

Chapter 9. Aeronautical Charts and Related Publications

Section 1. Types of Charts Available

9–1–1. General

Civil aeronautical charts for the U.S. and its territories, and possessions are produced by Aeronautical Navigation Products (AeroNav), http://www.faa.gov/air_traffic/flight_info/aeronav which is part of FAA's Air Traffic Organization, Mission Support Services.

9–1–2. Obtaining Aeronautical Charts

a. Most charts and publications described in this Chapter can be obtained by subscription or one-time sales from:

Aeronautical Navigation Products (AeroNav)
 Logistics Group, AJV-372
 Federal Aviation Administration
 10201 Good Luck Road
 Glenn Dale, MD 20769-9700
 Telephone: 1-800-638-8972 (Toll free within U.S.)
 301-436-8301
 301-436-6829 (FAX)
 e-mail: 9-AMC-Chartsales@faa.gov

b. Public sales of charts and publications are also available through a network of FAA chart agents primarily located at or near major civil airports. A listing of products, dates of latest editions and agents is available at the AeroNav Web site: http://www.faa.gov/air_traffic/flight_info/aeronav.

9–1–3. Selected Charts and Products Available

VFR Navigation Charts
 IFR Navigation Charts
 Planning Charts
 Supplementary Charts and Publications
 Digital Products

9–1–4. General Description of each Chart Series

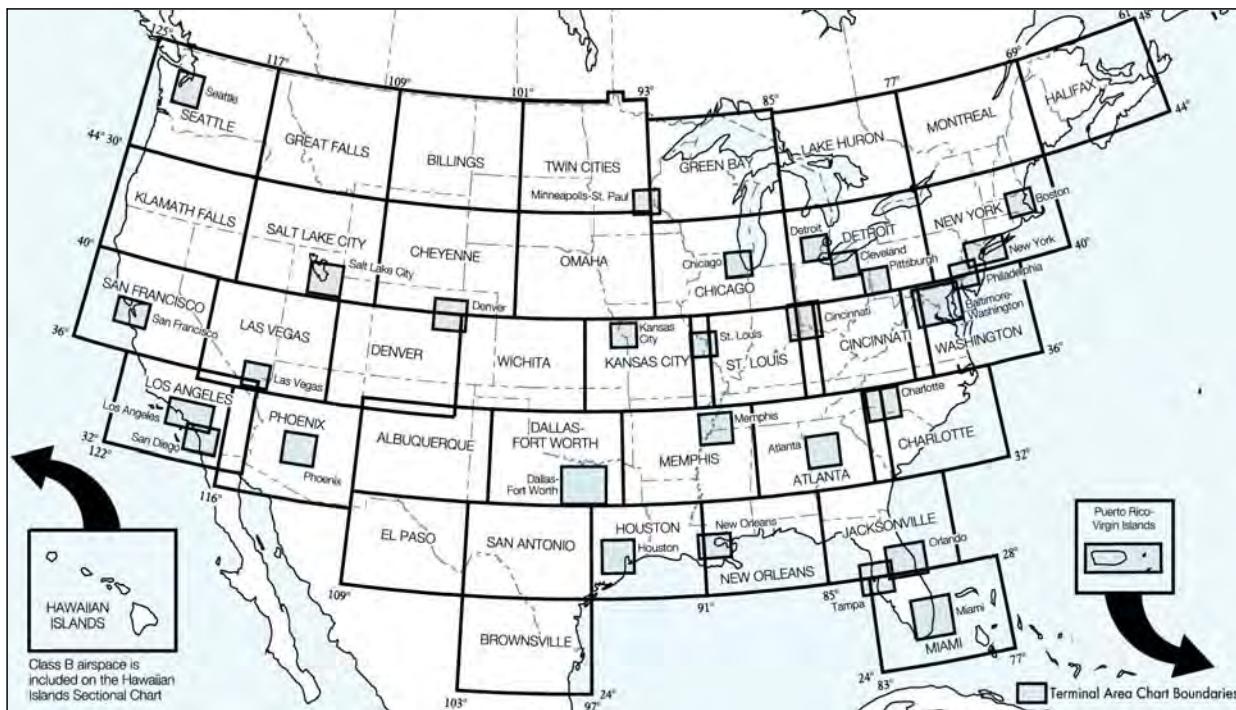
a. VFR Navigation Charts.

1. Sectional Aeronautical Charts. Sectional Charts are designed for visual navigation of slow to medium speed aircraft. The topographic information consists of contour lines, shaded relief, drainage patterns, and an extensive selection of visual checkpoints and landmarks used for flight under VFR. Cultural features include cities and towns, roads, railroads, and other distinct landmarks. The aeronautical information includes visual and radio aids to navigation, airports, controlled airspace, special-use airspace, obstructions, and related data. Scale 1 inch = 6.86nm/1:500,000. 60 x 20 inches folded to 5 x 10 inches. Revised semiannually, except most Alaskan charts are revised annually.
 (See FIG 9–1–1 and FIG 9–1–11.)

2. VFR Terminal Area Charts (TAC). TACs depict the airspace designated as Class B airspace. While similar to sectional charts, TACs have more detail because the scale is larger. The TAC should be used by pilots intending to operate to or from airfields within or near Class B or Class C airspace. Areas with TAC coverage are indicated by a • on the Sectional Chart indexes. Scale 1 inch = 3.43nm/1:250,000. Charts are revised semiannually, except Puerto Rico–Virgin Islands revised annually.
 (See FIG 9–1–1 and FIG 9–1–11.)

3. World Aeronautical Chart (WAC). WACs cover land areas for navigation by moderate speed aircraft operating at high altitudes. Included are city tints, principal roads, railroads, distinctive landmarks, drainage patterns, and relief. Aeronautical information includes visual and radio aids to navigation, airports, airways, special-use airspace, and obstructions. Because of a smaller scale, WACs do not show as much detail as sectional or TACs, and; therefore, are not recommended for exclusive use by pilots of low speed, low altitude aircraft. Scale 1 inch = 13.7nm/1:1,000,000. 60 x 20 inches folded to 5 x 10 inches. WACs are revised annually, except for a few in Alaska and the Caribbean, which are revised biennially.
 (See FIG 9–1–12 and FIG 9–1–13.)

