AC NO: AC 90-76
DATE: April 15, 1977

ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SUBJECT: FLIGHT OPERATIONS IN OCEANIC AIRSPACE TAD-494.4

1. PURPOSE. This circular briefly describes the basic requirements, limitations and considerations applicable to flight proposed into oceanic airspace under U.S. ATC jurisdiction to satisfy the information need of pilots as well as potential briefers.

2. GENERAL. The pilot should be aware that:

   a. The United States provides air traffic service for aircraft operating in oceanic airspace as follows:

      (1) In the Atlantic Ocean east and southeast of the continental United States in the New York, Miami and San Juan Flight Information Regions (FIRs).

      (2) In the Gulf of Mexico south of the United States in the Miami and Houston FIRs.

      (3) In the Caribbean Sea north of Panama and in the Pacific Ocean south and west of Panama in the Panama FIR.

      (4) In the Pacific Ocean west and northwest of the continental U.S. in the Oakland, Anchorage, and Honolulu FIRs.

   b. FAR 91.1 reads, in part, as follows:

      "(b) Each person operating a civil aircraft of U.S. registry outside of the United States shall:

         (1) When over the high seas, comply with Annex 2 (Rules of the Air) . . . (ICAO) . . . ."

3. IFR/VFR OPERATIONS. Flights in oceanic airspace must be conducted in accordance with Instrument Flight Rules (IFR) procedures when operating:

   a. between sunset and sunrise,

   b. within the New York, Oakland, Anchorage and Honolulu Oceanic FIRs at or above Flight Level 60, or

   c. at or above Flight Level 200 in other U.S. FIRs.

4. FLIGHT PLANNING. A flight plan for flights into oceanic airspace shall be submitted at least 30 minutes before planned departure. The route definition of such flight plans should include:

   a. coordinates for all turning points, and

   b. coordinates, or name-codes where applicable, of points associated with transition from oceanic control to airways/areas where national (domestic) procedures apply.

   c. if other than along designated ATS routes, the routes shall be described:

      (1) if path is east-west, with fixes defined by the intersection of half or whole degrees of latitude with meridians spaced at 10 degrees, or

      (2) if path is north-south, with fixes defined by the intersection of whole degrees of longitude with parallels spaced at 5 degree intervals.

5. NAVIGATION/COMMUNICATION EQUIPMENT. ICAO Annex 2 provides that aircraft operating over the high seas shall be equipped with:

   a. suitable instruments and navigation equipment appropriate to the route being flown, and

   b. functioning two-way radio to maintain a continuous watch with the unit providing ATS services or the associated air/ground radio station.

      Note: This mandates the addition of HF radio capable of operation on frequencies appropriate to the area of operation, time of day and distance from the concerned ground station(s) if the planned route and altitude result in operating beyond VHF range of published VHF ground station facilities.

6. POSITION REPORTING. Position reports shall be made over all designated reporting points when following a designated oceanic route. Otherwise, positions shall be reported over each 5 or 10 degrees meridian of longitude or parallel of latitude depending on the predominant direction of flight. Increments of 10 degrees should be used if the speed of the aircraft is such that 10 degrees will be traversed within 1 hour and 20 minutes or less. Position reports should be transmitted at the time of crossing the reporting point and should use the following format:

Aircraft Position
Time Over Position in Four Digits (GMT)
Flight Level
Next Fix and Estimate over Next Fix in Four Digits (GMT)
Name of Subsequent Fix

7. AIR TRAFFIC CONTROL SERVICE. Air Traffic Control Service is provided to all IFR flights in oceanic controlled airspace by Area Control Centers (ACC). ACCs issue clearances providing separation in the familiar forms of vertical and horizontal (lateral and longitudinal). The criteria for these generally exceed those used over land. Two additional separation variations unique to oceanic airspace are Composite (a combination of vertical and lateral separation) and the so-called MACH Number Technique. The former is used only along certain tracks while the latter involves only turbojets on same or diverging tracks cleared to maintain specified MACH numbers during the en route cruise portion of flight.

Note: Where land-based short-range navigational aid coverage, radar surveillance and appropriate pilot/controller communication services are available, national "domestic" separation standards are used.

8. TRANSPONDER OPERATION. IFR aircraft should operate their transponders throughout oceanic airspace in the North Atlantic Region on the appropriate Mode A Code--2000 when eastbound and 3000 when westbound--until otherwise directed by ATC. (No other FIR requirements are currently identified in the applicable ICAO Document 7030.)

9. WARNING AREAS. Warning Areas may be established which contain operations hazardous to nonparticipating aircraft. Some of these may be "Joint Use" through which IFR clearances will be issued by ATC whenever hazardous operations are not taking place. Charts should be carefully reviewed for those areas while flight planning, taking note of the area operating times and restrictions.

