Federal Aviation Administration

UNITED STATES GOVERNMENT SPECIFICATIONS

VFR FLYWAY PLANNING CHART

IAC 2A
22 August 2022

Prepared by the Interagency Air Committee (IAC)

OK-10-1818

UNITED STATES GOVERNMENT SPECIFICATIONS FOR THE VFR FLYWAY PLANNING CHART

22 August 2022

These specifications have been developed by the Interagency Air Committee (IAC), composed of representatives of the Department of Defense and the Federal Aviation Administration, for use in the preparation of the United States Government VFR Flyway Planning Chart. These specifications shall be complied with, without deviation, until such time as they are amended by formal IAC action.

Changes to these specifications will be provided when necessitated by new requirements or through development action of the IAC.

Questions of interpretation that arise in the use of these specifications shall be referred to the Chair, Interagency Air Committee.

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CHANGES APPLIED TO CURRENT EDITION

REQUIREMENT DOCUMENTS

a. RD 846 - Removal of Emergency References to Private Airports

EDITORIAL CHANGES

a. None applied in this edition.

CHANGES APPLIED 26 APRIL 2021

REQUIREMENT DOCUMENTS

a. RD 830 - Update to Mode C Airspace Label

EDITORIAL CHANGES

a. None applied in this edition.

CHANGES APPLIED 27 JANUARY 2021

REQUIREMENT DOCUMENTS

a. RD 827 - Airport Name Standardization

EDITORIAL CHANGES

a. None applied in this edition

CHANGES APPLIED 15 OCTOBER 2019

REQUIREMENT DOCUMENTS

a. RD 792 - Addition of National Defense Airspace TFR Symbology - (added on 25 March 2020)
b. RD 795 - Deletion of VFR Waypoint Tabulations

EDITORIAL CHANGES

a. None applied in this edition

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AMENDMENT OF SPECIFICATIONS

1. PROCEDURE

a. Recommendations for amendments to specifications from the Department of Defense shall be directed to:

National Geospatial-Intelligence Agency
7500 GEOINT Drive
Springfield, VA 22150-7500

b. Recommendations for amendments to specifications from the Federal Aviation Administration shall be directed to:

Federal Aviation Administration /
Aeronautical Information Services
SSMC-4 Sta # 4503
1305 East-West Highway
Silver Spring, MD 20910

2. AMENDMENT SYSTEM

a. Change to the specifications will be issued at the effective date of the latest Requirement Document (RD) and / or Editorial Change (EC).
b. The Specification will be dated, indicated along the upper margin of each page, to reflect the most current change.

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TABLE OF CONTENTS

CHAPTER 1
GENERAL

1.1 PURPOSE AND SCOPE

These specifications provide guidelines, instructions, and procedures to effect uniformity and standardization of content and portrayal techniques in the production of VFR Flyway Planning Charts.

VFR Flyway Planning Charts are designed to assist pilots in planning flights through and/or around areas of high density aircraft operations.

These specifications apply to areas for which VFR Flyway Planning Charts are required by the U.S. Government.

Although the digital chart files are compiled in accordance with these specifications, the final product may vary slightly in appearance due to the differences in printing techniques/processes and/or digital display technique.

1.2 REQUIREMENTS

1.2.1 General

VFR Flyway Planning Charts are for use with Sectional Aeronautical Charts and Terminal Area Charts and are printed on the reverse of corresponding Terminal Area Charts.

1.2.2 Quality and Accuracy

The highest standards of accuracy in plotting, drafting, reproduction and currency of information shall be maintained.

1.2.3 Color

VFR Flyway Planning Charts shall be printed in four colors; blue, black, brown and magenta. Screens and percentages of color shall be used to obtain suitable contrast.

Solid colors shall be used unless otherwise specified.

1.2.4 Area of Coverage

The area of coverage shall be the same as the corresponding Terminal Area Chart.

1.2.5 Scale

Scale shall be 1:250,000.

1.2.6 Projection

Projection shall be the Lambert Conformal Conic Projection.

1.2.7 Symbolization

Symbolization for VFR Flyway Planning Charts shall be in accordance with IAC-2 unless otherwise specified.

These symbols were developed to standardize aeronautical symbology on charts and publications used by both military and civil aviation.

Configuration of symbols contained therein shall be adhered to. Size and lineweights should also be adhered to but may be varied when absolutely necessary.

1.2.8 Type Styles

It is recognized that a variance occurs between different composition mediums, such as Fotosetter, Photon, Monotype and Foundry settings. However, type styles specified within these specifications shall be as stated, or their equivalent, as may be determined by the manufacturer's nomenclature.

Unless otherwise specified, all type shall be Helvetica 65 Medium or its equivalent. Use of capital letters is intended unless specified as C/L (caps and lower case).

1.3 SPECIFICATION REFERENCES

Photon Photocomposition Specimen Catalog.

IAC-2 Specifications, Sectional Aeronautical and VFR Terminal Area Charts.

CHAPTER 2
LAYOUT AND FORMAT

2.1 GENERAL

Each item of information has its own layout and format and is discussed under the item's subject heading.

Charts shall be printed on the reverse side of corresponding Terminal Area Charts.

2.2 SIZE AND DIMENSIONS

Dimensions of VFR Flyway Planning Charts shall be identical to corresponding Terminal Area Charts.

2.3 CHART INSETS

Chart coverage may be supplemented with chart insets, which are variable scale charts of high density area traffic complexes, positioned within either the margin or open water areas.

Except for scale, portrayal techniques of chart insets shall resemble those of the basic chart, unless deviations are requested by appropriate authority. Content may be more detailed if required.

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CHAPTER 3
CONTENT

3.1 GENERAL

Each VFR Flyway Planning Chart shall be issued with its corresponding Terminal Area Chart.

3.2 COMPILATION

3.2.1 General

Symbols provided in IAC-2 shall be used where applicable. In most cases, features will be sufficiently similar to permit use of the standard symbol with minor modifications. Other symbols may be unique and artistic license shall be used to make them self explanatory.

In compiling local areas, features will sometimes be encountered which are peculiar to the area and which are not specifically covered in these specifications. If these local conditions cannot be symbolized they may be handled by descriptive notes.

3.2.2 Detail Selection and Density

The finished product will not be an optimal presentation of chart detail; however, the criteria herein should serve as general guidance in achieving the best overall balance and relativity of features portrayed.

Indiscriminate selection of features must be avoided; however, all essential information must be retained, especially outstanding features for use as checkpoints.

The following basic rules governing selection of detail should be followed:

- The chart shall provide a density of ground features significant in visual low level, moderate speed navigation without impairing chart legibility.