FIG 9-1-1
**Sectional and VFR Terminal Area Charts for the Conterminous U.S.,
Hawaii, Puerto Rico, and Virgin Islands**



4. U.S. Gulf Coast VFR Aeronautical Chart.
The Gulf Coast Chart is designed primarily for helicopter operation in the Gulf of Mexico area. Information depicted includes offshore mineral leasing areas and blocks, oil drilling platforms, and high density helicopter activity areas. Scale 1 inch = 13.7nm/1:1,000,000. 55 x 27 inches folded to 5 x 10 inches. Revised annually.

5. Grand Canyon VFR Aeronautical Chart.
Covers the Grand Canyon National Park area and is designed to promote aviation safety, flight free zones, and facilitate VFR navigation in this popular area. The chart contains aeronautical information for general aviation VFR pilots on one side and commercial VFR air tour operators on the other side.

6. Helicopter Route Charts. A three-color chart series which shows current aeronautical information useful to helicopter pilots navigating in areas with high concentrations of helicopter activity. Information depicted includes helicopter routes, four classes of heliports with associated frequency and lighting capabilities, NAVAIDs, and obstructions. In addition, pictorial symbols, roads, and easily identified geographical features are portrayed. Helicopter charts have a longer life span than other

chart products and may be current for several years. All new editions of these charts are printed on a durable plastic material. Helicopter Route Charts are updated as requested by the FAA. Scale 1 inch = 1.71nm/1:125,000. 34 x 30 inches folded to 5 x 10 inches.

b. IFR Navigation Charts.

1. IFR Enroute Low Altitude Charts (Conterminous U.S. and Alaska). Enroute low altitude charts provide aeronautical information for navigation under IFR conditions below 18,000 feet MSL. This four-color chart series includes airways; limits of controlled airspace; VHF NAVAIDs with frequency, identification, channel, geographic coordinates; airports with terminal air/ground communications; minimum en route and obstruction clearance altitudes; airway distances; reporting points; special use airspace; and military training routes. Scales vary from 1 inch = 5nm to 1 inch = 20nm. 50 x 20 inches folded to 5 x 10 inches. Charts revised every 56 days. *Area charts* show congested terminal areas at a large scale. They are included with subscriptions to any conterminous U.S. Set Low (Full set, East or West sets). (See FIG 9-1-2 and FIG 9-1-4.)

FIG 9-1-2
Enroute Low Altitude Instrument Charts for the Conterminous U.S. (Includes Area Charts)

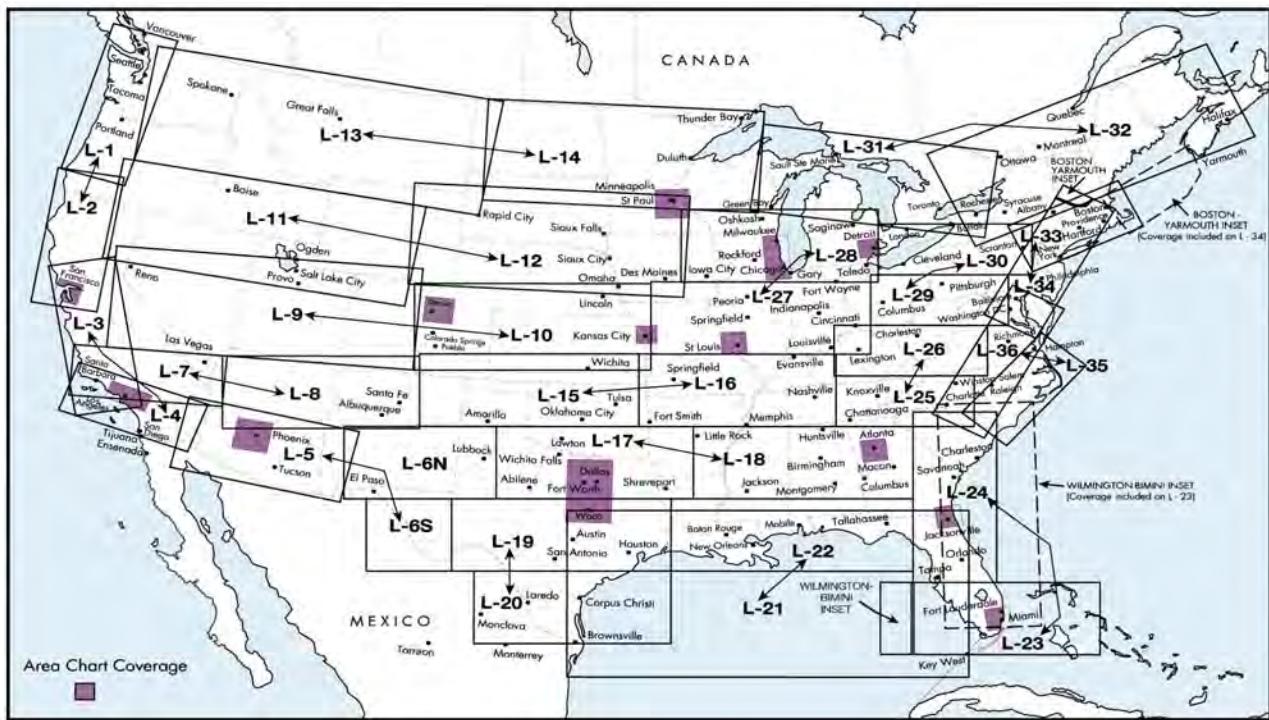
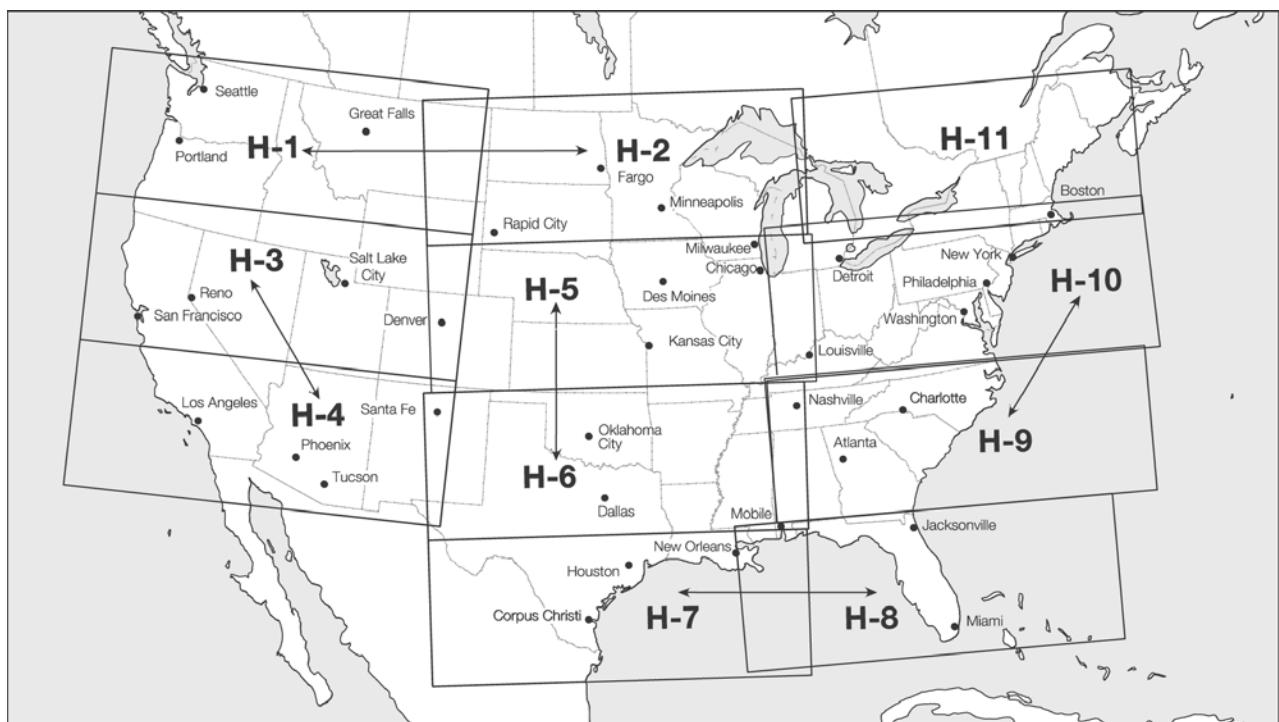