10. REFERENCE DOCUMENTATION. The following is a compilation of the principal source documents governing flight operations in oceanic airspace. Readers should be aware that it is not all-inclusive. The source information is organized here in two groups - the first of which is a listing of the applicable documents, while the second correlates specific chapters and paragraphs with specific subject matter.

a. Document Listing:

(1) ICAO DOCUMENTATION

Rules of the Air. . . . . Annex 2 to the ICAO Convention
Air Traffic Services. . . . . Annex 11 to the ICAO Convention
Search and Rescue . . . . . Annex 12 to the ICAO Convention
Telecommunications. . . . . Annex 10 to the ICAO Convention
Procedures for Air Navigation
Services - Rule of the Air
and Air Traffic Service . . . . Document 4444/501
Regional Supplementary Procedures.Document 7030
Aircraft Operations . . . . . Document 8168-OPS

(2) ICAO Documentation may be obtained by writing to:

International Civil Aviation Organization
(Attn: Distribution Officer)
P.O. Box 399
Succursale: Place de L'Aviation Internationale
1000 Sherbrooke Street, West
Montreal, Quebec, Canada H3A 2R1

(3) U.S. DOCUMENTATION

United States Airman's Information Manual (AIM)
United States International Flight Information Manual (IFIM)
Pacific Chart Supplement and En Route Charts
Alaska Supplement and En Route Charts
Caribbean and South American Supplement and En Route Charts

(4) U.S. AIM and IFIM are obtainable through:

Superintendent of Documents
Government Printing Office
Washington, D. C. 20402

(5) Supplements and En Route Charts are available from:

National Ocean Survey (NOS)
Distribution Division
C44
Riverdale, Maryland 20840

(6) International NOTAMs

Supplementing these basic documents and providing information on the current status of international navigational facilities (radio, radar, airports) is the International NOTAM publication and service.

U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: FLIGHT OPERATIONS IN OCEANIC AIRSPACE

Date: 9/18/84
Initiated by: AAT-331

AC No: AC 90-76A
Change:

1. PURPOSE. This circular outlines the basic procedures applicable to flight proposed into oceanic airspace under United States air traffic control (ATC) jurisdiction.

2. CANCELLATION. Advisory Circular 90-76, dated April 15, 1977, is canceled.

3. GENERAL. The pilot should be aware that:

a. The United States provides air traffic service in oceanic airspace as follows:

(1) In the Atlantic Ocean east and southeast of the continental United States in the New York, Miami, and San Juan Flight Information Regions (FIR).

(2) In the Gulf of Mexico south of the United States in the Miami and Houston FIR's.

(3) In the Pacific Ocean west and northwest of the continental U.S. in the Oakland, and Anchorage FIR's.

b. Section 91.1 of the Federal Aviation Regulations (FAR) provides that each person operating a civil aircraft of U.S. registry outside of the United States shall, when over the high seas, comply with International Civil Aviation Organization (ICAO) Annex 2 (Rules of the Air).

c. Section 91.20 of the FAR's states, in part, that "no person may operate a civil aircraft of U.S. registry in North Atlantic (NAT) airspace designated as minimum navigation performance secifications (MNPS) airspace unless that aircraft has approved navigation performance capability . . . ."

d. Navigational performance is monitored by the U.S. for all aircraft entering and/or departing international airspace under U.S. jurisdiction.

4. PROCEDURES.

a. All flights in oceanic airspace must be conducted in accordance with Instrument Flight Rules (IFR) procedures when operating:

(1) between sunset and sunrise,

(2) within the New York, Oakland, and Anchorage Oceanic FIRs at or above Flight Level 60, or

(3) at or above Flight Level 180 in the Miami, Houston, and San Juan Oceanic FIR's.

b. FLIGHT PLANNING. A flight plan is required for all flights which cross international borders and must be submitted at least 30 minutes before planned departure. The filed route should be described as follows:

(1) coordinates for all turning points.

(2) coordinates, or name-codes where applicable, of points associated with transition from oceanic control to airways/areas where national (domestic) procedures apply.

(3) if other than along a designated Air Traffic Service (ATS) route, the route shall be filed:

(a) for an east-west path, with fixes defined by the intersection of half or whole degrees of latitude with meridians spaced at 10 degrees.

(b) for an north-south path, with fixes defined by the intersection of whole degrees of longitude with parallels spaced at 5 degree intervals.

(4) along prescribed coded routes or oceanic tracts.

c. NAVIGATION/COMMUNICATION EQUIPMENT. Aircraft operating over the high seas must be equipped with:

(1) instruments and navigation equipment appropriate to the route being flown.

