Aeronautical Navigation Products (AeroNav Products)

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INTRODUCTION

This Chart User’s 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 publishes charts for each stage of Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) air navigation including training, planning, and departures, enroute (for low and high altitudes), approaches, and taxiing charts. For Procurement, contact an Authorized FAA Chart Sales Agent. Visit our website at http://aeronav.faa.gov for an agent near you. For digital products, contact FAA, AeroNav Products at 1-800-638-8972.

The FAA Aeronautical Information Manual (AIM) Pilot/Controller Glossary defines in detail, 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).

The Notices to Airmen Publication (NOTAM) includes current Flight Data Center (FDC) NOTAMs. NOTAMs alert pilots of new regulatory requirements and reflect changes to Standard Instrument Approach Procedures (SIAPs), flight restrictions, and aeronautical chart revisions. This publication is prepared every 28 days by the FAA, and is available by subscription from the Government Printing Office.

In addition to NOTAMs, the Airport/Facility Directory (A/FD) and the Special Notices page of the AeroNav Products website are 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 Aeronautical Chart Bulletins in the A/FD, the AeroNav Products Website (aeronav.faa.gov) and NOTAMs for important updates between chart and publication cycles that are essential for safe flight.

All information in this guide is effective through September 2013. All graphics used in this guide are for educational purposes. Please do not use them for flight navigation.

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, AeroNav Products
SSMC4 Sta. 4503
1305 East-West Highway
Silver Spring, MD 20910-3281

Telephone Toll-Free 1-800-626-3677
E-mail: 9-AMC-Aerochart@faa.gov

Mark the chart you are using with the suggested changes and include an explanation of the discrepancy. Mail this corrected chart to the address above and we will send you a replacement right away. Suggestions concerning this guide are also welcome.
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 open circle indicates an Oil Well. Small black circles with a label show the location of water, oil and gas tanks. The scale for some items may be increased to make them easier to read on the chart.

AeroNav Products’ charts are prepared in accordance with specifications of the Interagency Air Cartographic Committee (IACC) 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, fjords, 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 show 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 Management (AIM) maintains a database of over 1,200,000 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.

Sectional Charts and Terminal Area Charts (TACs) typically show manmade obstacles extending more than 200’ Above
Ground Level (AGL), unless they appear in yellow city tint. Features considered to be hazardous obstacles to low-level flight are; smokestacks, tanks, factories, lookout towers, and antennas, etc. On World Aeronautical Charts (WACs) only those obstacles at 500’ AGL and higher are charted. Manmade features used by FAA Air Traffic Control as checkpoints use a graphic symbol shown in black with the required elevation data in blue. The elevation of the top of the obstacle above Mean Sea Level (MSL) and the height of the structure (AGL) is also indicated (when known or can be reliably determined by a Specialist). The AGL height is in parentheses below the MSL elevation. In extremely congested areas, the FAA typically omits the AGL values to avoid confusion.

Whenever possible, the FAA depicts specific obstacles on charts. However, in high-density areas like city complexes, only the highest obstacle is represented on the chart using the group obstacle symbol to maximize legibility.

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

Obstacles with high-intensity strobe lighting systems may operate part-time or by proximity activation and are shown as follows:

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 manmade 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:

When a manmade 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’).
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) = 3450
Possible vertical error = +100
Obstacle Allowance = +200
equals 3750
Raise to the following 100’ level = 3800
Maximum Elevation Figure = 38

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 Chart Bulletin in the A/FD or AeroNav Products website to ensure that your chart has the latest MEF data available.
RADIO AIDS TO NAVIGATION

On VFR Charts, information about radio aids to navigation (NAVAID) is 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) Navigation Aid (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) or “VORDME,” (VOR-Distance Measuring Equipment) positioned on and breaking the top line of the NAVAID box.

AIRPORTS

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

Public use airports:

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

Military airports:

- Other than hard-surfed runways

Hard-surfed U.S. military runways are depicted like public-use airports. They are identified by abbreviations such as: AAF (Army Air Field), AFB (Air Force Base), MCAS (Marine Corps Air Station), NAS (Naval Air Station), NAF (Naval Air Facility), NAAS (Naval Auxiliary Air Station), etc.

Canadian military airports are identified by the abbreviation DND (Department of National Defense).

Services available:

- Tick marks around the basic airport symbol indicate that fuel is available and the airport is tended during normal working hours (Monday through Friday 10:00 A.M. to 4:00 P.M. local time).

Other airports with or without services:

- 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.

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 figure at right illustrates the coded data that is provided along with the airport 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.
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. A "L" indicates that the pilot must consult the Airport/Facility Directory (A/FD) 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 A/FD 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 Airport/Facility Directory for special instructions and/or restrictions.

An airport with an objectionable airspace will be labeled as such, “OBJECTIONABLE.” This airport may adversely affect airspace use. FAA Airports Offices are responsible for airspace determinations and follow FAA Order 7400.2. If an airport owner or chart user wishes to challenge the objectionable status, he or she should contact their FAA Regional Airports Office.

**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 60,000’ MSL. 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 World Aeronautical Chart (WAC). 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 identified is shown as **LAS VEGAS CLASS B** for example.

**Class C Airspace** is shown in abbreviated form on WACs. 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.

The figure at right identifies a sector that extends from the surface to the base of the Class B.

Class C airspace is identified by name: **BURBANK CLASS C**.

Separate notes, enclosed in magenta boxes, give the approach control frequencies to be used by arriving VFR aircraft to establish two-way radio communication before entering the Class C (generally within 20 NM):

**Class D Airspace** is identified with a blue dashed line. Class D operating less than continuous is indicated by the following note: See NOTAMs/Directory for Class D eff hrs.

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: See NOTAMs/Directory for Class E (sfc) eff hrs.
Class E Airspace exists at 1200’ AGL unless designated otherwise. The lateral and 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 abuts 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.

OTHER AIRSPACE AREAS

Mode C Required Airspace (from the surface to 10,000’ MSL) within 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 Notice to Airmen (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, Canada and the Contiguous U.S.

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 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: IR21. 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 Sectionals and TACs covering the conterminous United States.

**MILITARY TRAINING ROUTES (MTRs)**

All IR and VR MTRs are shown, and may extend from the surface upwards. Only the route centerline, direction of flight along the route and the route designator are depicted - route widths and altitudes are not shown.

Since these routes are subject to change every 56 days, and the charts are released every 6 months, you are cautioned and advised to contact Flight Service for route dimensions and current status for those routes affecting your flight.

Routes with a change in the alignment of the charted route centerline will be indicated in the Aeronautical Chart Bulletin or the Airport/Facility Directory.

DoD users refer to Area Planning AP/1B Military Training Routes North and South America for current routes.

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 COVERAGE**

Inset coverage 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.
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. An asterisk (*) indicates that the part-time tower frequency is remoted to a collocated full-time Flight Service Station (FSS) for use as Airport Advisory Service (AAS) when the tower is closed. 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. The controlling agency will be shown when the contact facility and frequency data is unavailable.
### Airport Name

<table>
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<th>Airport Name</th>
<th>OPERATES</th>
<th>TWR FREQ</th>
<th>GND CON</th>
<th>ATIS</th>
<th>ASR/PAR</th>
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<tbody>
<tr>
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<td>0700-1800 SAT 0600-1200 Sun</td>
<td>119 VHF</td>
<td>119 VHF</td>
<td>121.8</td>
<td>ASR/PAR</td>
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<tr>
<td>BLUE GRASS</td>
<td>CONTINUOUS</td>
<td>119.1</td>
<td>257.8</td>
<td>121.9</td>
<td>126.3</td>
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<tr>
<td>BIYON</td>
<td>0730-1930</td>
<td>121.1</td>
<td>121.3</td>
<td>121.8</td>
<td>ASR/PAR</td>
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<td>CHARLESTON-ALLENMAR</td>
<td>0600-2000</td>
<td>124.5</td>
<td>338.275</td>
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<td>338.275</td>
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<td>CINCINNATI/NORTHERN KENTUCKY BTI</td>
<td>CONTINUOUS</td>
<td>118.3 [VY]</td>
<td>121.3 [J]</td>
<td>121.7 [W]</td>
<td>118.3 [ARR]</td>
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<td>257.8</td>
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<td>EASTERN WY NG/ SHEPHERD</td>
<td>0700-2000 Tue-Fri</td>
<td>120.3</td>
<td>236.6</td>
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<td>Q7 BY NOTAM</td>
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### Frequencies (VHF/UHF)

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<th>FACILITY</th>
<th>FREQUENCIES</th>
<th>SERVICE AVAILABILITY</th>
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<tbody>
<tr>
<td>CINCINNATI CLASS B</td>
<td>VHF 119.7 [VY 09/27 09:269] [VY 188/S 180.3-359]</td>
<td>CONTINUOUS</td>
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<td>UHF 343.15</td>
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<td>CINCINNATI CLASS C</td>
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<td>377.5</td>
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<td>307.75 [VY 300]</td>
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<td>307.75 [VY 300]</td>
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<td>138.7 [VY 180]</td>
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### Airspace Name

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<th>FACILITY</th>
<th>FREQUENCIES</th>
<th>SERVICE AVAILABILITY</th>
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<tr>
<td>SPECIAL USE, AIRSPACE ON SECTIONAL CHART</td>
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<tr>
<td>U.S. P-Restricted, W-Restricted, W-WARNING, P-ALERT, MOA-Military Operations Area</td>
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<tr>
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<td>ALTITUDE</td>
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<tr>
<td>A-202</td>
<td>TO 4000 AGL</td>
<td>0800-2200</td>
</tr>
<tr>
<td>MOA NAME</td>
<td>ALTITUDE</td>
<td>TIME OF USE</td>
</tr>
<tr>
<td>BRUSH CREEK</td>
<td>100 AGL</td>
<td>1000-1200</td>
</tr>
<tr>
<td>SHORELINE</td>
<td>2000 AGL</td>
<td>0800-2200</td>
</tr>
<tr>
<td>EVERS</td>
<td>1000 AGL</td>
<td>1600-1800</td>
</tr>
</tbody>
</table>

### 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>CYA7256</td>
<td>CONFEDERATION BRIDGE, PT</td>
<td>TO 200</td>
<td>CONTINUOUS</td>
<td></td>
</tr>
<tr>
<td>CYA3754</td>
<td>TO FL 200</td>
<td>200</td>
<td>CONTINUOUS</td>
<td></td>
</tr>
<tr>
<td>CYA702 (P)</td>
<td>GREENWOOD, NS</td>
<td>TO 200</td>
<td>CONTINUOUS</td>
<td></td>
</tr>
<tr>
<td>CYA752 (R)</td>
<td>INTERSTATE, NS</td>
<td>TO FL 260</td>
<td>CONTINUOUS</td>
<td></td>
</tr>
</tbody>
</table>

*All times are local. MOAs and special-use airspace not included in this chart. MOAs are indicated by the term "MOA."
VFR AERONAUTICAL CHART SYMBOLS

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GENERAL INFORMATION
Symbols shown are for World Aeronautical Charts (WACs), Sectional Aeronautical Charts (Sectionals), Terminal Area Charts (TACs), VFR Flyway Planning Charts and Helicopter Route Charts. When a symbol is different on any VFR chart series, it will be annotated, e.g., “WAC” or “Not shown on WAC.”
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. Refueling and repair facilities for normal traffic.