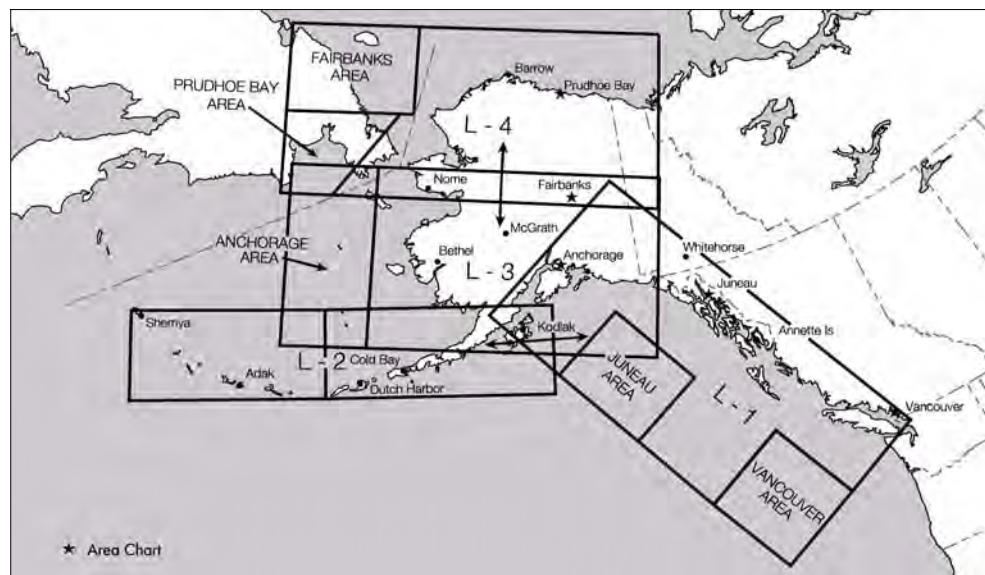
FIG 9-1-3
Enroute High Altitude Charts for the Conterminous U.S.



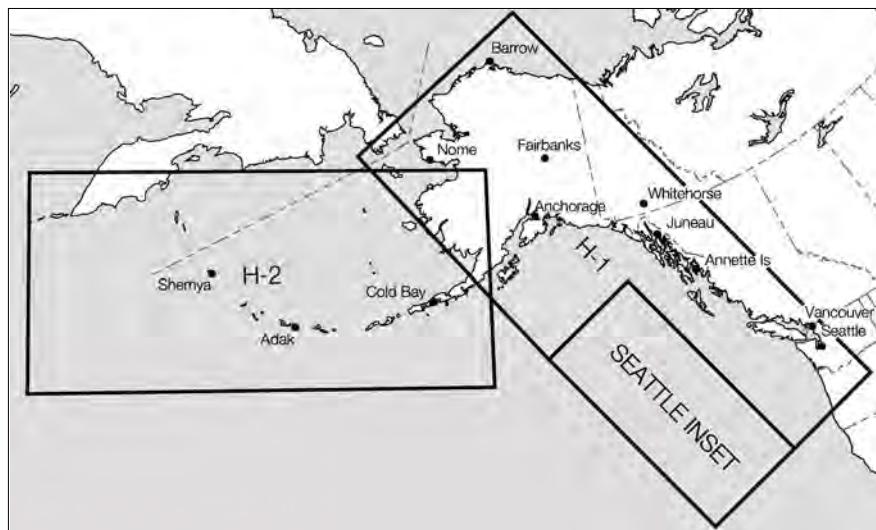
2. IFR Enroute High Altitude Charts (Conterminous U.S. and Alaska). Enroute high altitude charts are designed for navigation at or above 18,000 feet MSL. This four-color chart series includes the jet route structure; VHF NAVAIDs with

frequency, identification, channel, geographic coordinates; selected airports; reporting points. Scales vary from 1 inch = 45nm to 1 inch = 18nm. 55 x 20 inches folded to 5 x 10 inches. Revised every 56 days. (See FIG 9-1-3 and FIG 9-1-5.)

**FIG 9-1-4
Alaska Enroute Low Altitude Chart**



**FIG 9-1-5
Alaskan Enroute High Altitude Chart**



3. U.S. Terminal Procedures Publication (TPP). TPPs are published in 24 loose-leaf or perfect bound volumes covering the conterminous U.S., Puerto Rico and the Virgin Islands. A Change Notice is published at the midpoint between revisions in bound volume format and is available on the internet for free download at the AeroNav web site. (See FIG 9-1-9.) The TPPs include:

(a) Instrument Approach Procedure (IAP)

Charts. IAP charts portray the aeronautical data that is required to execute instrument approaches to airports. Each chart depicts the IAP, all related navigation data, communications information, and an airport sketch. Each procedure is designated for use with a specific electronic navigational aid, such as ILS, VOR, NDB, RNAV, etc.

