivalent to that normally given by ICAO air traffic control agencies and fulfill U.S. Government obligations under Article 3 of the Chicago Convention of 1944 (reference (d)), which stipulates there must be "due regard for the safety of navigation of civil aircraft" when flight is not being conducted under ICAO flight procedures.

1-21 NOTES

Statements of fact or of an explanatory nature relating to directive material are set forth as notes.

1-22 REFERENCES

As used in this order, references direct attention to an additional source of information.

1-23 ANNOTATIONS

Revised, reprinted, or new pages are marked as follows:

- a. The change number and effective date are printed on each revised or additional page.
- b. Bold vertical lines in the margin of changed pages indicate the location of either substantive or editorial revisions to the order.

1-24 ABBREVIATIONS/ACRONYMS

As used in the order, the following abbreviations have the meanings indicated:

<i>Abbreviation/ Acronym</i>	<i>Meaning</i>	<i>Abbreviation/ Acronym</i>	<i>Meaning</i>
ACC	Area Control Center	LORAN	Long-range Navigation System
AFI	ICAO African-Indian Ocean Region	MACH	MACH Number
AIP	Aeronautical Information Publication	MID/ASIA	ICAO Middle East/Asia Region
ALERFA	Alert Phase code (Alerting Service)	MNPS	Minimum Navigation Performance Specifications
AMVER	Automated Mutual-Assistance Vessel Rescue System	MNPSA	Minimum Navigation Performance Specification Airspace
AR	Atlantic Route	MSL	Mean Sea Level
ARINC	Aeronautical Radio Incorporated	NAM	ICAO North American Region
ARTCC	Air Route Traffic Control Center	NAR	North American Route
ATC	Air Traffic Control	NAT	ICAO North Atlantic Region
ATS	Air Traffic Service	NDB	Nondirectional radio beacon
BR	Bahama Route	NOPAC	North Pacific
CAR	ICAO Caribbean Region	NOTAM	Notice to Airmen
CENPAC	Central North Pacific	ODAPS	Oceanic Display and Planning System
CEP	Central East Pacific	ONER	Oceanic Navigational Error Report
CPL	Current Flight Plan	OTR	Oceanic Transition Route
CTA	Control Area	OTS	NAT Organized Track System
DETRESFA	Distress Phase code (Alerting Service)	PAC	ICAO Pacific Region
DF	Direction Finder	PTS	Polar Track Structure
DME	Distance Measuring Equipment	RCC	Rescue Coordination Center
DR	Dead Reckoning	RNAV	Area Navigation
DVFR	Defense Visual Flight Rules	SAM	ICAO South American Region
EUR	ICAO European Region	SAR	Search and Rescue
FIR	Flight Information Region	SURPIC	Surface Picture
FLIP	Flight Information Publication	TACAN	UHF navigational aid (omnidirectional course and distance information)
ICAO	International Civil Aviation Organization	UTC	Coordinated Universal Time
IFIM	International Flight Information Manual	VFR	Visual Flight Rules
IFR	Instrument Flight Rules	VHF	Very High Frequency
IMC	Instrument Meteorological Conditions	VLF	Very Low Frequency
INS	Inertial Navigation System	VMC	Visual Meteorological Conditions
INCERFA	Uncertainty Phase code (Alerting Service)	VOR	VHF Omnidirectional Navigational Aid
		VORTAC	Collocated VOR and DME navigational aids (VHF and UHF course and UHF distance information)

CHAPTER 2. GENERAL CONTROL

Section 1. GENERAL

2-1 ATC SERVICE

Provide air traffic control service in oceanic controlled airspace in accordance with the procedures and minima in this order except when other procedures/minima are prescribed in a directive or a letter of agreement.

2-1 Reference. — Procedural Letters of Agreement, 1-9.

2-2 OFFSHORE CONTROL AREAS

Provide air traffic control service in offshore control areas in accordance with procedures and minima specified in FAA Order 7110.65.

2-3 VFR FLIGHT PLANS

VFR flights in Oceanic FIR's may be conducted in meteorological conditions equal to or greater than those specified in the following table. Operations on a VFR flight plan are permitted only between sunrise and sunset and only within:

a. Miami, Houston, and San Juan Oceanic CTA's at or below FL 180.

b. All Oceanic FIR airspace below the Oceanic CTA's.

2-3 Table. — VFR Minima in Oceanic Airspace

Altitude	Controlled Airspace		Uncontrolled Airspace	
	Flight Visibility	Distance from clouds	Flight Visibility	Distance from clouds
More than 1,000 feet above the terrain or 3,000 feet MSL whichever is greater.	5 miles	1 mile horizontally and 1,000 feet vertically	5 miles	1 mile horizontally and 1,000 feet vertically
At or below 1,000 feet above the terrain or 3,000 feet MSL whichever is greater.	5 miles	1 mile horizontally and 1,000 feet vertically	1 mile	Clear of clouds and ground or water in sight

2-4 FORMATION FLIGHTS

Control formation flights as a single aircraft. When individual control is requested, issue adviso-

ry information which will assist the pilots in attaining separation. When pilot reports indicate separation has been established, issue control instructions as required.

2-4 Note. — Separation responsibility between aircraft within the formation during transition to individual control rests with the pilots concerned until standard separation has been attained.

2-5 ICAO—PHONETICS

Use the ICAO phonetic alphabet in the table to clarify the individual letter as necessary.

2-5 Table. — ICAO Phonetics

A—ALFA	N—NOVEMBER
B—BRAVO	O—OSCAR
C—CHARLIE	P—PAPA
D—DELTA	Q—QUEBEC
E—ECHO	R—ROMEO
F—FOXTROT	S—SIERRA
G—GOLF	T—TANGO
H—HOTEL	U—UNIFORM
I—INDIA	V—VICTOR
J—JULIETT	W—WHISKEY
K—KILO	X—XRAY
L—LIMA	Y—YANKEE
M—MIKE	Z—ZULU

2-6 ROUTES

Describe routes as follows:

a. ATS routes — State the letter/s of the route phonetically, followed by the number of the route in group form.

2-6a Examples. —

“Romeo Twenty.”

“Alfa Fifty.”

“Golf Sixty-one.”

“Bravo Twenty-six.”

“Alfa Seven.”

“Romeo Seventy-seven.”

“Alfa Seven Hundred.”

b. Named Routes — State the words *North American Route* or *Bahama Route* followed by the number of the route in group form.

2-6b Examples —

“North American Route Fifty.”

“Bahama Route Fifty-five Victor.”

2-7 TYPES OF SEPARATION

Separation shall consist of at least one of the following:

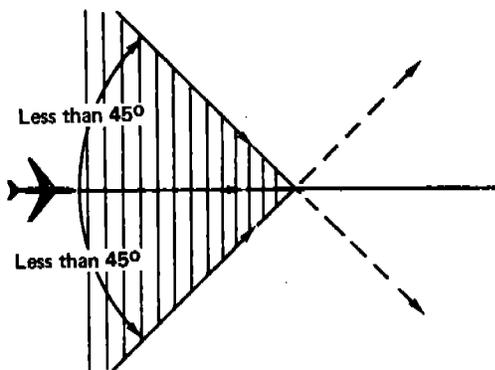
- a. Vertical separation;
- b. Horizontal separation, either;
 - (1) Longitudinal; or
 - (2) Lateral;
- c. Composite separation;
- d. Radar separation, as specified in 7110.65, where radar coverage is adequate.

2-8 DEFINITION OF COURSES

The terms *Same Courses*, *Reciprocal Courses*, and *Crossing Courses* have the following meanings:

a. *Same Courses* are courses whose protected airspace:

- (1) Are coincident; or
- (2) Overlap; or
- (3) Intersect; and
- (4) Whose angular difference is less than 45 degrees.

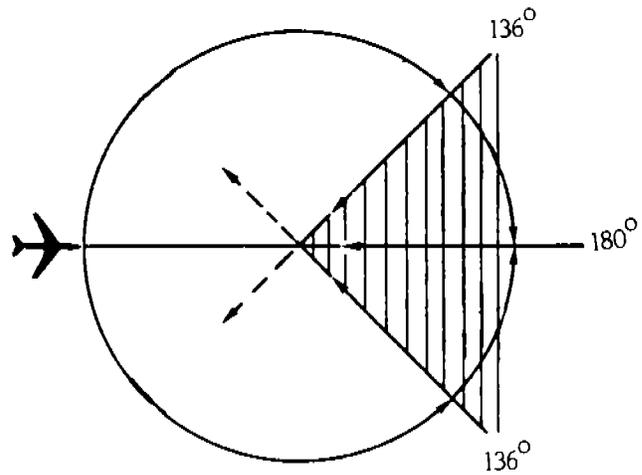


2-8a(3) Illustration

b. *Reciprocal Courses* are courses whose protected airspace:

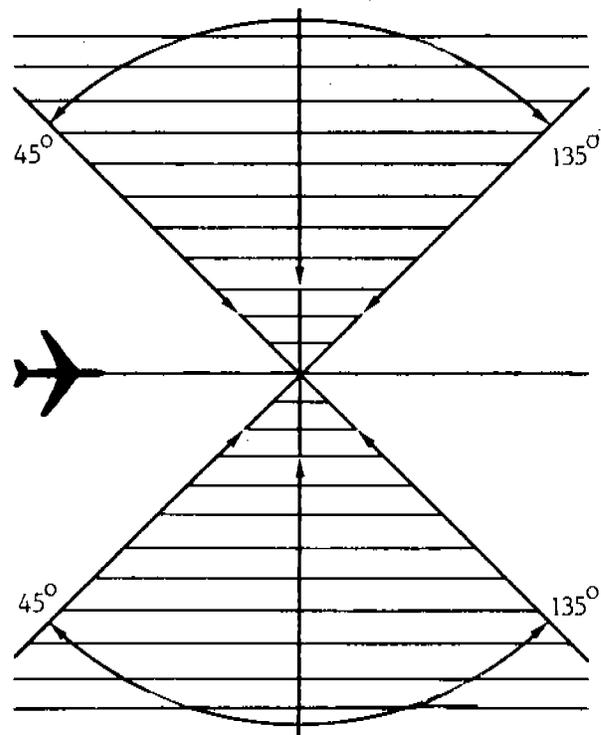
- (1) Are coincident; or
- (2) Overlap; or
- (3) Intersect; and

(3) Whose angular difference is 136 through 180 degrees inclusive.