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

SEAPLANE: CIVIL

SEAPLANE: CIVIL-MILITARY

LANDPLANE: EMERGENCY

No facilities,
or

Complete information is not available.

Add appropriate note as required for hard surfaced runways only: “(CLOSED)”

SEAPLANE: EMERGENCY

No facilities, or complete information is not available.

HELIPORT

(Selected)

ULTRALIGHT FLIGHT PARK

(Selected)

Not shown on WAC
AIRPORT DATA

GROUPING

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

"OBJECTIONABLE": This airport may adversely affect airspace use.

- FSS - Flight Service Station on field
- NO SVFR - Airports where fixed wing special visual flight rules operations are prohibited (shown above airport name) F A R 91
- (NAM) - Location Identifier
- (PNAM) - ICAO Location Indicator
- CT - 118.3 - Control Tower (CT) - primary frequency
- * - Star indicates operation part-time. See tower frequencies tabulation for hours of operation
- UNICOM - Follows the Common Traffic Advisory Frequency (CTAF)
- (Not shown on WAC)
- ATIS 123.8 - Automatic Terminal Information Service
- AFIS 135.2 - Automatic Flight Information Service
- ASOS/AWOS 135.42 - Automated Surface Weather Observing Systems; shown when full-time ATIS is not available. (Not shown on WAC)
- Some ASOS/AWOS facilities may not be located at airport.
- 897 - Elevation in feet
- L - Lighting in operation: Sunset to Sunrise
- "L" - Lighting limitations exist; refer to Airport/Facility Directory
- 110 - Length of longest runway in hundreds of feet; usable length may be less
- UNICOM - Aeronautical Advisory Station ("U" only on WAC)
- RP 23, 34 - Runways with Flight Traffic Patterns (public use)
- (Not shown on WAC)
- RP* - (See Airport/Facility Directory)
- VFR - VFR Advisory Service shown where ATIS is not available and frequency is other than primary CT frequency.
- WX CAM - Weather Camera (AV)
- AOE - 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.
VFR AERONAUTICAL CHARTS - AERONAUTICAL INFORMATION

RADIO AIDS TO NAVIGATION

VHF OMNI-DIRECTIONAL RADIO (VOR) RANGE

Compass Rose & “reference” oriented to magnetic north

VOR

OAKDALE
116.8 OAK

VOR-DME

SALEM

AIR FORCE STATION (AFS)

122.9 AFS
123.6 POINT BARROW

LONG RANGE RADAR STATION (LRRS)

122.4 LRRS
122.55 BARTER ISLAND

122.4 LRRS
123.5 CAPE LISBURNE
385 LUR

OFF AIRPORT AWOS/ASOS

SANDBERG ASOS 120.625

NON-DIRECTIONAL RADIO BEACON (NDB)

WAC

HUMPHREY
275 HPY

GAMBELL
369 GAM

NAVAIDS USED TO DEFINE CLASS B AIRSPACE

ILS - DME

CLEVELAND-HOPKINS
DME ANTENNA
[0-MSP] Ch 36 [110.3]

MINNEAPOLIS
DME ANTENNA
[0-MSP] Ch 40 [110.3]

TAC only

BROADCAST STATIONS (BS)

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

KFTM
KFTM 1400

Broadcast Stations (BS)

On request by the proper authority or when a VFR Checkpoint.
VFR AERONAUTICAL CHARTS - AERONAUTICAL INFORMATION

RADIO AIDS TO NAVIGATION

FLIGHT SERVICE STATION (FSS)

Heavy line box indicates Flight Service Station (FSS). Frequencies 121.5, 122.5, 243.0 and 256.4 (Canada - 121.5, 126.7 and 243.8) are available at many FSSs and are not shown above boxes. All other frequencies are shown.

Certain FSSs provide Airport Advisory Service, see APO. R - Receive only.

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PONTIAC PTK</td>
<td>122.18</td>
<td>No NAVAID of the same name as FSS or 109.8 Ch 27 IDA PTK</td>
</tr>
<tr>
<td>IDAHO FALLS</td>
<td>109.8 Ch 27 IDA PTK</td>
<td>FSS open 0500-2300 Boise FSS other times. NAVAID same name as FSS but not an RCO</td>
</tr>
</tbody>
</table>

Transoceanic VHF frequencies are long range four digit numbers. These were used during the World War II era. They now have become legacy frequencies that some Alaska FSSs still maintain by doing radio checks with the U.S. Coast Guard.

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2666 PONTIAC PTK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMOTE COMMUNICATIONS OUTLET (RCO)

Frequencies above thin line box are remote to NAVAID site. Other FSS frequencies providing voice communication may be available as determined by attitude and terrain. Consult Airport/Facility Directory for complete information.

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

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLYMPIA RCO</td>
<td>123.5</td>
<td></td>
</tr>
<tr>
<td>MCCORRCO</td>
<td>122.35</td>
<td></td>
</tr>
<tr>
<td>ST PAUL</td>
<td>168.6 STP MINNEAPOLIS</td>
<td>FSS radio providing voice communication</td>
</tr>
<tr>
<td>HUMPHREY</td>
<td>122.35</td>
<td></td>
</tr>
<tr>
<td>MALES CITY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALASKA WEATHER CAMERA

Stand-Alone

Collocated with Airport - Must be within 2 NM to have same name.

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANCHORAGE WX CAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRANGELL BBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WX CAM</td>
<td>AOE</td>
<td></td>
</tr>
</tbody>
</table>
**CLASS B AIRSPACE**

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)*

All mileages are nautical (NM).

All radials are magnetic.

---

**CLASS C AIRSPACE**

Appropriate notes as required may be shown.

*(Mode C see FAR 91.215 /AIM)*

---

**CLASS D AIRSPACE**

---

*AIRSPACE INFORMATION*

---

*FOR FLIGHTS AT AND BELOW 8000’ MSL SEE KANSAS CITY VFR TERMINAL AREA CHART*
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...
- Airspace beginning at 700 feet AGL that laterally abuts uncontrolled airspace (Class G)...
- Airspace beginning at 1200 feet AGL or greater that laterally abuts uncontrolled airspace (Class G)...

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.

OFFSHORE CONTROL AREAS

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.

AIRSPACE INFORMATION

AIRSPACE INFORMATION

VFR AERONAUTICAL CHARTS - AERONAUTICAL INFORMATION
**AIRSPACE INFORMATION**

**OUTSIDE OF U.S.**

Other than Canada

Appropriate notes as required may be shown.

---

**FLIGHT INFORMATION REGIONS (FIR)**

No FIR exists this side - No ticks

**MONCTON FIR CZQM**

**WINNIPEG FIR CZWG**

**EDMONTON FIR CZEG**

**OAKLAND OCEANIC CONTROL AREA**

**MAZATLAN CTA SECTOR 2**

**MONTERREY CTA SECTOR 3**

---

**OCEANIC CONTROL AREAS (OCA)**

---

**CONTROL AREAS (CTA)**

---

**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 “T” Routes are identified in solid blue type adjacent to the solid magenta federal airway identification. The joint route symbol is screened magenta.
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.

SPECIAL AIR TRAFFIC RULES / AIRPORT PATTERNS (FAR 93)

Appropriate boxed note as required shown adjacent to area.

SPACE OPERATIONS AREA (FAR 91.143)

DARKER TINT IS FAR 91.143 AREA

Not shown on WAC

MODE C (FAR 91.215)

Appropriate notes as required may be shown.

MISCELLANEOUS AIRSPACE AREAS

Parachute Jumping Area with Frequency

Glider Operating Area

Ultralight Activity

Hang Glider Activity

Unmanned Aircraft Activity

Not shown on WAC
VFR AERONAUTICAL CHARTS - AERONAUTICAL INFORMATION

SPECIAL CONSERVATION AREAS
National Park, Wildlife Refuge, Primitive and Wilderness Areas, etc.

NOAA Regulated National Marine Sanctuary Designated Areas

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.

FLIGHT RESTRICTED ZONE (FRZ) RELATING TO NATIONAL SECURITY
Example: Washington DC

Appropriate notes as required may be shown.

TEMPORARY FLIGHT RESTRICTION (TFR) RELATING TO NATIONAL SECURITY
Example:

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.

NOTICE
FOR REASONS OF NATIONAL SECURITY PILOTS ARE REQUESTED TO AVOID FLIGHT BELOW 1200 MSL IN THIS AREA

Not shown on WAC

CAUTION
Flights should not attempt flight in the Grand Canyon Special Flight Rules Area (SFRA) below 18,000 feet using this chart as their primary navigational reference. Pilots intending to fly within the Grand Canyon SFRA should refer to the Grand Canyon VFR Aeronautical Chart for detailed information. Chart is available from the Federal Aviation Administration, phone 1-866-FBI-FLY (324-3599) or authorized agents.

Federal Aviation Administration
VFR AERONAUTICAL CHARTS - AERONAUTICAL INFORMATION

AIRSPACE INFORMATION

HIGH ENERGY RADIATION AREAS

Appropriate notes as required may be shown.