- Features selected for portrayal in one area may be inappropriate in another area. In areas of sparse or moderate culture, lesser chart features become more significant because of their checkpoint value. In congested areas these same features may not be seen by low altitude pilots and should not be shown.

- Significant identifying topographic features relating to, or aiding in the identification of airports or peculiar areas, and specifically requested by the FAA shall be shown.

- Roads and railroads alone are not necessarily significant to low altitude, moderate speed pilots. Their identification value can be ensured only by including related features in the vicinity which distinguish one from the other.

3.2.3 Pictorialization of Checkpoint Features

At low altitude, apparent movement of the ground is rapid and causes blurring. The angular velocity of ground features as they sweep beneath the nose of the aircraft provides little time for recognition. Depth of vision is restricted because of the increased effect of perspective resulting from closeness of the aircraft to the terrain. Ground fog, haze and other factors affecting visibility further reduce depth of vision. The span of vision is restricted because of the necessity of "picking up" checkpoint features on or near the horizon directly ahead of the aircraft and making positive identification as the features approach at increasing angular velocities. Pilots should have a preconceived mental image of checkpoint features to facilitate recognition. Therefore, the selection and portrayal of ground features should be based on the requirement for rapid visual recognition of details seen from low perspective angles.

As visual cross-referencing is limited by time, some means other than conventional symbols is required to afford pilots a preconceived mental image of outstanding checkpoints. For this purpose, three dimensional perspective drawings, referred to as "pictorial symbols" are used.

Features selected for pictorial symbolization should be of such unique nature that immediate recognition is possible. Features considered should include buildings, factories/complexes, towns, etc.

3.2.3.1 Selection and Density Considerations

Selection and density is controlled by the following considerations:

3.2.3.1.1 Density of Cultural Details

Moderate to dense areas of cultural detail tend to combine with other detail to create suitable checkpoints. Therefore, the greatest need for pictorially symbolized landmarks is in sparsely populated areas.

3.2.3.1.2 Area Considerations

Features selected for portrayal in one area may be inappropriate in another area. Such determinations should be based on critical area analysis. Features like outdoor theaters (drive-ins), churches, etc., cannot be considered in the selection of pictorial symbols unless each is a unique or prominent checkpoint.

3.2.3.1.3 Relative Values

Features should be selected for pictorial portrayal based on their relative values as checkpoints considering size (vertical dimensions and massiveness), configuration, and infrequency in the area.

3.2.3.2 Symbol Positioning

3.2.3.2.1 Vertically Symmetrical Symbol Orientation

Vertically symmetrical symbols shall be oriented so that the vertical dimension is perpendicular to the parallels of latitude. An exception is the transmission line pylon symbol which will be oriented perpendicular to the transmission line.

3.2.3.2.2 Elongated Symbol Orientation

Elongated symbols such as bridges, dams, etc., shall be oriented along the actual line of position.

3.2.3.2.3 Feature Portrayal

After a feature has been selected for portrayal, ensure that the pictorial symbol captures the visual character of that feature. If suitable pictorial symbols are not available, new symbols should be developed or existing symbols modified.

3.3 NAMES AND LABELING

3.3.1 General

Names are required for planning, briefing, and relating to other charts and materials.

When naming chart features avoid use of technical, cartographic and geographic terms and use language readily understood by pilots. For example, the word "karst" has little or no meaning to the average user, nor is its definition readily available. Appropriate, common-language descriptive terms should be used, such as "sinkholes", "distorted surface area", etc.

3.3.2 Names Selection

Names shall be selected on the basis of importance.

Although features may be specified by FAA facilities in the area, there will be features selected by the compiler for portrayal. Basic rules governing selection of names are:

- Features selected for naming in one area may be inappropriate for naming in another area. In areas of sparse culture, lesser features become significant because they pinpoint landmarks and should be named.
- When there is doubt of the value of a name, it should be omitted.

3.3.2.1 Hydrographic Features

Names shall be shown for the following features:

- Oceans
- Seas
- Bays
- Gulfs
- Channels
- Large Canals
- Double Line Streams
- Those specificed by facility personnel

3.3.2.2 Relief

Only names for features of major significance are required, e.g., mountain peaks, ranges, and capes.

3.3.2.3 Culture

3.3.2.3.1 Populated Places

Cities and large towns may be named as required.

Smaller towns specified as VFR checkpoints shall be named.

3.3.2.3.2 Roads

Major highways and roads shall be named or numbered.

3.3.2.3.3 Miscellaneous Cultural Features

Cultural features used as VFR checkpoints shall be labeled using the name the controllers use.

3.3.3 Descriptive/Operational Notes

3.3.3.1 General

Notes are a means of furnishing pertinent data related to the chart area. These notes may identify a symbol, describe an area or a peculiar feature; be a note of caution; detail some important or peculiar aspect or activity of an area; or be instructions the pilot should follow such as an altitude, frequency or bearing and distance to/from a NAVAID. Size and style of a note may vary according to the importance of the activity being described.

All notes applied to the charts will be those specified or approved by the FAA/DOD.

3.3.3.2 Standard Flyway Note

The following city-specific note shall appear on the legend panel of all VFR Flyway Planning Charts:

Figure 3.1 Standard Flyway Legend Note

THIS CHART IDENTIFIES VFR FLYWAYS DESIGNED TO HELP VFR PILOTS AVOID MAJOR CONTROLLED TRAFFIC FLOWS. IT DEPICTS MULTIPLE VFR ROUTINGS THROUGHOUT THE *CITY NAME* AREA WHICH MAY BE USED AS ALTERNATES TO FLIGHT WITHIN THE ESTABLISHED *CLASS* AIRSPACE. ITS GROUND REFERENCES PROVIDE A GUIDE FOR IMPROVED VISUAL NAVIGATION. THIS IS NOT INTENDED TO DISCOURAGE REQUESTS FOR VFR OPERATIONS WITHIN THE *CLASS* AIRSPACE BUT IS DESIGNED SOLELY FOR INFORMATION AND PLANNING PURPOSES.

CAUTION

THE ENTIRE *CITY NAME* AREA IS HEAVILY CONGESTED WITH MANY DIFFERENT AIRCRAFT TYPES. THESE ROUTE SUGGESTIONS ARE NOT STERILE OF OTHER TRAFFIC; THEY ARE AREAS WE BELIEVE LEAST CONGESTED IN AN AREA OF HEAVY CONGESTION. PILOT ADHERENCE TO VFR RULES MUST BE EXERCISED AT ALL TIMES. COMMUNICATIONS MUST BE MAINTAINED BETWEEN AIRCRAFT AND CONTROL TOWERS WHILE IN CLASS D AIRSPACE.

