Aeronautical Information Services Products

Aeronautical Chart
Users’ Guide

VFR Charting Products
(Includes Sectional, Terminal Area, Caribbean, Flyway, and Helicopter Charts)

Effective as of 8 September 2022
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHAT’S NEW?</td>
<td>5</td>
</tr>
<tr>
<td>VFR CHARTS</td>
<td>5</td>
</tr>
<tr>
<td>IFR ENROUTE CHARTS</td>
<td>5</td>
</tr>
<tr>
<td>TERMINAL PROCEDURE PUBLICATION (TPP)</td>
<td>5</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>7</td>
</tr>
<tr>
<td>KEEP YOUR CHARTS CURRENT</td>
<td>7</td>
</tr>
<tr>
<td>EFFECTIVE DATE OF CHART USERS’ GUIDE AND UPDATES</td>
<td>7</td>
</tr>
<tr>
<td>COLOR VARIATION</td>
<td>7</td>
</tr>
<tr>
<td>REPORTING CHART DISCREPANCIES</td>
<td>7</td>
</tr>
<tr>
<td>EXPLANATION OF VFR TERMS AND SYMBOLS</td>
<td>9</td>
</tr>
<tr>
<td>WATER FEATURES (HYDROGRAPHY)</td>
<td>9</td>
</tr>
<tr>
<td>LAND FEATURES (TERRAIN) AND OBSTRUCTIONS</td>
<td>9</td>
</tr>
<tr>
<td>LAND FEATURES - MOUNTAIN PASSES</td>
<td>12</td>
</tr>
<tr>
<td>RADIO AIDS TO NAVIGATION</td>
<td>13</td>
</tr>
<tr>
<td>AIRPORTS</td>
<td>13</td>
</tr>
<tr>
<td>AIRSPACE</td>
<td>15</td>
</tr>
<tr>
<td>TERMINAL AREA CHART (TAC) COVERAGE</td>
<td>18</td>
</tr>
<tr>
<td>INSET AND SPECIAL CHART COVERAGE</td>
<td>18</td>
</tr>
<tr>
<td>CHART TABULATIONS</td>
<td>18</td>
</tr>
<tr>
<td>CARIBBEAN VFR AERONAUTICAL CHARTS (CAC)</td>
<td>20</td>
</tr>
<tr>
<td>VFR SECTIONAL AND TERMINAL AREA CHARTS</td>
<td>21</td>
</tr>
<tr>
<td>AIRPORTS</td>
<td>21</td>
</tr>
<tr>
<td>RADIO AIDS TO NAVIGATION</td>
<td>23</td>
</tr>
<tr>
<td>AIRSPACE INFORMATION</td>
<td>24</td>
</tr>
<tr>
<td>NAVIGATIONAL AND PROCEDURAL INFORMATION</td>
<td>30</td>
</tr>
<tr>
<td>CULTURE</td>
<td>32</td>
</tr>
<tr>
<td>HYDROGRAPHY</td>
<td>35</td>
</tr>
<tr>
<td>RELIEF</td>
<td>38</td>
</tr>
<tr>
<td>VFR FLYWAY PLANNING CHARTS</td>
<td>41</td>
</tr>
<tr>
<td>GENERAL INFORMATION</td>
<td>41</td>
</tr>
<tr>
<td>AIRPORTS</td>
<td>41</td>
</tr>
<tr>
<td>RADIO AIDS TO NAVIGATION</td>
<td>41</td>
</tr>
<tr>
<td>AIRSPACE INFORMATION</td>
<td>42</td>
</tr>
<tr>
<td>NAVIGATIONAL AND PROCEDURAL INFORMATION</td>
<td>45</td>
</tr>
<tr>
<td>CULTURE</td>
<td>46</td>
</tr>
<tr>
<td>BOUNDARIES</td>
<td>46</td>
</tr>
<tr>
<td>HYDROGRAPHY</td>
<td>46</td>
</tr>
<tr>
<td>RELIEF</td>
<td>46</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>HELICOPTER ROUTE CHARTS</td>
<td>47</td>
</tr>
<tr>
<td>GENERAL INFORMATION</td>
<td>47</td>
</tr>
<tr>
<td>AIRPORTS</td>
<td>47</td>
</tr>
<tr>
<td>RADIO AIDS TO NAVIGATION</td>
<td>48</td>
</tr>
<tr>
<td>AIRSPACE INFORMATION</td>
<td>49</td>
</tr>
<tr>
<td>NAVIGATIONAL AND PROCEDURAL INFORMATION</td>
<td>52</td>
</tr>
<tr>
<td>CULTURE</td>
<td>53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRSPACE</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>REFERENCES</td>
<td>57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABBREVIATIONS</td>
<td>59</td>
</tr>
</tbody>
</table>
WHAT’S NEW?
Update as of 8 September 2022

The following charting items have been added to the Chart Users’ Guide since the Guide was last published on 14 July 2022:

VFR CHARTS

No Significant Changes Applied

IFR ENROUTE CHARTS

Beginning with the September 8, 2022, publication date, all Standard Service Volume designations will be shown for VOR, VOR/DME, VORTAC, DME, and TACAN NAVAIDs on both the IFR Enroute Low and High Attitude charts.

TERMINAL PROCEDURE PUBLICATION (TPP)

Beginning with the September 8, 2022, publication date, the final approach course text in the airport sketch portion of Instrument Approach Procedures will be simplified to include only the course value and the arrowed line.
INTRODUCTION

This Chart Users’ Guide is an introduction to the Federal Aviation Administration’s (FAA) aeronautical charts and publications. It is useful to new pilots as a learning aid, and to experienced pilots as a quick reference guide.

The FAA is the source for all data and information utilized in the publishing of aeronautical charts through authorized publishers for each stage of Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) air navigation including training, planning, departures, enroute (for low and high altitudes), approaches, and taxiing charts. Digital charts are available online at:

- VFR Charts
- IFR Charts
- Terminal Procedures Publication
- Chart Supplements

Paper copies of the charts are available through an FAA Approved Print Provider. A complete list of current providers is available at [http://www.faa.gov/air_traffic/flight_info/aeronav/print_providers/](http://www.faa.gov/air_traffic/flight_info/aeronav/print_providers/).

The FAA Aeronautical Information Manual (AIM) Pilot/Controller Glossary defines all terms and abbreviations used throughout this publication. Unless otherwise indicated, miles are nautical miles (NM), altitudes indicate feet above Mean Sea Level (MSL), and times used are Coordinated Universal Time (UTC).

Notices to Air Missions (NOTAMs) alert pilots to time-critical aeronautical information that is either temporary or not sufficiently known in advance to permit publication on aeronautical charts or in other operational publications. Pilots can access NOTAM information via Flight Service Stations (FSS) or online via NOTAM Search at [https://notams.aim.faa.gov/notamSearch/](https://notams.aim.faa.gov/notamSearch/).

In addition to NOTAMs, the Safety Alerts/Charting Notices page of the Aeronautical Information Services website is also useful to pilots.

KEEP YOUR CHARTS CURRENT

Aeronautical information changes rapidly, so it is important that pilots check the effective dates on each aeronautical chart and publication. To avoid danger, it is important to always use current editions and discard obsolete charts and publications.

To confirm that a chart or publication is current, refer to the next scheduled edition date printed on the cover. Pilots should also check NOTAMs for important updates between chart and publication cycles that are essential for safe flight.

EFFECTIVE DATE OF CHART USERS’ GUIDE AND UPDATES

All information in this guide is effective as of 8 September 2022. All graphics used in this guide are for educational purposes. Chart symbology may not be to scale. Please do not use them for flight navigation.

The Chart Users’ Guide is updated when there is new chart symbology or when there are changes in the depiction of information and/or symbols on the charts. It will be published in accordance with the 56-day aeronautical chart product schedule.

COLOR VARIATION

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

REPORTING CHART DISCREPANCIES

Your experience as a pilot is valuable and your feedback is important. We make every effort to display accurate information on all FAA charts and publications, so we appreciate your input. Please notify us concerning any requests for changes, or potential discrepancies you see while using our charts and related products.

FAA, Aeronautical Information Services
1305 East-West Highway
SSMC4, Room 3424
Silver Spring, MD 20910-3281

Telephone Toll-Free 1-800-638-8972
Aeronautical Inquiries: [https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/Aeronautical_Inquiries/](https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/Aeronautical_Inquiries/)
EXPLANATION OF VFR TERMS AND SYMBOLS

This chapter covers the Sectional Aeronautical Chart (Sectional). These charts include the most current data at a scale of (1:500,000) which is large enough to be read easily by pilots flying by sight under Visual Flight Rules. Sectionals are named after a major city within its area of coverage.

The chart legend includes aeronautical symbols and information about drainage, terrain, the contour of the land, and elevation. You can learn to identify aeronautical, topographical, and obstruction symbols (such as radio and television towers) by using the legend.

A brief description next to a small black square indicates the exact location for many of the landmarks easily recognized from the air, such as stadiums, pumping stations, refineries, etc. A small black open circle with descriptive type indicates oil, gas or mineral wells. A small black circle with descriptive type indicates water, oil or gas tanks. The scale for some items may be increased to make them easier to read on the chart.

Aeronautical Information Services' charts are prepared in accordance with specifications of the Interagency Air Committee (IAC) and are approved by representatives of the Federal Aviation Administration (FAA) and the Department of Defense (DoD).

WATER FEATURES (HYDROGRAPHY)

Water features are depicted using two tones of blue, and are considered either "Open Water" or "Inland Water." "Open Water," a lighter blue tone, shows the shoreline limitations of all coastal water features at the average (mean) high water levels for oceans and seas. Light blue also represents the connecting waters like bays, gulfs, sounds and large estuaries.

Exceptionally large lakes like the Great Lakes, Great Salt Lake, and Lake Okeechobee, etc., are considered Open Water features. The Open Water tone extends inland as far as necessary to adjoin the darker blue "Inland Water" tones. All other bodies of water are marked as "Inland Water" in the darker blue tone.