TERMINAL RADAR SERVICE AREA (TRSA)

Palm Springs TRSA

80 40
- Ceiling of TRSA in hundreds of feet MSL
- Floor of TRSA in hundreds of feet MSL

Appropriate notes as required may be shown.

IFR ROUTES

Arrival

Departure

10,000 - 5000
4000 - 8000

TAC only

VFR TRANSITION ROUTES

Appropriate notes as required may be shown.

Uni-directional

Bi-directional

TAC only
### Isogonic Line and Value

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

![Isogonic Line](image)

### Local Magnetic Notes

Unreliability Notes

Magnetic disturbance of as much as 78° exists at ground level and 10° or more at 3000 feet above ground level in this vicinity.

### Compass Rosette

Shown only in areas void of VOR roses.

Compass rosette will be based on the five year epoch magnetic variation model.

![Compass Rosette](image)

### Intersections

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

![Intersection Symbols](image)

### Airports Beacons

Rotating or Flashing

![Airport Beacons](image)

### Marine Lights

With Characteristics of Light

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Red</td>
<td>Land Light</td>
</tr>
<tr>
<td>W</td>
<td>White</td>
<td>Land Light</td>
</tr>
<tr>
<td>G</td>
<td>Green</td>
<td>Land Light</td>
</tr>
<tr>
<td>B</td>
<td>Blue</td>
<td>Land Light</td>
</tr>
<tr>
<td>SEC</td>
<td></td>
<td>Land Light</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>Land Light</td>
</tr>
<tr>
<td>Oc</td>
<td>Single Occulting</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>Oc (2)</td>
<td>Group Occulting</td>
<td>Composites Group Occulting</td>
</tr>
<tr>
<td>Oc (2+1)</td>
<td>Group Occulting</td>
<td>Composites Group Occulting</td>
</tr>
<tr>
<td>No</td>
<td>Isophase</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>F1</td>
<td>Flashing</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>F1 (2)</td>
<td>Group Flashing</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>F1 (2+1)</td>
<td>Group Flashing</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>G</td>
<td>Quick</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>IQ</td>
<td>Interrupted Quick</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>Mo (A)</td>
<td>Morse Code</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>PFR</td>
<td>Fixed and Flashing</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>*AI</td>
<td>Alternating</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>Gp</td>
<td>Group</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>LF1</td>
<td>Long Flash</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>Q (B)</td>
<td>Group Quick Flashing</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>IG2</td>
<td>Interrupted Quick Flashing</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>VQ</td>
<td>Very Quick Flashing</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>VQ (B)</td>
<td>Group Very Quick Flashing</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>UQ</td>
<td>Ultra Quick Flashing</td>
<td>Group Occulting</td>
</tr>
<tr>
<td>IQ</td>
<td>Interrupted Ultra Quick Flashing</td>
<td>Group Occulting</td>
</tr>
</tbody>
</table>

*Marine Lights are white unless otherwise noted. Alternating lights are red and white unless otherwise noted.
HIGH-INTENSITY OBSTRUCTION LIGHTS

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

Wind Turbine

Group Obstruction

WAC

WIND TURBINE FARMS

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

MAXIMUM ELEVATION FIGURE (MEF)

(see page 7 for explanation).

WARNING AND CAUTION NOTES

Used when specific area is not demarcated.

WARNING

Extensive fleet and air operations being conducted in offshore areas to approximately 100 miles seaward.

CAUTION: Be prepared for loss of horizontal reference at low altitude over lake during hazy conditions and at night.
VFR AERONAUTICAL CHARTS - AERONAUTICAL INFORMATION

CHART LIMITS

OUTLINE ON SECTIONAL OF TERMINAL AREA CHART

Not shown on WAC

OUTLINE ON SECTIONAL OF INSET CHART

If inset chart is on a different chart:

INDIANAPOLIS INSET
See inset chart on the St. Louis Sectional for additional Information

If inset chart is on the same chart as outline:

INDIANAPOLIS INSET
See inset chart for additional detail

Not shown on WAC
VFR AERONAUTICAL CHARTS - TOPOGRAPHIC INFORMATION

**RAILROADS**

- **Single Track**
- **Double Track**
- **More Than Two Tracks**
- **Electric**
- **Non-operating, Abandoned or Under Construction**

**RAILROAD YARDS**

- **Limiting Track To Scale**
- **Location Only**

**RAILROAD STATIONS**

- **RAILROAD SIDINGS AND SHORT SPURS**

**ROADS**

- **Dual-Lane Divided Highway Category 1**
- **Primary Category 2**
- **Secondary Category 2**

**TRAILS**

- **Category 3**

**ROAD MARKERS**

- **Interstate Route No.**
- **U.S. Route No.**
- **Air Marked Identification Label**

**ROAD NAMES**

- **LINCOLN HIGHWAY**

**ROADS UNDER CONSTRUCTION**

- **under construction**
BRIDGES AND VIADUCTS
Railroad

OVERPASSES AND UNDERPASSES

CAUSEWAYS

TUNNELS- ROAD AND RAILROAD

POPULATED PLACES
Large Cities Category 1

Cities and Large Towns Category 2

Towns and Villages Category 3

FERRIES, FERRY SLIPS AND FORDS

BOUNDARIES
International
State or Province
Convention or Mandate Line
RUSSIA
UNITED STATES

DATE LINE
(Monday)
(Sunday)

TIME ZONES
Not shown on WAC

MINES OR QUARRIES
Shaft Mines or Quarries

POWER TRANSMISSION AND TELECOMMUNICATION LINES
### HYDROGRAPHY

#### OPEN WATER

- [Image of open water]

#### INLAND WATER

- [Image of inland water]

#### OPEN/INLAND WATER

- [Image of open/inland water]

#### SHORELINES

- **Definite**
  - [Image of definite shorelines]
- **Fluctuating**
  - [Image of fluctuating shorelines]
- **Unsurveyed**
  - [Image of unsurveyed shorelines]
- **Indefinite**
  - [Image of indefinite shorelines]
- **Man-made**
  - [Image of man-made shorelines]

#### LAKES

- **Label as required**
- **Perennial**
  - When too numerous to show individual lakes, show representative pattern and descriptive note. Number indicates elevation.
  - [Image of perennial lake]
- **Non-Perennial**
  - (dry, intermittent, etc.) Illustration includes small perennial lake
  - [Image of non-perennial lake]

#### RESERVOIRS

- **Natural Shorelines**
  - [Image of natural shorelines]
- **Man-made Shorelines**
  - Label when necessary for clarity
  - [Image of man-made shorelines]
- **Too small to show to scale**
  - [Image of too small to show]
- **Under Construction**
  - [Image of under construction]

#### STREAMS

- **Perennial**
  - [Image of perennial stream]
- **Non-Perennial**
  - [Image of non-perennial stream]
- **Fanned Out**
  - [Image of fanned out stream]
- **Alluvial fan**
  - [Image of alluvial fan]
- **Braided**
  - [Image of braided stream]
- **Disappearing**
  - [Image of disappearing stream]
- **Seasonally Fluctuating**
  - with undefined limits
  - [Image of seasonally fluctuating stream]
  - with maximum bank limits, prominent and constant
  - [Image of seasonally fluctuating stream with defined limits]
### HYDROGRAPHY

#### Sand Deposits in and along riverbeds

#### Wet Sand Areas
Within and adjacent to desert areas

#### Aqueducts
- Abandoned or Under Construction
- Underground
- Suspended or Elevated
- Tunnels
- Kanats
- Underground with air vents

#### Flumes, Penstocks and Similar Features
- Elevated
- Underground

#### Falls
- Double-Line
- Single-Line

#### Rapids
- Double-Line
- Single-Line

#### Canals
- To Scale
- Abandoned or Under Construction
- Abandoned to Scale
VFR AERONAUTICAL CHARTS - TOPOGRAPHIC INFORMATION

HYDROGRAPHY

SMALL CANALS AND
DRAINAGE / IRRIGATION
DITCHES
Perennial

Non-Perennial

Abandoned or Ancient

Numerous
Representative pattern and/or
descriptive note.

Numerous

SALT EVAPORATORS
AND SALT PANS MAN
EXPLOITED

SWAMPS, MARSHES
AND BOGS

HUMMOCKS AND
RIDGES

MANGROVE
AND NIPA

PEAT BOGS

TUNDRA

CRANBERRY BOGS

RICE PADDIES
Extensive areas indicated by
label only.

LAND SUBJECT TO
INUNDATION

SPRINGS, WELLS AND
WATERHOLES

GLACIERS

GLACIAL MORAINES

ICE CLIFFS

SNOWFIELDS, ICE FIELDS
AND ICE CAPS

ICE PEAKS
<table>
<thead>
<tr>
<th>HYDROGRAPHY</th>
<th>ICE</th>
</tr>
</thead>
</table>
| **FORESHORE FLATS**<br>Tidal flats exposed at low tide. | **ICE**
| **ROCKS-ISOLATED**<br>Bare or Awash | *Permanent Polar Ice*
| **WRECKS**<br>Exposed | **Pack Ice**
| **REEFS-ROCKY OR CORAL** | |
| **MISCELLANEOUS UNDERWATER FEATURES**<br>NOT OTHERWISE Symbolized | |
| **FISH PONDS AND HATCHERIES** | |
VFR AERONAUTICAL CHARTS - TOPOGRAPHIC INFORMATION

RELIEF

CONTOURS
Basic

Approximate

Intermediate

Auxiliary

Depression
(Illustration includes mound within depression)

Values

SPOT ELEVATIONS
Position Accurate

Position Accurate, Elevation Approximate

Highest in General Area

Highest on Chart

MOUNTAIN PASS

HACHURING

UNsurveyed AREAS
Label appropriately as required

UNcontoured AREAS
Label appropriately as required

DISTorted SURFACE AREAS

LAVA FLOWS

SAND OR GRAVEL AREAS

SAND RIDGES
To Scale

SAND DUNES
To Scale
VFR AERONAUTICAL CHARTS - TOPOGRAPHIC INFORMATION

RELIEF

SHADED RELIEF

ROCK STRATA OUTCROP

QUARRIES TO SCALE

STRIP MINES, MINE DUMPS AND TAILINGS
To Scale

CRATERS

ESCARPMENTS, BLUFFS, CLIFFS, DEPRESSIONS, ETC.