(b) Instrument Departure Procedure (DP)

Charts. DP charts are designed to expedite clearance delivery and to facilitate transition between takeoff and en route operations. They furnish pilots' departure routing clearance information in graphic and textual form.

(c) Standard Terminal Arrival (STAR)

Charts. STAR charts are designed to expedite ATC arrival procedures and to facilitate transition between en route and instrument approach operations. They depict preplanned IFR ATC arrival procedures in graphic and textual form. Each STAR procedure is presented as a separate chart and may serve either a single airport or more than one airport in a given geographic area.

(d) Airport Diagrams. Full page airport

diagrams are designed to assist in the movement of ground traffic at locations with complex runway/taxiway configurations and provide information for updating geodetic position navigational systems aboard aircraft. Airport diagrams are available for free download at the AeroNav website.

4. Alaska Terminal Procedures Publication.

This publication contains all terminal flight procedures for civil and military aviation in Alaska. Included are IAP charts, DP charts, STAR charts, airport diagrams, radar minimums, and supplementary support data such as IFR alternate minimums, take-off minimums, rate of descent tables, rate of climb tables and inoperative components tables. Volume is 5-3/8 x 8-1/4 inch top bound. Publication

revised every 56 days with provisions for a Terminal Change Notice, as required.

c. Planning Charts.

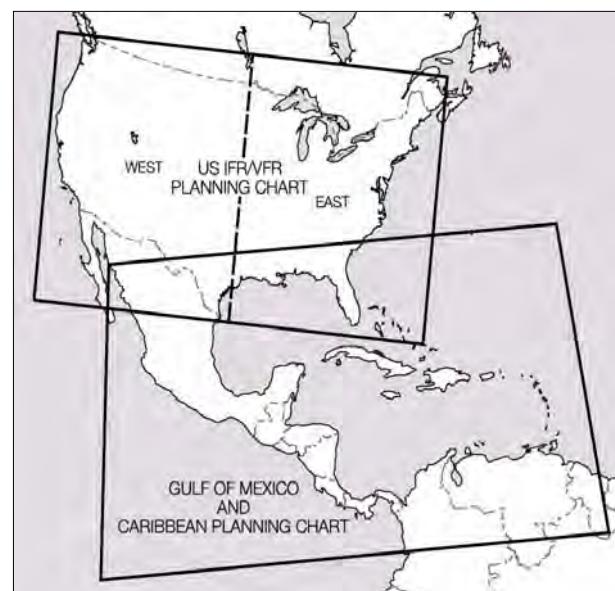
1. U.S. IFR/VFR Low Altitude Planning Chart.

This chart is designed for preflight and en route flight planning for IFR/VFR flights. Depiction includes low altitude airways and mileage, NAVAIDs, airports, special use airspace, cities, times zones, major drainage, a directory of airports with their airspace classification, and a mileage table showing great circle distances between major airports. Scale 1 inch = 47nm/1:3,400,000. Chart revised annually, and is available either folded or unfolded for wall mounting. (See FIG 9-1-6.)

2. Gulf of Mexico and Caribbean Planning

Chart. This is a VFR planning chart on the reverse side of the *Puerto Rico – Virgin Islands VFR Terminal Area Chart*. Information shown includes mileage between airports of entry, a selection of special use airspace and a directory of airports with their available services. Scale 1 inch = 85nm/1:6,192,178. 60 x 20 inches folded to 5 x 10 inches. Chart revised annually. (See FIG 9-1-6.)

FIG 9-1-6
Planning Charts



3. Charted VFR Flyway Planning Charts.

This chart is printed on the reverse side of selected TAC charts. The coverage is the same as the associated TAC. Flyway planning charts depict flight paths and altitudes recommended for use to bypass high traffic areas. Ground references are provided as

a guide for visual orientation. Flyway planning charts are designed for use in conjunction with TACs and sectional charts and are not to be used for navigation. Chart scale 1 inch = 3.43nm/1:250,000.

d. Supplementary Charts and Publications.

1. Airport/Facility Directory (A/FD). This 7-volume booklet series contains data on airports, seaplane bases, heliports, NAVAIDs, communications data, weather data sources, airspace, special notices, and operational procedures. Coverage includes the conterminous U.S., Puerto Rico, and the Virgin Islands. The A/FD shows data that cannot be readily depicted in graphic form; e.g., airport hours of operations, types of fuel available, runway widths, lighting codes, etc. The A/FD also provides a means for pilots to update visual charts between edition dates (A/FD is published every 56 days while sectional and Terminal Area Charts are generally revised every six months). The VFR Chart Update Bulletins are available for free download from the AeroNav web site. Volumes are side-bound 5-3/8 x 8-1/4 inches. (See FIG 9-1-10.)

2. Supplement Alaska. This is a civil/military flight information publication issued by FAA every 56 days. It is a single volume booklet designed for use with appropriate IFR or VFR charts. The Supplement Alaska contains an A/FD, airport sketches, communications data, weather data sources, airspace, listing of navigational facilities, and special notices and procedures. Volume is side-bound 5-3/8 x 8-1/4 inches.

3. Chart Supplement Pacific. This supplement is designed for use with appropriate VFR or IFR enroute charts. Included in this one-volume booklet are the A/FD, communications data, weather data sources, airspace, navigational facilities, special notices, and Pacific area procedures. IAP charts, DP charts, STAR charts, airport diagrams, radar minimums, and supporting data for the Hawaiian and

Pacific Islands are included. The manual is published every 56 days. Volume is side-bound 5-3/8 x 8-1/4 inches.

4. North Pacific Route Charts. These charts are designed for FAA controllers to monitor transoceanic flights. They show established intercontinental air routes, including reporting points with geographic positions. Composite Chart: Scale 1 inch = 164nm/1:12,000,000. 48 x 41-1/2 inches. Area Charts: Scale 1 inch = 95.9nm/1:7,000,000. 52 x 40-1/2 inches. All charts shipped unfolded. Charts revised every 56 days. (See FIG 9-1-8.)