LAND FEATURES (TERRAIN) AND OBSTRUCTIONS

The elevation and configuration of the Earth's surface is important to pilots. Our Aeronautical Information Specialists are devoted to showing the contour of the earth and any obstructions clearly and accurately on our charts. We use five different techniques: contour lines, shaded relief, color tints, obstruction symbols, and Maximum Elevation Figures (MEF).

1. Contour lines join points of equal elevation. On Sectionals, basic contours are spaced at 500' intervals. Intermediate contours are typically at 250' intervals in moderately level or gently rolling areas. Auxiliary contours at 50', 100', 125', or 150' intervals occasionally show smaller relief features in areas of relatively low relief. The pattern of these lines and their spacing gives the pilot a visual concept of the terrain. Widely spaced contours represent gentle slopes, while closely spaced contours represent steep slopes.

2. Shaded relief shows how terrain may appear from the air. Shadows are shown as if light is coming from the northwest, because studies have shown that our visual perception has been conditioned to this view.
3. Different color tints show bands of elevation relative to sea level. These colors range from light green for the lower elevations, to dark brown for the higher elevations.

4. Obstruction symbols show man made vertical features that could affect safe navigation. FAA’s Aeronautical Information Manual (AIM) maintains a database of over obstacles in the United States, Canada, the Caribbean, Mexico and U.S. Pacific Island Territories. Aeronautical Specialists evaluate each obstacle based on charting specifications before adding it to a visual chart. When a Specialist is not able to verify the position or elevation of an obstacle, it is marked UC, meaning it is "under construction" or being reported, but has not been verified.

The FAA uses a Digital Obstacle File (DOF) to collect and disseminate data. Because land and obstructions frequently change, the source data on obstructions and terrain is occasionally incomplete or not accurate enough for use in aeronautical publications. For example, when the FAA receives notification about an obstruction, and there is insufficient detail to determine its position and elevation, the FAA Flight Edit Program conducts an investigation.

The Flight Edit crew visually verifies the cultural, topographic, and obstacle data. Charts are generally flight-checked every four years. This review includes checking for any obstruction that has been recently built, altered, or dismantled without proper notification.

Obstacles under construction are indicated by placing the letters UC adjacent to the obstacle type.

5. The Maximum Elevation Figure (MEF) represents the highest elevation within a quadrant, including terrain and other vertical obstacles (towers, trees, etc.). A quadrant on Sectionals is the area bounded by ticked lines dividing each 30 minutes of latitude and each 30 minutes of longitude. MEF figures are rounded up to the nearest 100' value and the last two digits of the number are not shown.
MEFs over land and open water areas are used in areas containing man-made obstacles such as oil rigs.

In the determination of MEFs, the FAA uses extreme care to calculate the values based on the existing elevation data shown on source material. Aeronautical Information Specialists use the following procedure to calculate MEFs:

**MEF - Man-made Obstacle**

When a man-made obstacle is more than 200' above the highest terrain within the quadrant:

1. Determine the elevation of the top of the obstacle above MSL.

2. Add the possible vertical error of the source material to the above figure (100' or 1/2 contour interval when interval on source exceeds 200'. U.S. Geological Survey Quadrangle Maps with contour intervals as small as 10’ are normally used).

3. Round the resultant figure up to the next higher hundred-foot level.

**Example:**

- Elevation of obstacle top (MSL) 2649
- Possible obstacle error +100
- equals 2749
- Raise to the following 100’ level 2800

**Maximum Elevation Figure (MEF)** 28
MEF - Natural Terrain Feature or Natural Vertical Obstacle

When a natural terrain feature or natural vertical obstacle (e.g. a tree) is the highest feature within the quadrangle:

1. Determine the elevation of the feature.

2. Add the possible vertical error of the source to the above figure (100’ or 1/2 the contour interval when interval on source exceeds 200’).

3. Add a 200’ allowance for uncharted natural or manmade obstacles. Chart specifications don’t require the portrayal of obstacles below minimum height.

4. Round the figure up to the next higher hundred-foot level.

Example:

Elevation of obstacle top (MSL) 13161
Possible vertical error +100
Obstacle Allowance +200
equals 13461
Raise to the following 100’ level 13500
Maximum Elevation Figure (MEF) 135

Pilots should be aware that while the MEF is based on the best information available to the Specialist, the figures are not verified by field surveys. Also, users should consult the Aeronautical Information Services website to ensure that your chart has the latest MEF data available.

LAND FEATURES - MOUNTAIN PASSES

The Mountain Pass symbol does not indicate a recommended route or direction of flight, and pass elevation does not indicate a recommended clearance altitude. Hazardous flight conditions may exist within and near mountain passes.
On VFR Charts, information about radio aids to navigation (NAVAID) are boxed, as illustrated. Duplication of data is avoided. When two or more radio aids in a general area have the same name with different frequencies, Tactical Air Navigation (TACAN) channel numbers, or identification letters, and no misinterpretation can result, the name of the radio aid may be indicated only once within the identification box. Very High Frequency/Ultra High Frequency (VHF/UHF) NAVAID names and identification boxes (shown in blue) take precedence. Only those items that differ (e.g., frequency, Morse Code) are repeated in the box in the appropriate color. The choice of separate or combined boxes is made in each case on the basis of economy of space and clear identification of the radio aids.

A NAVAID that is physically located on an airport may not always be represented as a typical NAVAID symbol. A small open circle indicates the NAVAID location when collocated with an airport icon.

The type of NAVAID will be identified by: “VOR,” (VHF Omni-Directional Range) “VORTAC” (VOR Tactical Aircraft Control), “VOR-DME,” (VOR-Distance Measuring Equipment) or “DME” (Distance Measuring Equipment) positioned on and breaking the top line of the NAVAID box.

DMEs are shown without the compass rose.

AIRPORTS

Airports in the following categories are charted as indicated (additional symbols are shown later in this Section). Public use airports:

- Hard-surfaced runways greater than 8069’ or some multiple runways less than 8069’
- Hard-surfaced runways 1500’ to 8069’
- Other than hard-surfaced runways
- Seaplane bases

Military airports:

- Other than hard-surfaced runways

Hard-surfaced runways are depicted the same as public-use airports.

U.S. military airports are identified by abbreviations such as AAF (Army Air Field), AFB (Air Force Base), MCAS (Marine Corps Air Station), NAS (Naval Air Station), NAV (Naval Air Facility), NAAS (Naval Auxiliary Air Station), etc. Canadian military airports are identified by the abbreviation DND (Department of National Defense).

Fuel Available:

- Fuel availability indicated by use of tick marks around the basic airport symbol. Consult Chart Supplement for details and availability.

Other airports with or without fuel:
Airports are plotted in their true geographic position unless the symbol conflicts with a NAVAID at the same location. In such cases, the airport symbol will be displaced, but the relationship between the airport and the NAVAID will be retained. When depicting a seaplane base, the eye of the anchor symbol will be charted as close to the docking area as possible, with the remainder of the symbol in the water.

Airports are identified by their designated name. Generic parts of long airport names (such as "airport," "field," or "municipal") and the first names of persons are commonly omitted unless they are needed to distinguish one airport from another with a similar name.

The elevation of an airport is the highest point on the usable portion of the landing areas. Runway length is the length of the longest active runway, including displaced thresholds and excluding overruns. Runway length is shown to the nearest 100', using 70 as the rounding point; a runway 8070' in length is charted as 81, while a runway 8069' in length is charted as 80. If a seaplane base is collocated with an airport, there will be additional seaplane base water information listed for the elevation, lighting and runway.

**Flight Service Station on field**

**Elevation in feet**

<table>
<thead>
<tr>
<th>Flight Service Station on field</th>
<th>FSS</th>
<th>Elevation in operation Sunset to Sunrise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airports where fixed wing special VFR operations are prohibited (shown above airport name) FAR 91</td>
<td>NO SVFR</td>
<td></td>
</tr>
<tr>
<td>Indicates FAR 93 Special Air Traffic Rules and Airport Traffic Pattern</td>
<td></td>
<td>Lighting limitations exist; refer to Chart Supplement</td>
</tr>
<tr>
<td>Location Identifier</td>
<td>(NAM)</td>
<td>Length of longest runway in hundreds of feet; usable length may be less</td>
</tr>
<tr>
<td>ICAO Location Identifier</td>
<td>(PNAM)</td>
<td>Aeronautical advisory station</td>
</tr>
<tr>
<td>Control Tower (CT) - primary frequency</td>
<td>CT -118.3</td>
<td>Runways with Right Traffic Patterns (public use)</td>
</tr>
<tr>
<td>Star indicates operation part-time. See tower frequencies tabulation for hours of operation</td>
<td>*</td>
<td>See Chart Supplement</td>
</tr>
<tr>
<td>Follows the Common Traffic Advisory Frequency (CTAF)</td>
<td>⚫</td>
<td>VFR Advisory Service Shown when ATIS is not available and frequency is other than the primary CT frequency</td>
</tr>
<tr>
<td>Automatic Terminal Information Services</td>
<td>ATIS 123.8</td>
<td>Weather Camera (Alaska)</td>
</tr>
<tr>
<td>Automatic Flight Information Service</td>
<td>AFIS 135.2</td>
<td>Airport of Entry</td>
</tr>
<tr>
<td>Automated Surface Weather Observing Systems, shown when full-time ATIS is not available</td>
<td>ASOS/AWOS 135.42</td>
<td>When information is lacking, the respective character is replaced by a dash. Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting.</td>
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</tbody>
</table>

Airports with Control Towers (CT) and their related data are shown in blue. All other airports and their related data are shown in magenta. The **L** symbol indicates that runway lights are on from dusk to dawn. **L** indicates that the pilot must consult the Chart Supplement to determine runway lighting limitations, such as: available on request (by radio-call, letter, phone, etc), part-time lighting, or pilot/airport controlled lighting. Lighting codes refer to runway edge lights. The lighted runway may not be the longest runway available, and lights may not be illuminated along the full length of the runway. The Chart Supplement has a detailed description of airport and air navigation lighting aids for each airport. A dash represents no runway edge lights.