LEVEES AND ESKERS
VFR AERONAUTICAL CHART SYMBOLS

HELICOPTER ROUTE CHARTS

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</table>
LANDPLANE
All recognizable runways, including some which may be closed, are shown for visual identification.

HELIPORT
- Heliports public and private
- Hospital Heliports
- Trauma Center
- Heliports located at major airports (when requested)

SEAPLANE

ULTRALIGHT FLIGHT PARK

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.

VHF OMNI-DIRECTIONAL RADIO (VOR) RANGE
- VOR-DME
- VOR-DME PROVO 138.4 Ch 21 PMU
- Compass Rose is "reference" oriented to magnetic north.
- Open circle symbol shown when NAVAID located on airport. Type of NAVAID shown in top of box.

VOR
- Operating less than continuous or On-Request
- Transcribed Weather Broadcast (TWEB)
- Underline indicates no voice on this frequency.

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.

NON-DIRECTIONAL RADIO BEACON (NDB)
- MONTAGUE 332 MEG
- Underline indicates no voice on this frequency.

NDB-DME
- GAMBRELL 369 GAM
- Underline indicates no voice on this frequency.
**RADIO AIDS TO NAVIGATION**

**NAVAIDS USED TO DEFINE CLASS B AIRSPACE**
- **ILS - DME**
  - CLEVELAND-HOPKINS DME ANTENNA (I-HPI) Ch 36 (110.3)
- **Shared ILS - DME**
  - MINNEAPOLIS DME ANTENNA (I-MSPI)-HKZ Ch 40 (119.3)

**BROADCAST STATIONS (BS)**
*On request by the proper authority or when a VFR Checkpoint.*

**FLIGHT SERVICE STATION (FSS)**
Heavy line box indicates Flight Service Station (FSS). Frequencies 121.5, 122.2, 243.0 and 355.4 (Canada - 121.5, 129.7 and 243.0) are available at many FSSs and are not shown above boxes. All other frequencies are shown. Certain FSSs provide Airport Advisory Service, see A/FD. R - Receive only.

**REMOTE COMMUNICATIONS OUTLET (RCO)**
Frequencies above thin line box are remote to NAVAID site. Other FSS frequencies providing voice communication may be available as determined by altitude and terrain. Consult Airport/Facility Directory for complete information. Thin line box without frequencies 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)
- All radials are magnetic.

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

**CLASS D AIRSPACE**

See NOTAMs/Directory for Class D eff hrs

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

All altitudes in hundreds of feet MSL.
HELICOPTER ROUTE CHARTS - AERONAUTICAL INFORMATION

AIRSPACE INFORMATION

CLASS E SURFACE (SFC) AIRSPACE

See NOTAMs/Directory for Class E (stc) eff hrs

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.

FLIGHT RESTRICTED ZONE (FRZ) RELATING TO NATIONAL SECURITY
Example: Washington DC

CANADIAN AIRSPACE

Appropriate notes as required may be shown.

TCA Class B/C/D

80 - Ceiling of TCA Class B/C/D in hundreds of feet MSL
40 - Floor of TCA Class B/C/D in hundreds of feet MSL

Class C or D Control Zone

ALITUDE IN HUNDREDS OF FEET MSL

Class E Control Zone

AIRSPACE CLASSIFICATION (SEE CANADA FLIGHT SUPPLEMENT) AND OPERATIONAL REQUIREMENTS (DOD USERS, SEE DOD AREA PLANNING APY1) MAY DIFFER BETWEEN CANADA AND UNITED STATES

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

HELICOPTER ROUTES

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

MARRIOTT 18.3

Reporting or Holding Points
Non-Compulsory

Secondary Route

Transition Route

ZONE 8

Recommended Route Altitude

Maximum

Minimum

Recommended
HELICOPTER ROUTE CHARTS - AERONAUTICAL INFORMATION

AIRSPACE INFORMATION

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.

MILITARY TRAINING ROUTES (MTR)

SPECIAL AIR TRAFFIC RULES / AIRPORT TRAFFIC AREAS (FAR PART 93)

Appropriate boxed notes as required shown adjacent to area.

MODE C (FAR 91.215)

Appropriate notes as required may be shown.

MISCELLANEOUS AIRSPACE AREAS

Parachute Jumping Area with Frequency

Glider Operating Area

Ultralight Activity

Hang Glider Activity

Unmanned Aircraft Activity

AIRSPACE INFORMATION

SPECIAL CONSERVATION AREAS

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

NOAA Regulated National Marine Sanctuary Designated Areas

TERMINAL RADAR SERVICE AREA (TRSA)

Appropriate notes as required may be shown.

Palm Springs TRSA

SEE TWR FREQ TAB

80 - Ceiling of TRSA in hundreds of feet MSL
40 - Floor of TRSA in hundreds of feet MSL
HELICOPTER ROUTE CHARTS - AERONAUTICAL INFORMATION

NAVIGATIONAL AND PROCEDURAL INFORMATION

VFR CHECKPOINTS
Underline indicates proper name of VFR Checkpoint

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

OBSURCTIONS
1000’ AGL and higher
300’ AGL and higher
Group Obstruction

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

Obstruction with high-intensity lights

Elevation of the top above mean sea level
Height above ground
Under Construction or reported and position/elevation unverified

WIND TURBINE FARMS
When highest wind turbine is unverified, UC will be shown after MSL value.

MAXIMUM ELEVATION
FIGURE (MEF)
(see page 7 for explanation).

NAVIGATION DATA

WARNING AND CAUTION NOTES
WARNING
Extensive fleet and air operations being conducted in offshore areas to approximately 100 miles seaward.

CAUTION: Be prepared for loss of horizontal reference at low altitude over lake during hazy conditions and at night.

LOCAL MAGNETIC NOTES
Unreliability Notes
Magnetic disturbance of as much as 78° exists at ground level and 10° or more at 3000 feet above ground level in this vicinity.
### Helicopter Route Charts - Topographic Information

#### Culture

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<th>RAILROADS</th>
<th>HYDROGRAPHY</th>
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<td>Single Track</td>
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<td>Double Track</td>
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#### Hydrography

<table>
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<tr>
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<th>MAJOR LAKES AND RIVERS</th>
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#### Relief

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<th>SPOT ELEVATIONS</th>
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Position Accurate

#### Population Places

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<th>POPULATED PLACES</th>
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Built-up Areas

#### Boundaries

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<th>BOUNDARIES</th>
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International

State or Province

#### Power

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<th>POWER</th>
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</thead>
</table>

TRANSMISSION LINES

#### Prominent Pictorials

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<th>PROMINENT PICTORIALS</th>
</tr>
</thead>
</table>

TEMPLE

#### Landmarks

<table>
<thead>
<tr>
<th>LANDMARKS</th>
</tr>
</thead>
</table>

- Landmark: stadium, factory, school, etc.
- Lookout Tower
- Mines or Quarries
- Race Track
- Outdoor Theater
- Tank-water, oil, or gas
VFR AERONAUTICAL CHART SYMBOLS

VFR FLYWAY PLANNING CHARTS

AIRPORTS.......................................................................................................................................................................45
RADIO AIDS TO NAVIGATION........................................................................................................................................45
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RELIEF .............................................................................................................................................................................49
**AIRPORTS**

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

EAR 91 - Fixed wing special VFR operations prohibited.

(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)**

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAL</td>
<td>109.6</td>
</tr>
</tbody>
</table>

**VOR**

Crosshatch indicates Shutdown status

**VORTAC**

Underline indicates no voice on this frequency

**VOR-DME**

Underline indicates no voice on this frequency

### NON-DIRECTIONAL RADIO BEACON (NDB)

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>WDP</td>
<td>396</td>
</tr>
</tbody>
</table>

Underline indicates no voice on this frequency

### NDB-DME

LSJ 206

### NAVAIDS USED TO DEFINE CLASS B AIRSPACE

- **CLEVELAND-HOPKINS DME ANTENNA (I-HPI) Ch 36 (110.3)**
  - Shared ILS - DME

- **MINNEAPOLIS DME ANTENNA (I-MSP/I-HKZ) Ch 40 (110.3)**
VFR FLYWAY PLANNING CHARTS - AERONAUTICAL INFORMATION

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.

CLASS C AIRSPACE
Appropriate notes as required may be shown.

(Mode C see FAR 91.215/AIM)

CLASS D AIRSPACE

CLASS E SURFACE (SFC) AIRSPACE

SPECIAL AIRSPACE AREAS

SPECIAL FLIGHT RULES AREA (SFRA) RELATING TO NATIONAL SECURITY
Example:
Washington DC

FLIGHT RESTRICTED ZONE (FRZ) RELATING TO NATIONAL SECURITY
Example:
Washington DC

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

ALTITUDE IN HUNDREDS OF FEET MSL
AIRSPACE INFORMATION

TEMPORARY FLIGHT RESTRICTION (TFR)
RELATING TO NATIONAL SECURITY
Example:

Appropriate notes as required may be shown.

VFR TRANSITION ROUTES
Appropriate notes as required may be shown.
Uni-directional
Bi-directional

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.

SUGGESTED VFR FLYWAY AND ALTITUDE

Direction
Mileage
Radial/Bearing from or to NAVAID
Altitude
Altitude Change

IFR ROUTES
Arrival
Departure

TERMINAL RADAR SERVICE AREA (TRSA)

Palm Springs TRSA
TRSA SURFACE AREA

100 - Ceiling of TRSA in hundreds of feet MSL
90 - Floor of TRSA in hundreds of feet MSL

Appropriate notes as required shown adjacent to area.

SPECIAL AIR TRAFFIC RULES/AIRPORT TRAFFIC AREAS (FAR Part 93)
Appropriate boxed note as required shown adjacent to area.

MODE C (FAR 91.215)
Appropriate notes as required may be shown.
VFR FLYWAY PLANNING CHARTS - AERONAUTICAL INFORMATION

AIRSPACE INFORMATION

MISCELLANEOUS

AIRSPACE AREAS

Parachute Jumping Area

Glider Operating Area

Ultralight Activity

Hang Glider Activity

Unmanned Aircraft Activity

SPECIAL

CONSERVATION AREAS

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 822).