5. North Atlantic Route Chart. Designed for FAA controllers to monitor transatlantic flights, this 5-color chart shows oceanic control areas, coastal navigation aids, oceanic reporting points, and NAVAID geographic coordinates. Full Size Chart: Scale 1 inch = 113.1nm/1:8,250,000. Chart is shipped flat only. Half Size Chart: Scale 1 inch = 150.8nm/1:11,000,000. Chart is 29-3/4 x 20-1/2 inches, shipped folded to 5 x 10 inches only. Chart revised every 56 weeks. (See FIG 9-1-7.)

FIG 9-1-7
North Atlantic Route Charts

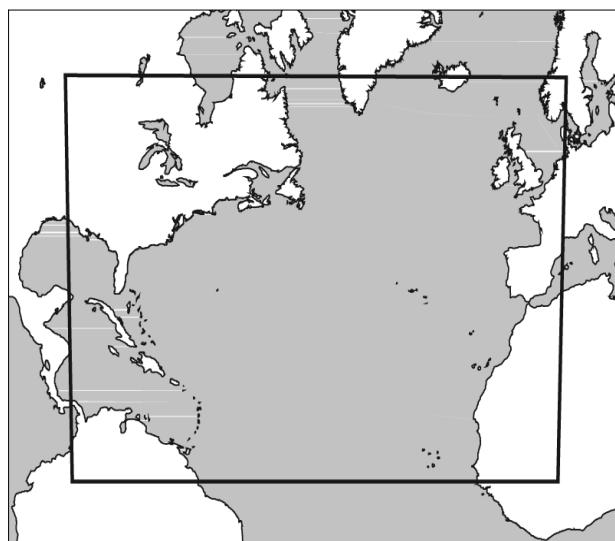
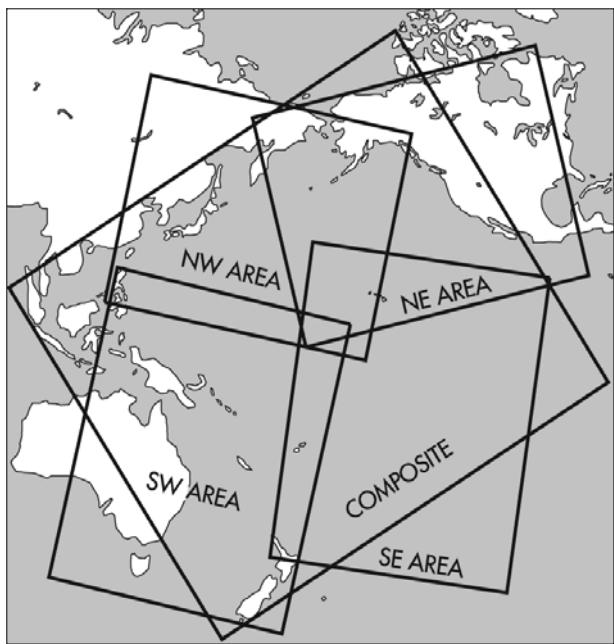


FIG 9-1-8
North Pacific Oceanic Route Charts



6. Airport Obstruction Charts (OC). The OC is a 1:12,000 scale graphic depicting 14 CFR Part 77, Objects Affecting Navigable Airspace, surfaces, a representation of objects that penetrate these surfaces, aircraft movement and apron areas, navigational aids, prominent airport buildings, and a selection of roads and other planimetric detail in the airport vicinity. Also included are tabulations of runway and other operational data.

7. FAA Aeronautical Chart User's Guide. A booklet designed to be used as a teaching aid and reference document. It describes the substantial amount of information provided on FAA's aeronautical charts and publications. It includes explanations and illustrations of chart terms and symbols organized by chart type. The users guide is available for free download at the AeroNav web site.

e. Digital Products.

1. The Digital Aeronautical Information CD (DAICD). The DAICD is a combination of the NAVAID Digital Data File, the Digital Chart Supplement, and the Digital Obstacle File on one Compact Disk. These three digital products are no

longer sold separately. The files are updated every 56 days and are available by subscription only.

(a) The NAVAID Digital Data File. This file contains a current listing of NAVAIDs that are compatible with the National Airspace System. This file contains all NAVAIDs including ILS and its components, in the U.S., Puerto Rico, and the Virgin Islands plus bordering facilities in Canada, Mexico, and the Atlantic and Pacific areas.

(b) The Digital Obstacle File. This file describes all obstacles of interest to aviation users in the U.S., with limited coverage of the Pacific, Caribbean, Canada, and Mexico. The obstacles are assigned unique numerical identifiers, accuracy codes, and listed in order of ascending latitude within each state or area.

(c) The Digital Aeronautical Chart Supplement (DACS). The DACS is specifically designed to provide digital airspace data not otherwise readily available. The supplement includes a *Change Notice* for IAPFIX.dat at the mid-point between revisions. The *Change Notice* is available only by free download from the AeroNav website.

The DACS individual data files are:

ENHIGH.DAT: High altitude airways (conterminous U.S.)

ENLOW.DAT: Low altitude airways (conterminous U.S.)

IAPFIX.DAT: Selected instrument approach procedure NAVAID and fix data.

MTRFIX.DAT: Military training routes data.

ALHIGH.DAT: Alaska high altitude airways data.

ALLOW.DAT: Alaska low altitude airways data.

PR.DAT: Puerto Rico airways data.

HAWAII.DAT: Hawaii airways data.

BAHAMA.DAT: Bahamas routes data.

OCEANIC.DAT: Oceanic routes data.

STARS.DAT: Standard terminal arrivals data.

DPDAT: Instrument departure procedures data.

LOPREF.DAT: Preferred low altitude IFR routes data.

HIPREF.DAT: Preferred high altitude IFR routes data.

ARF.DAT: Air route radar facilities data.

ASR.DAT: Airport surveillance radar facilities data.

2. The National Flight Database (NFD) (ARINC 424 [Ver 13 & 15]). The NFD is a basic digital dataset, modeled to an international standard, which can be used as a basis to support GPS navigation. Initial data elements included are: Airport and Helicopter Records, VHF and NDB Navigation aids, en route waypoints and airways. Additional data elements will be added in subsequent releases to include: departure procedures, standard terminal arrivals, and GPS/RNAV instrument approach procedures. The database is updated every 28 days. The data is available by subscription only and is distributed on CD-ROM or by ftp download.