The symbol ⚫ indicates the existence of a rotating or flashing airport beacon operating from dusk to dawn. The Aeronautical Information Manual (AIM) thoroughly explains the types and uses of airport lighting aids.
Right traffic information is shown using the abbreviation ‘RP’ for right pattern, followed by the appropriate runway number(s) (RP 18). Special conditions or restrictions to the right pattern are indicated by the use of an asterisk (‘RP) to direct the pilot to the Chart Supplement for special instructions and/or restrictions.

The type “OBJECTIONABLE” associated with an airport symbol indicates that an objectionable airspace determination has been made for the airport per FAA JO 7400.2 Section 4, Airport Charting and Publication of Airport Data. Objectionable airspace determinations are based upon a number of factors including conflicting traffic patterns with another airport, hazardous runway conditions, or natural or man-made obstacles in close proximity to the landing area. FAA Regional Airports Offices are responsible for airspace determinations. Address any challenges to objectionable airspace determinations to your FAA Regional Airports Office.

AIRSPACE

CONTROLLED AIRSPACE

Controlled airspace consists of those areas where some or all aircraft may be subject to air traffic control, such as: Class A, Class B, Class C, Class D, Class E Surface (SFC) and Class E Airspace.

Class A Airspace within the United States extends from 18,000’ up to FL600. While visual charts do not depict Class A, it is important to note its existence.

Class B Airspace is shown in abbreviated form on the Caribbean Charts (CAC). The Sectional Aeronautical Chart (Sectional) and Terminal Area Chart (TAC) show Class B in greater detail. The MSL ceiling and floor altitudes of each sector are shown in solid blue figures with the last two zeros omitted. Floors extending "upward from above" a certain altitude are preceded by a (+). Operations at and below these altitudes are outside of Class B Airspace. Radials and arcs used to define Class B are prominently shown on TACs. Detailed rules and requirements associated with the particular Class B are shown. The name by which the Class B is shown as LAS VEGAS CLASS B for example.

Class C Airspace is shown in abbreviated form on Caribbean Charts (CAC). Sectionals and TACs show Class C in greater detail. The MSL ceiling and floor altitudes of each sector are shown in solid magenta figures with the last two zeros eliminated.

Class D Airspace is identified with a blue dashed line. Class D operating less than continuous is indicated by the following note:

Ceilings of Class D are shown as follows: \[30]\]

A minus in front of the figure is used to indicate "from surface to, but not including..."

Class E Surface (SFC) Airspace is symbolized with a magenta dashed line. Class E (SFC) operating less than continuous is indicated by the following note:

Class E Airspace exists at 1200’ AGL unless designated otherwise. The lateral and vertical vertical limits of all Class E, (up to, but not including 18,000’) are shown by narrow bands of vignette on Sectionals and TACs.

Controlled airspace floors of 700’ above the ground are defined by a magenta vignette; floors other than 700’ that laterally abut uncontrolled airspace (Class G) are defined by a blue vignette; differing floors greater than 700’ above the ground are annotated by a symbol and a number indicating the floor.
If the ceiling is less than 18,000' MSL, the value (preceded by the word "ceiling") is shown along the limits of the controlled airspace. These limits are shown with the same symbol indicated above.

UNCONTROLLED AIRSPACE

Class G Airspace within the United States extends up to 14,500' Mean Sea Level. At and above this altitude is Class E, excluding the airspace less than 1500’ above the terrain and certain special use airspace areas.

SPECIAL USE AIRSPACE

Special Use Airspace (SUA) confines certain flight activities and restricts entry, or cautions other aircraft operating within specific boundaries. Except for Controlled Firing Areas, SUA areas are depicted on VFR Charts. Controlled Firing Areas are not charted because their activities are suspended immediately when spotter aircraft, radar, or ground lookout positions indicate an aircraft might be approaching the area. Nonparticipating aircraft are not required to change their flight paths. SUA areas are shown in their entirety (within the limits of the chart), even when they overlap, adjoin, or when an area is designated within another area. The areas are identified by type and identifying name/number, and are positioned either within or immediately adjacent to the area.

* Alert Areas do not extend into Class A, B, C and D airspace, or Class E airport surface areas.

OTHER AIRSPACE AREAS

Mode C Required Airspace (from the surface to 10,000' MSL) within a 30 NM radius of the primary airport(s) for which a Class B is designated, is depicted by a solid magenta line.

Mode C is required, but not depicted for operations within and above all Class C up to 10,000’ MSL.

Enroute Mode C requirements (at and above 10,000’ MSL except in airspace at and below 2500' AGL) are not depicted. See FAR 91.215 and the AIM.

FAR 93 Airports and heliports under Federal Aviation Regulation 93 (FAR 93), (Special Air Traffic Rules and Airport Traffic Patterns), are shown by "boxing" the airport name.

FAR 91 Airports where fixed wing special visual flight rules operations are prohibited (FAR 91) are shown with the type "NO SVFR" above the airport name.

National Security Areas indicated with a broken magenta line and Special Flight Rules Areas (SFRAs) indicated with the following symbol: , consist of airspace with defined vertical and lateral dimensions established at locations where there is a requirement for increased security and safety of ground facilities. Pilots should avoid flying through these depicted areas. When necessary, flight may be temporarily prohibited.

The Washington DC Flight Restricted Zone (FRZ) is related to National Security. It is depicted using the Prohibited/Restricted/Warning Area symbology and is located within the SFRA. It is defined as the airspace within approximately a 13 to 15 NM radius of the DCA VOR-DME. Additional requirements are levied upon aviators requesting access to operate inside the National Capital Region.

Temporary Flight Restriction (TFR) Areas Relating to National Security are indicated with a broken blue line. A Temporary Flight Restriction (TFR) is a type of Notification to Air Missions (NOTAM). A TFR defines an area where air travel is restricted due to a hazardous condition, a special event, or a general warning for the entire airspace. The text of the actual TFR contains the fine points of the restriction. It is important to note that only TFRs relating to National Security are charted.
**Air Defense Identification Zones (ADIZs)** are symbolized using the ADIZ symbol: 

As defined in Code of Federal Regulations 14 (CFR 14) Part 99, an ADIZ is an area in which the ready identification, location, and control of all aircraft is required in the interest of national security. ADIZ boundaries include Alaska, Hawaii, Guam, Canada and the Contiguous U.S.

**National Defense Airspace Temporary Flight Restriction (TFR) Areas** are bounded with cross hatching: 

These areas include airspace that is subject to routine TFRs published as NOTAMs that have a 12+ month duration.

**Terminal Radar Service Areas (TRSAs)** are shown in their entirety, symbolized by a screened black outline of the entire area including the various sectors within the area.

The outer limit of the entire Terminal Radar Service Areas (TRSA) is a continuous screened black line. The various sectors within the TRSA are symbolized by narrower screened black lines.

Each sector altitude is identified in solid black color by the MSL ceiling and floor values of the respective sector, eliminating the last two zeros. A leader line is used when the altitude values must be positioned outside the respective sectors because of charting space limitations. The TRSA name is shown near the north position of the TRSA as follows:

**Palm Springs TRSA.** Associated frequencies are listed in a table on the chart border.

**Military Training Routes (MTRs)** are shown on Sectionals and TACs. They are identified by the route designator: 

Route designators are shown in solid black on the route centerline, positioned along the route for continuity. The designator IR or VR is not repeated when two or more routes are established over the same airspace, e.g., IR201-205-227. Routes numbered 001 to 099 are shown as IR1 or VR99, eliminating the initial zeros. Direction of flight along the route is indicated by small arrowheads adjacent to and in conjunction with each route designator.

The following note appears on Helicopters, Sectionals and TACs except for Hawaiian Islands which is different.

There are IFR (IR) and VFR (VR) routes as follows:

**Route identification:**

a. Routes at or below 1500’ AGL (with no segment above 1500’) are identified by four-digit numbers; e.g., VR1007, etc. These routes are generally developed for flight under Visual Flight Rules.

b. Routes above 1500’ AGL (some segments of these routes may be below 1500’) are identified by three or fewer digit numbers; e.g., IR21, VR302, etc. These routes are developed for flight under Instrument Flight Rules.

MTRs can vary in width from 4 to 16 miles. Detailed route width information is available in the Flight Information Publication (FLIP) AP/1B (a Department of Defense publication), or through the 56 Day NASR Subscription from the National Flight Data Center (NFDC).

**Special Military Activity** areas are indicated on Sectionals by a boxed note in black type. The note contains radio frequency information for obtaining area activity status.
TERMINAL AREA CHART (TAC) COVERAGE

TAC coverage is shown on appropriate Sectionals by a 1/4” masked line as indicated below. Within this area pilots should use TACs, which provide greater detail. A note indicating that the area is on the TAC appears near the masked boundary line.

INSET AND SPECIAL CHART COVERAGE

Inset and Special Chart Coverage (i.e., Grand Canyon Chart) is shown on appropriate Sectionals by a 1/8” masked line as indicated below. A note to this effect appears near the masked boundary line. (Additional examples shown in VFR Sectional and Terminal Charts > Navigational and Procedural Information > Chart Limits.)

CHART TABULATIONS

**Airport Tower Communications** are provided in a columnized tabulation for all tower-controlled airports that appear on the respective chart. Airport names are listed alphabetically. If the airport is military, the type of airfield, e.g., AAF, AFB, NAS, is shown after the airfield name. In addition to the airport name, tower operating hours, primary Very High Frequency/Ultra High Frequency (VHF/UHF) local Control Tower (CT), Ground Control (GND CON), and Automatic Terminal Information Service (ATIS) frequencies, when available, will be given. Airport Surveillance Radar (ASR) and/or Precision Approach Radar (PAR) procedures are listed when available.