2-8b(3) Illustration

c. *Crossing Courses* are intersecting courses whose angular difference is 45 through 135 degrees inclusive.



2-8c Illustration

2-9 ALTIMETER SETTING

Within oceanic control areas, unless directed and/or charted otherwise, altitude assignment

shall be based on flight levels and a standard altimeter setting of 29.92 inches Hg. (QNE).

2-10 thru 2-19 RESERVED

Section 2. AIR TRAFFIC CONTROL CLEARANCES

2-20 GENERAL

a. Issue clearances based solely on the provision of air traffic control service.

b. Phrase clearances in accordance with the phraseologies contained in 7110.65 unless specifically noted herein.

c. Issue clearances to ensure that they are received by the aircraft in sufficient time for compliance.

d. Amend clearances whenever necessary, and issue traffic information as required.

2-21 CONTENTS

a. An air traffic control clearance shall contain the following elements, as required, and in the order listed:

- (1) Aircraft identification.
- (2) Clearance limit.
- (3) Route of flight.
- (4) Level/s of flight.
- (5) MACH number if applicable.

(6) Any other necessary instructions or information, such as approach or departure maneuvers, communications, and the time of clearance expiration.

b. Clearance Limit:

(1) The clearance limit shall be either the name of the airport of the first intended landing, the appropriate controlled airspace boundary, or an appropriate reporting point.

(2) Aircraft on flight plans which specify that the first portion of the flight will be subject to air traffic control and that the subsequent portion will be uncontrolled shall be cleared to the point at which the controlled portion terminates.

(3) Aircraft on flight plans which specify that the first portion of the flight will be in controlled airspace, then enter an area of uncontrolled air-

space, and subsequently reenter controlled airspace, shall be cleared from point of departure to the airport of first intended landing. Such a clearance shall apply only to those portions of the flight conducted within controlled airspace.

(4) IFR military operations which proceed either VFR or into an operational area and intend to return IFR shall be cleared to the point where IFR or controlled flight terminates.

c. Route of flight:

(1) When deemed necessary, the route of flight shall be specified in detail.

(2) The phrase "Cleared to (destination) airport as filed" may be used to describe the route provided the route is identical to that filed in the flight plan and sufficient details are given to definitely establish the aircraft on its route. When a filed route will require minor revisions, use the phrase "Cleared to (destination) airport as filed, except," then specify the necessary revision.

(3) Route clearances that include portions of the OTS shall be issued in accordance with the procedures for that system.

d. Level of Flight:

(1) Flight levels shall be assigned in accordance with paragraph 2-42.

(2) Upon pilot request and whenever conditions permit, an aircraft may be cleared to climb and descend at pilot's discretion either above/below a specified level, between specified levels, between specified points, or between specified times.

e. MACH Number:

Whenever MACH Technique is being applied, the assignment of a MACH number shall be included in each clearance issued for the duration of the application.

2-22 thru 2-29 RESERVED

Section 3. COORDINATION

2-30 GENERAL

ACC's shall:

a. Forward to appropriate ATS facilities, as a flight progresses, current flight plan (CPL) and control information.

b. Coordinate flight plan and control information in sufficient time to permit the receiving facility to analyze the data and to effect any necessary additional coordination. This may be specified in a letter of agreement.

c. Coordinate with adjacent ATS facilities when airspace to be protected will overlap the common boundary.

d. Forward revisions of estimates of 3 minutes or more to the appropriate ATS facility.

e. Coordinate with adjacent facilities on IFR and VFR flights to ensure the continuation of appropriate air traffic services.

2-31 TRANSFER OF CONTROL AND COMMUNICATIONS

a. Only one air traffic control unit shall control an aircraft at any given time.

b. The control of an aircraft shall be transferred from one control unit to another at the time the aircraft is estimated to cross the control boundary or at such other point or time agreed upon by the two units.

c. The transferring unit shall forward to the accepting unit any changed flight plan or control data which are pertinent to the transfer.

d. The accepting unit shall notify the transferring unit if it is unable to accept control under the terms specified, or it shall specify the changes or conditions required so that the aircraft can be accepted.

e. The accepting unit shall not alter the clearance of an aircraft that has not yet reached the transfer of control point without the prior approval of the transferring unit.

f. Where nonradar separation minima are being applied, the transfer of air-ground communications with an aircraft shall be made 5 minutes before the time at which the aircraft is estimated to reach the boundary, unless otherwise agreed to by the control and/or communication units concerned.

2-32 thru 2-39 RESERVED

Section 4. VERTICAL SEPARATION

2-40 APPLICATION

a. Separate aircraft by assigning different flight levels consistent with the minima in paragraph 2-41 and the criteria in paragraph 2-42.

b. Vertical separation shall be applied:

(1) During the period of time when longitudinal separation will not exist; or

(2) Within the area where lateral separation will not exist.

2-41 VERTICAL SEPARATION MINIMA

Apply the following minima:

a. Up to and including FL 290 — *1,000 feet*.

b. Above FL 290 — *2,000 feet*, except:

(1) Above FL 450 between a supersonic and any other aircraft — *4,000 feet*.

(2) Above FL 600 between military aircraft — *5,000 feet*.

2-42 ALTITUDE ASSIGNMENT

Except as stated in Chapters 3, 4, 5, and 6, clear aircraft at flight levels according to the following table.

2-42 Table. — Altitude Assignment

<i>Aircraft Operating</i>	<i>On course degrees magnetic</i>	<i>Assign</i>	<i>Examples</i>
Below 3,000 feet above surface	Any course	Any altitude	
Below FL 290	0 through 179	Odd cardinal altitudes or flight levels at intervals of 2,000 feet	3,000, 5,000, FL 250, FL 270
	180 through 359	Even cardinal altitudes or flight levels at intervals of 2,000 feet	4,000, 6,000, FL 240, FL 260
At or above FL 290	0 through 179	Odd cardinal flight levels at intervals of 4,000 feet beginning with FL 290	FL 290, FL 330, FL 370
	180 through 359	Odd cardinal flight levels at intervals of 4,000 feet beginning with FL 310	FL 310, FL 350, FL 390
Within an ALTRV	Any course	Any altitude or flight level	
In transition to/from Oceanic airspace where composite separation is authorized	Any course	Any odd or even cardinal flight level including those above FL 290	FL 280, FL 290, FL 300, FL 310, FL 320, FL 330, FL 340

2-42 Note. — Operation of aircraft at flight levels other than those specified in Table 2-42 which transit boundaries of two or more CTA's/FIR's shall be covered in a letter of agreement between the appropriate ACC's.

2-43 thru 2-49 RESERVED

Section 5. LONGITUDINAL SEPARATION

2-50 APPLICATION

Separate aircraft by providing a time or distance interval between aircraft consistent with the required minima. Longitudinal separation expressed in distance may be applied as prescribed in 7110.65.

2-50 Note. -- Longitudinal separation minima contained in:

Paragraph 3-3, North Atlantic ICAO Region.

Paragraph 4-3, Caribbean ICAO Region.

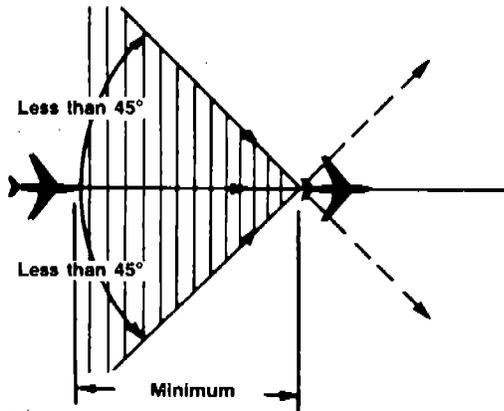
Paragraph 5-3, Pacific ICAO Region.

Paragraph 6-3, North American ICAO Region.

2-51 SEPARATION METHODS

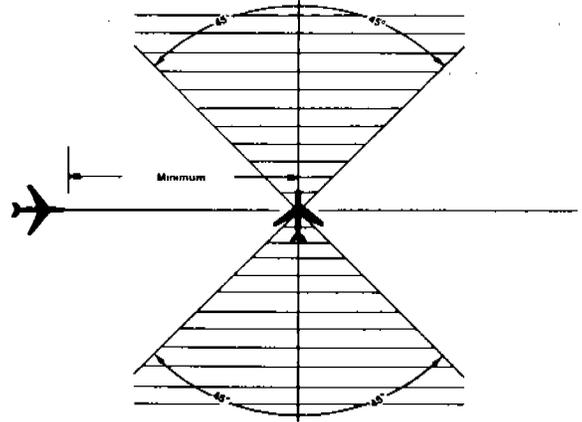
Separate aircraft longitudinally in accordance with the following:

a. Same courses: Ensure that the spacing between aircraft is not less than the applicable minimum required.