Insert the city name, i.e. Chicago, Detroit, at the “city name” locations in the note. If only Class B exists, insert CLASS B at the “class” locations in the note. If both Class B and Class C exist, insert CLASS B/CLASS C at the “class” locations in the note.

3.3.4 Principles of Type Placement

Names shall be positioned so there is no ambiguity as to which feature is identified.

Use graduated type sizes proportional to the relative importance of the feature.

Avoid positioning type over and in alignment with linear features since this affects the continuity of a feature and the legibility of the type. If type must overprint base detail, it is preferable that it be positioned to cross a linear feature.

Normally, type shall be positioned reading from left to right and from the bottom of the sheet.

Names of populated places and other nonlinear features shall be positioned parallel to lines of latitude. Type for linear features, such as drainage, roads, canals, etc., shall normally appear on the upper side, following the general direction and curvature of the feature.

3.4 MARGIN INFORMATION

Margin information shall be shown in black, unless otherwise noted.

The following data shall be positioned in the left panel of the chart next to the neatline:

- Title of Chart
- Purpose of Chart
- Scale of Chart
- Legend (symbols in same color as body of chart)
- Other notes applicable to the chart, depicted in colors specified by the FAA.

A statement shall be shown to the effect that this chart is for planning purposes only and is NOT TO BE USED FOR NAVIGATION.

3.5 COLOR SEPARATION

Color separations of component parts of the chart are:

3.5.1 Black

- Neatline
- Spot elevations (symbol and type)
- Railroads
- Roads
- Miscellaneous cultural symbols
- Graticule and values
- Transmission lines
- Pictorial symbols
- Military Training Routes
- Surface areas of Class B and Class C Airspace, and TRSAs
- TRSAs and associated type
- VFR Checkpoint type when applicable

3.5.2 Blue

- Bodies of water, including double-line streams, will be shown with the drainage tint.
- Stipple fills for wet sand areas and non-perennial features.
- Names of hydrographic features, e.g., Lake Mead, Colorado River
- Shorelines
- Airports with control towers - symbols and type
- VHF NAVAIDs and associated data
- Prohibited, Restricted and Warning Areas and designators
- Class B airspace and associated data
- Class D airspace
- VFR Flyways, bearings, altitudes
- Operational notes
- Obstructions and type
- Arrival and Departure routes
- VFR Checkpoint type when applicable
- National Security Special Flight Rules Areas (SFRA)
- Flight Restricted Zones
- National Security Temporary Flight Restrictions (TFR)
- Special Security Notice Permanent Continuous Flight Restriction Areas

3.5.3 Brown

- City outline
- City area tint

3.5.4 Magenta

- Class C airspace and associated data
- LF/MF NAVAIDs and associated data
- VFR Checkpoint flags
- VFR Checkpoint type when applicable
- Sporting Event Temporary Flight Restriction Sites and associated type
- National Defense Airspace Temporary Flight Restriction (TFR) Areas and associated type
- MOAs and Alert Areas and designators
- Non-towered airport symbols and type
- Class E airspace beginning at the surface, designated around airports
- Operational Notes

3.6 PROJECTION

3.6.1 General

Parallels and meridians will not be shown throughout the body of the chart.

3.6.2 Graticule Layout

Lines of latitude and longitude, .007" lineweight, shall extend .10" into the body of the chart from the neatline.

3.6.3 Line Spacing

Latitude and longitude lines shall be spaced at 30 minute intervals.

3.6.4 Graticule Values

Values shall be shown using 7 pt Helvetica Condensed Bold.

Values of all lines shall be shown adjacent to the line, in degrees and minutes, towards the center of the chart.

3.7 CULTURE

3.7.1 Railroads

Only railroads depicted on the TAC and located beneath or adjacent to the VFR Flyway shall be shown unless designated as VFR Checkpoints.

Lineweight shall be .012", crossties .006" spaced .25" apart.

No distinction shall be made between single track and multiple track railroads.

No distinction shall be made between abandoned or operating railroads.

Railroad yards, if shown, shall be shown by a .08" solid square and labeled “RAILROAD YARD”. Type shall be 7.5 pt.

3.7.2 Roads

Dual-lane divided highways shall be shown by two parallel .012" lines, .036" overall.

All other roads, when shown, shall be shown by a single line, .018" lineweight. Single-line roads shall not be shown inside populated places.

Interstate and federal highways, when shown, shall be identified by the road markers and numbers illustrated in IAC-2. Roads and highways may be identified by name as required. Type shall be 5.5 pt.

Roads and associated data shall be screened black 45%/Biangle/200L.

3.7.3 Features Related to Railroads and Roads

Bridges and viaducts shall be portrayed by self-identifying pictorial symbols where possible.

Overpasses and underpasses shall be shown by the conventional symbol.

Congestion permitting, cloverleaf traffic interchanges shall be shown.

3.7.4 Populated Places and Buildings

Built-up areas shall reflect the physical shape of the areas as portrayed on the corresponding TAC. City outlines shall be delimited with a line, .006" lineweight. City areas shall be screened brown, 10%/15°/120L.

Populated places can be shown by a 5/60" diameter circle accompanied by the town name. Type shall be 8.5 pt.

When designated as VFR Checkpoints, populated places shall be shown by a circle, 5/60" in diameter, .010" lineweight, accompanied by VFR Checkpoint flag and name of town. Type shall be 9 pt.

Populated places represented by city tint and designated as VFR Checkpoints will have the VFR Checkpoint flag positioned in the approximate center of the tinted area.

3.7.4.1 Landmark Buildings

Landmark buildings and factory complexes, when shown, shall be indicated by pictorial symbols and labeled.

Other buildings portrayed shall be indicated with the conventional .08" solid square located-object symbol.

3.7.5 Miscellaneous Cultural Features

3.7.5.1 Transmission Lines

Transmission lines depicted on the TAC and located beneath or adjacent to VFR Flyways shall be shown with a line, .008" lineweight, and with the pictorial pylon symbol.

3.7.5.2 Stadiums, Outdoor Theaters, Race Tracks

Prominent features in this category shall be shown for visual reference or when designated as checkpoints.

3.7.5.3 Landmark Objects

Landmark objects which cannot be shown to actual scale and are not otherwise symbolized shall be indicated by the round or square located-object symbol and labeled appropriately.

3.8 HYDROGRAPHY

Lakes, ponds, reservoirs and pools shall be drawn to scale. Outline or shoreline shall be .007" lineweight. Water tint shall be screened, 10%/60°/200L.