**Approach Control Communications** are provided in a columnized tabulation listing Class B, Class C, Terminal Radar Service Areas (TRSA) and Selected Approach Control Facilities when available. Primary VHF/UHF frequencies are provided for each facility. Sectorization occurs when more than one frequency exists and/or is approach direction dependent. Availability of service hours is also provided.

**Special Use Airspace (SUA):** Prohibited, Restricted and Warning Areas are presented in blue and listed numerically for U.S. and other countries. Restricted, Danger and Advisory Areas outside the U.S. are tabulated separately in blue. A tabulation of Alert Areas (listed numerically) and Military Operations Areas (MOA) (listed alphabetically) appear on the chart in magenta. All are supplemented with altitude, time of use and the controlling agency/contact facility, and its frequency when available. Users need to be aware that a NOTAM addressing activation will NOT be issued to announce permanently listed times of use. The controlling agency will be shown when the contact facility and frequency data is unavailable.
Airports with control towers are indicated on the face of the chart by the letters CT followed by the primary VHF tower frequency(ies). Information for each tower is listed in the table below. Operational hours are local time. The primary VHF and UHF tower and ground control frequencies are listed.

**NOT FOR NAVIGATION**

Automatic Terminal Information Service (ATIS) frequencies shown on the face of the chart are arrival VHF/UHF frequencies. All ATIS frequencies are listed in the table below. ATIS operational hours may differ from tower operational hours.

*ASR and/or PAR indicate Radar Approach Control available.*

*MON-FRI* indicates Monday through Friday.

*OT indicates other times.*

### Frequencies (VHF/UHF)

**CLASS B, CLASS C, TRSA AND SELECTED RADAR APPROACH CONTROL FREQUENCIES**

<table>
<thead>
<tr>
<th>FACILITY</th>
<th>FREQUENCIES</th>
<th>SERVICE AVAILABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINCINNATI CLASS B VHF/UHF</td>
<td>117.9 (RWY 09/27 090-269)</td>
<td>CONTINUOUS 363.15</td>
</tr>
<tr>
<td></td>
<td>123.75 (RWY 09/27 270-089)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>130.3 (RWY 18/36 180-359)</td>
<td></td>
</tr>
<tr>
<td>CHARLESTON CLASS C</td>
<td>124.1 269.125 (9N)</td>
<td>CONTINUOUS</td>
</tr>
<tr>
<td></td>
<td>119.2 269.125 (9S)</td>
<td></td>
</tr>
<tr>
<td>COLUMBUS CLASS C</td>
<td>120.3 317.375 (090-099)</td>
<td>CONTINUOUS</td>
</tr>
<tr>
<td></td>
<td>132.3 276.6 (100-279)</td>
<td></td>
</tr>
<tr>
<td>DAYTON CLASS C</td>
<td>127.45 294.5 (090-290)</td>
<td>CONTINUOUS</td>
</tr>
<tr>
<td></td>
<td>118.85 327.3 (040-140)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>134.45 316.7 (181-289)</td>
<td></td>
</tr>
<tr>
<td>BERTOL TRSA</td>
<td>134.25 349.0 (040-227)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>135.5 317.0 (228-264)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>127.85 371.85 27L CNTR</td>
<td></td>
</tr>
<tr>
<td>HUNTINGTON TRSA</td>
<td>118.75 357.8 (5)</td>
<td>CONTINUOUS</td>
</tr>
<tr>
<td></td>
<td>132.95 257.8 (9N)</td>
<td></td>
</tr>
<tr>
<td>PERRINER/BAYB RADAR</td>
<td>118.75 353.9</td>
<td>CONTINUOUS</td>
</tr>
</tbody>
</table>

**SPECIAL USE AND FACE ON SECTIONAL CHART**

- **NOT FOR NAVIGATION**
- Not applicable for this term.

U.S. P—PROHIBITED, R—RESTRICTED, W—WARNING, A—ALERT, MOA—MILITARY OPERATIONS AREA

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>ALTITUDE</th>
<th>TIME OF USE</th>
<th>CONTROLLING AGENCY/CONTACT FACILITY</th>
<th>FREQUENCIES——VHF/UHF</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-4602 A</td>
<td>TO BUT NOT INCL 4000</td>
<td>CONTINUOUS</td>
<td>MAY 1-SEP 15</td>
<td>WASHINGTON CNT 118.75 377.1</td>
</tr>
<tr>
<td>R-4602 B</td>
<td>4000 TO BUT NOT INCL 11,000</td>
<td>BY NOTAM</td>
<td>24 HRS IN ADVANCE</td>
<td>WASHINGTON CNT 118.75 377.1</td>
</tr>
<tr>
<td>R-4602 C</td>
<td>11,000 TO BUT NOT INCL 18,000</td>
<td>BY NOTAM</td>
<td>24 HRS IN ADVANCE</td>
<td>WASHINGTON CNT 118.75 377.1</td>
</tr>
</tbody>
</table>

A-220 | TO 4000 AGL | 0800-2000 | NO A/G | |

*Altitude indicates floor of MOA. All MOAs extend upward to include FL 180 unless otherwise indicated in tabulation or on chart.

**Sunrise to Sunset**

### CANADA R—RESTRICTED, D—DANGER AND A—ADVISORY AREA

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>LOCATION</th>
<th>ALTITUDE</th>
<th>TIME OF USE</th>
<th>CONTROLLING AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYT651</td>
<td>CONFEDERATION BRIDGE, PE</td>
<td>TO 500</td>
<td>CONTINUOUS</td>
<td></td>
</tr>
<tr>
<td>CYT751</td>
<td>WINGATE, NS</td>
<td>TO FL 200</td>
<td>OCCASIONAL</td>
<td>MONCTON ACC</td>
</tr>
<tr>
<td>CYT702</td>
<td>GREENWOOD, NS</td>
<td>TO 500</td>
<td>CONT DAILY</td>
<td>MONCTON ACC</td>
</tr>
<tr>
<td>CYT732</td>
<td>LIVERPOOL, NS</td>
<td>TO FL 280</td>
<td>CONT DAILY</td>
<td>MONCTON ACC</td>
</tr>
</tbody>
</table>
Starting in 2016, the FAA CARIBBEAN VFR Aeronautical Charts were first published, replacing the discontinued World Aeronautical Charts (WACs), parts of CH-25, CJ-26, and CJ-27, with CJ-26’s last effective date of 1 February 2018 and CJ-27 last effective date of 29 March 2018. The Caribbean Charts are published as two VFR Charts: Caribbean 1 (CAC-1) covers Southern Florida, Cuba, Haiti and the Bahamas; Caribbean 2 (CAC-2) covers Puerto Rico, Haiti, Dominican Republic, the Lesser Antilles and Leeward Islands. CAC-1 is updated annually and CAC-2 biennially.

Caribbean Charts are designed for VFR and provide aeronautical and topographic information of the Caribbean. The aeronautical information includes airports, radio aids to navigation, Class B airspace and special use airspace. The topographic information includes city tint, populated places, principal roads, drainage patterns and shaded relief.

The chart symbols used on the Caribbean Charts are similar to those used in the Sectional and Terminal Area Charts, the major difference being in scale. The Caribbean VFR Chart scale is 1:1,000,000 vs the Sectional Chart Scale of 1:500,000 and Terminal Area Chart Scale of 1:250,000. Chart symbology will appear smaller on the Caribbean VFR Charts.

Example from Caribbean 1 VFR Aeronautical Chart

Airport Traffic Service and Airport Space Information Unique to CAC

Only airway and reserved airspace effective below 18,000’ MSL in the U.S. airspace and below FL200 outside of the U.S. airspace are shown.
GENERAL INFORMATION

The symbols shown in this section illustrate those that appear in the Sectional Aeronautical Charts (Sectionals) and Terminal Area Charts (TACs). The same symbology is utilized in VFR Flyway Planning Charts, Helicopter Route Charts and Caribbean Aeronautical Charts (CACs), however the scale of the symbols may be different due to the particular chart scales. Where symbology is distinctive to a given chart, examples and explanations are given in the additional examples. These charts are updated every 56 days.

AIRPORTS

Landplane: Civil

Airports having control towers (CT) are shown in blue, all others are shown in magenta.

All recognizable runways, including some which may be closed, are shown for visual identification purposes. Fuel available.

Runway patterns will be depicted at airports with at least one hard surfaced runway 1500’ or greater in length.

Landplane: Civil-Military

Refueling and repair facilities not indicated.

Landplane: Military

Refueling and repair facilities not indicated.

Heliport

(Selected)

Seaplane: Civil

Ultralight Flight Park

(Selected)

Landplane: Emergency / Landmark Value

Fuel not available or complete information is not available.

PUBLIC USE - (Soft surfaced runway, or hard surfaced runway less than 1500’ in length.) Fuel not available.

RESTRICTED OR PRIVATE - (Soft surfaced runway, or hard surfaced runway less than 1500’ in length.) Non-public use having emergency or landmark value.

OBJECTIONABLE

OBJECTIONABLE is an airport that has an airspace determination based upon a number of factors including conflicting traffic patterns with another airport, hazardous runway conditions, or natural or man-made obstacles in close proximity to the landing area.

UNVERIFIED - A landing area available but warranting more than ordinary precaution due to:

(1) lack of current information on field conditions,

and/or

(2) available information indicates peculiar operating limitations.

ABANDONED - Depicted for landmark value or to prevent confusion with an adjacent usable landing area. (Normally at least 3000’ paved).

Seaplane: Emergency

Fuel not available or complete information is not available.
AIRPORTS (Continued)

Airport Data Grouping

(Pvt): Non-public use having emergency or landmark value.

“OBJECTIONABLE”: This airport may adversely affect airspace use.