2-51a Illustration

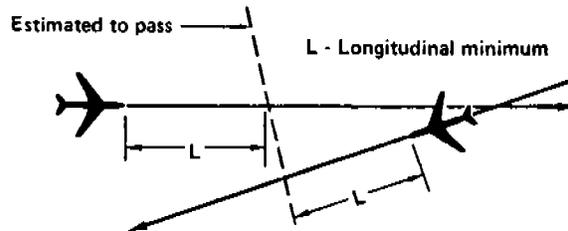
b. Crossing courses: Ensure that the spacing at the point of intersection is not less than the applicable minimum required.



2-51b Illustration

c. Reciprocal courses:

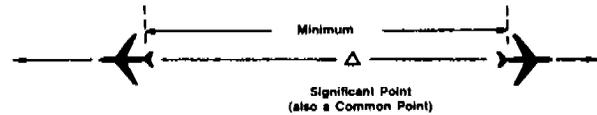
(1) Ensure that aircraft are vertically separated for a time interval equal to the applicable minimum required before and after the aircraft are estimated to pass.



2-51c(1) Illustration

(2) Vertical separation may be discontinued after one of the following conditions are met:

(a) Both aircraft have reported passing a significant point and the aircraft are separated by at least the applicable minimum required for the same direction longitudinal spacing; or



2-51c(2)(a) Illustration

(b) Both aircraft have reported passing ground-based NAVAID's or DME fixes indicating that they have passed each other.

2-52 thru 2-59 RESERVED

Section 6. LATERAL SEPARATION

2-60 APPLICATION

Separate aircraft by assigning different flight paths whose widths or protected airspace do not overlap.

2-60 Note. — Lateral separation minima is contained in:

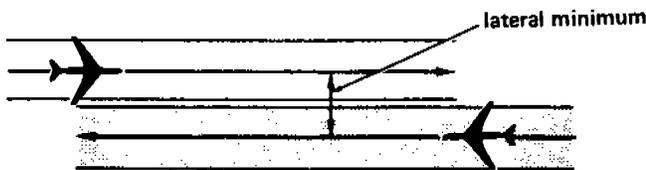
- Paragraph 3-4, North Atlantic ICAO Region.
- Paragraph 4-4, Caribbean ICAO Region.
- Paragraph 5-4, Pacific ICAO Region.
- Paragraph 6-4, North American ICAO Region.

2-61 SEPARATION METHODS

Lateral separation exists for:

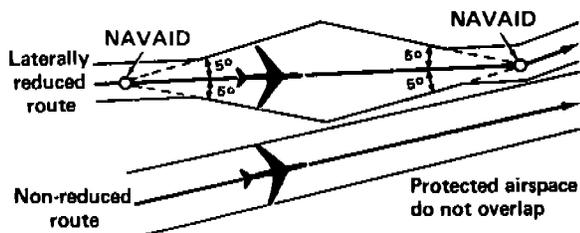
a. Nonintersecting flight paths:

(1) When the required distance is maintained between the flight paths; or



2-61a(1) Illustration

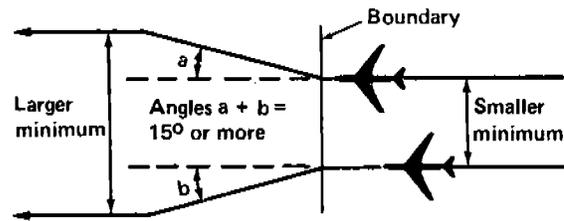
(2) When reduced route protected airspace is applicable, and the protected airspace of the flight paths do not overlap; or



2-61a(2) Illustration

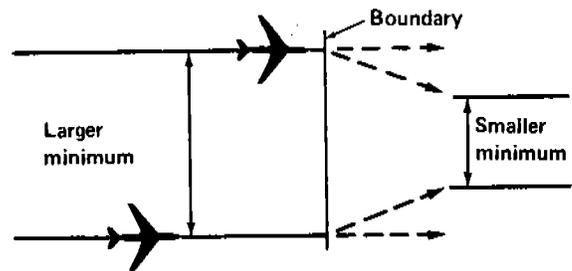
(3) When aircraft are crossing an oceanic boundary and are entering an airspace with a larger lateral minimum than the airspace being exited; and

- (a) The smaller separation exists at the boundary; and
- (b) Flight paths diverge by 15° or more until the larger minimum is established.



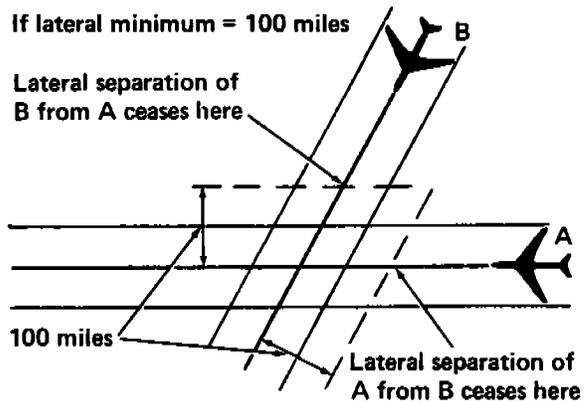
2-61a(3) Illustration

(4) When aircraft are crossing a boundary and are entering an airspace with a smaller lateral minimum than the airspace being exited, and the larger lateral minimum exists at the boundary.



2-61a(4) Illustration

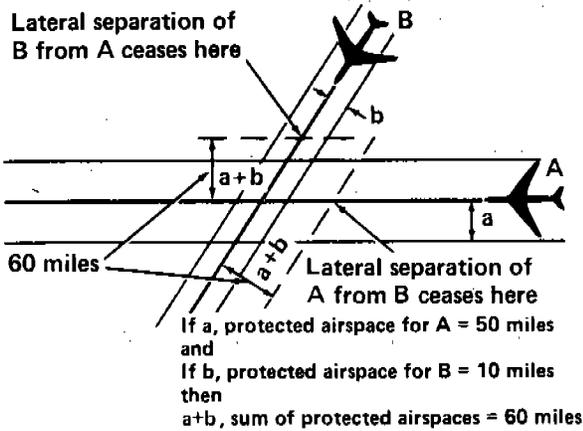
b. Intersecting flight paths with constant and same width protected airspace when either aircraft is at or beyond a distance equal to the applicable lateral separation minimum measured perpendicular to the flight path of the other aircraft.



2-61b Illustration

c. Intersecting flight paths with constant but different width protected airspace when either aircraft is at or beyond a distance equal to the sum of the protected airspace of both flight paths measured perpendicular to the flight path of the other aircraft.

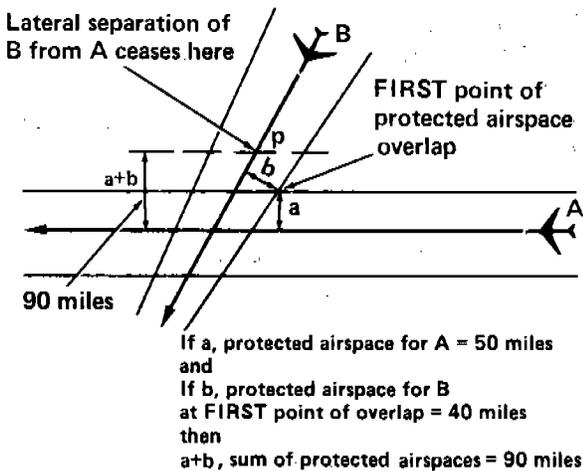
ured perpendicular to the flight path of the other aircraft.



2-61c Illustration

2-61c Illustration Note. — In the example in the illustration, the protected airspace for westbound flight A is distance “a” (50 miles), and for southwestbound flight B, distance “b” (10 miles). Therefore, the sum of distances “a” and “b,” i.e., the protected airspace of A and B, establishes the lateral separation minimum (60 miles) applicable for either flight relevant to the other.

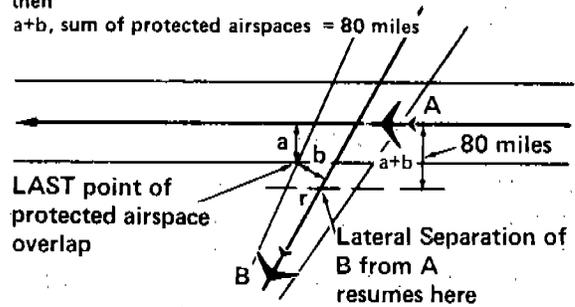
d. Intersecting flight paths with variable width protected airspace when either aircraft is at or beyond a distance equal to the sum of the protected airspace of both flight paths measured perpendicular to the flight path of the other aircraft. Measure protected airspace for each aircraft perpendicular to its flight path at the first point or the last point, as applicable, of protected airspace overlap.



2-61d Illustration 1

2-61d Illustration 1 Note. — At the first point of protected airspace overlap, the protected airspace for westbound flight A is distance “a” (50 miles), and for southwestbound flight B, distance “b” (40 miles). The sum of distances “a” and “b” (90 miles) establishes the lateral separation minimum applicable in this example for either flight as it approaches the intersection. Thus, for example, B should be vertically separated from A by the time it reaches point “p.”