NAVIGATIONAL AND PROCEDURAL INFORMATION

VFR CHECKPOINTS

Underline indicates proper name of VFR Checkpoint

VFR WAYPOINTS

Stand-Alone

Collocated with 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.

NAVIGATIONAL DATA

N38°56.32’
W76°36.91’

N32°27.12’
W70°15.73’

ATL 25 NM

ATL 033°
# VFR Flyway Planning Charts - Topographic Information

## Culture

<table>
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<tr>
<th>RAILROADS</th>
<th>HYDROGRAPHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single and Multiple Tracks</td>
<td></td>
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</tbody>
</table>

## Roads

| Dual-Lane                |  |
| Divided Highway Primary  |  |

## Populated Places

| Built-up Areas |  |
| Towns          |  |

## Boundaries

| International |  |

## Power Transmission Lines

|  |

## Prominent Pictorials

|  |

## Landmarks

| POWER PLANT |  |

## Shorelines

|  |

## Major Lakes and Rivers

|  |

## Reservoirs

|  |

## Relief

|  |

## Spot Elevations

Position Accurate Mountain Peaks

6504

| Temple |  |
## AIRSPACE CLASSES

<table>
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<th>AIRSPACE</th>
<th>CLASS A</th>
<th>CLASS B</th>
<th>CLASS C</th>
<th>CLASS D</th>
<th>CLASS E</th>
<th>CLASS G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry Requirements</td>
<td>ATC clearance</td>
<td>ATC clearance</td>
<td>ATC clearance for IFR</td>
<td>ATC clearance for IFR</td>
<td>ATC clearance for IFR</td>
<td>None</td>
</tr>
<tr>
<td>Minimum Pilot Qualifications</td>
<td>Instrument Rating</td>
<td>Private or Student certification. Local restrictions apply.</td>
<td>Student certificate</td>
<td>Student certificate</td>
<td>Student certificate</td>
<td>Student certificate</td>
</tr>
<tr>
<td>Two-Way Radio Communications</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes, under IFR flight plan*</td>
<td>Not required*</td>
</tr>
<tr>
<td>Special VFR Allowed</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>VFR Visibility Minimum</td>
<td>N/A</td>
<td>3 statute miles</td>
<td>3 statute miles</td>
<td>3 statute miles</td>
<td>Below 10,000' MSL 3 statute miles</td>
<td>Below 1200' AGL (regardless of MSL) Day 1 statute mile Night 3 statute miles Above 1200' AGL &amp; below 10,000' MSL Day 1 statute mile Night 3 statute miles Above 1200' AGL &amp; at or above 10,000' MSL 5 statute miles</td>
</tr>
<tr>
<td>VFR Minimum Distance From Clouds</td>
<td>N/A</td>
<td>Clear of Clouds</td>
<td>500' below 1000' above 2000' horizontally</td>
<td>500' below 1000' above 2000' horizontally</td>
<td>Below 10,000' MSL 500' below 1000' above 2000' horizontally At or above 10,000' MSL 1000' below 1000' above 1 mile horizontally</td>
<td>Below 1200' AGL (regardless of MSL) Day Clear of Clouds Night 500' below 1000' above 2000' horizontally Above 1200' AGL &amp; below 10,000' MSL Day 500' below 1000' above 2000' horizontally Night 500' below 1000' above 2000' horizontally Above 1200' AGL &amp; at or above 10,000' MSL 1000' below 1000' above 1 mile horizontally</td>
</tr>
<tr>
<td>VFR Aircraft Separation</td>
<td>N/A</td>
<td>All</td>
<td>IFR Aircraft</td>
<td>Runway Operations</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Traffic Advisories</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Workload permitting</td>
<td>Workload permitting</td>
<td>Workload permitting</td>
</tr>
<tr>
<td>Speed Restrictions</td>
<td>N/A</td>
<td>250 KIAS below 10000' MSL</td>
<td>250 KIAS below 10,000' MSL and 200 KIAS below 2500' AGL within 4nm of the primary airport</td>
<td>250 KIAS below 10,000' MSL and 200 KIAS below 2500' AGL within 4nm of the primary airport</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Differs from ICAO</td>
<td>No</td>
<td>ICAO does not have speed restriction</td>
<td>ICAO does not have speed restriction</td>
<td>ICAO requires ATC clearance</td>
<td>ICAO requires ATC clearance</td>
<td>ICAO requires 3 statute miles visibility</td>
</tr>
</tbody>
</table>

* Unless a temporary tower is present
AIRSPACE CLASSIFICATION

FL 600
18,000' MSL

Class A

Class B

Class C

Class D

Class E

Class E Surface

Non-Towered Airport with Instrument Approach

Non-Towered Airports without an Instrument Approach

Transition Area with 700' AGL Floor

14,500' MSL

1200' AGL

U.S. Airspace depiction as shown on Visual Aeronautical Charts

Excerpt from Detroit Sectional Chart
AeroNav Products
IFR AERONAUTICAL CHARTS
FAA charts are prepared in accordance with specifications of the Interagency Air Cartographic Committee (IACC), and are approved by representatives of the Federal Aviation Administration and the Department of Defense (DoD). Some information on these charts may only apply to military pilots.

The explanations of symbols used on Instrument Flight Rule (IFR) Charts and examples in this section are based primarily on the IFR Enroute Low Altitude Charts. Other IFR products use similar symbols in various colors (see Section 3 of this guide). The chart legends portray aeronautical symbols with a brief description of what each symbol depicts. This section provides more details of the symbols and how they are used on IFR charts.

**AIRPORTS**

Active airports with hard-surfaced runways of 3,000’ or longer are shown on IFR Enroute Low Altitude Charts - U.S. for the contiguous United States. Airports with hard or soft runways of 3,000’ or longer are shown on IFR Enroute Low Altitude Charts - Alaska. Airports with hard-surfaced runways of 5,000’ or longer are shown on IFR Enroute High Altitude Charts - U.S. for the contiguous United States. Airports with hard or soft runways of 4000’ or longer are shown on IFR Enroute High Altitude Charts - Alaska. Public heliports with an Instrument Approach Procedure (IAP) or requested by the FAA or DoD are depicted on the IFR Enroute Low Altitude Charts. Seaplane bases requested by the FAA or DoD are depicted on the IFR Enroute Low Altitude Charts. Active airports with approved instrument approach procedures are also shown regardless of runway length or composition. On IFR Enroute Low Altitude Charts a tabulation, is provided which identifies airport names, IDs and the panels they are located on. Charted airports are classified according to the following criteria:

- **Blue** – Airports with an Instrument Approach Procedure and/or RADAR MINIMA published in the high altitude DoD Flight Information Publications (FLIPs)
- **Green** – Airports which have an approved Instrument Approach Procedure and/or RADAR MINIMA published in either the U.S. Terminal Procedures Publications (TPPs) or the DoD FLIPs
- **Brown** – Airports without a published Instrument Approach Procedure or RADAR MINIMA

Airports are plotted at their true geographic position, unless the symbol conflicts with a radio aid to navigation (NAVAID) at the same location. In such cases, the airport symbols are displaced. The relationship between the airport and the NAVAID is retained.

Airports are identified by the airport name. In the case of military airports, Air Force Base (AFB), Naval Air Station (NAS), Naval Air Facility (NAF), Marine Corps Air Station (MCAS), Army Air Field (AAF), etc., the abbreviated letters appear as part of the airport name.

Airports marked “Pvt” immediately following the airport name are not for public use, but otherwise meet the criteria for charting as specified above.

Runway length is the length of the longest active runway (including displaced thresholds but excluding overruns) and is shown to the nearest 100 feet using 70 feet as the division point; e.g., a runway of 8,070’ is labeled 81.

The following runway compositions (materials) constitute a hard-surfaced runway: asphalt, bitumen, chip seal, concrete, and tar macadam. Runways that are not hard-surfaced have a small letter “s” following the runway length, indicating a soft surface.
RADIO AIDS TO NAVIGATION (NAVAIDs)

All IFR radio NAVAIDs that have been flight checked and are operational are shown on all IFR Enroute Charts. Very High Frequency/Ultrahigh Frequency (VHF/UHF) NAVAIDs, Very high frequency Omnidirectional Radio range (VORs), Tactical Air Navigation (TACANs) are shown in black, and Low Frequency/Medium Frequency (LF/MF) NAVAIDs, (Compass Locators and Aeronautical or Marine NDBs) are shown in brown.

On IFR Enroute Charts, information about NAVAIDs is boxed as illustrated below. To avoid duplication of data, when two or more NAVAIDs in a general area have the same name, the name is usually printed only once inside an identification box with the frequencies, TACAN channel numbers, identification letters, or Morse Code Identifications of the different NAVAIDs are shown in appropriate colors.

NAVAIDs in a shutdown status have the frequency and channel number crosshatched. Use of the NAVAID status “shutdown” is only used when a facility has been decommissioned but cannot be published as such because of pending airspace actions.

CONTROLLED AIRSPACE

Controlled airspace consists of those areas where some or all aircraft are subjected to air traffic control within the following airspace classifications of A, B, C, D, & E.

Air Route Traffic Control Centers (ARTCC) are established to provide Air Traffic Control to aircraft operating on IFR flight plans within controlled airspace, particularly during the enroute phase of flight. Boundaries of the ARTCCs are shown in their entirety using the symbol below.

The responsible ARTCC Center names are shown adjacent and parallel to the boundary line.

ARTCC sector frequencies are shown in boxes outlined by the same symbol.

Class A Airspace is depicted as open area (white) on the IFR Enroute High Altitude Charts. It consists of airspace from 18,000 Mean Sea Level (MSL) to 60,000 MSL. In aviation terms those altitudes are written as FL 180 to FL 600, (18,000 MSL, is Flight Level (FL) 180, 60,000 MSL, is FL 600).

Class B Airspace is depicted as screened blue area with a solid line encompassing the area.

Class C Airspace is depicted as screened blue area with a dashed line encompassing the area with a following the airport name.