Flight Service Station on field

Airports where fixed wing special VFR operations are prohibited (shown above airport name) FAR 91

Indicates FAR 93 Special Air Traffic Rules and Airport Traffic Pattern

Location Identifier

ICAO Location Identifier

Control Tower (CT) - primary frequency

Star indicates operation part-time. See tower frequencies tabulation for hours of operation

Follows the Common Traffic Advisory Frequency (CTAF)

Automatic Terminal Information Services

Automatic Flight Information Service

Automated Surface Weather Observing Systems; shown when full-time ATIS is not available.

Elevation in feet

Lighting in operation Sunset to Sunrise

Lighting limitations exist; refer to Chart Supplement

Length of longest runway in hundreds of feet; usable length may be less.

Aeronautical advisory station

Runways with Right Traffic Patterns (public use)

See Chart Supplement

VFR Advisory Service Shown when ATIS is not available and frequency is other than the primary CT frequency.

Weather Camera (Alaska)

Airport of Entry

When information is lacking, the respective character is replaced by a dash. Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting.
RADIO AIDS TO NAVIGATION

VOR

Operates less than continuous or On-Request

VORTAC

When an NDB NAVAID shares the same name and Morse Code as the VOR NAVAID the frequency can be collocated inside the same box to conserve space.

VOR-DME

Crosshatch indicates Shutdown status

Non-Directional Radio Beacon (NDB)

Underline indicates no voice on this frequency

NDB-DME

DME co-located at an airport

Note: DMEs are shown without the compass rose.

Compass Rose

Compass Rose is “reference” oriented to magnetic north

Example of VOR NAVAID co-located at airport

Open circle symbol shown when NAVAID located on airport. Type of NAVAID shown in top of box.

Compass Rosette

Shown only in areas void of VOR roses.

Compass rosette will be based on the five year epoch magnetic variation model.
RADIO AIDS TO NAVIGATION (Continued)

Automated Weather Broadcast Services

Automated Weather Observing System (AWOS) / Automated Surface Observing System (ASOS).

Flight Service Station (FSS)

Heavy line box indicates Flight Service Station (FSS). Frequencies 122.2 and 255.4 (Conterminous U.S.); 121.5, 122.2, 243.0 and 255.4 (Alaska); and 121.5, 126.7, and 243.0 (Canada) are available at many FSSs and are not shown above boxes. All other frequencies are shown. Frequencies transmit and receive except those followed by an R.

R - receive only

Off Airport AWOS/ASOS

Broadcast Stations (BS)

On request by the proper authority or when a VFR Checkpoint

Remote Communications Outlet (RCO)

Frequencies above thin line box are remoted to NAVAID site. Other frequencies at FSS providing voice communication may be available determined by altitude and terrain. Consult Chart Supplement for complete information.

Thin line box without frequencies and controlling FSS name indicates no FSS frequency available.

AIRSPACE INFORMATION

Class B Airspace

Sectional

Appropriate notes as required may be shown.

Only the airspace effective below 18,000 feet MSL are shown.

(Mode C see FAR 91.215 / AIM)

Terminal Area Chart (TAC)

All mileages are nautical (NM).

All radials are magnetic.
AIRSPACE INFORMATION (Continued)

Class C Airspace

Appropriate notes as required may be shown.

(Mode C see FAR 91.215/AIM)

Class E Airspace

The limits of Class E airspace shall be shown by narrow vignettes or by the dashed magenta symbol. Individual units of designated airspace are not necessarily shown; instead, the aggregate lateral and vertical limits shall be defined by the following:

Airspace beginning at the surface (sfc) designated around airports...

Airspace beginning at 700 feet AGL that laterally abuts 1200 feet or higher Class E airspace...

Airspace beginning at 700 feet AGL that laterally abuts uncontrolled (Class G) airspace...

Airspace beginning at 1200 feet AGL that laterally abuts uncontrolled (Class G) airspace...

Differentiates floors of airspace greater than 700 feet above the surface...

When the ceiling is less than 18,000 feet MSL, the value prefixed by the word “CEILING”, shall be shown along the limits.

Class D Airspace

Altitude in hundreds of feet MSL

(A minus in front of the figure is used to indicate “from surface to but not including...”)

Airspace beginning at the surface (sfc) designated around airports...

Airspace beginning at the surface with an airspace exclusion area where Class E airspace is excluded below 1200’ MSL.
AIRSPACE INFORMATION (Continued)

Class E Airspace (Continued)

Low Altitude Airways VOR and LF/MF (Class E Airspace)

Low altitude Federal Airways are indicated by centerline. Only the controlled airspace effective below 18,000 feet MSL is shown.

Miscellaneous Air Routes

Combined Federal Airway/RNAV 2 “T” Routes are identified in solid blue type adjacent to the solid magenta federal airway identification. The joint route symbol is screened magenta.

Canadian Airspace

Individual units of designated Canadian airspace are not necessarily shown; instead, the aggregate lateral and vertical limits shall be portrayed as closely as possible to the comparable U.S. airspace. Appropriate notes as required may be shown.

Flight Information Regions (FIR)

No FIR exists this side - No ticks

Oceanic Control Areas (OCA)

Control Areas (CTA)

Offshore Control Areas
AIRSPACE INFORMATION (Continued)

Special Conservation Areas

National Park, Wildlife Refuge, Primitive and Wilderness Areas, etc.

Special Flight Rules Area (SFRA) Relating to National Security

Example: Washington DC

Appropriate notes as required may be shown.

Note: Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.

Temporary Flight Restriction (TFR) Relating to National Security

Example: Washington DC

Appropriate notes as required may be shown.

| CAUTION |
| CONTACT FLIGHT SERVICE FOR LATEST FLIGHT RESTRICTION STATUS AND NOTAMS ASSOCIATED WITH P-40 AND R-4009 |

NOAA Regulated National Marine Sanctuary Designated Areas

Flight operations below 1000’ AGL over the designated areas within the Gulf of Farallones National Marine Sanctuary violate NOAA regulations (see 15 CFR 92).
AIRSPACE INFORMATION (Continued)

Special Flight Rules Area (SFRA)

Only the airspace effective below 18,000 feet MSL is shown.

The type of area shall be spelled out in large areas if space permits.

* Alert Areas do not extend into Class A, B, C and D airspace, or Class E airport surface areas.

Special Use Airspace

Flight Restricted Zone (FRZ) Relating to National Security

National Security Area

Appropriate notes as required may be shown

Special Awareness Training Areas

Mode C (FAR 91.215)

Appropriate notes as required may be shown.

Air Defense Identification Zone (ADIZ)

Note: Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.

Special Air Traffic Rules / Airport Patterns (FAR Part 93)

Appropriate boxed note as required shown adjacent to area.

Inside the FAR Part 93 boundary area, the cross hatching is at a 45 degree angle. The hypsometric tint shall be masked within the area around the yellow city tint when applicable (should not be confused with white glacier tint).
High Energy Radiation Areas

Appropriate notes as required may be shown.

Military Training Routes (MTR)

Special Military Activity Routes (SMAR)

Boxed notes shown adjacent to route.

IFR Routes

Arrival

Departure

Arrival/Departure

TAC only

Special Security Notice Permanent Continuous Flight Restriction Areas

Sporting Event Temporary Flight Restriction (TFR) Sites

National Defense Airspace Temporary Flight Restriction (TFR) Areas

Space Operations Area (FAR Part 91.143)

Miscellaneous Activity Areas

Aerobatic Practice Area

Glider Operations

Hang Glider Activity

Ultralight Activity

Unmanned Aircraft Activity

Parachute Jumping Area with Frequency

Space Launch Activity Area
AIRSPACE INFORMATION (Continued)

VFR Transition Routes

Appropriate notes as required may be shown.

Uni-directional

Bi-directional

Bi-directional with NAVAID Ident and Radial

Terminal Radar Service Area (TRSA)

TRSA Name
HARRISBURG TRSA

TRSA Boundaries

TRSA Sectors

Appropriate notes as required may be shown.

see TWR FREQUENCY TAB

NAVIGATIONAL AND PROCEDURAL INFORMATION

Isogonic Line and Value

Isogonic lines and values shall be based on the five year epoch magnetic variation model.

Local Magnetic Notes

Unreliability Notes

Intersections

Named intersections used as reporting points. Arrows are directed toward facilities which establish intersection.

Aeronautical Lights

By Request

Rotating or Oscillating

Isolated Location

Rotating Light with Flashing Code Identification Light

Rotating Light with Course Lights and Site Number
**NAVIGATIONAL AND PROCEDURAL INFORMATION (Continued)**

**Airport Beacons**
- Rotating or Flashing

**Isolated Locations**

**VFR Checkpoints**
- Underline indicates proper name of VFR Checkpoint.

**VFR Waypoints**
- RNAV
- Stand-Alone
- Collocated with VFR Checkpoint

**Obstruction**
- Above 200’ & below 1000’ AGL (above 299’ AGL in urban area)
- Under Construction (UC) or reported and position/elevation unverified
- 1000’ and higher (AGL)
- Wind Turbine

**High-Intensity Obstruction Lights**
- Less than 1000’ (AGL)
- 1000’ and higher (AGL)
- Wind Turbine

**Group obstruction**
- Wind Turbines

High-intensity lights may operate part-time or by proximity activation.