If a, protected airspace for A = 50 miles and
If b, protected airspace for B at LAST point of overlap = 30 miles then
a+b, sum of protected airspaces = 80 miles



(Same situation as Illustration 1 - 20 Minutes later)

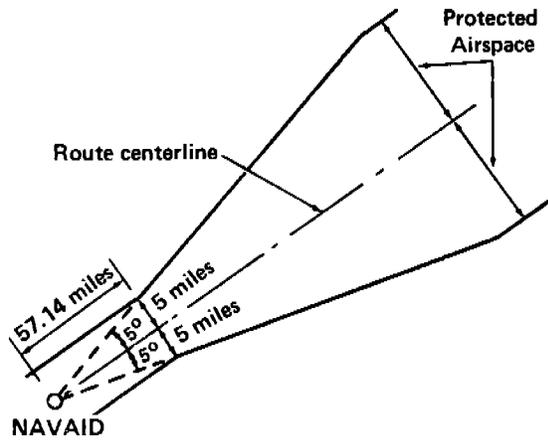
2-61d Illustration 2

2-61d Illustration 2 Note. — Distance “a” (50 miles) and “b” (30 miles) are determined at the last point of protected airspace overlap. The sum of the distances “a” and “b” (80 miles) establishes the lateral separation minima applicable for either flight after it passes beyond the intersection. Thus, for example, B could be cleared to, or through, A’s altitude after passing point “t.”

2-62 REDUCTION OF ROUTE PROTECTED AIRSPACE

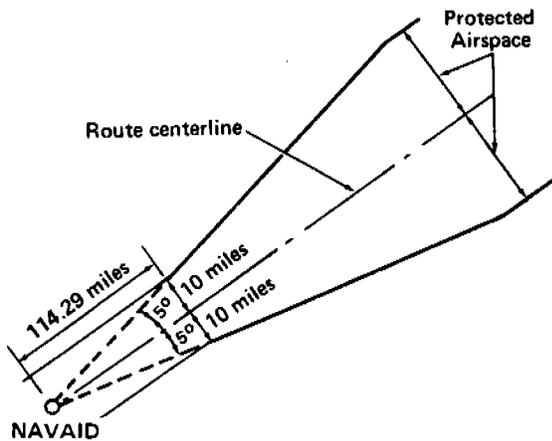
When routes have been satisfactorily flight checked and notice has been given to users, reduction in route protected airspace may be made as follows:

- a. Below FL 240, reduce the width of the protected airspace to 5 miles on each side of the route centerline to a distance of 57.14 miles from the NAVAID, then increasing in width on a 5° angle from the route centerline, measured at the NAVAID, to the maximum width allowable within the lateral minima; for example, 50 miles of protected airspace on each side of centerline; i.e., a lateral minimum of 100 miles.



2-62a Illustration

b. At and above FL 240, reduce the width of the protected airspace to 10 miles on each side of the route centerline to a distance of 114.29 miles from the NAVAID, then increasing in width on a 5° angle from the route centerline, as measured at the NAVAID, to the maximum width allowable within the lateral minima; for example, 60 miles of protected airspace on each side of the centerline; i.e., a lateral separation minimum of 120 miles.



2-62b Illustration

2-63 TRACK SEPARATION

Apply track separation between aircraft by requiring aircraft to fly specified tracks or radials and with specified spacings as follows:

a. Same NAVAID:

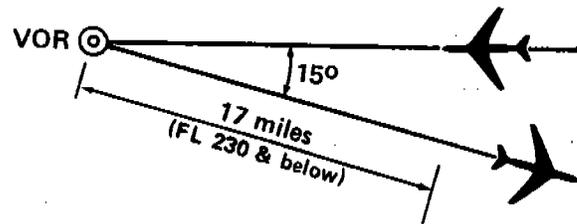
(1) VOR/VORTAC/TACAN. Consider separation to exist between aircraft established on radials of the same NAVAID that diverge by at least 15 degrees when either aircraft is clear of the airspace to be protected for the other aircraft. Use

the table to determine the flight distance required for various divergence angles and altitudes to clear the airspace to be protected.

2-63a(1) Table. — Divergence—Distance Minima (VOR/VORTAC/TACAN)

Divergence (degrees)	Distance (miles)	
	FL 230 and below	FL 240 through FL 450
15-25	17	18
26-35	11	13
36-90	8	11

Note: This table compensates for DME slant range error.



2-63a(1) Illustration

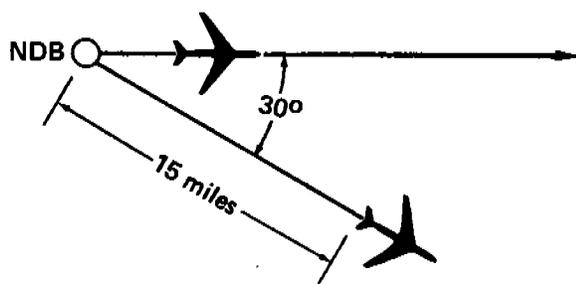
(2) NDB:

(a) The tracks are separated by at least 30 degrees and one aircraft is at least 15 miles from the NAVAID. This separation shall not be used when one or both aircraft are inbound to the aid unless the distance of the aircraft from the facility can be readily determined by reference to the NAVAID. Use the table to determine the flight distance required for various divergence angles to clear the airspace to be protected. For divergence that falls between two values, use the lesser value to obtain the distance.

2-63a(2)(a) Table. — Divergence—Distance Minima (NDB)

Divergence (degrees)	Distance (miles)
30	15
45	12
60	8
75	6
90	5

Note: This table is not to be used for DME application since no compensation has been provided for slant range error.



2-63a(2)(a) Illustration

(b) Clear aircraft navigating on NDB facilities by stating the course to or bearing from the radio beacon, omitting the word "degree," followed by the words "course to" or "bearing from," the name of the radio beacon, and the words "Radio Beacon."

Phraseology:

CLIMB/DESCEND/FLY ON THE/A (degree)
BEARING FROM/COURSE TO (name) RADIO
BEACON UNTIL (time),

or

UNTIL REACHING (fix or altitude),

and, if required,

BEFORE PROCEEDING ON COURSE,

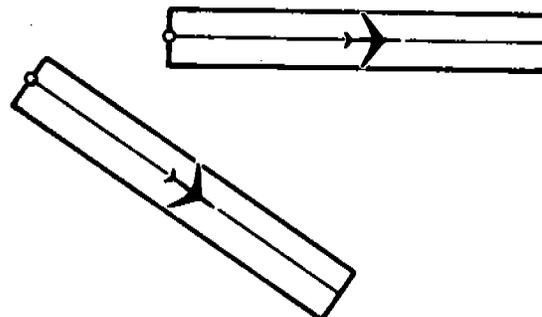
or

THENCE DIRECT (latitude/longitude).

2-63a(2)(b) Example. —

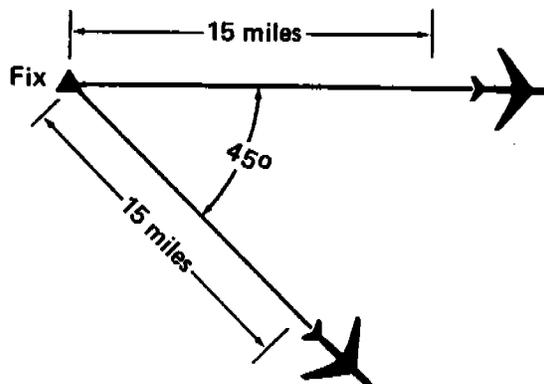
"Climb on the three four zero bearing from the Cradfish Radio Beacon until reaching flight level one zero zero."

b. Different NAVAID's: Separate aircraft using different navigation aids by assigning tracks so that their protected airspace do not overlap.



2-63b Illustration

c. Dead Reckoning (DR): The tracks are diverging by at least 45 degrees and one aircraft is at least 15 miles from the point of intersection of the tracks. This point may be determined either visually or by reference to a navigation aid.



2-63c Illustration

2-64 thru 2-69 RESERVED

Section 7. OFFSHORE/OCEANIC TRANSITION PROCEDURES

2-70 ALTITUDE/FLIGHT LEVEL TRANSITION

When vertical separation is applied between aircraft crossing the offshore/oceanic airspace boundary below FL 180, control action shall be taken to ensure that differences between the standard altimeter setting (QNE) and local altimeter setting (QNH) do not compromise separation.

2-71 COURSE DIVERGENCE

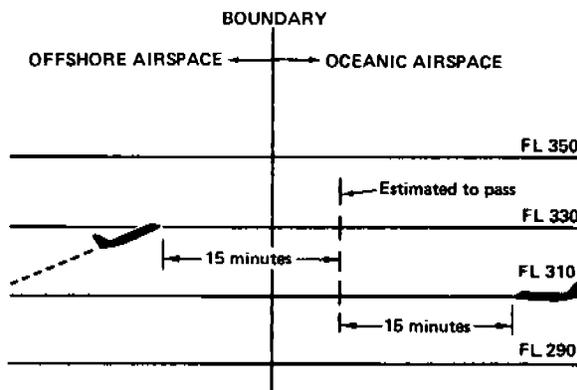
When aircraft are entering oceanic airspace, separation will exist in oceanic airspace when:

- a. Domestic lateral separation exists at the oceanic control boundary; and
- b. Courses diverge by a least 15° until the oceanic lateral separation is established.

2-72 OPPOSITE DIRECTION

When transitioning from offshore to oceanic airspace, an aircraft may climb through opposite direction oceanic traffic provided vertical separation above that traffic is established:

- a. Before the outbound crosses the offshore/oceanic boundary; and
- b. 15 minutes before the aircraft are estimated to pass.



2-72 Illustration

2-73 SAME DIRECTION

Apply 5 minutes minimum separation when a following aircraft on the same course is climbing through the altitude of the leading aircraft if the following conditions are met:

- a. The leading aircraft is level at the assigned altitude and is maintaining a speed equal to or greater than the following aircraft; and
- b. The minimum of 5 minutes is maintained between the leading and following aircraft; and
- c. The following aircraft is separated by not more than 4,000 feet from the leading aircraft when the climb clearance is issued; and
- d. The following aircraft commences climb within 10 minutes after passing:

(a) An exact reporting point (DME fix or intersection formed from NAVAID's) which the leading aircraft has reported; or

(b) A radar observed position over which the leading aircraft has been observed; and

e. The following aircraft is in direct communication with air traffic control until vertical separation is established.