3. Sectional Raster Aeronautical Charts (SRAC). These digital VFR charts are geo-referenced scanned images of FAA sectional charts. Additional digital data may easily be overlaid on the raster image using commonly available Geographic Information System software. Data such as weather, temporary flight restrictions, obstacles, or other geospatial data can be combined with SRAC data to support a variety of needs. Most SRACs are provided in two halves, a north side and a south side. The file resolution is 200 dots per inch and the data is 8-bit color. The data is provided as a GeoTIFF and distributed on DVD-R media. The root mean square error of the transformation will not exceed two pixels. SRACs DVDs are updated every 28 days and are available by subscription only.

FIG 9-1-9
U.S. Terminal Publication Volumes

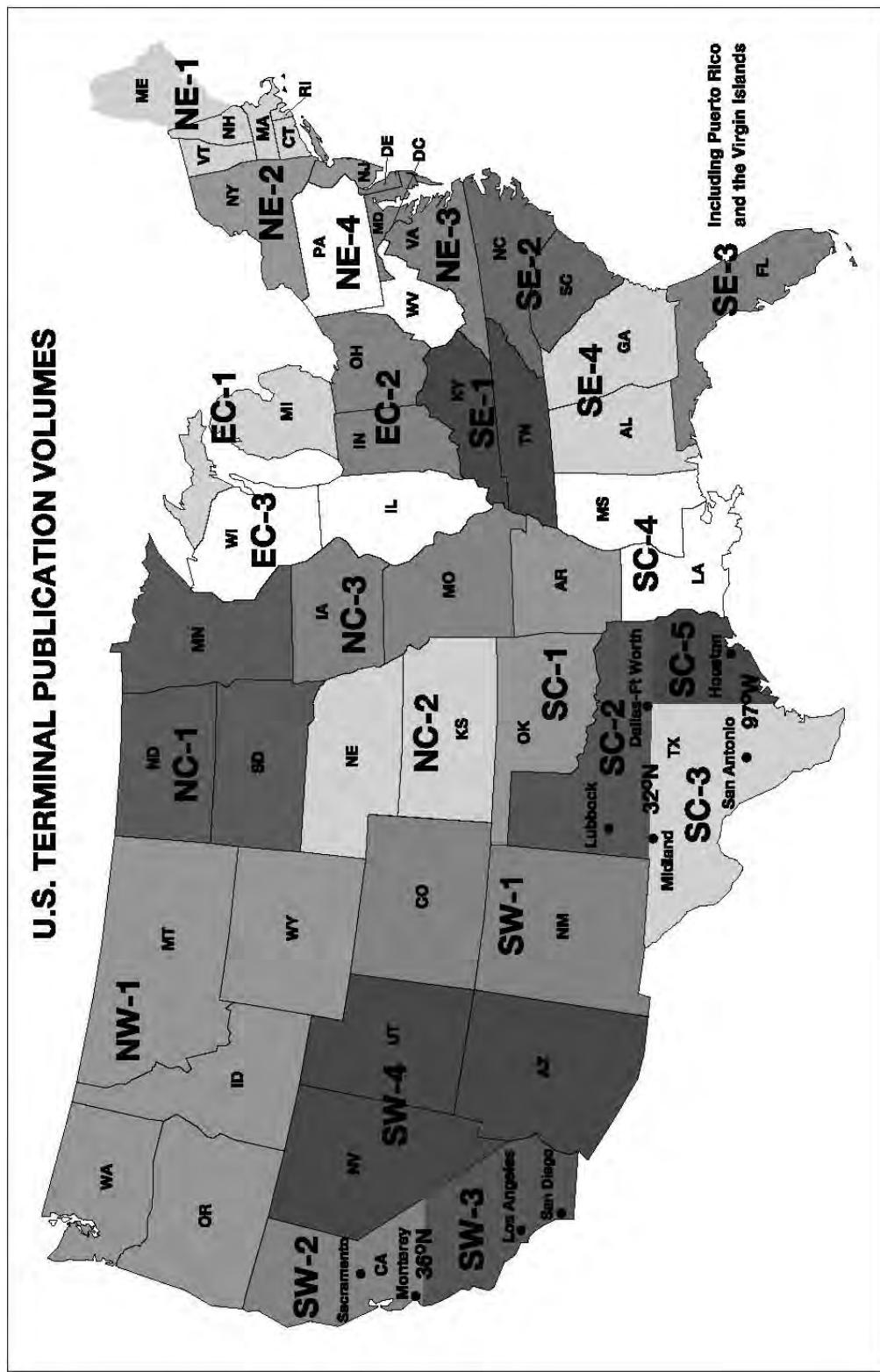


FIG 9-1-10
Airport/Facility Directory Geographic Areas

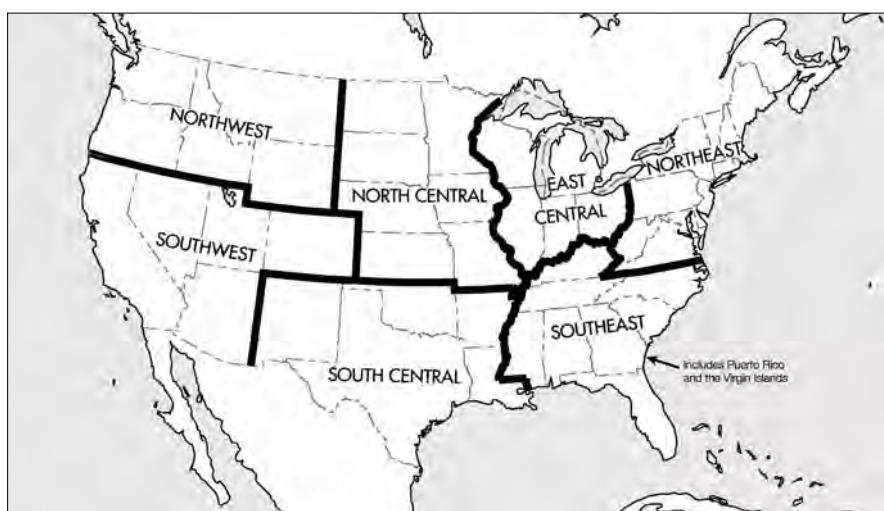


FIG 9-1-11
Sectional and VFR Terminal Area Charts for Alaska

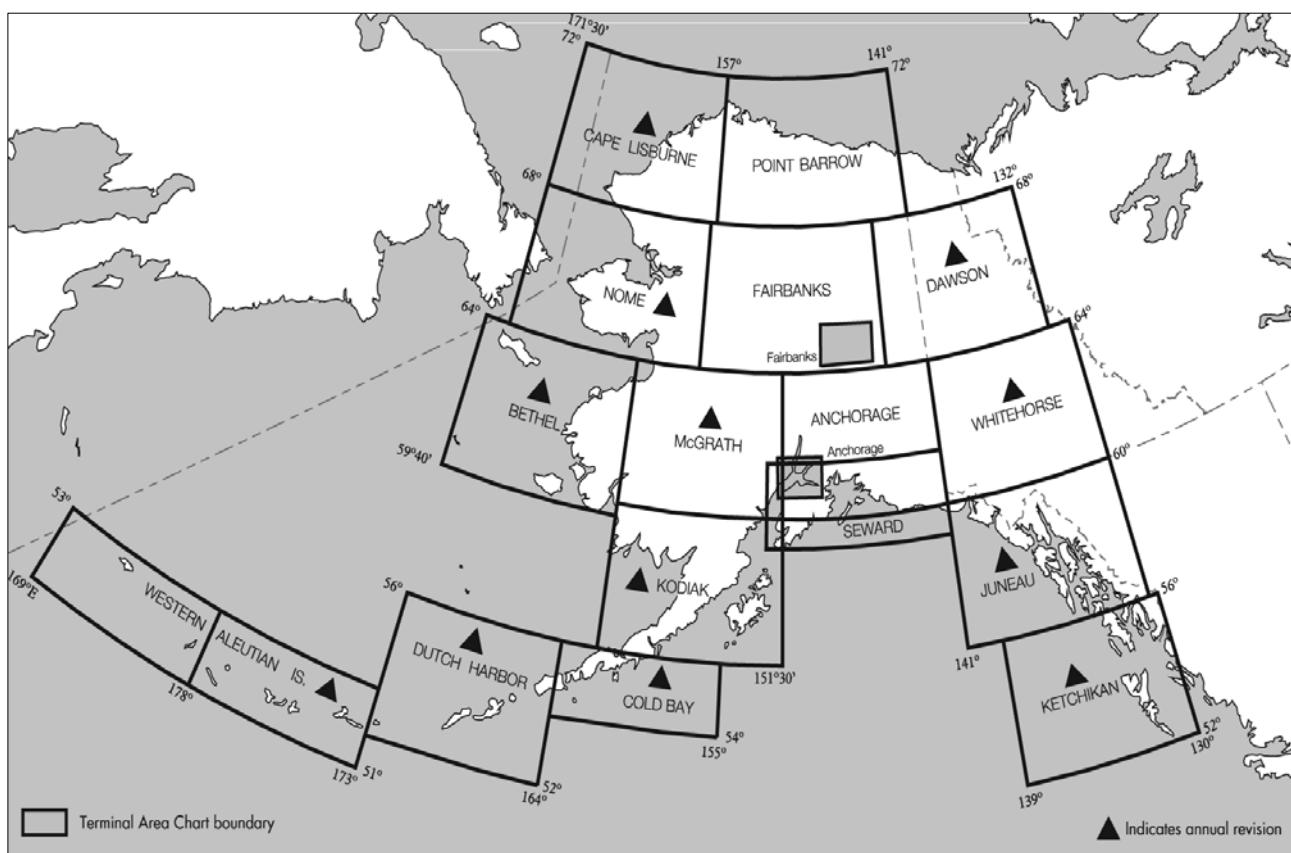


FIG 9-1-12
World Aeronautical Charts for Alaska

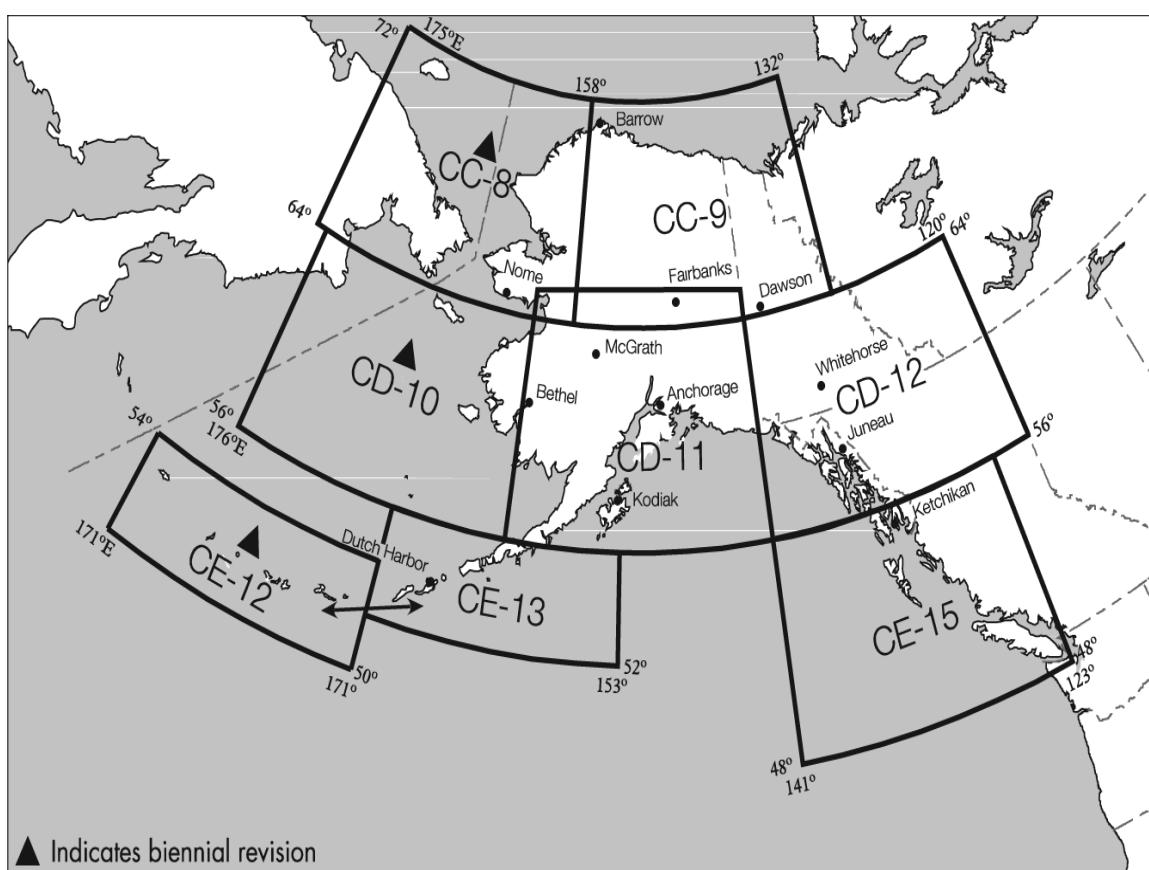
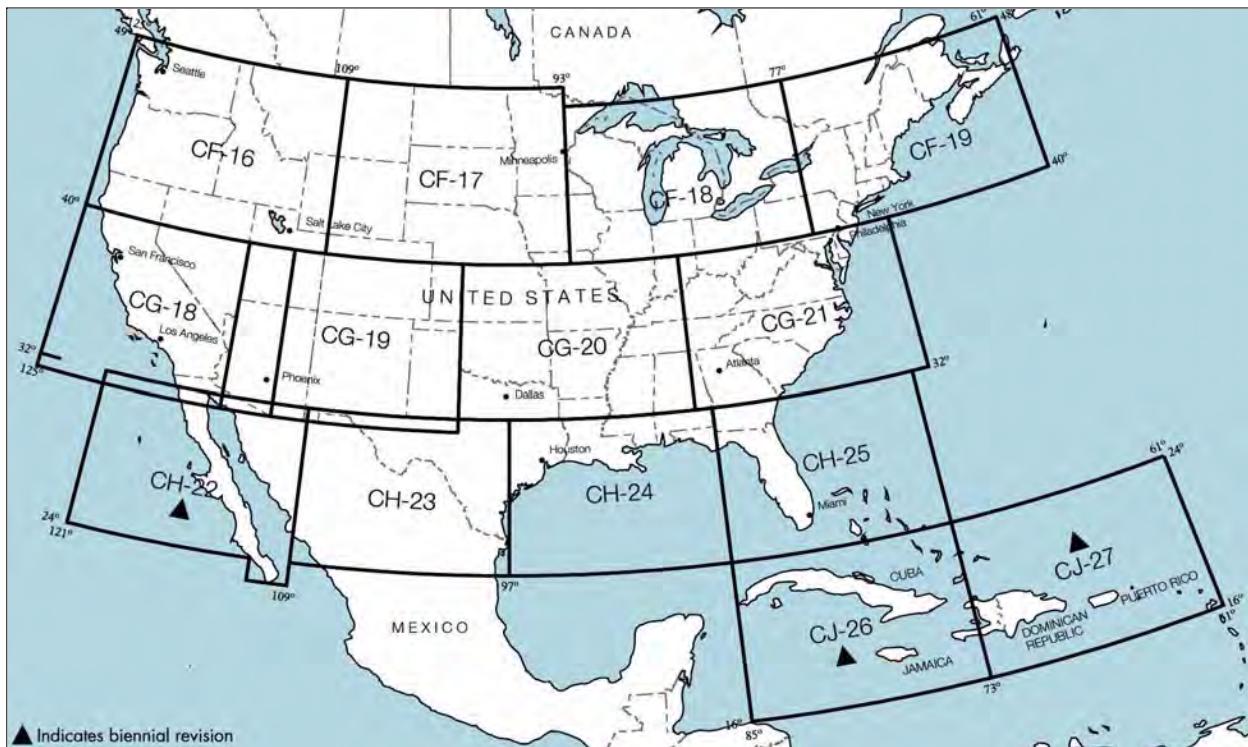


FIG 9-1-13
**World Aeronautical Charts for the Conterminous U.S.
Mexico, and the Caribbean Areas**



9-1-5. Where and How to Get Charts of Foreign Areas