**Marine Lights**

*Marine Lights are white unless otherwise noted. Alternating lights are red and white unless otherwise noted.*

**With Characteristics of Light**

- Red: **R**
- White: **W**
- Green: **G**
- Blue: **BU**
- Orange: **OR**
- Black: **B**
- Yellow: **Y**
- Sector: **SEC**
- Fixed: **F**
- Single Occulting: **Oc**
- Group Occulting: **Oc (2)**
- Composite Group Occulting: **Oc (2+1)**
- Isophase: **Iso**
- Flashing: **FI**
- Group Flashing: **FI (2)**
- Composite Group Flashing: **FI (2+1)**
- Quick: **Q**
- Interrupted Quick/Interrupted Quick Flashing: **Mo (A)**
- Morse Code: **FFI**
- Fixed and Flashing: **AF**
- Alternating: **AL**
- Group: **GP**
- Long Flash: **LF**
- Group Quick Flashing: **Q (3)**
- Very Quick Flashing: **VQ**
- Group Very Quick Flashing: **VQ (3)**
- Interrupted Very Quick Flashing: **VQ**
- Ultra Quick Flashing: **UQ**
- Interrupted Ultra Quick Flashing: **UQ**

**Group Obstruction**
- Above 200’ & below 1000’ AGL (above 299’ AGL in urban area)
- 1000’ and higher (AGL)

**Wind Turbine Farms**
- When highest wind turbine is unverified, UC will be shown after MSL value.

**Maximum Elevation Figure (MEF)**
(see VFR Terms tab for explanation)
NAVIGATIONAL AND PROCEDURAL INFORMATION (Continued)

Chart Limits

Outline on Sectional of Terminal Area Chart

Outline on Sectional of Inset Chart

Outline of Special Chart on Sectional and Terminal Area Chart

CULTURE

Railroads

Single Track

Double Track

More Than Two Tracks

Electric

Non-operating, Abandoned or Under Construction

Roads

Dual-Lane Divided Highway

Category 1

Primary

Category 2

Secondary

Category 2

Trails

Category 3

Provides symbolization for dismantled railroad when combined with label “dismantled railroad.”

Railroad Yards

Limiting Track To Scale

Location Only

Railroad Stations

Railroad Sidings and Short Spurs

Road Markers

Interstate Route No.

U.S. Route No.

Air Marked Identification Label

Road Names

Roads Under Construction
CULTURE (Continued)

Related Features to Railroads and Roads

Bridges and Viaducts

Railroad

Causeways

Overpasses and Underpasses

Tunnels-Road and Railroad

Populated Places

Yellow tinted areas indicate populated places.

Small circle indicates an area too small to depict using yellow tint.

Font Style and Size indicate the category of the populated area:

- Large Cities Category 1: population more than 250,000
- Cities and Large Towns Category 2: population 25,000 to 250,000
- Towns and Villages Category 3: population less than 25,000
HYDROGRAPHY

Open Water

Open/Inland Water

Lakes
Label as required.

Perennial
When too numerous to show individual lakes, show representative pattern and descriptive note. Number indicates elevation.

Non-Perennial
(dry, intermittent, etc.) Illustration includes small perennial lake.

Reservoirs

Inland Water

Shorelines
Definite

Fluctuating

Unsurveyed
Indefinite

Man-made

Reservoirs
Natural Shorelines

Man-made Shorelines
Label when necessary for clarity

Too small to show to scale

Under Construction
HYDROGRAPHY (Continued)

Streams
Perennial
Non-Perennial
Fanned Out
Alluvial fan
Braided
Disappearing
Seasonally Fluctuating
with undefined limits
with maximum bank limits, prominent and constant
Sand Deposits in and along riverbeds

Wet Sand Areas
Within and adjacent to desert areas

Aqueducts
To Scale
Abandoned or Under Construction
Underground

Canals
To Scale
Abandoned or Under Construction
Abandoned to Scale
Small Canals and Drainage / Irrigation Ditches
Perennial
Non-Perennial
Abandoned or Ancient Numerous
Representative pattern and/or descriptive note.

Falls
Double-Line
Single-Line

Rapids
Double-Line
Single-Line

Kanats
Underground with Air Vents
HYDROGRAPHY (Continued)

Salt Evaporators and Salt Pans Man Exploited

Hummocks and Ridges

Peat Bogs

Rice Paddies

Extensive areas indicated by label only.

Springs, Wells and Waterholes

Permanent Snow and Ice Areas

Glaciers

Glacial Moraines

Ice Cliffs

Snowfields, Ice Fields And Ice Caps

Foreshore Flats

Tidal flats exposed at low tide.

Swamps, Marshes and Bogs

Mangrove And Nipa

Cranberry Bogs

Land Subject To Inundation

Tundra

Ice

Permanent Polar Ice

Pack Ice

Ice Peaks
HYDROGRAPHY (Continued)

Reefs-Rocky or Coral

Fish Ponds and Hatcheries

RELIEF

Contours

Basic

Approximate

Intermediate

Auxiliary

Depression (Illustration includes mound within depression)

Values

Sand or Gravel Areas

Sand Dunes

To Scale

Hachuring

Miscellaneous Underwater Features Not Otherwise Symbolized

Wrecks

Exposed

Rocks-Isolated

Bare or Awash

Spot Elevations

Position Accurate

Position Accurate, Elevation Approximate

Highest in General Area

Highest on Chart

Mountain Pass

Distorted Surface Areas

Lava Flows

Sand Ridges

To Scale

Shaded Relief
RELIEF (Continued)

Quarries To Scale

Craters

Unsurveyed Areas
Label appropriately as required

Levees And Eskers

Rock Strata Outcrop

Strip Mines, Mine Dumps And Tailings
To Scale

Escarments, Bluffs, Cliffs, Depressions, Etc.

Uncontoured Areas
Label appropriately as required

RELIEF DATA INCOMPLETE
VFR FLYWAY PLANNING CHARTS

GENERAL INFORMATION

VFR Flyway Planning Charts are printed on the reverse sides of the Baltimore-Washington, Charlotte, Chicago, Cincinnati, Dallas-Ft. Worth, Denver, Detroit, Houston, Las Vegas, Los Angeles, Miami, Orlando, New Orleans, Phoenix, St. Louis, Salt Lake City, San Diego, San Francisco and Seattle Terminal Area Charts (TACs). The scale is 1:250,000, with area of coverage the same as the associated TACs. Flyway Planning Charts depict flight paths and altitudes recommended for use to by-pass areas heavily traversed by large turbine-powered aircraft. Ground references on these charts provide a guide for visual orientation. VFR Flyway Planning charts are designed for use in conjunction with TACs and are not to be used for navigation. These charts are updated every 56 days.

AIRPORTS

Landplane

No distinction is made between airports with fuel and those without fuel. Runways may be exaggerated to clearly portray the pattern. Hard-surfaced runways which are closed but still exist are included in the charted pattern.

FAR 91 - Fixed wing special VFR operations prohibited.

Landplane (continued)

(Pvt): Non-public use having emergency or landmark value.

“OBJECTIONABLE”: This airport may adversely affect airspace use.

ABANDONED - Depicted for landmark value or to prevent confusion with an adjacent usable landing area. Only portrayed beneath or close to the VFR flyway routes or requested by the FAA. (Normally at least 3000’ paved).

RADIO AIDS TO NAVIGATION

VHF Omni-Directional Radio Range (VOR)

VORTAC

VOR-DME

DME

Example: DME co-located at an airport.

Non-Directional Radio Beacon (NDB)

NDB-DME

NAVAIDS Used to Define Class Airspace

Example: DME co-located at an airport.
AIRSPACE INFORMATION

Class B Airspace
Appropriate notes as required may be shown.

(Mode C see FAR 91.215/AIM)

All mileages are nautical (NM).

All radials are magnetic.

Floors extending "upward and above" a certain altitude are preceded by a +. Operations at or below these altitudes are outside of the Class B Airspace.)

Class D Airspace

(A minus sign in front of the figure used to indicate "from surface to but not including...")

Class E Surface (SFC) Airspace

Class C Airspace
Appropriate notes as required may be shown.

(Mode C see FAR 91.215/AIM)

Special Airspace Areas

Special Flight Rules Area (SFRA)
Relating to National Security

Example: Washington DC

Appropriate notes as required may be shown.

Note: Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.
AIRSPACE INFORMATION (Continued)

Flight Restricted Zone (FRZ) Relating To National Security

Example: Washington DC

Temporary Flight Restriction (TFR) Relating To National Security

Example: Washington DC

Appropriate notes as required may be shown.

Special Use Airspace

Only the airspace effective below 18,000 feet MSL is shown.

The type of area shall be spelled out in large areas if space permits.

Air Defense Identification Zone (ADIZ)

Note: Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.

CONTIGUOUS U.S. ADIZ

43
AIRSPACE INFORMATION (Continued)

Special Air Traffic Rules/Airport Traffic Areas (FAR Part 93)

Appropriate boxed note as required shown adjacent to area. Inside the FAR Part 93 boundary area, the cross hatching is at a 45 degree angle.

Terminal Radar Service Area (TRSA)

IFR Routes

Arrival

Departure

Arrival/Departure

VFR Transition Routes

Appropriate notes as required may be shown.

Uni-directional

Bi-directional

Bi-directional with NAVAID Ident and Radial

Special Conservation Areas

NOAA Regulated National Marine Sanctuary Designated Areas

Mode C (FAR 91.215)

Appropriate notes as required may be shown.

Sporting Event Temporary Flight Restriction (TFR) Sites

National Defense Airspace Temporary Flight Restriction (TFR) Areas

Miscellaneous Activity Areas

Aerobatic Practice Area

Glider Operations

Hang Glider Activity

Ultralight Activity

Unmanned Aircraft Activity

Parachute Jumping Area with Frequency

Space Launch Activity Area

Example: Los Angeles

Flight operations below 1000’ AGL over the designated areas within the Gulf of Farallones National Marine Sanctuary violate NOAA regulations (see 15 CFR 922).
NAVIGATIONAL AND PROCEDURAL INFORMATION

VFR Checkpoints
Underline indicates proper name of VFR Checkpoint

Obstructions
Only obstacles greater than 999’ above ground level (AGL) or specified by the local ATC Facility shall be shown.

AGL heights are not shown. High-intensity lights may operate part-time or by proximity activation.

Under Construction or reported and position/elevation unverified.