Streams and canals shall be shown by a double line when .015" or more in overall width. Shoreline shall be .007" lineweight. Water areas shall be screened, 10%/60°/200L.

Coastal hydrography shall include shorelines and offshore features in their entirety. Shorelines shall be shown by a .007" lineweight. Water areas shall be screened, 10%/60°/200L.

3.9 RELIEF

Unless designated as a VFR Checkpoint, relief is not required. Exceptions are significant or distinctive spot elevations which are shown by a mountain top pictorial symbol and 9 pt Helvetica 86 Heavy Italic type.

3.10 AERONAUTICAL INFORMATION

3.10.1 General

Whenever possible, aeronautical information shall be plotted to indicate its true geographical position.

Bearings and radials shall be magnetic and depicted by a three digit figure, e.g., 001, 012, 123. A degree sign (°) shall be shown with all bearing/radial values.

Textual or type data shall be positioned relative to true north.

Dotted leader lines may be used for clarity.

Operational notes shall reflect local time.

3.10.2 Airports

3.10.2.1 General

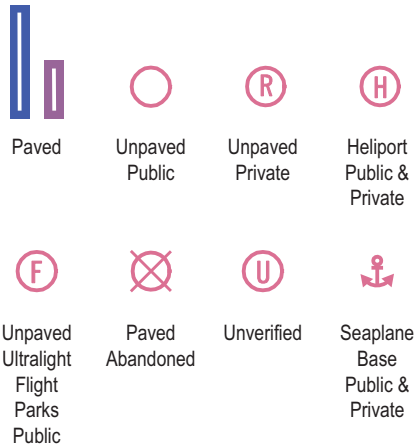
Airports shall be plotted to true geographic position unless they conflict with a NAVAID at the same location. In such cases, the airport shall be displaced from or superimposed upon the NAVAID. When displacing, the directional relationship between the airport and the NAVAID shall be retained.

No distinction shall be made between airports with services and those without services.

3.10.2.2 Airport Symbolization

Airports with paved runways that exist in the authoritative source database shall be shown by patterns with the symbology as in **Figure 3.2**. Abandoned airports will only be depicted when they are located beneath or adjacent to the VFR flyway routes or are requested by appropriate authority. As runway patterns are intended primarily for visual identification, hard-surfaced runways which are closed, but which still appear to be runways, shall be included in the pattern. Unpaved private-use airports will only be depicted when requested by appropriate authority. Airport beacon lights shall be depicted as shown on the Terminal Area Charts.

Figure 3.2 Airport Symbolization



3.10.2.3 Airport Identification

Airports will be identified by the airport name extracted verbatim from the authoritative database. Public-use, joint civil-military, and military airports shall include the three/four character alpha-numeric FAA identifier immediately after the name in parentheses. The number "zero" will be identified as "Ø" in order to differentiate from the letter "O". Airports outside the contiguous United States will be charted with both State-designated and ICAO identifiers. When the ICAO identifier does not exist for an airport, only the State-designated identifier will be used. Private-use airports will be identified with the text "(Pvt)" next to the airport name. Type size shall be 10 pt.

3.10.2.4 Objectionable Airport Charting

Charted public-use airports (and private-use airports having landmark value) that have received an "Objectionable" airspace determination from the FAA Office of Airports shall be shown with standard airport symbology, with the annotation "OBJECTIONABLE" placed in close proximity to the airport symbol. No additional airport data (including airport name or identification) shall be provided.

3.10.3 Radio Aids to Navigation (NAVAIDs)

3.10.3.1 NAVAID Symbols

Public-use (and outside of U.S. Airspace, private-use when utilized in the definition of an airway) operational and commissioned LF/MF and VHF/UHF NAVAIDs shall be shown, symbolized as illustrated. DMEs shall not be depicted outside the United States unless utilized in the definition of an airway.

Figure 3.3 NAVAIDs

3.10.3.2 NAVAID Boxes

NAVAID data shall be boxed as illustrated using .015" lineweight. Type shall be 10 pt Helvetica Condensed Bold. NAVAID data sequence shall be: identification letters, frequency. DME boxes shall contain the three character identifier, channel, and frequency in parentheses.

Figure 3.4 NAVAID Boxes

3.10.3.3 Non-continuous NAVAIDs

NAVAIDs that operate less than continuously, or by request only, shall be indicated by a five-pointed star located to the left of the frequency within the NAVAID box

Figure 3.5 Non-continuous NAVAIDs

3.10.3.4 Shutdown NAVAIDs

NAVAIDs with an operational status of "shutdown" shall be indicated by overprinting of the frequency with a diagonal NE to SW cross-hatching.

Figure 3.6 Shutdown NAVAIDs

3.10.3.5 NAVAIDs Without Voice

NAVAIDs "without voice" shall be indicated by underlining the frequency of the NAVAID. DME frequencies shall not be underlined.

3.10.3.6 NAVAIDs Collocated with an Airport

A NAVAID collocated with an airport depicted by a runway pattern shall not be shown by symbol. The NAVAID type, e.g., VOR, VORTAC, etc., shall be positioned on and breaking the top line of the identification box.

Figure 3.7 NAVAIDs Collocated with an Airport

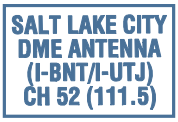
3.10.3.7 NAVAIDs Defining Class B Airspace

NAVAIDs used in official descriptions of Class B airspace to define an airspace limit, and not otherwise charted, (e.g., LOM, ILS, ILS/DME, etc.) shall be charted. The name, NAVAID type, identification, channel, and frequency shall be shown, boxed. Type is 9 pt Helvetica Condensed Bold. Box linweight is .015" and frequency underline lineweight is .010".

Figure 3.8 NAVAIDs (LOM, ILS, ILS/DME, etc.) Defining Class B Airspace

In the case of two ILS/DME systems which utilize a single, shared DME antenna, a single facility box will be shown, with the location identifiers of both systems listed, separated by a slash.

Figure 3.9 NAVAIDs Defining Class B Airspace - Two ILS Systems with Shared DME



3.10.4 Airspace Information

3.10.4.1 Class B Airspace

Class B airspace shall be shown and plotted in its entirety, symbolized by outlines of the areas and internal sectors. All lines shall be shown by a blue .060" line, screened 45%/45°/200L, centered on the boundary and sector lines.

3.10.4.1.1 Class B Airspace Name

The Class B airspace name shall be shown in solid blue at or near the North position, outside the boundary, and type shall be 9 pt Trade Gothic Bold as illustrated:

Figure 3.10 Class B Airspace Name

LAS VEGAS CLASS B

3.10.4.1.2 Ceiling and Floor Sector Altitudes

Ceiling and floor sector altitudes above mean sea level (MSL) shall be shown in solid blue.

