Federal Aviation Agency

ADVISORY CIRCULAR

AC NO: 211-2
AERONAUTICAL CHARTS
EFFECTIVE: 3/20/67

SUBJECT: RECOMMENDED STANDARDS FOR IFR AERONAUTICAL CHARTS

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1. PURPOSE. This circular sets forth standards recommended by the Federal Aviation Agency for the guidance of the public in the issuance of IFR aeronautical charts for use in the National Airspace System (NAS). Proposals for new recommendations or changes in the present ones should be submitted to the Director, Air Traffic Service, Attention: Flight Information Division (AT-400).

2. HOW TO OBTAIN COPIES. Additional copies of this circular may be obtained from U.S. Department of Transportation, Utilization and Storage Section, M-443.2, Washington, D.C. 20590

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RECOMMENDED STANDARDS FOR IFR AERONAUTICAL CHARTS

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1. DEFINITIONS. As used in this circular:

"Aeronautical chart" means a chart specifically designed to meet the requirements of air navigation.

"IFR chart" means an aeronautical chart designed to furnish the pilot information for navigation under instrument flight rules conditions (IFR).

"Enroute chart" means an aeronautical chart designed to facilitate enroute navigation in accordance with IFR using radio aids to navigation.

"Area chart" means an aeronautical chart published for any area on the Enroute Low Altitude chart which it is desired to present as a "blow up."

"Instrument approach procedure chart" means an aeronautical chart designed to provide a graphic presentation of standard instrument approach procedure (IAP).

"Standard instrument departure chart" means an aeronautical chart designed to provide a graphic presentation of standard instrument departure clearances and procedures.

"Standard instrument departure" (SID) means an air traffic control coded departure routing, established by FAA, and presented to the pilot in pictorial and narrative form or narrative form only.

"Scheduled FAA airspace amendment" means an airspace assignment or revision thereof, or the designation of compulsory reporting points that become effective on regularly scheduled intervals.

2. TITLE. Each aeronautical chart should bear an appropriate title and, if forming part of a series, may be further identified by a consecutive letter or number or a combination thereof.

3. LEGEND. Each aeronautical chart series should have a legend of the symbols used therein available for reference during flight operations.

4. INDEX. Each aeronautical chart in a contiguous series should have a graphic index or other identification of adjacent charts in the same series.

5. SYMBOLS. Each symbol used on a chart should conform with the ICAO symbol provided in Appendix 2 of Annex 4 to the Convention of International Civil Aviation for the feature intended to be shown. If Appendix 2 does not provide an ICAO symbol for a specific feature, any appropriate symbol may be used but care should be taken that it does not cause confusion with an existing aeronautical chart symbol or impair the legibility of the chart.

6. DIMENSIONAL UNITS.

a. Distances should be stated in nautical miles except for visibility minima that are stated in statute miles.

b. Each dimension on an airport, each altitude below 18,000 feet MSL, each elevation, each height, and each short distance should be expressed in feet or in feet and meters if the units are differentiated. Each altitude of 18,000 feet MSL and above should be expressed in feet or as flight levels, as they are published in the Federal Aviation Regulations.

c. The units of measurement used to express altitudes, elevations, and heights should be stated in the legend or conspicuously on the face of each aeronautical chart.

d. A conversion scale or footage equivalent should be stated on the face or reverse side of each aeronautical chart on which elevations or altitudes are shown in meters.

7. SCALE AND PROJECTION. The projection grid and natural scale (mid - latitude or standard parallels and scale factor) or a linear scale should be indicated on each en route chart; on an IAP chart scale indication may be given by other means.

8. EFFECTIVE DATE. The effective date of each aeronautical chart should be prominently indicated thereon, except for charts that are issued in a bound volume, the effective date need be prominently displayed only on the cover of the volume.

9. POLITICAL BOUNDARIES. Each international boundary with names identifying the countries should be depicted.

10. SPECIAL AREAS.

a. Each Restricted Area, Restricted Area/Military Climb Corridor, Prohibited Area, Caution Area, Warning Area, or Intensive Student Jet Training Area within the vertical limits of the airspace represented by the aeronautical chart should be depicted and identified.

(1) On IAP or SID charts these areas need be depicted and identified only if the areas are included on the FAA form describing the approved instrument approach procedure.

(2) On IAP charts, restricted or prohibited areas need to be depicted and identified only if any portion of these areas lies within the ten-nautical mile circle shown in the IAP or if such areas lie along any published transition routes.

b. The effective altitude, IFR/VFR restriction, time of designation, and the controlling or using agency should be depicted on each aeronautical chart other than AIP and SID charts.