VFR Waypoints
Stand-Alone

Collocated with VFR Checkpoint

Navigational Data

CULTURE

Railroads
Single and Multiple Tracks

Populated Places
Built-up Areas

Towns

BOUNDARIES
International

HYDROGRAPHY
Shorelines

RELIEF
Spot Elevations
Position Accurate
Mountain Peaks

Roads
Dual-Lane

Divided Highway Primary

Prominent Pictorials

Power Transmission Lines

Landmarks

Reservoirs

Major Lakes and Rivers

Bridge

Dam

6504

POWER PLANT

TEMPLE

LAWRENCEVILLE

BREMERTON
# HELICOPTER ROUTE CHARTS

## GENERAL INFORMATION

Helicopter Route Charts are three-color charts that depict 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. The scale is 1:125,000. These charts are updated every 56 days.

## AIRPORTS

### Landplane

All recognizable runways, including some which may be closed, are shown for visual identification.

- **Public**
- **Private**
- **Unverified**
- **Abandoned**

### Seaplane

Unverified Heliport

### Airport Data Grouping

Boxed airport name indicates airport for which a Special Traffic Rule has been established.

(Pvt): Non-public use having emergency or landmark value. "OBJECTIONABLE": This airport may adversely affect airspace use.

- **Flight Service Station on field**
- **Airspace where fixed wing special visual flight rules operations are prohibited (shown above airport name) FAR 91**

Indicates FAR 93 Special Air Traffic Rules and Airport Traffic

- **Location Identifier**
- **ICAO Location Identifier**

Control Tower (CT) - primary frequency

- **Star indicates operation part-time. See tower frequencies tabulation for hours of operation**

When lighting is lacking, the respective character is replaced by a dash.

Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting. Dashes are not shown on heliports or helipads unless additional information follows the elevation (e.g. UNICOM, CTAF).

### Heliport

Heliports public and private

- **Medical Center**

Heliports located at major airports (when requested)

### Ultralight Flight Park

Automated Terminal Information Service

- **ATIS 115.4**

Automated Surface Weather Observing Systems (shown when full-time ATIS is not available). Some ASOS/AWOS facilities may not be located at airports.

- **ASOS/AWOS 135.42**

Elevation in feet

- **285**

Lighting in operation Sunset to Sunshine

- **L**

Lighting limitations exists, refer to Chart Supplement

- **'L**

UNICOM - Aeronautical advisory station

- **122.95**

Follows the Common Traffic Advisory Frequency (CTAF)

- **AOE**
RADIO AIDS TO NAVIGATION

NAVAIDs

VHF Omni-Directional Radio (VOR) Range

Open circle symbol shown when NAVAID located on airport. Type of NAVAID shown in top of box.

Compass Rose is “reference” oriented to magnetic north.

VOR

Operates less than continuous or On-Request

VORTAC

When an NDB NAVAID shares the same name and Morse Code as the VOR NAVAID the frequency can be collocated inside the same box to conserve space.

VOR-DME

Crosshatch indicates Shutdown status

DME

Flight Service Station (FSS)

Heavy line box indicates Flight Service Station (FSS). Frequencies 122.2 and 255.4 (Conterminous U.S.); 121.5, 122.2, 243.0 and 255.4 (Alaska); and 121.5, 126.7, and 243.0 (Canada) are available at many FSSs and are not shown above boxes. All other frequencies are shown.

Certain FSSs provide Airport Advisory Service, refer to Chart Supplement.

R - Receive Only

Non-Directional Radio Beacon (NDB)

Underline indicates no voice on this frequency

NDB-DME

Broadcast Stations (BS)

On request by the proper authority or when a VFR Checkpoint.

Remote Communications Outlet (RCO)

Frequencies above thin line box are remoted to NAVAID site. Other FSS frequencies providing voice communications may be available as determined by altitude and terrain. Consult Chart Supplement for complete information.

Thin line box without frequencies and controlling FSS name indicates no FSS frequency available.
AIRSPACE INFORMATION

Class B Airspace

Appropriate notes as required may be shown. (Mode C see FAR 91.215/AIM)

All mileages are nautical (NM)

(Floors extending "upward from above" a certain altitude are preceded by a +. Operations at and below these altitudes are outside of Class B Airspace.)

All radials are magnetic.

Class D Airspace

(A minus in front of the figure is used to indicate “from surface to but not including...”)

Altitudes in hundreds of feet MSL.

Special Airspace Areas

Special Flight Rules Area (SFRA) Relating to National Security

Example: Washington DC

Appropriate notes as required may be shown.

Note: Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.
AIRSPACE INFORMATION (Continued)

Special Airspace Areas (Continued)

Flight Restricted Zone (FRZ) Relating to National Security

Air Defense Identification Zone (ADIZ)

Note: Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.

Special Security Notice Permanent Continuous Flight Restriction Areas

Mode C (FAR 91.215)

Appropriate notes as required may be shown.

Terminal Radar Service Area (TRSA)

Appropriate notes as required may be shown.

Special Air Traffic Rules / Airport Traffic Areas (FAR Part 93)

Appropriate boxed notes as required shown adjacent to area. Inside the FAR Part 93 boundary area, the cross hatching is at a 45 degree angle.

Sporting Event Temporary Flight Restriction (TFR) Sites

National Defense Airspace Temporary Flight Restriction (TFR) Areas

- Ceiling of TRSA in hundreds of feet MSL
- Floor of TRSA in hundreds of feet MSL
AIRSPACE INFORMATION (Continued)

Miscellaneous Activity Areas

- Aerobatic Practice Area
- Glider Operations
- Hang Glider Activity
- Ultralight Activity
- Unmanned Aircraft Activity
- Parachute Jumping Area with Frequency
- Space Launch Activity Area

Military Training Routes (MTR)

Police Zones

Special Use Airspace

The type of area shall be spelled out in large areas if space permits.

Canadian Airspace

Class B, C or D Control Zone

Airspace Ceiling and Floor

Class E Control Zone
AIRSPACE INFORMATION (Continued)

Special Conservation Areas
National Park, Wildlife Refuge, Primitive and Wilderness Areas, etc.

NOAA Regulated National Marine Sanctuary Designated Areas
(see 15 CFR 922).

NAVIGATIONAL AND PROCEDURAL INFORMATION

VFR Checkpoints
Underline indicates proper name of VFR Checkpoint.

Obstruction
Above 299’ and below 1000’ AGL
1000’ and higher AGL

High-Intensity Obstruction Lights
High-intensity lights may operate part-time or by proximity activation.

Navigation Data

VFR Waypoints
Stand-Alone
Collocated with VFR Checkpoint
Collocated with VFR Checkpoint & Reporting Point

Group Obstruction
Above 299’ and below 1000’ AGL
1000’ and higher AGL

Wind Turbine Farms
When highest wind turbine is unverified, UC will be shown after MSL value.

Maximum Elevation Figure (MEF)
(see VFR Terms tab for explanation)
U.S. Airspace depiction as shown on Visual Aeronautical Charts
REFERENCES

There are several references available from the FAA to aid pilots and other interest parties to learn more about FAA Charts and other aspects of aviation.

<table>
<thead>
<tr>
<th>Publication</th>
<th>FAA Publication ID</th>
</tr>
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<tbody>
<tr>
<td>Aeronautical Information Manual (AIM)</td>
<td>FAA-H-8083-3A</td>
</tr>
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<td>FAA-H-8083-21A</td>
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<td>Helicopter Flying Handbook</td>
<td>FAA-H-8083-16B</td>
</tr>
<tr>
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<td>FAA-G-8082-22</td>
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</tr>
<tr>
<td>Remote Pilot - Small Unmanned Aircraft Systems Study Guide</td>
<td></td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>AAF</td>
<td>Army Air Field</td>
</tr>
<tr>
<td>AAS</td>
<td>Airport Advisory Service</td>
</tr>
<tr>
<td>AAUP</td>
<td>Attention All Users Page</td>
</tr>
<tr>
<td>AC</td>
<td>Advisory Circular</td>
</tr>
<tr>
<td>ADF</td>
<td>Automatic Direction Finder</td>
</tr>
<tr>
<td>ADIZ</td>
<td>Air Defense Identification Zone</td>
</tr>
<tr>
<td>ADS</td>
<td>Automatic Dependent Surveillance</td>
</tr>
<tr>
<td>ADS-B</td>
<td>Automatic Dependent Surveillance-Broadcast</td>
</tr>
<tr>
<td>Advry</td>
<td>Advisory</td>
</tr>
<tr>
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<td>Air Force Base</td>
</tr>
<tr>
<td>AFIS</td>
<td>Automatic Flight Information Service</td>
</tr>
<tr>
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<td>Air Force Station</td>
</tr>
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<td>Automated Flight Service Station</td>
</tr>
<tr>
<td>AGL</td>
<td>Above Ground Level</td>
</tr>
<tr>
<td>AIM</td>
<td>Aeronautical Information Manual</td>
</tr>
<tr>
<td>AIRAC</td>
<td>Aeronautical Information Regulation And Control</td>
</tr>
<tr>
<td>AK</td>
<td>Alaska</td>
</tr>
<tr>
<td>AL</td>
<td>Approach and Landing</td>
</tr>
<tr>
<td>ANG</td>
<td>Air National Guard</td>
</tr>
<tr>
<td>APP</td>
<td>Approach</td>
</tr>
<tr>
<td>APP CON</td>
<td>Approach Control</td>
</tr>
<tr>
<td>APP CRS</td>
<td>Approach Course</td>
</tr>
<tr>
<td>Apt</td>
<td>Airport</td>
</tr>
<tr>
<td>APV</td>
<td>Approaches with Vertical Guidance</td>
</tr>
<tr>
<td>ARP</td>
<td>Airport Reference Point</td>
</tr>
<tr>
<td>ARTCC</td>
<td>Air Route Traffic Control Center</td>
</tr>
<tr>
<td>ASDA</td>
<td>Accelerate-Stop Distance Available</td>
</tr>
<tr>
<td>ASDE-X</td>
<td>Airport Surface Detection Equipment-Model X</td>
</tr>
<tr>
<td>ASOS</td>
<td>Automated Surface Observing Station</td>
</tr>
<tr>
<td>ASR</td>
<td>Airport Surveillance Radar</td>
</tr>
<tr>
<td>ATC</td>
<td>Air Traffic Control</td>
</tr>
<tr>
<td>ATIS</td>
<td>Automatic Terminal Information Service</td>
</tr>
<tr>
<td>ATS</td>
<td>Air Traffic Service</td>
</tr>
<tr>
<td>AUNICOM</td>
<td>Automated Aeronautical Advisory Station</td>
</tr>
<tr>
<td>AWOS</td>
<td>Automated Weather Observing Station</td>
</tr>
<tr>
<td>B</td>
<td>Baro-VNAV</td>
</tr>
<tr>
<td>BS</td>
<td>Broadcast Station</td>
</tr>
<tr>
<td>C</td>
<td>CAC</td>
</tr>
<tr>
<td>CAT</td>
<td>Category</td>
</tr>
<tr>
<td>CFA</td>
<td>Controlled Firing Areas</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CH</td>
<td>Channel</td>
</tr>
<tr>
<td>CL</td>
<td>Runway Centerline Lights</td>
</tr>
<tr>
<td>CLNC DEL</td>
<td>Clearance Delivery</td>
</tr>
<tr>
<td>CNF</td>
<td>Computer Navigation Fix</td>
</tr>
<tr>
<td>COP</td>
<td>Changeover Point</td>
</tr>
<tr>
<td>CPDLC</td>
<td>Controller Pilot Data Link Communication</td>
</tr>
<tr>
<td>CRS</td>
<td>Course</td>
</tr>
<tr>
<td>CT</td>
<td>Control Tower</td>
</tr>
</tbody>
</table>