(2) functioning two-way radio to maintain a continuous watch with the unit providing ATS services or the associated air/ground radio station.

Note: If the planned route and altitude result in operating beyond VHF range of published VHF ground station facilities, then HF radio equipment is required which is capable of operation on frequencies appropriate to the area of operation, time of day and distance from the concerned ground station(s).

d. POSITION REPORTING. When following a designated oceanic route, position reports must be made over all designated reporting points. Otherwise, positions must be reported over each 5 or 10 degrees meridian of longitude or parallel of latitude depending on the predominant direction of flight. Increments of 10 degrees should be used if the speed of the aircraft is such that 10 degrees will be traversed within 1 hour and 20 minutes or less. Position reports should be transmitted at the time of crossing the reporting point using the following format:

Aircraft Position
Time Over Position in Four Digits (GMT)
Flight Level
Next Fix and Estimate over Next Fix in Four Digits (GMT)
Name of Subsequent Fix

5. AIR TRAFFIC CONTROL SERVICE. Air traffic control separation service is provided to all flights in oceanic controlled airspace by air route traffic control centers (ARTCC). ARTCC's issue clearances and instructions providing separation vertically and horizontally (laterally and longitudinally). The horizontal distances between aircraft being separated generally exceed those applied over land.

Note: Where land-based short-range navigational aid coverage, radar surveillance and appropriate pilot/controller communication services are available, the more efficient "domestic" separation standards are used.

Three additional separation variations unique to oceanic air traffic control are:

a. Composite. (A combination of vertical and lateral separation.) Composite is used only along certain route systems.

b. MACH Number Technique. Involves only turbojet aircraft on the same or diverging tracks cleared to maintain specified MACH numbers during the en route cruise portion of flight. The MACH number is to be maintained during climbs and descents.

c. Minimum Navigation Performance Specifications (MNPS) Airspace. Specially designated airspace in the North Atlantic which requires that all aircraft be equipped and certified for flight within MNPS airspace. Within the designated area lateral and longitudinal separation is significantly reduced.

6. TRANSPONDER OPERATION. Aircraft should operate their transponders throughout oceanic airspace in the North Atlantic Region on Mode A Code--2000--until otherwise directed by ATC. (No other requirements are currently identified in the applicable ICAO Document 7030.)

7. WARNING AREAS. Warning Areas are established to contain operations hazardous to nonparticipating aircraft. Some of these areas may be "Joint Use" through which IFR clearances will be issued by ATC whenever hazardous operations are not taking place. Charts should be carefully reviewed for those areas while flight planning, taking note of the area operating times and restrictions.

8. REFERENCE DOCUMENTATION. The following is a compilation of the principal source documents governing flight operations in international airspace. Readers should be aware that it is not all-inclusive. The source information is organized here in two groups - the first of which is a listing of the applicable documents, while the second correlates specific chapters and paragraphs with specific subject matter.

a. Document Listing:

(1) ICAO DOCUMENTATION

Rules of the Air.	Annex 2 to the ICAO Convention
Operation of Aircraft	Annex 6 to the ICAO Convention
Air Traffic Services.	Annex 11 to the ICAO Convention
Search and Rescue	Annex 12 to the ICAO Convention
Telecommunications.	Annex 10 to the ICAO Convention
Procedures for Air Navigation Services - Rule of the Air and Air Traffic Service	Document 4444/501
Regional Supplementary Procedures.	Document 7030
Aircraft Operations	Document 8168-OPS

(2) ICAO Documentation may be obtained by writing to:

International Civil Aviation Organization
(Attn: Distribution Officer)
P.O. Box 399
Succursale: Place de L'Aviation Internationale
1000 Sherbrooke Street, West
Montreal, Quebec, Canada H3A 2R1

(3) U.S. DOCUMENTATION

United States Airman's Information Manual (AIM)
United States International Flight Information Manual (IFIM)
Pacific Chart Supplement and En Route Charts
Alaska Supplement and En Route Charts
Caribbean and South American Supplement and En Route Charts

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Government Printing Office
Washington, D.C. 20402

(5) Supplements and En Route Charts are available from:

National Ocean Survey (NOS)
Distribution Division
C44
Riverdale, Maryland 20840

(6) International NOTAM's

Supplementing these basic documents and providing information on the current status of international navigational facilities (radio, radar, airports) is the International NOTAM publication and service.