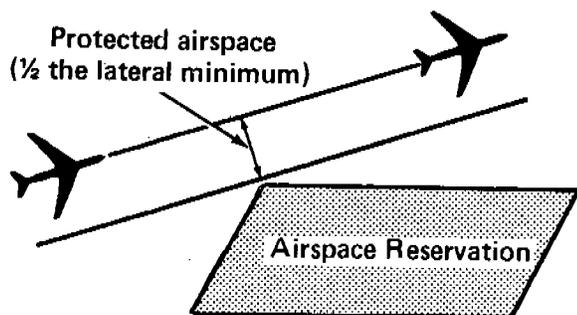
2-74 thru 2-79 RESERVED

Section 8. SEPARATION FROM AIRSPACE RESERVATIONS

2-80 TEMPORARY STATIONARY AIRSPACE RESERVATIONS

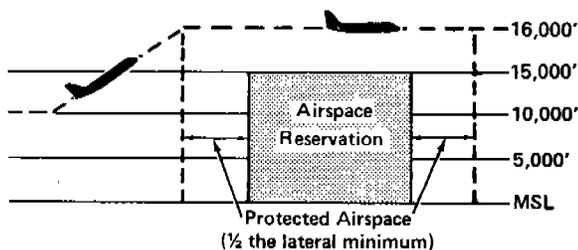
Separate aircraft from a temporary stationary reservation by one of two methods:

a. Laterally: Clear aircraft so that the protected airspace along the route of flight does not overlap the geographical area of the stationary reservation.



2-80a Illustration

b. Vertically: Clear aircraft so that vertical separation exists while the aircraft is within a geographical area defined as the stationary reservation plus a buffer around the perimeter equivalent to one-half the lateral separation minimum.



2-80b Illustration

2-81 REFUSAL OF AVOIDANCE CLEARANCE

If a pilot refuses to accept a clearance to avoid a reservation, inform him of the potential hazard, advise him that services will not be provided while the flight is within the reservation and, if possible, inform the appropriate using agency.

2-82 TEMPORARY MOVING AIRSPACE RESERVATIONS

Separate aircraft from a temporary moving airspace reservation by one of the following methods:

a. Laterally: Clear aircraft so that the protected airspace along the route of flight does not overlap the (time-dependent) geographical area of the moving airspace reservation.

b. Longitudinally: Clear aircraft so that the appropriate longitudinal minimum exists ahead of the first or behind the last aircraft operating within the reservation.

c. Vertically: Clear aircraft so that vertical separation exists while the aircraft is within a (time-dependent) geographical area defined as the moving airspace reservation plus a buffer around the perimeter equivalent to one-half the lateral separation minimum.

2-83 WARNING AREAS

Separate aircraft from a Warning Area by one of two methods:

a. Laterally: Clear aircraft on airways or routes whose widths or protected airspace do not overlap the peripheral boundary of the Warning Area.

b. Vertically: Assign an altitude consistent with paragraph 2-42 so that vertical separation exists, which is at least *500 feet* (above FL 290 — *1,000 feet*) above/below the Warning Area's upper/lower limit, while the aircraft is within a geographical area defined as the Warning Area plus a buffer around its perimeter equivalent to one-half the appropriate lateral separation minimum.

2-83 Reference. — Order 7110.65, paragraph 8-41.

CHAPTER 3. NORTH ATLANTIC ICAO REGION

Section 1. PROCEDURES

3-1 APPLICATION

Provide air traffic control services in the North Atlantic ICAO Region with the procedures and minima contained in this chapter except when noted otherwise.

3-2 VERTICAL SEPARATION

Provide vertical separation in accordance with Chapter 2, Section 4, except that odd cardinal flight levels at or above FL 290 through FL 450 may be assigned without regard to the direction of flight.

3-3 LONGITUDINAL SEPARATION

Provide longitudinal separation between aircraft as follows:

a. Supersonic flight—

(1) *10 minutes* between aircraft provided that:

(a) Both aircraft are in level flight or operating in cruise climb and the lead aircraft is maintaining a MACH number which is the same or greater than that of the following aircraft; and

(b) The aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is established; or

(c) If the aircraft have *not* reported over a common point, it is possible to ensure, by radar or other approved means, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks; or

(d) One or both aircraft has been cleared to commence the deceleration/descent phase of supersonic flight and the lead aircraft is maintaining a MACH number which is the same or greater than that of the following aircraft.

(2) *15 minutes* between all other aircraft in supersonic flight.

b. Subsonic flight—

(1) *10 minutes* between turbojet aircraft meeting Minimum Navigation Performance Specifications provided that:

(a) Aircraft will operate wholly or partly in MNPS airspace; and

(b) MACH technique is applied; and

(c) The aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is established; and

(i) At least 10 minutes longitudinal separation exists at the point where the tracks diverge;

(ii) At least 5 minutes longitudinal separation will exist where 60 NM lateral separation is achieved; and

(iii) At least 60 NM lateral separation will be achieved at or before the next significant point (normally 10 degrees of longitude along track/s); or

(d) If the aircraft have *not* reported over a common point, it is possible to ensure, by radar or other approved means, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks.

(2) Between 9 and 5 *minutes* between turbojet aircraft *only* when it is possible to ensure, by radar or other approved means, that the required time interval exists and will exist at the common point, and the lead aircraft is maintaining a greater MACH number than that of the following aircraft in accordance with the following:

(a) 9 *minutes* if the lead aircraft is MACH 0.02 faster than the following aircraft.

(b) 8 *minutes* if the lead aircraft is MACH 0.03 faster than the following aircraft.

(c) 7 *minutes* if the lead aircraft is MACH 0.04 faster than the following aircraft.

(d) 6 *minutes* if the lead aircraft is MACH 0.05 faster than the following aircraft.

(e) 5 *minutes* if the lead aircraft is MACH 0.06 faster than the following aircraft.

3-3b(2) Note. — When a lead aircraft is maintaining a greater MACH number than the following aircraft in accordance with this subparagraph and the aircraft will follow continuously diverging tracks so that 60 NM lateral separation will be achieved by the next significant point, the requirement stated in paragraph 3-3b(1)(c)(ii) to have at least 5 minutes longitudinal separation where 60 NM lateral separation is achieved may be disregarded.

(3) *15 minutes* between turbojet aircraft meeting the MNPS and operating wholly or partly in MNPS airspace but not covered by paragraph 3-3b(1).

(4) *15 minutes* between turbojet aircraft outside of MNPSA provided:

(a) The MACH technique is applied; and

(b) The aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is established; or

(c) If the aircraft have *not* reported over a common point, it is possible to ensure, by radar or other approved means, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks.

(5) *10 or 5 minutes* between turbojet aircraft *only* when it is possible to ensure, by radar or other approved means, that the required time interval exists and will exist at the common point, and the lead aircraft is maintaining a greater MACH number than that of the following aircraft in accordance with the following:

(a) *10 minutes* if the lead aircraft is MACH 0.03 faster than the following aircraft.

(b) *5 minutes* if the lead aircraft is MACH 0.06 faster than the following aircraft.

(6) *20 minutes* between turbojet aircraft not covered by paragraph 3-3b(4).

(7) *20 minutes* between other than turbojet aircraft operating within the New York Oceanic Area along routes extending between the United States, Canada, or

Bermuda and Caribbean terminals, or between the United States or Canada and Bermuda:

(8) *30 minutes* between other than turbojet aircraft except those covered in paragraph 3-3b(7).

3-4 LATERAL SEPARATION

Provide lateral separation by assigning different flight paths whose widths or protected airspace do not overlap. Apply the following:

a. *60 NM* between supersonic aircraft above FL 275.

b. *60 NM* between aircraft which meet the Minimum Navigation Performance Specifications and which:

(1) Operate within MNPS airspace; or

(2) Aircraft transitioning to or from MNPS airspace; or

(3) Operate for the most part within MNPS airspace but are cleared to operate immediately above or below such airspace for a portion of their flight.

c. *90 NM* between aircraft which operate outside MNPS airspace when:

(1) Between the United States or Canada and Bermuda;

(2) West of 55 degrees West between the United States, Canada, or Bermuda and points in the Caribbean ICAO Region.

d. *120 NM* between other aircraft.

CHAPTER 4. CARIBBEAN ICAO REGION

Section 1. PROCEDURES

4-1 APPLICATION

Provide air traffic control services in the Caribbean ICAO Region with the procedures and minima contained in this chapter except when noted otherwise.

4-2 VERTICAL SEPARATION

Provide vertical separation in accordance with Chapter 2, Section 4.

4-3 LONGITUDINAL SEPARATION

Provide longitudinal separation between aircraft as follows:

a. *10 minutes* between aircraft in supersonic flight provided that:

(1) Both aircraft have reported over the same entry point, (or different entry points if radar was used to verify that the appropriate time interval will exist between aircraft) and follow the same or continuously diverging tracks until another form of separation is established; and

(2) Both aircraft are in level flight or operating in cruise climb and the lead aircraft has been assigned a MACH number which is the same or greater than the MACH number assigned to the following aircraft; or

(3) One or both aircraft has been cleared to commence the deceleration/descent phase of supersonic flight and the lead aircraft is maintaining a MACH number which is the same or greater than that of the following aircraft.

b. *15 minutes* between aircraft in supersonic flight but not covered in paragraph 4-3a.

c. *15 minutes* between all other aircraft operating at or above FL 200 and west of 55° West, except when MACH technique is applied the entry point, the following may be applied:

(1) *10 minutes* between turbojet aircraft at the entry point provided the lead aircraft is maintaining a MACH number which is at least MACH 0.03 greater than that of the following aircraft.