Class B and Class C Airspace consist of controlled airspace extending upward from the surface or a designated floor to specified altitudes, within which all aircraft and pilots are subject to the operating rules and requirements specified in the Federal Aviation Regulations (FAR) 71. Class B and C Airspace are shown in abbreviated forms on IFR Enroute Low Altitude Charts. A general note adjacent to Class B airspace refers the user to the appropriate VFR Terminal Area Chart.

Class D Airspace (airports with an operating control tower) are depicted as open area (white) with a following the airport name.

Class E Airspace is depicted as open area (white) on the IFR Enroute Low Altitude Charts. It consists of airspace below FL180.

UNCONTROLLED AIRSPACE

Class G Airspace within the United States extends to 14,500’ MSL. This uncontrolled airspace is shown as screened brown.

On Area Charts any uncontrolled airspace boundaries are depicted with a .012” brown line and a .060” screen brown band on the uncontrolled side, so as to be seen over the terrain.
SPECIAL USE AIRSPACE

Special Use Airspace (SUA) confines certain flight activities, restricts entry, or cautions other aircraft operating within specific boundaries. SUA areas are shown in their entirety, even when they overlap, adjoin, or when an area is designated within another area. SUA with altitudes from the surface and above are shown on the IFR Enroute Low Altitude Charts. Similarly, SUA that extends above 18,000’ MSL are shown on IFR Enroute High Altitude Charts. On IFR Enroute Altitude Charts tabulations, identify the type of SUA, ID, effective altitudes, times of use, controlling agency and the panel it is located on.

OTHER AIRSPACE

FAR 91 Special Air Traffic Rules are shown with the type NO SVFR above the airport name.

FAR 93 Special Airspace Traffic Rules are shown with a solid line box around the airport name, indicating FAR 93 Special Requirements see Directory/Supplement.

Mode C Required Airspace (from the surface to 10,000’ MSL) within 30 NM radius of the primary airport(s) for which a Class B airspace is designated, is depicted on IFR Enroute Low Altitude Charts as a blue circle labeled MODE C 30 NM.

Mode C is also required for operations within and above all Class C airspace up to 10,000’ MSL, but not depicted. See FAR 91.215 and the AIM.

INSTRUMENT AIRWAYS

The FAA has established two fixed route systems for air navigation. The VOR and LF/MF system—designated from 1,200’ Above Ground Level (AGL) to but not including FL 180—is shown on IFR Enroute Low Altitude Charts, and the Jet Route system—designated from FL 180 to FL 450 inclusive—is shown on IFR Enroute High Altitude Charts.

VOR LF/MF AIRWAY SYSTEM
(IFR LOW ALTITUDE Enroute CHARTS)

In this system VOR airways – airways based on VOR or VORTAC NAVAIDs – are depicted in black and identified by a “V” (Victor) followed by the route number (e.g., “V12”). In Alaska and Canada, some segments of low-altitude airways are based on LF/MF NAVAIDs and are charted in brown instead of black. Routes from a UHF facility to a LF/MF facility change from black to brown at the midpoint.

LF/MF airways – airways based on LF/MF NAVAIDs – are sometimes called “colored airways” because they are identified by color name and number (e.g., “Amber One”, charted as “A1”). In Alaska Green and Red airways are plotted east and west, and Amber and Blue airways are plotted north and south. Regardless of their color identifier, LF/MF airways are shown in brown in the contiguous U.S.

AIRWAY/ROUTE DATA

On both series of IFR Enroute Charts, airway/route data such as the airway identifications, magnetic courses bearings or radials, mileages, and altitudes (e.g., Minimum Enroute Altitude (MEA), Minimum Obstruction Clearance Altitude (MOCA), Maximum Authorized Altitude (MAA), are shown aligned with the airway. As a rule the airway/route data is charted and in the same color as the airway, with one exception. Charted in blue, Global Navigation Satellite System (GNSS) MEAs, identified with a “G” suffix, have been added to “V” and “colored airways” for aircraft flying those airways using Global Positioning System (GPS) navigation.

Airways/Routes predicated on VOR or VORTAC NAVAIDs are defined by the outbound radial from the NAVAID. Airways/ Routes predicated on LF/MF NAVAIDs are defined by the inbound bearing.
AREA NAVIGATION (RNAV) “T” ROUTE SYSTEM

The FAA has created new low altitude area navigation (RNAV) “T” routes for the enroute and terminal environments. The RNAV routes will provide more direct routing for IFR aircraft and enhance the safety and efficiency of the National Airspace System. To utilize these routes aircraft are required to be equipped with IFR approved GNSS. In Alaska, TSO-145a and 146a equipment is required.

Low altitude RNAV only routes are identified by the prefix “T”, and the prefix “TK” for RNAV helicopter routes followed by a three digit number (T-200 to T-500). Routes are depicted in blue on the IFR Enroute Low Altitude Charts. RNAV route data (route line, identification boxes, mileages, waypoints, waypoint names, magnetic reference courses and MEAs) will also be printed in blue. Magnetic reference courses will be shown originating from a waypoint, fix/reporting point or NAVAID. GNSS MEA for each segment is established to ensure obstacle clearance and communications reception. GNSS MEAs are identified with a “G” suffix.

Joint Victor/RNAV routes are charted as outlined above except as noted. The joint Victor route and the RNAV route identification boxes are shown adjacent to each other. Magnetic reference courses are not shown. MEAs are charted above the appropriate identification box or stacked in pairs, GNSS and Victor. On joint routes, RNAV specific information will be printed in blue.

OFF ROUTE OBSTRUCTION CLEARANCE ALTITUDE (OROCA)

The Off Route Obstruction Clearance Altitude (OROCA) is depicted on IFR Enroute Low Altitude and Pacific charts and is represented in thousands and hundreds of feet above MSL. OROCAs are shown in every 30 x 30 minute quadrant on Area Charts, every one degree by one degree quadrant for IFR Enroute Low Altitude Charts - U.S. and every two degree by two degree quadrant on IFR Enroute Low Altitude Charts - Alaska. The OROCA represents the highest possible obstruction elevation including both terrain and other vertical obstruction data (towers, trees, etc.) bounded by the ticked lines of latitude/longitude including data 4 NM outside the quadrant. In this example the OROCA represents 12,500 feet.

OROCA is computed just as the Maximum Elevation Figure (MEF) found on Visual Flight Rule (VFR) Charts except that it provides an additional vertical buffer of 1,000 feet in designated non-mountainous areas and a 2,000 foot vertical buffer in designated mountainous areas within the United States. For areas in Mexico and the Caribbean, located outside the U.S. Air Defense Identification Zone (ADIZ), the OROCA provides obstruction clearance with a 3,000 foot vertical buffer. Evaluating the area around the quadrant provides the chart user the same lateral clearance an airway provides should the line of intended flight follow a ticked line of latitude or longitude. OROCA does not provide for NAVAID signal coverage, communication coverage and would not be consistent with altitudes assigned by Air Traffic Control. OROCAs can be found over all land masses and open water areas containing man-made obstructions (such as oil rigs).

MILITARY TRAINING ROUTES (MTRs)

Military Training Routes (MTRs) are routes established for the conduct of low-altitude, high-speed military flight training (generally below 10,000 feet MSL at airspeeds in excess of 250 knots Indicated Air Speed). These routes are depicted in brown on IFR Enroute Low Altitude Charts, and are not shown on inset charts or on IFR Enroute High Altitude Charts. IFR Enroute Low Altitude Charts depict all IFR Military Training Routes (IRs) and VFR Military Training Routes (VRs), except those VRs that are entirely at or below 1,500 feet AGL.

MTRs are identified by designators (IR-107, VR-134) which are shown in brown on the route centerline. Arrows are shown to indicate the direction of flight along the route. The width of the route determines the width of the line that is plotted on the chart: Route segments with a width of 5 NM or less, both sides of the centerline, are shown by a .02” line.

Route segments with a width greater than 5 NM, either or both sides of the centerline, are shown by a .035” line.

MTRs for particular chart pairs (ex. L1/2, etc.) are alphabetically, then numerically tabulated. The tabulation includes MTR type and unique identification and altitude range.
JET ROUTE SYSTEM (HIGH ALTITUDE ENROUTE CHARTS)

Jet routes are based on VOR or VORTAC NAVAIDs, and are depicted in black with a “J” identifier followed by the route number (e.g., “J12”). In Alaska, Russia and Canada some segments of jet routes are based on LF/MF NAVAIDs and are shown in brown instead of black. Routes from a UHF facility to a LF/MF facility change from black to brown at the midpoint.

AREA NAVIGATION (RNAV) “Q” ROUTE SYSTEM (IFR Enroute HIGH ALTITUDE CHARTS)

The FAA has adopted certain amendments to Title 14, Code of Federal Regulations which paved the way for the development of new area high altitude navigation (RNAV) “Q” routes in the U.S. National Airspace System (NAS). These amendments enable the FAA to take advantage of technological advancements in navigation systems such as the GPS. RNAV “Q” Route MEAs are shown when other than FL 180 MEAs for DME/DME/Inertial Reference Unit (IRU) RNAV aircraft have a “D” suffix.

RNAV routes and associated data are charted in blue.

“Q” Routes on the IFR Gulf of Mexico charts are shown in black. Magnetic reference courses are shown originating from a waypoint, fix/reporting point, or NAVAID. Joint Jet/RNAV route identification boxes will be located adjacent to each other with the route charted in black. With the exception of Q-Routes in the Gulf of Mexico, GNSS or DME/DME/IRU RNAV are required, unless otherwise indicated. DME/DME/IRU RNAV aircraft should refer to the A/FD or appropriate Supplement for DME information. Altitude values are stacked highest to lowest.

TERRAIN CONTOURS ON AREA CHARTS

Based on a recommendation of the National Transportation Safety Board, terrain contours have been added to the Enroute Area Charts and are intended to increase pilots’ situational awareness for safe flight over changes in terrain. The following Area Charts portray terrain: Anchorage, Denver, Fairbanks, Juneau, Los Angeles, Nome, Phoenix, San Francisco, Vancouver and Washington.

When terrain rises at least 1,000 feet above the primary airports’ elevation, terrain is charted using shades of brown with brown contour lines and values. The initial contour will be 1,000 or 2,000 feet above the airports’ elevation. Subsequent intervals will be 2,000 or 3,000 foot increments.