Also included is associated aeronautical data generally classified as "Special Notices," e.g., entry requirements, navigational warnings, airway changes and a variety of other items not specifically identifiable with a navigational facility but of importance to navigation.

b. Specific Section/Chapters: Since the listed documentation is quite voluminous, the subject areas of interest have been correlated with specific references, as follows:

(1) General

General	Annex 2, Chapter 2
General Rules	Annex 2, Chapter 3
Air Traffic Services	Annex 11
General Provisions	Doc. 4444, Part II
Flight Information and Alerting Service	Doc. 4444, Part VI

(2) IFR/VFR Flight Operations:

Visual Flight Rules	Annex 2, Chapter 4
Instrument Flight Rules	Annex 2, Chapter 5
Flight Rules	Doc. 7030, Regional SUPPS.

(3) Flight Planning:

Flight Plans	Annex 2, Section 3.3.1
Flight Plans and Clearance	Doc. 7030, Regional SUPPS.
Model Flight Plan Form	Doc. 4444, Appendix 2

(4) Navigational Requirements:

Adherence to Flight Plan	Annex 2, Section 3.6.2
Aircraft Equipment	Annex 2, Section 5.1.1
Navigation Equipment	Annex 6, Section 2.2
Adherence to ATC Approved Routes	Doc. 7030, Regional SUPPS.

(5) Communications Requirements:

Communications.	Annex 2, Section 3.6.5
Communications Equipment.	Annex 6, Section 2.1
Telecommunications.	Annex 10, Volume II, Chapter 5
Air Traffic Services Requirements for Communications. . . .	Annex 11, Chapter 6
Air-Ground Communications and In-Flight Reporting	Doc. 7030, Regional SUPPS.

(6) Air Traffic Control Service:

Air Traffic Control Service . . .	Annex 2, Section 3.6
Air Traffic Control Service . . .	Annex 11, Chapter 3
Separation of Aircraft.	Doc. 7030, Regional SUPPS.
Flight Plans and Clearances . . .	Doc. 7030, Regional SUPPS.
Area Control Service.	Doc. 4444, Part III

Transponder Operation:

Operation of Transponder.	Doc. 7030, Regional SUPPS.

9. FURTHER INFORMATION. For more detailed information and assistance in planning a specific flight, contact the nearest flight service station, General Aviation District Office, or Flight Standards District Office.

R. J. VAN VUREN
Associate Administrator for Air Traffic

Also included is associated aeronautical data generally classified as "Special Notices," e.g., entry requirements, navigational warnings, airway changes and a variety of other items not specifically identifiable with a navigational facility but of importance to navigation.

The International NOTAM publication is obtainable at the Superintendent of Documents' address listed above.

b. Specific Section/Chapters: Since the listed documentation is quite voluminous, the subject areas of interest have been correlated with specific references, as follows:

(1) General

General	Annex 2, Chapter 2
General Rules	Annex 2, Chapter 3
Air Traffic Services	Annex 11
General Provisions	Doc. 4444, Part II
Flight Information and Alerting Service	Doc. 4444, Part VI

(2) IFR/VFR Flight Operations:

Visual Flight Rules	Annex 2, Chapter 4
Instrument Flight Rules	Annex 2, Chapter 5
Flight Rules	Doc. 7030, Section 2

(3) Flight Planning:

Flight Plans	Annex 2, Section 3.3.1
Flight Plans and Clearance	Doc. 7030, Section 3
Model Flight Plan Form	Doc. 4444, Appendix 2

(4) Navigational Requirements:

Adherence to Flight Plan	Annex 2, Section 3.5.2
Aircraft Equipment	Annex 2, Section 5.1.1
Adherence to ATC Approved Routes	Doc. 7030, Section 3.3

(5) Communications Requirements:

Communications	Annex 2, Section 3.5.5
Telecommunications	Annex 10, Volume II, Chapter 5
Air Traffic Services Requirements for Communications	Annex 11, Chapter 6
Air-Ground Communications and In-Flight Reporting	Doc. 7030, Section 4

(6) Air Traffic Control Service:

Air Traffic Control Service.	Annex 2, Section 3.5
Air Traffic Control Service.	Annex 11, Chapter 3
Separation of Aircraft	Doc. 7030, Section 1
Flight Plans and Clearances.	Doc. 7030, Section 3
Area Control Service	Doc. 4444, Part III

Transponder Operation:

Operation of Transponder	Doc. 7030, Section 12.1.1

11. FURTHER INFORMATION. For more detailed information and assistance in planning a specific flight, contact the Flight Service Station associated with the concerned U.S. ACC (New York, Miami, San Juan, Houston, New Orleans, Balboa, Oakland, Seattle, Los Angeles, Anchorage, Honolulu or Guam). If not practicable, contact the nearest Flight Service Station or General Aviation District Office.

Raymond G. Belanger

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