- Show ceiling values above floor values separated by horizontal lines. Eliminate the last two digits and show surface as SFC, e.g.,

Figure 3.11 Class B Ceiling Floor Values

- Position altitude values within each sector at appropriate intervals. Use leader lines if the altitude value must, because of limited space, be outside its sector.
- Type shall be 8 to 24 pt Helvetica Condensed Bold dependent upon space limitations.
- Areas beginning at the surface shall be shown in black screen 8%/60°/120L.

3.10.4.1.3 Radials/Arcs Described in Class B Airspace

All radials described in Class B airspace shall be identified by the NAVAID identifier and magnetic bearing from the NAVAID. All arcs shall be identified by the NAVAID identifier and nautical miles from the NAVAID. In cases where a DME antenna shared by more than one ILS system defines the arc, both ILS location identifiers shall be shown. Arcs and radials from geographic positions other than NAVAIDs shall be identified by magnetic bearings and nautical mileages as requested by FAA/DOD. Type shall be 8 to 12 pt.

3.10.4.2 Class C Airspace

Class C airspace shall be shown by a magenta .060" line, screened 45%/45°/200L.

Only the core area, normally 5 and 10 nautical mile circles centered on the airport, and internal sectors shall be shown.

3.10.4.2.1 Class C Airspace Name

The Class C airspace name shall be boxed and shown in solid magenta at or near the north position, outside the boundary; e.g. BOISE CLASS C . Type shall be 8 to 12 pt. Box lineweight shall be .030".

3.10.4.2.2 Ceiling and Floor Sector Altitudes

Ceiling and floor sector altitudes above mean sea level (MSL) shall be shown in solid magenta.

Show ceiling values above floor values separated by a horizontal line. Eliminate the last two digits and show surface as SFC, e.g.,

Figure 3.12 Class C Ceiling Floor Values

Position altitude values within each sector at appropriate intervals. Use leader lines if the altitude value must, because of limited space, be outside its sector.

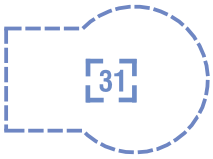
Type shall be 8 to 24 pt Helvetica Condensed Bold dependent upon space limitations.

Areas beginning at the surface shall be shown in black screen, 8%/60°/120L.

3.10.4.3 Class D Airspace

Class D airspace shall be shown in its entirety by the blue dashed .02" line.

Figure 3.13 Class D Airspace



Class D airspace shall be depicted at its true position regardless of the necessity to offset the airport symbol.

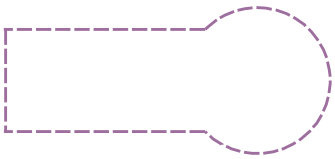
Ceilings (MSL) shall be shown in hundreds of feet dropping the last two digits. A minus in front of the figure will be used to indicate "from surface to but not including…". The figures, in 8 to 12 pt Helvetica Condensed Bold type shall be enclosed within a dashed box. Position ceiling value within the Class D area when possible. Use leader lines if the ceiling value must, because of limited space, be outside the area.

Figure 3.14 Class D Ceiling

3.10.4.4 Class E Airspace

Class E airspace beginning at the surface shall be shown by the magenta dashed .02" line.

Figure 3.15 Class E Airspace



Class E airspace shall be depicted at its true position regardless of the necessity to offset the airport symbol.

3.10.4.5 Canadian/Mexican/Outside U.S. Airspace

Canadian/Mexican/Outside U.S. airspace shall be charted.

3.10.4.5.1 Canadian Airspace

Canadian Airspace shall be depicted with the following boxed notes, in blue, charted near the border. Type shall be 6 pt. Box lineweight shall be .015".

Figure 3.16 Airspace Classification Note - Canada

AIRSPACE CLASSIFICATION (SEE CANADA FLIGHT SUPPLEMENT) AND OPERATIONAL REQUIREMENTS (SEE DOD AREA PLANNING AP/1) MAY DIFFER BETWEEN CANADA AND UNITED STATES

Figure 3.17 Charts and Publication Note - Canada

NOTE: REFER TO CURRENT CANADIAN CHARTS AND FLIGHT INFORMATION PUBLICATIONS FOR INFORMATION WITHIN CANADIAN AIRSPACE

3.10.4.5.2 Canadian VFR Airspace Restrictions Note

Canadian Airspace shall be depicted with the following boxed note, in blue, charted near the border. Type shall be 6 pt. Box lineweight shall be .010".

Figure 3.18 Canadian VFR Airspace Restrictions Note

VFR AIRSPACE RESTRICTIONS
No VFR flight within Canadian Class B Airspace is permitted above 12,500' MSL, or MEA, whichever is higher, to but not including 18,000' MSL without being controlled by ATC. For additional details see appropriate Canadian publications.

3.10.4.5.3 Mexican Airspace

Mexican Airspace shall be depicted with the name/designator and the equivalent domestic symbol. The following boxed notes, in blue, shall be charted near the border. Type shall be 6 pt. Box lineweight shall be .015".

Figure 3.19 Mexican Airspace Note

AIRSPACE CLASSIFICATION/OPERATIONAL REQUIREMENTS MAY DIFFER BETWEEN MEXICO AND UNITED STATES (DOD USERS, SEE DOD AREA PLANNING AP/1)

Figure 3.20 Charts and Publication Note - Mexico

3.10.4.5.4 Airspace Outside of the U.S.

Airspace Outside of the U.S. other than Canadian and Mexican Airspaces, shall be depicted with the name/designator and the equivalent domestic symbol. The following boxed note, in blue, shall be depicted in non-U.S. Airspace, near the border. Type shall be 6 pt. Box line-weight shall be .015".

Figure 3.21 Airspace Outside of U.S. Note

3.10.4.6 VFR Flyways

VFR Flyways shall be shown as directed by the FAA.

When a flyway is designated to or from a NAVAID, the radial/bearing may be shown.

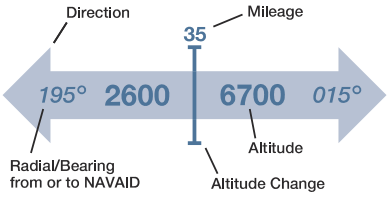
Flyways shall be shown as broad tint bands, approximately .25" wide, screened blue 22%/30°/120L, varying in length.

Arrows, as illustrated, shall be shown at each end when the flyway is bi-directional. When the flyway is used in only one direction the arrow will point in the direction of flight.