11. OBSTRUCTIONS. Each aeronautical chart or each chart of a series, except for enroute and area charts, should depict each permanent or temporary man-made fixed object and each other terrain feature that has vertical significance as designated by the FAA in relation to adjacent and surrounding features.

12. MAGNETIC VARIATION. Magnetic variation should be indicated on all charts except IAP and SID charts.

13. TRUE GEOGRAPHICAL POSITION. Aeronautical information should be plotted to indicate its true geographical position except when deliberate distortion or displacement is a functional design feature of the chart. If necessary to displace symbols from their true geographical position for purposes of clarity, preference of location should be given to radio facilities upon which an airway or control function is predicated.

14. DESIGNATED AIRSPACE AND ALTITUDES. Each aeronautical chart, other than a SID or an IAP, should depict the applicable airspace information within prescribed vertical limits of the aeronautical chart series as contained in Parts 73 and 93 of the Federal Aviation Regulations, when that airspace information is indicated by the FAA for charting, and (unless otherwise indicated) contained in the following Federal Aviation Regulations.

a. Part 71 - Designation of Federal Airways, Controlled Airspace and Reporting Points

Subpart B - Colored Federal Airways
Subpart C - VOR Federal Airways
Subpart D - Continental Control Area
Subpart E - Control Areas and Control Area Extensions
Subpart F - Control Zones
Subpart G - Transition Areas
Subpart H - Positive Control Areas
Subpart I - Reporting Points

b. Part 75 - Establishment of Jet Routes

Subpart B - Jet Routes
Subpart C - Jet Advisory Areas

c. Part 95 - En Route IFR Altitudes

Subpart C - En Route IFR Altitudes over Particular Routes and Intersections

However, with regard to off-airway routes, only those routes responsive to stated user desires need be included.

d. Part 99 - Security Control of Air Traffic

Subpart B - Designated Air Defense Identification Zones

15. CURRENTNESS.

a. An enroute or area chart should be reissued -

(1) On the effective date of regularly scheduled FAA airspace amendments, if, by nature of the amendment, safety would be seriously influenced unless the amended airspace is expediently portrayed on the appropriate chart; or

(2) When there is a change that would make use of the chart unsafe in the area concerned and that change could not be adequately described otherwise.

b. A SID chart should be reissued when there is a change in the text of the SID, a change in the route structure involved, or the SID has been renumbered.

c. An IAP Chart should be reissued -

(1) When there is a change in the procedure or minima; or

(2) When there is a change in the communication data or navigation frequencies that would make use of the chart unsafe.

(3) When a new obstruction is introduced into the obstruction clearance area.

16. AERONAUTICAL INFORMATION.

a. Aeronautical information referred to in this circular should be that provided by the FAA National Flight Data Center (NFDC), obtained from the Federal Register, or obtained from any source recognized by the Air Traffic Service of FAA.

b. Information in addition to that referred to in this circular may be placed on aeronautical charts but care should be taken to assure that the information added does not compromise these standards.

c. Questions arising from conflicting data on aeronautical information mentioned in this circular should be referred to the NFDC for resolution.

17. EN ROUTE CHARTS

a. Airports. Each airport that is appropriate to the particular use of the chart series and to which an instrument approach procedure is published should be depicted.

b. Radio aids to navigation. Federally-operated radio aids to navigation used for control of traffic within the specified altitude/airway route structure should be depicted. Military navigational aids for which the FAA indicates an operational requirement should be included. Non-federal navigational aids to navigation approved by the FAA for an instrument approach procedure and published in Part 97 should be depicted. Radio aids to navigation should be identified by the name, identifier and frequency, and by a symbol indicating the type.

c. Voice communications associated with navaids. Voice communications associated with navaids, other than unicom, multicom, or private aids, should be indicated.

d. Airspace and Airways Information.

(1) The boundaries of each Air Route Traffic Control Center Area and each Oceanic Control Area should be depicted and identified.

(2) The following magnetic bearings and radials should be depicted:

(a) The centerline radials of each VOR Federal airway.

(b) The centerline inbound bearing of each colored Federal airway and the L/MF range course.

(c) The inbound bearing of each ILS system and other magnetic bearing or radial between fixes normally used for air traffic control service.

(3) Distances should be depicted in nautical miles between facilities, compulsory reporting points, non-compulsory reporting points, and other fixes that the FAA indicates for use in the control of air traffic.