(2) *5 minutes* between turbojet aircraft at the entry point provided the lead aircraft is maintaining a MACH number which is at least MACH 0.06 greater than that of the following aircraft.

d. *20 minutes* between aircraft operating below FL 200 west of 55°W and between aircraft operating at all levels east of 55°W within the San Juan CTA/FIR.

4-4 LATERAL SEPARATION

Provide lateral separation between aircraft as follows:

a. *60 NM* between supersonic aircraft operating at or above FL 450.

b. *60 NM* between aircraft provided that the aircraft:

(1) Meet NAT Minimum Navigation Performance Specifications; and

(2) Operate east of 60° West; and

(3) Will transition to or from MNPS airspace.

c. *90 NM* between aircraft operating in the Caribbean Region or operating between the United States, Canada, or Bermuda and points in the CAR Region in the San Juan Oceanic CTA and the Atlantic portion of the Miami CTA.

d. *100 NM* between aircraft west of 55° West.

e. *120 NM* between aircraft east of 55° West.

4-5 VFR CLIMB AND DESCENT

a. In the Houston, Miami, and San Juan CTA's, IFR flights may be cleared to climb and descend in VFR conditions but only:

(1) When requested by the pilot; and

(2) Between sunrise and sunset.

b. Apply the following when the flight is cleared:

(1) If there is a possibility that VFR conditions may become impractical, issue alternative instructions.

(2) Issue traffic information to aircraft that are not separated in accordance with the minima in this chapter.

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CHAPTER 5. PACIFIC ICAO REGION

Section 1. PROCEDURES

5-1 APPLICATION

Provide air traffic control services in the Pacific ICAO Region with the procedures and minima contained in this chapter except when noted otherwise.

5-2 VERTICAL SEPARATION

Provide vertical separation in accordance with Chapter 2, Section 4, except when aircraft operate within airspace where composite separation and procedures are authorized, apply the minima specified in paragraph 5-5, Composite Separation Minima.

5-3 LONGITUDINAL SEPARATION

Provide longitudinal separation between aircraft as follows:

- a. 20 minutes between all aircraft; or
- b. 15 minutes between turbojet aircraft provided that:
 - (1) MACH technique is applied; and
 - (2) The aircraft concerned have reported over the same entry point into oceanic airspace or different entry points if radar was used to verify that the appropriate time interval will exist between aircraft; and
 - (3) The aircraft concerned are following the same track or continuously diverging tracks.
- c. 10 minutes at the entry point into oceanic controlled airspace for turbojet aircraft meeting the conditions of paragraph 5-3b(1), (2), and (3) if the lead aircraft is maintaining a speed of at least MACH 0.03 greater than that of the following aircraft; or
- d. 5 minutes at the entry point into oceanic controlled airspace for turbojet aircraft meeting the conditions of paragraph 5-3b(1), (2), and (3) if the lead aircraft is maintaining a speed of at least MACH 0.06 greater than that of the following aircraft.

5-4 LATERAL SEPARATION

Provide lateral separation by one of the following:

- a. Clear aircraft on different flight paths whose route widths or protected airspace do not overlap.
- b. When aircraft operate within airspace where composite separation and procedures are authorized, apply the minimum specified in paragraph 5-5, Composite Separation Minima.

- c. When subparagraphs 5-4a or b are not applicable, apply 100 NM between aircraft.

5-5 COMPOSITE SEPARATION MINIMA

Provide composite separation within the Central East Pacific (CEP) and North Pacific (NOPAC) composite route system at and above FL 290 as follows:

- a. 1,000 feet vertical separation; and
- b. 50 NM lateral separation.

5-6 COMPOSITE SEPARATION ALTITUDE ASSIGNMENT

a. Aircraft operating at or above FL 300 in a composite route system may be cleared at even flight levels. Additionally, aircraft may be cleared at even flight levels while joining, crossing, or leaving a composite route system provided such aircraft leaving the system are cleared to an appropriate odd cardinal flight level when noncomposite vertical or lateral separation is achieved.

b. Aircraft (operating at or above FL 300) leaving a composite route system at an even cardinal flight level do not have to be assigned an odd cardinal flight level provided:

- (1) The aircraft is being provided radar service; and
- (2) The aircraft will be cleared for descent and approach to an airport within the facility's domestic FIR; and
- (3) There is an operational advantage.

c. Aircraft operating on unidirectional routes or traffic flows may be assigned altitudes other than the appropriate altitude for direction of flight provided that 2,000 feet vertical separation is maintained between aircraft operating on the same route.

5-7 COMPOSITE SEPARATION APPLICATION

Provide composite separation in the Central East Pacific (CEP) and the North Pacific (NOPAC) composite route systems as follows:

- a. Clear an aircraft to join an outer route of the composite route system at other than the normal entry point provided:

(1) Longitudinal or noncomposite vertical separation exists between that aircraft and any other aircraft on that route; and

(2) Composite separation exists between that aircraft and any other aircraft on the next adjacent route.

b. Clear an aircraft to leave an outer route of the composite route system at other than the normal exit point provided its course diverges so that lateral spacing from the route system increases until noncomposite separation exists between that aircraft and any other aircraft in the composite route system.

c. Clear an aircraft to change from one route to an adjacent route within the composite route system provided:

(1) Longitudinal or noncomposite vertical separation is maintained between that aircraft and any other aircraft on the route being vacated until that aircraft is established on the route to which it is proceeding; and

(2) Longitudinal or noncomposite vertical separation exists between that aircraft and any other aircraft on the route to which that aircraft is proceeding; and

(3) Composite separation exists between that aircraft and any other aircraft on the next adjacent route.

d. Clear an aircraft to cross the composite route system provided longitudinal, or noncomposite vertical or lateral separation exists between that aircraft and any other aircraft in the composite route system.

e. Clear aircraft to transition into the composite route system from an Oceanic Transition Route (OTR) provided:

(1) The OTR is charted on aeronautical charts; and

(2) Composite separation is maintained between that aircraft and any other aircraft within the composite route system; and

5-7e(2) Note. — An aircraft is within the confines of a composite route system when the aircraft joins or crosses the outer route of the composite route system or passes a composite route entry point.

(3) Composite separation is maintained between that aircraft and any other aircraft on adjacent OTR's.

f. Clear an aircraft to change altitude on a route if noncomposite separation exists between that aircraft and others operating on that route regardless of other aircraft operating on adjacent routes in the system.

CHAPTER 6. NORTH AMERICAN ICAO REGION — ARCTIC CTA

Section 1. PROCEDURES

6-1 APPLICATION

Provide air traffic control services in the North American ICAO Region—Arctic CTA with the procedures and minima contained in this chapter.

6-2 VERTICAL SEPARATION

Provide vertical separation in accordance with Chapter 2, Section 4.

6-3 LONGITUDINAL SEPARATION

Provide longitudinal separation between aircraft as follows:

- a. 20 minutes between all aircraft; or
- b. When using MACH technique:

(1) 15 minutes between turbojet aircraft which have reported over a common point and follow the same track or continuously diverging tracks.

(2) 10 minutes between turbojet aircraft meeting the conditions of paragraph 6-3b(1) provided that the lead aircraft is maintaining a MACH number which is at least MACH 0.03 greater than that of the following aircraft.

(3) 5 minutes between turbojet aircraft meeting the conditions of paragraph 6-3b(1) provided that the lead aircraft is maintaining a MACH number which is at least MACH 0.06 greater than that of the following aircraft.

6-4 LATERAL SEPARATION

Provide 90 NM lateral separation between aircraft, except that lower minima in 7.2 of Part 3 of the PANS-RAC (Doc 4444-RAC/501) may be applied or further reduced in accordance with 9 of the same part where the conditions specified in the relevant PANS-RAC are met.

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CHAPTER 7. EMERGENCIES AND IN-FLIGHT CONTINGENCIES

Section 1. EMERGENCIES

7-1 EMERGENCY DETERMINATIONS

Because of the infinite variety of possible emergency situations, specific procedures cannot be prescribed. However, when you believe an emergency exists or is imminent, select and pursue a course of action which appears to be most appropriate under the circumstances and which most nearly conforms to the instructions in 7110.65 and this order.

7-2 PRIORITY

An aircraft known or believed to be in a state of emergency, including being subject to unlawful interference, shall be given priority over other aircraft.

7-2 Reference. — 7110.65, paragraph 9-4, Responsibility.

7-3 PHASES OF EMERGENCY

Emergency phases are described as follows:

a. Uncertainty Phase (INCERFA). When there is concern about the safety of an aircraft or its occupants, an INCERFA exists:

(1) When communication from an aircraft has not been received within 30 minutes after the time a communication should have been received or after the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier; or

(2) When an aircraft fails to arrive within 30 minutes after the time of arrival last estimated by the pilot or by the ATC units, whichever is the later.

b. Alert Phase (ALERFA). When there is apprehension about the safety of an aircraft and its occupants, an ALERFA exists:

(1) Following the uncertainty phase when subsequent attempts to establish communications with the aircraft, or inquiries to other relevant sources, have failed to reveal any information about the aircraft; or

(2) When information has been received which indicates that the operating efficiency of the aircraft has been impaired but not to the extent that a forced landing is likely; or

(3) When communication from an aircraft has not been received within 60 minutes after the time a communication should have been received or after the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier.

c. Distress Phase (DETRESFA). When there is reasonable certainty that the aircraft and its occupants are threatened by grave and imminent danger, a DETRESFA exists:

(1) Following the alert phase when further attempts to establish communications with the aircraft and more widespread inquiries are unsuccessful; or

(2) When the fuel on board is considered to be exhausted or to be insufficient for the aircraft to reach safety; or

(3) When information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely; or

(4) When information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing.