a. **National Geospatial-Intelligence Agency (NGA) Products.** For the latest information regarding publication availability visit the NGA Web site: <https://www.nga.mil/ProductsServices/Aeronautical/Pages/default.aspx>

1. Flight Information Publication (FLIP) Planning Documents.

General Planning (GP)
Area Planning
Area Planning – Special Use Airspace –
Planning Charts

2. FLIP Enroute Charts and Chart Supplements.

Pacific, Australasia, and Antarctica
U.S. – IFR and VFR Supplements
Flight Information Handbook
Caribbean and South America – Low Altitude
Caribbean and South America – High Altitude
Europe, North Africa, and Middle East –
Low Altitude
Europe, North Africa, and Middle East –
High Altitude
Africa
Eastern Europe and Asia
Area Arrival Charts

3. FLIP Instrument Approach Procedures (IAPs).

Africa

Canada and North Atlantic

Caribbean and South America

Eastern Europe and Asia

Europe, North Africa, and Middle East

Pacific, Australasia, and Antarctica

VFR Arrival/Departure Routes – Europe and Korea

U.S.

4. Miscellaneous DOD Charts and Products.

Aeronautical Chart Updating Manual (CHUM)

DOD Weather Plotting Charts (WPC)

Tactical Pilotage Charts (TPC)

Operational Navigation Charts (ONC)

Global Navigation and Planning Charts (GNC)

Jet Navigation Charts (JNC) and Universal Jet Navigation Charts (JNU)