**Abbreviations:**
- **CTAF**: Common Traffic Advisory Frequency
- **CVFP**: Charted Visual Flight Procedure
- **CZ**: Control Zone (Canada)
- **DA**: Decision Altitude
- **DA**: Density Altitude
- **D-ATIS**: Digital Automatic Terminal Information Service
- **DH**: Decision Height
- **DME**: Distance Measuring Equipment
- **DND**: Department of National Defense (Canada)
- **DoD**: Department of Defense
- **DT**: Daylight Savings Time
- **DVA**: Diverse Vector Area
- **E**: East
- **EFAS**: Enroute Flight Advisory Service
- **EFB**: Electronic Flight Bag
- **Elev**: Elevation
- **EMAS**: Engineered Materials Arresting System
- **FAA**: Federal Aviation Administration
- **FAF**: Final Approach Fix
- **FAP**: Final Approach Point
- **FAR**: Federal Aviation Regulation
- **FBO**: Fixed-Based Operator
- **FIR**: Flight Information Region
- **FL**: Flight Level
- **FLIP**: Flight Information Publication
- **FMS**: Flight Management System
- **FREQ**: Frequency
- **FRZ**: Flight Restricted Zone
- **FSDO**: Flight Standards District Office
- **FSS**: Flight Service Station

**Abbreviations:**
- **GBAS**: Ground-Based Augmentation System
- **GCO**: Ground Communications Outlet
- **GLS**: GBAS Landing System
- **GND**: Ground
- **GND CON**: Ground Control
- **GNSS**: Global Navigation Satellite System
- **GP**: Glide Path
- **GPS**: Global Positioning System
- **GS**: Glide Slope
- **GS**: Ground Speed
H
HAA - Height Above Airport
HAR - High Altitude Redesign
HAT - Height Above Touchdown
HCH - Heliport Crossing Height
HF - High Frequency
HIRL - High Intensity Runway Lights
HS - Hot Spot

I
IAC - Interagency Air Committee
IACC - Interagency Air Cartographic Committee
IAF - Initial Approach Fix
IAP - Instrument Approach Procedure
ICAO - International Civil Aviation Authority
IDT - Identifier
IF - Intermediate Fix
IFR - Instrument Flight Rules
ILS - Instrument Landing System
IMC - Instrument Meteorological Conditions
INS - Inertial Navigation System
IR - Instrument Route (Military)
IRU - Inertial Reference Unit

J
JO - Joint Order

K
KIAS - Knots

L
LAA - Local Airport Advisory
LAAS - Local Area Augmentation System
LAHSO - Land and Hold Short
LDA - Landing Distance Available
LDA - Localizer-type Directional Aid
Ldg - Landing
LF - Low Frequency
LIRL - Low Intensity Runway Lights
LNAV - Lateral Navigation
LOC - Localizer
LOM - Locator Outer Marker
LPV - Localizer Performance with Vertical Guidance
LRRS - Long Range Radar Station
LTP - Landing Threshold Point

M
MAA - Maximum Authorized Altitude
MAP - Missed Approach Point
MCA - Minimum Crossing Altitude
MCAS - Marine Corps Air Station
MDA - Minimum Descent Altitude
MDH - Minimum Descent Height
MEA - Minimum Enroute Altitude
MEF - Maximum Elevation Figure
MF - Medium Frequency
MIA - Minimum IFR Altitude
MIRL - Medium Intensity Runway Lights
MOA - Military Operations Areas
MOCA - Minimum Obstruction Clearance Altitude
MON - Minimum Operational Network
MORA - Minimum Off-Route Altitude
MRA - Minimum Reception Altitude
MSA - Minimum Safe Altitude
MSL - Mean Sea Level
MVA - Minimum Vector Altitude

N
N - North
N/A - Not Applicable
NA - Not Authorized
NAAS - Naval Auxiliary Air Station
NAS - Naval Air Station
NAS - National Airspace System
NAV - Naval Air Facility
NAVAID - Navigational Aid (Ground based)
NDB - Non-Directional Radiobeacon
NextGen - Next Generation Air Transportation System
NFDC - National Flight Data Center
NFPO - National Flight Procedures Office
NM - Nautical Mile
NOAA - National Oceanic and Atmospheric Administration
NO A/G - No Air-to-Ground Communication
NOTAM - Notice to Air Missions, formerly known as Notice to Airmen
NoPT - No Procedure Turn
NPA - Non-Precision Approach
NTAP - Notices to Air Missions Publication
NWS - National Weather Service

O
OAT - Outside Air Temperature
OBS - Omni Bearing Selector
OCA - Ocean Control Area
OCS - Obstacle Clearance Surface
ODP - Obstacle Departure Procedure
OM - Outer Marker
OROCA - Off Route Obstruction Clearance Altitude

P
PA - Precision Approach
PAR - Precision Approach Radar
PBN - Performance-Based Navigation
PRM - Precision Runway Monitor
PT - Procedure Turn
PTP - Point-to-Point
Pvt - Private
R
R - Radial
R - Receive
R - Restricted Area (Special Use Airspace)
RCO - Remote Communications Outlet
RF - Radius-to-Fix
RNAV - Area Navigation
RNP - Required Navigation Performance
RNP AR - Required Navigation Performance Authorization Required
ROC - Required Obstacle Clearance
RP - Right Pattern
RVR - Runway Visual Range
RVSM - Reduced Vertical Separation Minimum
Rwy - Runway

S
S - South
SAAAR - Special Aircraft and Aircrew Authorization Required
SAAR - Special Aircraft and Aircrew Requirements
SATNAV - Satellite Navigation
SDF - Simplified Directional Facility
SER - Start End of Runway
SFAR - Special Flight Rules Area
SFC - Surface
SFRA - Special Flight Rules Area
SIAPs - Standard Instrument Approach Procedures
SID - Standard Instrument Departure
SM - Statute Mile
SMAR - Special Military Activity Routes
SMGCS - Surface Movement Guidance and Control System
SOIA - Simultaneous Offset Instrument Approaches
SSV - Standard Service Volume
STAR - Standard Terminal Arrival Procedure
SUA - Special Use Airspace
SVFR - Special Visual Flight Rules

T
T - Transmit
TA - Travel Advisory
TAA - Terminal Arrival Area
TAC - Terminal Area Chart
TACAN - Tactical Air Navigation
TAS - True Air Speed
TCA - Terminal Control Areas (Canada)
TCH - Threshold Crossing Height
TDZ - Touchdown Zone
TDZE - Touchdown Zone Elevation
TDZL - Touchdown Zone Lights
TDZ/CL - Touchdown Zone/Centerline Lights
TERPS - U.S. Standard for Terminal Instrument Procedures
TFR - Temporary Flight Restriction
TIBS - Telephone Information Briefing Service
TIS-B - Traffic Information Service - Broadcast

TOC - Top of Climb
TOD - Top of Descent
TODA - Takeoff Distance Available
TOGA - Takeoff/Go Around
TORA - Takeoff Runway Available
TPP - Terminal Procedures Publication
TRSA - Terminal Radar Service Area
TWR - Tower

U
UC - Under Construction
UHF - Ultra High Frequency
UIR - Upper Information Region
UNICOM - Universal Communications
U.S. - United States
USA - United States Army
USAF - United States Air Force
USCG - United States Coast Guard
UTA - Upper Control Area

V
VCOA - Visual Climb Over Airport / Airfield
VDA - Vertical Descent Angle
VDP - Visual Decent Point
VFR - Visual Flight Rules
VGSI - Visual Glide Slope Indicator
VHF - Very High Frequency
VMC - Visual Meteorological Conditions
VNAV - Vertical Navigation
VOR - VHF Omnidirectional Radio Range
VORTAC - VHF Omnidirectional Radio Range/Tactical Air Navigation
VPA - Vertical Path Angle
VR - Visual Route (Military)

W
W - Warning Area (Special Use Airspace)
W - West
WAAS - Wide-Area Augmentation System
WAC - World Aeronautical Chart
WP - Waypoint
WX CAM - Weather Camera (Alaska)