7-4 thru 7-19 RESERVED

Section 2. ALERTING SERVICE AND SPECIAL ASSISTANCE

7-20 APPLICATION

Provide Alerting Service to:

- a. All aircraft receiving air traffic control service;
- b. All other aircraft which have filed a flight plan or which are otherwise known to the air traffic control unit; and
- c. Any aircraft known or believed to be the subject of unlawful interference.

7-21 RESPONSIBILITY

a. When Alerting Service is required, the responsibility for coordinating such Service shall, unless otherwise established by letter of agreement, rest with the facility serving the FIR or CTA:

(1) Within which the aircraft was flying at the time of last air-ground radio contact; or

(2) Which the aircraft was about to enter if the last air-ground contact was established at or close to the boundary; or

(3) Within which the point of destination is located if the aircraft:

(a) Was not equipped with suitable two-way radio communications equipment; or

(b) Was not under obligation to transmit position reports.

7-21a Reference. — Coordination, Chapter 2, Section 3.

b. The responsible ACC shall serve as the control point for:

(1) Collecting all information relevant to a state of emergency of an aircraft;

(2) Forwarding that information to the appropriate Rescue Coordination Center (RCC); and

(3) Coordinating with other facilities concerned.

c. The responsibility of the ACC to provide Alerting Service for military aircraft may be waived upon a written or recorded request from a military agency. In this case, the military request must state that the military agency assumes full responsibility for their aircraft while the aircraft are operating in the oceanic airspace.

d. Responsibility to provide alerting service for flight operations conducted under the "due regard" or "operational" prerogative of military aircraft is assumed by the military. When "due regard" operations are scheduled to end with aircraft filed under ICAO procedures, the ACC may, if specified in a letter of agreement, assume responsibility for alerting service at proposed time filed.

7-22 NOTIFICATION PROCEDURES

In the event of INCERFA, ALERFA, or DETRESFA, notify the following:

a. When practicable, the aircraft operator.

b. The appropriate RCC.

c. Aeronautical stations having en route communications guard responsibilities at the point of departure, along or adjacent to the route of flight, and at the destination.

d. ACC's having jurisdiction over the proposed route of flight from the last reported position to the destination airport.

7-23 MESSAGE CONTENT

INCERFA, ALERFA, and DETRESFA messages shall include the following information, if available, in the order listed:

a. INCERFA, ALERFA, or DETRESFA according to the phase of the emergency.

b. Agency and person originating the message.

c. Nature of the emergency.

d. Significant flight plan information.

e. The air traffic unit which made the last radio contact, the time, and the frequency used.

f. The aircraft's last position report, how it was received, and what facility received it.

g. Color and distinctive marks of aircraft.

h. Any action taken by reporting office.

i. Other pertinent remarks.

7-24 CANCELLATION

a. An INCERFA phase ends with the receipt of any information or position report on the aircraft. Cancel the INCERFA by a message addressed to the same stations as the INCERFA message.

b. An ALERFA ends when:

(1) Evidence exists that would ease apprehension about the safety of the aircraft and its occupants; or

(2) The concerned aircraft lands. Cancel the ALERFA message by a message addressed to the same stations as the ALERFA message.

c. A DETRESFA ends when the:

(1) Aircraft successfully lands; or

(2) RCC advises of a successful rescue; or

(3) RCC advises of termination of Search and Rescue (SAR) activities. Cancel the DETRESFA by a message addressed to the same stations as the DETRESFA message.

7-25 thru 7-29 RESERVED

Section 3. IN-FLIGHT CONTINGENCIES

7-30 EMERGENCY ASSISTANCE

If an aircraft over water requests weather, sea conditions, ditching information, and/or assistance from surface vessels, or if the controller feels that this information may be necessary for aircraft safety, it should be requested from the RCC. Also, an appropriate AMVER SURPIC should be asked for if requested by the aircraft or deemed beneficial by control personnel.

7-30 Note. — The AMVER (Automated Mutual-Assistance Vessel Rescue System) center can deliver, in a manner of minutes, a SURPIC (Surface Picture) of vessels in the area of a SAR incident, including their predicted positions and their characteristics.

7-30 Reference. — Emergency Descent, 7-32.

7-31 DITCHING

In all cases of aircraft ditching, the airspace required for SAR operations shall be determined by the RCC. The ACC shall block that airspace until the RCC advises the airspace is no longer required. An International NOTAM shall be issued describing the airspace affected.

7-32 EMERGENCY DESCENT

a. In the event an aircraft requests an emergency descent:

(1) Issue a clearance to the requested altitude if approved separation can be provided.

(2) Advise the aircraft of the traffic, and request its intentions if traffic prevents an unrestricted descent.

Phraseology:

ATC ADVISES (aircraft identification) UNABLE TO APPROVE UNRESTRICTED DESCENT. TRAFFIC (traffic information). REQUEST INTENTIONS.

b. In the event an aircraft is making or will make an emergency descent without a clearance:

(1) Advise other aircraft of the emergency descent.

Phraseology:

ATC ADVISES (aircraft identification/ALL AIRCRAFT) BE ALERT FOR EMERGENCY DESCENT IN THE VICINITY OF (latitude/longitude) FROM (altitude/FL) TO (altitude/FL).

(2) Advise other aircraft when the emergency descent is complete.

Phraseology:

(Aircraft identification/ALL AIRCRAFT) EMERGENCY DESCENT AT (location) COMPLETED.

c. Upon notification that an aircraft is making an emergency descent through other traffic, take action immediately to safeguard all aircraft concerned.

d. When appropriate, broadcast by ATC communications, by radio navigation aids, and/or through aeronautical communication stations/services an emergency message to all aircraft in the vicinity of the descending aircraft. Include the following information:

(1) Location of emergency descent.

(2) Direction of flight.

(3) Type aircraft.

(4) Route if appropriate.

(5) Altitude vacated.

(6) Other information.

7-32d Example. —

“Attention all aircraft in the vicinity of Trout, a northbound D-C Ten on A-T-S route Alfa Seven Hundred is making an emergency descent from flight level three three zero.”
(REPEAT AS YOU DEEM APPROPRIATE.)

e. If traffic conditions permit, provide traffic information to the affected aircraft.

f. Immediately after an emergency broadcast or traffic information has been made, issue appropriate clearances or instructions, as necessary, to all aircraft involved.

7-33 thru 7-39 RESERVED

Section 4. ADDITIONAL REQUIREMENTS

7-40 SERVICES TO AIRCRAFT IN DISTRESS

a. Provide maximum assistance to aircraft in distress. Enlist the services of available radar facilities and DF facilities as well as the emergency services and facilities operated by the FAA, the military, and the Federal Communications Commission when the pilot requests, or when you deem necessary.

b. Advise all traffic in the vicinity of a distressed aircraft of the emergency.

c. When you believe an emergency exists or is imminent, select and pursue a course of action which appears to be most appropriate under the circumstances. If you are in doubt that a given situation constitutes a potential emergency, handle it as though it were an emergency.

d. Obtain enough information to handle the emergency intelligently. Base your decision about the type of assistance needed on the information and requests received from the pilot.

e. Localize communications; i.e., identify a single point of contact within the ACC, minimize the number of messages sent, and limit the frequencies utilized.

7-41 SERVICES TO RESCUE AIRCRAFT

a. Provide standard IFR separation between the search and rescue aircraft and the aircraft in distress, except that when visual or radar contact has been established by the search and rescue aircraft and the pilots of both aircraft concur, IFR separation may be discontinued.

b. Clear the search and rescue aircraft to a fixed clearance limit rather than to the aircraft in distress, which is a moving fix. Issue route clearances that are consistent with that of the distressed aircraft.

c. Advise the rescue aircraft, as soon as practicable, of any factors that could adversely affect its mission; e.g., unfavorable weather conditions, anticipated problems, the possibility of not being able to approve an IFR descent through en route traffic, etc.

d. Advise the appropriate rescue agency of all pertinent information as it develops.

e. Forward immediately any information about the action being taken by the RCC, other organizations, or aircraft to the aircraft concerned.

f. Advise the aircraft operator of the current status of the search and rescue operation as practicable.

g. Since prompt, correct, and complete information is the key to successful rescue operations, ensure that this information is swiftly and smoothly supplied to those organizations actively engaged in rescue operations.

7-42 ALERT LOG

A separate chronological record should be kept on each ALERFA and DETRESFA together with a chart which displays the projected route of the aircraft, position reports received, route of interceptor aircraft, and other pertinent information.

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APPENDIX A

OCEANIC CONTROLLER GLOSSARY

June 1, 1988

This glossary was compiled to promote a common understanding of the terms used in oceanic air traffic control. The terms included supplement the terms located in 7110.65—Appendix A. The definitions are primarily defined in an operational sense applicable to both users and operators of international airspace under United States' jurisdiction. Use of this glossary, and the one in 7110.65, will preclude misunderstandings concerning the system's design, functions, and purpose. This glossary will be revised, as necessary, to maintain a common understanding of the system.

Because of the international nature of flight in oceanic airspace, many terms published here were extracted from definitions published by the International Civil Aviation Organization (ICAO). These terms are preceded by an asterisk (*) whenever the ICAO definition is used in lieu of an FAA definition.

***AERONAUTICAL INFORMATION PUBLICATION (AIP)**— A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

***ALERFA (Alert Phase)**— The code word used to designate an emergency phase wherein apprehension exists as to the safety of an aircraft and its occupants.