Jet Navigation Charts (JNCA)

Aerospace Planning Charts (ASC)

Oceanic Planning Charts (OPC)

Joint Operations Graphics – Air (JOG-A)

Standard Index Charts (SIC)

Universal Plotting Sheet (VP-OS)

Sight Reduction Tables for Air Navigation (PUB249)

Plotting Sheets (VP-30)

Dial-Up Electronic CHUM

b. Canadian Charts. Information on available Canadian charts and publications may be obtained from designated FAA chart agents or by contacting the:

NAV CANADA

Aeronautical Publications

Sales and Distribution Unit

P.O. Box 9840, Station T

Ottawa, Ontario K1G 6S8 Canada

Telephone: 613-744-6393 or 1-866-731-7827

Fax: 613-744-7120 or 1-866-740-9992

c. Mexican Charts. Information on available Mexican charts and publications may be obtained by contacting:

Direccion de Navigacion Aereo

Blvd. Puerto Aereo 485

Zona Federal Del Aeropuerto Int'l

15620 Mexico D.F.

Mexico

d. International Civil Aviation Organization (ICAO). A free *ICAO Publications and Audio-Visual Training Aids Catalogue* is available from:

International Civil Aviation Organization

ATTN: Document Sales Unit

999 University Street

Montreal, Quebec

H3C 5H7, Canada

Telephone: (514) 954-8022

Fax: (514) 954-6769

E-mail: sales_unit@icao.org

Internet: <http://www.icao.org/cgi/goto.pl?icao/en/sales.htm>

Sitex: YULCAYA

Telex: 05-24513