Figure 3.22 Flyway Arrows

Altitudes shall be shown in 8 to 14 pt Helvetica 75 Bold. Altitude changes shall be indicated by a solid blue bar, .020" lineweight, crossing the flyway.

Figure 3.23 Flyway Mileage



Mileages (i.e., distances between NAVAIDs in nautical miles) may be shown. Type shall be 9 pt Helvetica 75 Bold.

3.10.4.7 Arrival and Departure Routes

IFR Arrival/Departure routes outside the limits of Class B airspace, requested by FAA, shall be depicted in blue.

3.10.4.7.1 Arrival Routes

Arrival routes shall be shown with an arrowhead spaced .010" in the direction of flight with the aircraft silhouettes positioned every one to three inches, screened blue, 40%/15°/120L. Altitudes shall be shown in descending order.

Figure 3.24 Arrival Route

3.10.4.7.2 Departure Routes

Departure routes shall be shown with an arrowhead spaced .010" in the direction of flight screened blue, 40%/15°/120L. Altitudes shall be shown in ascending order.

Figure 3.25 Departure Route

3.10.4.7.3 Arrival/Departure Routes

Arrival/Departure routes shall be shown with arrowheads spaced .010" in both directions of flight screened blue, 40%/15°/120L. Altitudes associated with arrival routes shall be shown in descending order. Altitudes associated with departure routes shall be shown in ascending order. Identification type shall be shown to differentiate the associated altitude for the arrival and departure routes.

Figure 3.26 Arrival/Departure Routes

3.10.4.7.4 Altitude Values

Altitudes values shall be shown in 8 pt Helvetica Condensed Bold, in solid blue. Altitudes shown with routes climbing through the Class B airspace ceiling shall be the Class B ceiling; e.g. “ABOVE 10,000” where 10,000 is the Class B ceiling.

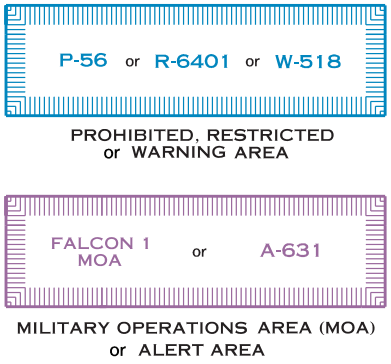
3.10.4.8 Special Use Airspace

Prohibited, Restricted, Alert, Warning, and Military Operations Areas (MOAs) shall be shown by .015" delimiting line, band .10" in width as illustrated.

Prohibited, Restricted and Warning Areas shall be shown in blue.

Military Operations Areas (MOAs) and Alert Areas shall be shown in magenta.

Figure 3.27 Special Use Airspace



Special use airspace with floors of 18,000 feet MSL or above shall not be shown.

Special use airspace shall be identified by the designated letter and number, e.g., R-4801, A-203, etc., positioned either inside or immediately outside and adjacent to the area. MOAs shall be identified by name.

3.10.4.9 National Oceanic and Atmospheric Administration (NOAA) Regulated National Marine Sanctuary Designated Areas

NOAA Regulated National Marine Sanctuary Designated Areas shall be shown with a solid .015" magenta line with interior dots (.025" diameter with .080" spacing). A boxed (.015" lineweight) identification note (text 6.5 pt.) shall be depicted in the vicinity of the sanctuary. An explanatory note shall also be depicted on the chart (text 10 pt. Helvetica Condensed Bold (CAPS); Web Address 6 pt. Lowercase with underline (.007" lineweight).

Figure 3.28 NOAA Regulated National Marine Sanctuary Designated Areas

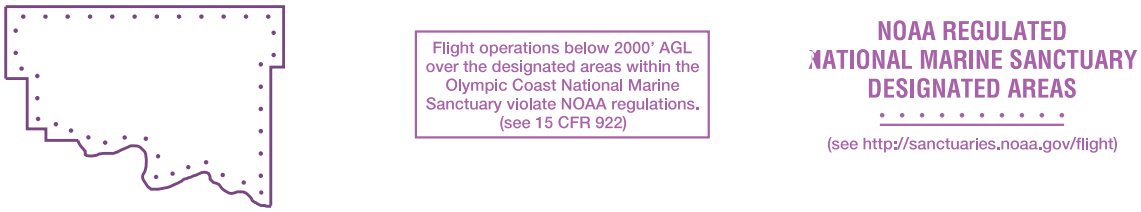
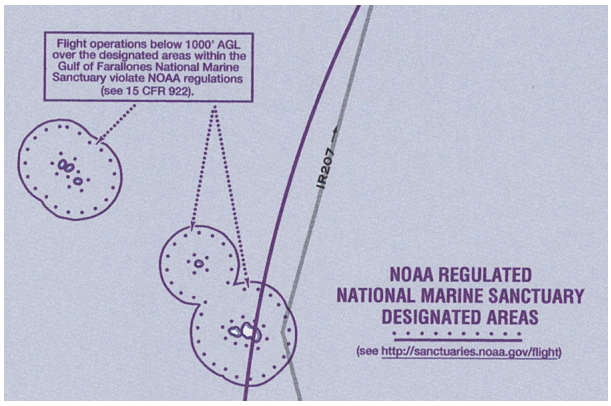
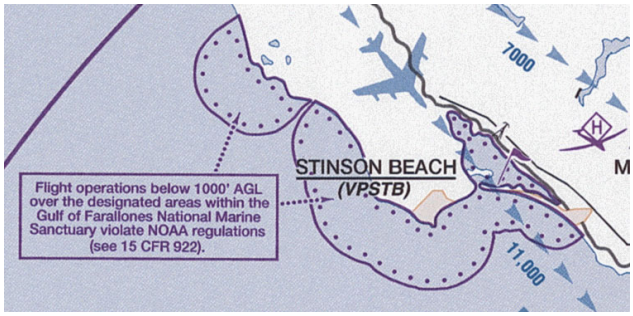


Figure 3.29 NOAA Regulated National Marine Sanctuary Designated Area Chart Examples





3.10.4.10 Military Training Routes (MTR)

All IFR (IR) and VFR (VR) MTRs (not including alternate entry and exit tracks) shall be shown. The symbol shall be a .30" continuous line, screened, 25%/15°/120L.

MTRs shall be identified by the route designators, e.g., IR123, VR321, etc. Route designators shall be shown in solid color on the unbroken route centerline, positioned on the route to affect continuity. Type style and size shall be 6 pt Copperplate Gothic 31 AB.

Repetitious use of the designator IR or VR shall be eliminated when two or more routes have the same alignment; e.g., IR201-205.