Contours are supplemented with a representative number of spots, elevations and are shown in solid black. The highest elevation on an Area Chart is shown with a larger spot and text.

The following boxed note is added to the affected Area Charts:
## IFR Aeronautical Chart Symbols

### IFR Enroute Low/High Altitude (U.S., Pacific and Alaska Charts)

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### Oceanic Route Planning Charts, North Atlantic, Watrs and North Pacific Route Charts

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### AIRPORT DATA

**LOW/HIGH ALTITUDE**

Facilities in BLUE or GREEN have an approved Instrument Approach Procedure and/or RADAR MINIMA published in either the FAA Terminal Procedures Publications or the DoD FLIPs. Those in BLUE have an Instrument Approach Procedure and/or RADAR MINIMA published at least in the High Altitude DoD FLIPS. Facilities in BROWN do not have a published Instrument Approach Procedure or RADAR MINIMA.

**All IAP Airports are shown on the Low Altitude Charts.**

**Non-IAP Airports on the U.S. Low Altitude Charts have a minimum hard surface runway of 5000’**.

**Non-IAP Airports on the Alaska Low Altitude Charts have a minimum hard or soft surface runway of 3000’**.

**Airports on the U.S. High Altitude Charts have a minimum hard surface runway of 5000’**.

**Airports on the Alaska High Altitude Charts have a minimum hard or soft surface runway of 4000’**.

Associated city names for public airports are shown above or preceding the airport name. If airport name and city name are the same, only the airport name is shown. City names for military and private airports are not shown.

The airport identifier in parentheses follows the airport name or Pvt.

Airport symbol may be offset for enroute navigational aids.

**Pvt** - Private Use

### AIRPORT DEPICTION

**LOW ALTITUDE - U.S. & ALASKA**

- **Airport Id/Code**
- **ICAO** Location Indicator shown outside contiguous U.S.
- **Airport Name**
- **Elevation**
- **Associated City**
- **Length**
- **Runway**
- **Type**
- **Lighting Capability:**
  - Lighting available
  - No lighting available
  - Pilot Controlled Lighting
  - Part-time or on request

**EMERGENCY USE ONLY**

**PACIFIC ONLY**

1. Airport elevation given in feet above or below mean sea level
2. Pvt - Private use, not available to general public
3. A solid line box enclosing the airport name indicates FAR 93 Special Requirements - see Directory/Supplement
4. "NO VFR" above the airport name indicates FAR 91
5. "CALIF" following the airport identifier indicates Class C or D airspace
6. Airport symbol may be offset for enroute navigational aids.
7. Associated city names for public airports are shown above or preceding the airport name. If airport name and city name are the same, only the airport name is shown. The airport identifier in parentheses follows the airport name. City names for military and private airports are not shown.
8. Airport ident/Code Location Indicator shown outside contiguous U.S.
9. AFIS, Alaska only

### CIVIL

- **LOW/HIGH ALTITUDE**

### CIVIL AND MILITARY

- **LOW/HIGH ALTITUDE**

### MILITARY

- **LOW/HIGH ALTITUDE**

### SEAPLANE - CIVIL

- **LOW ALTITUDE**

### HELIPORT

- **LOW ALTITUDE**

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IFR ENROUTE LOW/HIGH ALTITUDE U.S., PACIFIC AND ALASKA CHARTS

RADIO AIDS TO NAVIGATION

- VHF OMNIDIRECTIONAL RADIO RANGE (VOR)
- DISTANCE MEASURING EQUIPMENT (DME)
- TACTICAL AIR NAVIGATION (TACAN)
- NON-DIRECTIONAL RADIOBEACON (NDB)
- MARINE RADIOBEACON (RBN)
- COMPASS LOCATOR BEACON
- ILS LOCALIZER

VOR/DME RNAV WAYPOINT DATA

NAVIGATION AND COMMUNICATION BOXES

LOW/ HIGH ALTITUDE

- VOR/DME RNAV WAYPOINT DATA
- NAVIGATION AND COMMUNICATION BOXES

LOW/ HIGH ALTITUDE

- VOR/DME RNAV
- WAYPOINT DATA

LOW/ HIGH ALTITUDE

- COMPASS LOCATOR BEACON
- ILS LOCALIZER

LOW/ HIGH ALTITUDE

- VOR OMNIDIRECTIONAL RADIO RANGE (VOR)
- DISTANCE MEASURING EQUIPMENT (DME)
- TACTICAL AIR NAVIGATION (TACAN)
- NON-DIRECTIONAL RADIOBEACON (NDB)
- MARINE RADIOBEACON (RBN)
- COMPASS LOCATOR BEACON
- ILS LOCALIZER
IFR ENROUTE LOW/HIGH ALTITUDE U.S., PACIFIC AND ALASKA CHARTS

NAVIGATION AND COMMUNICATION BOXES (CONTINUED)

122.65

118.3 ICT 85 5555

WICHITA

N37°44.70' W97°35.03'

FSS associated with a NAVID

123.6 122.65

EL DORADO ELD

Name and identifier of FSS not associated with NAVID

Shadow NAVID Boxes indicate Flight Service Station (FSS) locations. Frequencies 122.2, 255.4 and emergency 121.5 and 243.0 are available at many FSSs and are not shown. All other frequencies are shown above the box.

Certain FSSs provide Local Airport Advisory (LAA) on 123.6.

Frequencies transmit and receive except those followed by R or T. R - Receive only T - Transmit only

In Canada, shadow boxes indicate FSSs with standard group frequencies of 121.5, 126.7 and 243.0.

122.55

Remote Communications Outlet (RCO) FSS name and remoted frequency are shown

116.0 PBF 107 5555

PINE BLUFF

N34°14.81' W91°55.57'

Controlling FSS Name JONESBORO

Thin Line NAVID Boxes without frequencies and controlling FSS name indicate no FSS frequencies available. Frequencies positioned above thin line boxes are remoted to the NAVID sites. Other frequencies at the controlling FSS named are available, however, altitude and terrain may determine their reception.

Morse Code is not shown in NAVID boxes on High Altitude Charts.

Flight Service Station (FSS), Remote Communications Outlet (RCO) or Automated Weather Observing Station (AWOS/ASOS) not associated with a charted NAVID or airport.

NAME ASOS 000.0 Stand Alone ASOS/AWOS

AIRSPACE INFORMATION

LOW ALTITUDE AIRWAYS

VHF / UHF Data is depicted in Black
LF / MF Data is depicted in Brown
RNAV Route Data is depicted in Blue

V4 - VOR Airway/ Vector Route
AO - LF/MF Airway
A0 - Uncontrolled LF/MF Airway
A0 - Oceanic Route
A0 - ATS Route
T000 - RNAV Route
T000 - RNAV Helicopter Route

LOW/HIGH ALTITUDE

LOW ALTITUDE ROUTES

J126 - Jet Route

MEA-27000 MEA-23000G

256 Joint Jet/RNAV Route

SINGLE DIRECTION ROUTES

1000-0600Z Effective Times of Route

V193 Other times routes revert to bi-directional

HIGH ALTITUDE

RO00 AIR TRAFFIC SERVICE (ATS) ROUTE

DIRECTION OF FLIGHT INDICATOR

LOW ALTITUDE - CANADA

EVEN

SUBSTITUTE ROUTE

LOW/HIGH ALTITUDE

All reference and supporting data shown in brown
See NC23464 or appropriate publication for specific information
IFR ENROUTE LOW/HIGH ALTITUDE U.S., PACIFIC AND ALASKA CHARTS

AIRSPACE INFORMATION

UNUSABLE ROUTE

LOW ALTITUDE

HIGH ALTITUDE

BY-PASS ROUTE

HIGH ALTITUDE

AIRWAY RESTRICTION

LOW ALTITUDE

AIRWAY penetrates Prohibited & Restricted Airspaces

MILITARY TRAINING ROUTES (MTR)

LOW ALTITUDE

MTRs 5 NM or less both sides of centerline
MTRs greater than 5 NM either or both sides of centerline

Arrow indicates direction of route

See MTR tabulation for altitude range information

All BR and VR MTRs are shown except those VRs at or below 1000’ AGL.

CAUTION: Inset charts do not depict MTRs

FIXES/ATC REPORTING REQUIREMENTS (CONTINUED)

VOR-Compulsory Position Report
VOR-Non-Compulsory Position Report
VOR/DME-Compulsory Position Report
VOR/DME-Non-Compulsory Position Report
VOR/TAC-Compulsory Position Report
VOR/TAC-Non-Compulsory Position Report

NDB-Compulsory Position Report
NDB-Non-Compulsory Position Report
NDB/DME-Compulsory Position Report
NDB/DME-Non-Compulsory Position Report

RADIALS AND BEARINGS

All radials and bearings are magnetic

LOW/HIGH ALTITUDE

000 Radial outbound from a VHF/UHF NAV AID

000 Bearing inbound to a VHF/UHF NAV AID

FACILITY LOCATORS

LOW/HIGH ALTITUDE

<DOGS NAME> Facility locators used with radial / bearing information
<000 NAME> Crosshatch indicates Shutdown Status of NAV AID

MILEAGES

All Mileages are Nautical (NM)

000 000 Total Mileage between Compulsory Reporting Points and/or NAV AIDs
00 00 Mileage between other Fixe s, NAV AIDs and/or Mileage Breakdown

[RC/CP] Five-letter identifier in parentheses indicates CNF with no ATC function

DISTANCE MEASURING EQUIPMENT (DME) FIX

LOW/HIGH ALTITUDE

+ Denotes DME fix (distance same as airway / route mileage)
+ Denotes DME fix (unmarked mileage shown when not otherwise obvious)
AIRSPACE INFORMATION

**MINIMUM ENROUTE ALTITUDE (MEA)**
All Altitudes Are MSL
Unless Otherwise Noted

**LOW ALTITUDE**
- RNAV/GPS MEA

**HIGH ALTITUDE**
- MEA-31000

**MINIMUM ENROUTE ALTITUDE (MEA) GAP**
MEA is established when there is a gap in navigation signal coverage

**MAXIMUM AUTHORIZED ALTITUDE (MAA)**
All Altitudes Are MSL
Unless Otherwise Noted

**LOW ALTITUDE**
- MAA-15500

**HIGH ALTITUDE**
- MAA-41000

**MINIMUM OBSTRUCTION CLEARANCE ALTITUDE (MOCA)**
All Altitudes Are MSL
Unless Otherwise Noted

**LOW ALTITUDE**
- MOCA

**HIGH ALTITUDE**
- 3500

**CHANGEOVER POINT**
VOR Changeover Point giving mileage to NAVAIDs (Not shown at midpoint locations)

**ALTITUDE CHANGE**
- MEA, MOCA end / or MAA change at other than NAVAIDs

**MINIMUM CROSSING ALTITUDE (MCA)**

**MINIMUM RECEPTION ALTITUDE (MRA)**

AIRSPACE INFORMATION

**HOLDING PATTERNS**
RNAV Holding Pattern
Magnetic Reference Bearing is determined by the isogonic value at the waypoint or fix.