(4) Each VOR changeover point should be depicted on each route segment except where the changeover point is established at the mid-point.

(5) Each non-compulsory reporting point determined for charting by the FAA should be depicted and identified by name.

(6) Where not obvious, each reference to a facility forming an intersection that is a reporting point should be depicted.

(7) The Minimum Reception Altitude for a reporting point should be depicted when higher than the Minimum En Route Altitude.

(8) Directional reporting requirements should be indicated.

(9) Each Maximum Authorized Altitude should be depicted.

e. Altimeter Setting Information. Altimeter setting information should be depicted on border or coastal charts of geographical areas where changes to standard altimeter settings are used.

f. Time. Times should be stated in Greenwich Mean Time (GMT), except that local time may be used for those times published in Parts 71 and 73 of the Federal Aviation Regulations.

18. TERMINAL - AREA CHARTS

a. Coverage. Each chart should have sufficient coverage to depict information which cannot be adequately portrayed on an enroute chart.

b. Aeronautical Information. The information referred to in paragraph 17 a., b., c. and d. (2), (3), and (5) through (9) should apply. If a SID route is depicted, paragraph 19 should apply.

19. TERMINAL - STANDARD INSTRUMENT DEPARTURE CHARTS

a. Coverage. Each chart should have sufficient coverage to depict SIDs.

b. Aeronautical Information.

(1) A graphic portrayal of each SID route, indicated by FAA for charting, and its associated data should be depicted.

(2) A textual description of each route that enables the pilot to conform to the procedures should be included.

(3) Each SID route should be identified by name and number.

(4) Where applicable, standard departure procedures pertaining to the runway in use should be stated.

(5) A textual description of the procedure for transition from Federal airways to jet routes should be included where applicable.

(6) At least one segment of each jet route required for transition from these SIDs should be depicted. This segment should include the identification and frequency of the navigation aid defining the jet route from the transition fix to the aid, the jet route designation, the mileage from the transition fix to the pertinent navigation aid, and the radials of the jet route.

20. TERMINAL - INSTRUMENT APPROACH PROCEDURE CHARTS

Each IAP chart should contain the following information:

a. Procedural Information

(1) A schematic representation, plan and profile, of the approach procedure.

(2) Pilot advisory information which is shown on the FAA-approved IAP form, including each pertinent altitude, radial/bearing, and missed approach procedure.

b. Navigation Aids

(1) Each navigational aid on which the IAP is predicated, including name, identifier, and frequency.

(2) Any other navigational aid or fix and related information that may be required for transition and identified as such by FAA.

c. Airports.

(1) A configuration of each runway of the airport to scale, for which a procedure is provided, as well as the runway pattern of other airports in the vicinity which could be mistaken for this airport.

(2) The airport elevation prominently displayed.

d. Minima. The ceiling or minimum descent altitude, as appropriate, and visibility minima and the conditions to which they apply, as provided on the FAA-approved IAP form or as authorized in Air Carrier Operations Specifications.

e. Radio Communication Information. Each appropriate primary VHF and UHF radio communications frequency for the air traffic control facilities responsible for authorizing and controlling instrument approaches and landing.

f. Other.

(1) Any holding pattern provided on the FAA-approved IAP as a part of the approach procedure.

(2) Each obstruction as defined in Part 77 of the Federal Aviation Regulations selected as follows:

(a) Each obstruction or the highest obstruction in a group of obstructions that penetrates an imaginary conical surface with a slope of 100:1-½ (equates to approx. 65:1) emanating from the ends of all runways. In a group of obstructions, objects within a radius of one mile from the tallest structure need not be charted.

(b) The highest obstruction in the chart area.

(c) Each obstruction referenced on the FAA-approved IAP form within the limits of the chart.

(3) Each radial and magnetic bearing pertinent to the arrival procedure.

(4) Topographical information pertinent to the safe execution of the instrument approach, missed approach, or holding procedure, including a delineation of land masses and significant lakes and rivers.

(5) A scale or indication of distance.

(6) An indication of latitude and longitude adequate to identify the geographical area.

(7) The chart identification by the name of the city, airport, and abbreviation of the type of facility on which the arrival procedure is established. If applicable, the number of the runway to which the procedure applies and other identifying nomenclature.

(8) The minimum safe altitude for instrument flight as provided in the FAA-approved IAP form or based on this data, with a clear indication of the area or sector to which it applies.

(9) The distance, and time to the airport from the facility associated with the final approach or rate of descent.