Routes numbered 001 to 099 shall be shown as IR1 or VR99 eliminating zero digits.

Direction of flight shall be indicated by small arrowheads adjacent to each route designator.

3.10.4.11 Special Air Traffic Rules/Airport Traffic Patterns (FAR Part 93) and Fixed Wing Special VFR Operations Prohibited (FAR Part 91)

3.10.4.11.1 Airports Designated in FAR Part 93

Airports with a special air traffic rule designated in FAR Part 93 shall be indicated by placing a box (.006" lineweight) around the airport name.

Figure 3.30 FAR Part 93 Airport Name

LA GUARDIA

Special traffic pattern areas described in FAR Part 93 and requested by the FAA shall be shown by the line pattern illustrated, positioned in a NE/SW direction within a .015" delimiting line.

Figure 3.31 FAR Part 93 Special Rules Depiction

The line pattern shall normally be .10" wide but it may be proportionately reduced if the area is too small for the specified band.

An appropriate boxed note shall be shown adjacent to the area. Box lineweight shall be .006" and type shall be 7 pt C/L.

3.10.4.11.2 Airports Prohibiting Special VFR Operations

Airports where fixed wing special visual flight rules operations are prohibited (FAR Part 91) shall show the notation “NO SVFR” immediately above the airport name.

3.10.4.12 Special Awareness Training Area

Special Awareness Training Areas shall be depicted as shown in **Figure 3.32**. The boundary will be shown with a .010" line with associated type. Type shall be 9 pt Helvetica 65 Medium.

Figure 3.32 Special Awareness Training Area

~~DCA VOR/DME 60 NM~~

Special Awareness Training Area notes as requested by appropriate authority. Notes will be enclosed in a .030" lineweight box.

3.10.4.13 National Security Special Flight Rules Area (SFRA), National Security Temporary Flight Restrictions (TFR) and Flight Restricted Zones (FRZ)

3.10.4.13.1 National Security SFRA

Chart National Security SFRA areas using standard symbology. SFRAs are depicted as shown in **Figure 3.33**. The SFRA border will be shown with .030" line and .10" squares spaced at .25" intervals, all screened 60%/30°/120L. The name of the SFRA will be shown in uppercase 9 pt Copperplate Gothic.

Figure 3.33 National Security SFRA

Chart SFRA notes as requested by appropriate authority. SFRA notes will be enclosed in a .030" lineweight box.

3.10.4.13.2 National Security TFR

Chart National Security TFR areas using standard TFR symbology in blue. Chart TFR notes, boxed, as requested by appropriate authority. TFR boundary is .06" lineweight with .20"dashes, .04" spaces and screened 60%/30°/120L.

Figure 3.34 National Security TFR

Chart National Security TFR notes as requested by appropriate authority. SFRA notes will be enclosed in a .030" lineweight box.

A TFR may have a leader line from the boxed note to the TFR area as necessary to call attention to it. When a TFR is too small to have the necessary visual impact even with the TFR symbology, then all cultural tints will be masked out leaving the entire area void of color, while retaining line features. If a TFR qualifies for complete color masking, a leader will be used from the boxed note to the TFR area. The cartographer will be responsible to determine when a TFR will qualify for a complete color masking.

3.10.4.13.3 National Security FRZ

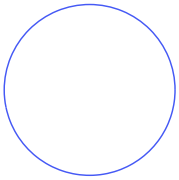
Chart National Security FRZ areas using standard Special Use Airspace (SUA) symbology. Chart FRZ notes, boxed, as requested by appropriate authority. FRZ boundary is a solid blue .015" delimiting line, band .10" in width as illustrated.

Figure 3.35 National Security FRZ

3.10.4.14 Special Security Notice Permanent Continuous Flight Restriction Areas

Chart Special Security Notice Permanent Continuous Flight Restriction Areas using standard symbology as depicted in **Figure 3.36**. The boundary is a solid blue .015" delimiting line. Associated notes will be enclosed in a .030" lineweight box.

Figure 3.36 Special Security Notice Permanent Continuous Flight Restriction Areas



3.10.4.15 Sporting Event Temporary Flight Restriction Sites

Sporting Event Temporary Flight Restriction Sites shall be depicted with a magenta symbol and associated type. Type shall be 7.5 pt (CAPS).

Figure 3.37 Sporting Event Temporary Flight Restriction Sites

3.10.4.16

National Defense Airspace Temporary Flight Restriction (TFR) Areas will be shown by the magenta line pattern illustrated, positioned at a 45° angle within a .015" delimiting line. The line pattern will normally be .10" wide but it may be proportionately reduced if the area is too small for the specified band.

Figure 3.38 National Defense Airspace Temporary Flight Restriction (TFR) Areas

Appropriate boxed notes will be shown adjacent to the area. Box lineweight will be .006" and type shall be 7 pt C/L.

Figure 3.39 National Defense Airspace Temporary Flight Restriction (TFR) Areas Boxed Note

3.10.4.17 Mode C Airspace

When the lateral limits of Mode C required airspace are not otherwise shown by Class C airspace symbol, the limits shall be shown by a solid magenta .025" line and shall be labeled "MODE C & ADS-B OUT". Type shall be 7 to 9 pt.

3.10.4.18 Miscellaneous Airspace Areas

3.10.4.18.1 Parachute Jumping Areas

When specified by the FAA, parachute jumping areas shall be shown as illustrated:

Figure 3.40 Parachute Jumping Areas

When available, the ATC frequency for coordination of parachute operations shall be shown together with the Parachute Jumping Area symbol. Type is 7.5 pt Helvetica Condensed Bold.

Figure 3.41 Parachute Jumping Area icon with ATC Frequency

3.10.4.18.2 Glider Areas

When specified by the FAA, glider areas shall be shown as illustrated.

Figure 3.42 Glider Areas

3.10.4.18.3 Hang Gliding Areas

When specified by the FAA, hang gliding areas shall be shown as illustrated. Hang gliding activity shall include paragliding activity.

Figure 3.43 Hang Gliding Areas

3.10.4.18.4 Ultralight Areas and Ultralight Flight Parks

When specified by the FAA, ultralight activity areas not associated with airports, shall be shown as illustrated. Private, unpaved Ultralight Flight Parks shall also be shown as illustrated.

Figure 3.44 Ultralight Areas and Private Unpaved Ultralight Flight Parks

3.10.4.18.5 Unmanned Aircraft System (UAS) Activity

When specified by the FAA, Unmanned Aircraft (UA) activity areas shall be shown as illustrated.