ALERTING SERVICE— A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

AMVER (Automated Mutual-Assistance Vessel Rescue System)— A facility, which can deliver in a matter of minutes, a surface picture (SURPIC) of vessels in the area of a potential or actual search and rescue incident including their predicted positions and their characteristics. (See paragraph 7-30, Emergency Assistance.)

***APPROPRIATE ATS AUTHORITY**— The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned. In the U.S., the "appropriate ATS authority" is the Director, Air Traffic Operations Service.

***APPROPRIATE AUTHORITY**—

1. Regarding flight over the high seas: the relevant authority is the State of Registry.
2. Regarding flight over other than the high seas: the relevant authority is the State having sovereignty over the territory being overflown.

***AREA CONTROL CENTER (ACC)**— An ICAO term for an air traffic control facility primarily responsible for ATC services being provided IFR aircraft during the en route phase of flight. The U.S. equivalent facility is an air route traffic control center (ARTCC).

AREA NAVIGATION/RNAV— A method of navigation that permits aircraft operations on any desired course within

the coverage of station-referenced navigation signals or within the limits of self-contained system capability.

ARINC— An acronym for Aeronautical Radio Inc., a corporation largely owned by a group of airlines. ARINC is licensed by the FCC as an aeronautical station, and contracted by the FAA to provide communications support for air traffic control and meteorological services in portions of international airspace.

CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATION (CMNPS) AIRSPACE— That portion of Canadian domestic airspace within which MNPS separation may be applied.

CENTRAL EAST PACIFIC (CEP)— An organized route system between the U.S. West Coast and Hawaii.

COMMON POINT— A geographical point overflown by two or more aircraft upon which separation may be based.

***CONTROL AREA (CTA)**— A controlled airspace extending upward from a specified limit above the earth.

CRUISE CLIMB— A climb technique employed by aircraft, usually at a constant power setting, resulting in an increase of altitude as the aircraft weight decreases.

***CURRENT FLIGHT PLAN (CPL)**— The flight plan, including changes if any, brought about by subsequent clearances.

***DETRESFA (DISTRESS PHASE)**— The code word used to designate an emergency phase wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

DOMESTIC AIRSPACE— Airspace which overlies the continental land mass of the United States plus Hawaii and U.S. possessions. Domestic airspace extends to 3 miles offshore.

DUE REGARD— A phase of flight wherein an aircraft commander of a State-operated aircraft assumes responsibility

to separate his aircraft from all other aircraft. (See also paragraph 1-20.)

DVFR FLIGHT PLAN— A flight plan filed for a VFR aircraft which intends to operate in airspace within which the ready identification, location, and control of aircraft are required in the interest of national security.

ENTRY POINT— For the purposes of oceanic air traffic control, a transition point between airspace boundaries, routes, or FIR's or the reference point where the MACH technique is initiated for the purpose of maintaining longitudinal separation. For application of the MACH technique, it may be variously, a common point or a significant point (as defined in 7110.83A) or a point of tangency in the case of same direction overlapping, parallel, or diverging routes.

FILED FLIGHT PLAN— The flight plan as filed with an ATS unit by the pilot or his designated representative without any subsequent changes or clearances.

FLIGHT INFORMATION SERVICE— A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

***INCERFA (Uncertainty Phase)**— The code word used to designate an emergency phase wherein there is concern about the safety of an aircraft or its occupants. In most cases this phase involves an aircraft which is overdue or unreported.

INERTIAL NAVIGATION SYSTEM (INS)— An RNAV system which is a form of self-contained navigation. (See Area Navigation/RNAV.)

INLAND NAVIGATION FACILITY— A navigation aid on a North American Route at which the common route and/or the non-common route begins or ends.

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)— A specialized agency of the United Nations whose objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.

ICAO Regions include:

AFI	African—Indian Ocean Region.
CAR	Caribbean Region. (See Chapter 4.)
EUR	European Region.
MID/ASIA	Middle East/Asia Region.
NAM	North American Region. (See Chapter 6.)
NAT	North Atlantic Region. (See Chapter 3.)
PAC	Pacific Region. (See Chapter 5.)
SAM	South American Region.

***MACH TECHNIQUE**— Describes a control technique used by air traffic control whereby turbo-jet aircraft operating successively along suitable routes are cleared to maintain appropriate MACH numbers for a relevant portion of the en route phase of flight. The principle objective is to achieve improved utilization of the airspace and to ensure that separation between successive aircraft does not decrease below the established minima.

MINIMUM NAVIGATION PERFORMANCE SPECIFICATION (MNPS)— A set of standards which require aircraft to have a minimum navigation performance capability in order to operate in MNPS designated airspace. In addition, aircraft must be certified by their State of Registry for MNPS operation.

MINIMUM NAVIGATION PERFORMANCE SPECIFICATIONS AIRSPACE (MNPSA)— Designated airspace in which MNPS procedures are applied between MNPS certified and equipped aircraft. Under certain conditions, non-MNPS aircraft can operate in MNPSA. However, standard oceanic separation minima is provided between the non-MNPS aircraft and other traffic. Currently, the only designated MNPSA is described as follows:

1. Between FL 275 and FL 400;
2. Between latitudes 27° N and the North Pole;
3. In the east, the eastern boundaries of the CTA's Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik;
4. In the west, the western boundaries of CTA's Reykjavik and Gander Oceanic and New York Oceanic excluding the area west of 60° W and south of 38° 30' N.

NON-COMMON ROUTE/PORTION— That segment of a North American Route between the inland navigation facility and a designated North American terminal.

NORTH PACIFIC (NOPAC)— An organized route system between the Alaskan west coast and Japan.

OCEANIC AIRSPACE— Airspace over the oceans of the world, considered international airspace, where oceanic separation and procedures per the International Civil Aviation Organization are applied. Responsibility for the provisions of air traffic control service in this airspace is delegated to various countries based generally upon geographic proximity and the availability of the required resources.

OCEANIC DISPLAY AND PLANNING SYSTEM (ODAPS)— An automated digital display system which provides flight data processing, conflict probe, and situation display for oceanic air traffic control.

OCEANIC NAVIGATIONAL ERROR REPORT (ONER)— A report filed when an aircraft exiting oceanic airspace has been observed by radar to be off course. ONER reporting parameters and procedures are contained in 7110.82, Monitoring of Navigational Performance In Oceanic Areas.

OCEANIC PUBLISHED ROUTE— A route established in international airspace and charted or described in flight information publications, such as Route Charts, DOD Enroute Charts, Chart Supplements, and NOTAM's.

OCEANIC TRANSITION ROUTE (OTR)— An ATS route established for the purpose of transitioning aircraft to/from an organized track system.

OFF COURSE— A term used to describe a situation where an aircraft has reported a position fix or is observed on radar at a point not on the ATC approved route of flight.

OFFSHORE AIRSPACE— The airspace between the U.S. 3 mile limit and the oceanic CTA/FIR boundary.

OFFSHORE CONTROL AREA— That portion of offshore airspace having vertical definition within which air traffic control is exercised. Offshore control area is generally synonymous with Federal Aviation Regulations, Part 71, Subpart E, "Control Areas and Control Area Extensions."

OMEGA— An RNAV system designed for long-range navigation based upon ground-based electronic navigational aid signals.

OPERATIONAL— (See DUE REGARD.)

OPPOSITE DIRECTION AIRCRAFT— Aircraft are operating in opposite directions when:

1. They are following the same track in reciprocal directions; or
2. Their tracks are parallel and the aircraft are flying in reciprocal directions; or
3. Their tracks intersect at an angle of more than 135°.

ORGANIZED TRACK SYSTEM (OTS)— A series of ATS routes which are fixed and charted; i.e., CEP, NOPAC, or flexible and described by NOTAM; i.e., NAT TRACK MESSAGE.

PROTECTED AIRSPACE— The airspace on either side of an oceanic route/track that is equal to one-half the lateral separation minimum except where reduction of protected airspace has been authorized.

POLAR TRACK STRUCTURE (PTS)— A system of organized routes between Iceland and Alaska which overlie Canadian MNPS Airspace.

QNE— The barometric pressure used for the standard altimeter setting (29.92 inches Hg.).

QNH— The barometric pressure as reported by a particular station.

RANDOM ALTITUDE— An altitude inappropriate for direction of flight and/or not in accordance with paragraph 2-42.

RANDOM ROUTE— Any route not established or charted/published or not otherwise available to all users.

ROUTE— A defined path, consisting of one or more courses in a horizontal plane, which aircraft traverse over the surface of the earth.

SAME DIRECTION AIRCRAFT— Aircraft are operating in the same direction when:

1. They are following the same track in the same direction; or
2. Their tracks are parallel and the aircraft are flying in the same direction; or
3. Their tracks intersect at an angle of less than 45 degrees.

***SEPARATION**— Spacing between aircraft, levels, or tracks.

SIGNIFICANT POINT— A geographical point, overflown but not necessarily common to two or more aircraft, upon which separation may be based.

STATE AIRCRAFT— Aircraft used exclusively in the service of any government or of any political subdivision thereof including the government of any state, territory, or possession of the United States or the District of Columbia, but not including any government-owned aircraft engaged in carrying persons or property for commercial purposes.

SUPPS— Refers to ICAO Document 7030 Regional Supplementary Procedures. SUPPS contain procedures for each ICAO Region which are unique to that Region and are not covered in the world-wide provisions identified in the ICAO Air Navigation Plan. Procedures contained in 7110.83 are based in part on those published in SUPPS.

SURPIC (Surface Picture)— A description of surface vessels in the area of a Search and Rescue incident including their predicted positions and their characteristics. (See paragraph 7-31, Emergency Assistance.)

TRANSITIONAL AIRSPACE— That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.

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