Figure 3.45 Unmanned Aircraft (UA) Activity Areas

3.10.4.18.6 Aerobatic Practice Areas

When specified by the FAA, aerobatic practice areas shall be shown as illustrated.

Figure 3.46 Aerobatic Practice Areas

3.10.4.18.7 Space Launch Activity Areas

When specified by the FAA, Space Launch activity areas shall be shown as illustrated.

Figure 3.47 Space Launch Activity Areas

3.10.4.19 VFR Waypoints

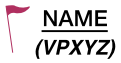
VFR waypoints, when specified by the FAA, shall be shown. VFR waypoint names consist of five letters beginning with the letters “VP”. Type shall be solid black, 8 pt Helvetica Bold Oblique.

Stand-alone VFR waypoints will be depicted using the standard four-point waypoint star. The VFR waypoint name will be placed adjacent to the symbol as illustrated:

Figure 3.48 VFR Waypoint

VFR waypoints collocated with VFR checkpoints will not be depicted with the four-point waypoint star symbol. Instead, the VFR checkpoint flag will be used, with the VFR waypoint name shown in parenthesis below the VFR checkpoint name. Both names will be shown in solid black as illustrated:

Figure 3.49 Collocated VFR Checkpoint and Waypoint



3.10.4.20 VFR Checkpoints

Visual checkpoints designated and commonly used by the FAA may be shown by pictorial symbols in solid black and flag symbols in solid magenta as illustrated:

Figure 3.50 VFR Checkpoint

The name used by the FAA shall be shown in the same color as the feature and underlined. Type shall be 9 pt.

3.10.4.21 Obstacles

Obstacles greater than or equal to 1000’ AGL shall be depicted. Obstacles less than 1000’ AGL shall be depicted when requested by the appropriate authority.

Elevation of the tops of the obstructions above mean sea level (MSL) shall be shown in 8 pt Copperplate Gothic 31 AB Italic. Obstacles under construction shall be indicated by the letters “UC” positioned immediately adjacent to the symbol. The letters “UC” may also be used to indicate obstacles reported with unverified position and elevation.

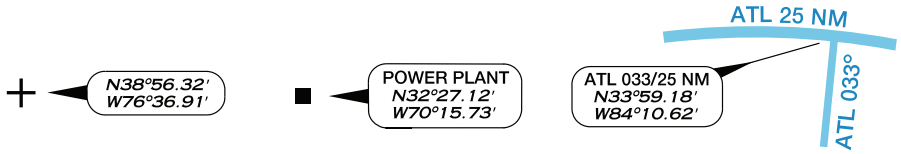
Obstacles shall be shown with a pictorial symbol or the inverted "V" symbol as illustrated:

Figure 3.51 Obstacles

3.10.4.22 Navigation Data

The latitude/longitude of navigation data consisting of Visual Checkpoints, Navigation Reference Points and/or Fixes identified by the FAA, shall be shown in black as illustrated below. If the navigation reference point does not coincide with a feature (e.g., building, obstacle, intersecting DME arcs, etc.) the position shall be indicated by a +. Positions shall be shown to the nearest .01' if adequate source is available. If a definite position cannot be identified, e.g., the center of a town, or if accurate source is not available the position shall be shown to the nearest .1'. Type shall be 7 pt for the feature name and 6 pt Copperplate Gothic 31AB Italic for the latitudes/longitudes.

Figure 3.52 Flyway Navigation Data Icon



If the charting of navigational data creates clutter, the information can be shown in tabular form. An unnamed navigation point can be identified by an associated circled number to refer to the item in the tabulation (reference number type 6 pt. Futura Medium, with circle diameter .137" and lineweight .007").

Figure 3.53 Unnamed Navigation Reference Point Identified with an Associated Number

Figure 3.54 Example of Navigation Reference Point Geographic Coordinate Table

NAVIGATION REFERENCE POINT GEOGRAPHICAL COORDINATES

NUMBER	TYPE	NAME	LATITUDE	LONGTITUDE
	Checkpoint	Alpine Tower	N 40°49.35'	W073°53.25'
	Fix	Rupee	N 40°35.39'	W073°31.44'
1	Nav Ref Pt		N 40°29.70'	W073°42.84'

The tabulation can be modified to fit the type of data. Example: if only Visual Checkpoints are used, the table format can be modified to:

Figure 3.55 Visual Checkpoint Geographical Coordinates

VISUAL CHECKPOINT
GEOGRAPHICAL COORDINATES

NAME	LATITUDE	LONGITUDE
Alpine Tower	N 40°49.35'	W73°53.25'

3.10.4.23 Terminal Radar Service Area (TRSA)

Terminal Radar Service Areas shall be shown and plotted in their entirety, symbolized by outlines of the areas and internal sectors. All lines shall be shown by a .060" line, screened black 45%/45°/200L, centered on the boundary and sector lines.

3.10.4.23.1 TRSA Name

The TRSA name shall be boxed and shown in solid black at or near the north position, outside the boundary; e.g. PALM SPRINGS TRSA . Type shall be 8 to 12 pt. Box lineweight shall be .030".

3.10.4.23.2 Ceiling and Floor Sector Altitudes

Ceiling and floor sector altitudes above mean sea level (MSL) shall be shown in solid black.

- Show ceiling values above floor values separated by horizontal lines. Eliminate the last two digits and show surface as SFC, e.g.,

Figure 3.56 TSRA Ceiling Floor Type

- Position altitude values within each sector at appropriate intervals. Use leader lines if the altitude value must, because of limited space, be outside its sector.
- Type shall be 8 to 24 pt Alternate Gothic dependent upon space limitations.
- Areas beginning at the surface shall be shown in black screen, 8%/60°/120L.

3.10.4.24 Air Defense Identification Zones (ADIZ, CADIZ, etc.)

ADIZs shall be shown as illustrated.

Figure 3.57 ADIZ

The continuous line indicates the limits of the area with the dots within the area.

When an international boundary, projection line, or other linear feature, coincides with the limits of the ADIZ, the linear feature symbol shall suffice for the delimiting line of the ADIZ.

When a FIR boundary coincides with the limits of the ADIZ, the ADIZ symbol, without the line, shall be positioned adjacent to and in conjunction with the FIR symbol.

ADIZs and defense areas shall be identified adjacent to and parallel to the symbol within the respective areas.

ADIZs shall be identified at sufficient intervals to facilitate identification by users.

Defense areas shall be identified by name only outside the ADIZ boundary symbol.

3.10.4.25 Navigation Radials

Specific radials may be shown as a reference for navigation through and around Class B airspace. Radials that are to be charted shall be identified by the appropriate authority.

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