**LOW/HIGH ALTITUDE**

**AIR DEFENSE IDENTIFICATION ZONE (ADIZ)**
CONTIGUOUS U.S. ADIZ
ALASKA ADIZ
CANADA ADIZ
Adjoining ADIZ

**AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)**
NEW YORK ARTCC
WASHINGTON ARTCC
ARCC Remoted Sites with Specific VHF and UHF Frequencies

**AIR TRAFFIC SERVICE IDENTIFICATION DATA**
Type of Area Traffic Service

**ALTIMETER SETTING CHANGE**

**FLIGHT INFORMATION REGIONS (FIR)**

**CONTROL AREAS (CTA)**
MOUNTAIN FIR CZUL
TORONTO FIR CZYZ
Adjoining FIR

**LOW/HIGH ALTITUDE**

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AIRSPACE INFORMATION

UPPER INFORMATION REGIONS (UIR)

UPPER CONTROL AREAS (UTA)

ADDITIONAL CONTROL AREAS

OFF ROUTE OBSTRUCTION CLEARANCE ALTITUDE (OROCA)

SPECIAL USE AIRSPACE

AIRSPACE INFORMATION

UPPER INFORMATION REGIONS (UIR)

UPPER CONTROL AREAS (UTA)

ADDITIONAL CONTROL AREAS

OFF ROUTE OBSTRUCTION CLEARANCE ALTITUDE (OROCA)

SPECIAL USE AIRSPACE

OROCA is computed similarly to the Maximum Elevation Figure (MEF) found on Visual Charts except that it provides an additional vertical buffer of 1,000 feet in designated non-mountainous areas and a 2,000 foot vertical buffer in designated mountainous areas within the United States.

Example: 12,500 feet

In the Caribbean the first two letters represent the country code, i.e. (MY) Bahamas, (MU) Cuba.

EXCLUSION AREA

Line delimits internal separation of same Special Use Area

SEE AIRSPACE TABULATION ON EACH CHART FOR COMPLETE INFORMATION ON:
AREA IDENTIFICATION
EFFECTIVE ALTITUDES
OPERATING TIMES
CONTROLLING AGENCY A/G CALL PANEL

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**IFR ENROUTE LOW/HIGH ALTITUDE U.S., PACIFIC AND ALASKA CHARTS**

**AIRSPACE INFORMATION**

### CONTROLLED AIRSPACE

#### HIGH ALTITUDE

**CLASS A AIRSPACE**
Open Area (White)
That airspace from 18,000’ MSL to and including FL 290, including the airspace overlying the waters within 12 NM of the coast of the contiguous United States and Alaska, and designated offshore areas, excluding Santa Barbara Island, Farallon Island, the airspace north of latitude 35°00'00" N, the Alaska peninsula west of longitude 160°00'00" W, and the airspace less than 1,500’ AGL.

That airspace from 18,000’ MSL to and including FL 450, including Santa Barbara Island, Farallon Island, the Alaska peninsula west of longitude 160°00'00" W, and designated offshore areas.

#### LOW ALTITUDE

**CLASS B AIRSPACE**
Screened blue with a Solid Blue Outline
That airspace from the surface to 10,000’ MSL (unless otherwise designated) surrounding the nearest busy airports. Each Class B airspace area is individually tailored and consists of a surface area and two or more layers.

**MODE C AREA**
A Solid Blue Outline
That airspace within 30 NM of the primary airports of Class B airspace and within 10 NM of designated airports. Mode C transponder equipment is required. (See FAR 91.215)

### LOW ALTITUDE

**CLASS C AIRSPACE**
Screened blue with a Solid Blue Dashed Outline
That airspace from the surface to 6,000’ (unless otherwise designated) above the elevation of selected airports (charted in MSL), The normal radius of the outer limits of Class C airspace is 10 NM. Class C airspace is also indicated by the letter C in a box following the airport name.

### LOW ALTITUDE

**CLASS D AIRSPACE**
Open Area (White)
That airspace, from the surface to 2,500’ (unless otherwise designated) above the airport elevation (charted in MSL), surrounding those airports that have an operational control tower. Class D airspace is indicated by the letter D in a box following the airport name.

### UNCONTROLLED AIRSPACE

**LOW/ HIGH ALTITUDE**

**CLASS G AIRSPACE**
Screened Brown Area
Low Altitude
That portion of the airspace below 14,500’ MSL that has not been designated as Class B, C, D or E airspace.

High Altitude
That portion of the airspace from 18,000’ MSL and above that has not been designated as Class A airspace.

### CANADIAN AIRSPACE

Appropriate notes as required may be shown.

### AIRSPACE OUTSIDE OF U.S.

Other than Canada

Appropriate notes as required may be shown.
**NAVIGATIONAL AND PROCEDURAL INFORMATION**

### Isogonic Line and Value

**LOW/ HIGH ALTITUDE**

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

### Time Zone

**LOW/ HIGH ALTITUDE**

During periods of Daylight Saving Time (DT), effective hours will be one hour earlier than shown. All states observe DT except Arizona and Hawaii.

**NOTES**

FAA air traffic service outside U.S. airspace is provided in accordance with article 12 and annex II of ICAO convention. ICAO convention not applicable to state aircraft but compliance with ICAO standards and practices is encouraged.  

**CAUTIONS**

Possible damage and/or interference to airborne radio due to high level radio energy in the vicinity of R-2006.

**CAUTIONS**

Accuracy of air traffic services relative to Havana FR cannot be confirmed. Consult NOTAMs.

North American Datum of 1983 (NAD 83), for charting purposes is considered equivalent to World Geodetic System 1984 (WGS 84).

### Morse Code

**LOW/ HIGH ALTITUDE**

- **A**: ----
- **B**: -----
- **C**: ---
- **D**: ----
- **E**: 
- **F**: ----
- **G**: ---
- **H**: ----
- **I**: ----
- **J**: ----
- **K**: ----
- **L**: ----
- **M**: ----
- **N**: ----
- **O**: ----
- **P**: ----
- **Q**: ----
- **R**: ----
- **S**: ----
- **T**: ----
- **U**: ----
- **V**: ----
- **W**: ----
- **X**: ----
- **Y**: ----
- **Z**: ----

---

**CRUISING ALTITUDES**

**U.S. only**

**LOW ALTITUDE**

VFR or ON TOP  

---

VFR or ON TOP  

---

**HIGH ALTITUDE**

VFR or VFR On Top add 500'  

---

No VFR flight below FAA air sup. area above 3000' AGL. unless otherwise authorized by ATC.
IFR ENROUTE LOW/HIGH ALTITUDE U.S., PACIFIC AND ALASKA CHARTS

CULTURE

BOUNDARIES
   International

   LOW/ HIGH ALTITUDE

   U.S./Russia
   Maritime Line

   LOW/ HIGH ALTITUDE

   Date Line

   LOW/ HIGH ALTITUDE

HYDROGRAPHY

SHORELINE

TOPOGRAPHY

TERRAIN
   Area Charts
## OCEANIC ROUTE PLANNING CHARTS

### AIRPORTS

#### AIRPORT DATA

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#### LANDPLANE-CIVIL

Refueling and repair facilities for normal traffic.

#### LANDPLANE-CIVIL AND MILITARY

Refueling and repair facilities for normal traffic.

#### LANDPLANE-MILITARY

Refueling and repair facilities for normal traffic.

### RADIO AIDS TO NAVIGATION

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<thead>
<tr>
<th>RADIO AIDS TO NAVIGATION</th>
<th>NARC/WATS</th>
<th>NPRC</th>
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<tbody>
<tr>
<td>VHF OMNIDIRECTIONAL RADIO RANGE (VOR)</td>
<td>VOR</td>
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<tr>
<td>DISTANCE MEASURING EQUIPMENT (DME)</td>
<td>VOR / DME</td>
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<tr>
<td>VOR TACAN (VORTAC)</td>
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<tr>
<td>TACTICAL AIR NAVIGATION (TACAN)</td>
<td>TACAN</td>
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</tbody>
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#### VHF OMNIDIRECTIONAL RADIO RANGE (VOR)

- HONOLULU INT'L (PHNL)

#### DISTANCE MEASURING EQUIPMENT (DME)

- HONOLULU INT'L (PHNL)

#### VOR TACAN (VORTAC)

- HONOLULU INT'L (PHNL)

#### TACTICAL AIR NAVIGATION (TACAN)

- HONOLULU INT'L (PHNL)

### IDENTITY BOX

<table>
<thead>
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<tr>
<td>MDY 400</td>
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<tr>
<td>N26°12'2&quot; W177°52.2'</td>
<td></td>
</tr>
<tr>
<td>VHF Frequency Latitude &amp; Longitude</td>
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</tr>
<tr>
<td>SQM 367</td>
<td></td>
</tr>
<tr>
<td>CHAN 93</td>
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<tr>
<td>TACAN Channel Latitude &amp; Longitude</td>
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<td>CRG 114.5</td>
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### AIRSPACE INFORMATION

#### AIR TRAFFIC SERVICE (ATS) / OCEANIC ROUTES

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<td>Note: Mileages are Nautical (NM)</td>
<td>UHR91</td>
<td>UHF Caribbean Identification Mileage</td>
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#### ATS SINGLE DIRECTION ROUTE

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#### AERIAL REFUELING TRACKS

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<tr>
<td>AR-900 E/AR-903 F</td>
<td>One Way</td>
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<tr>
<td>AR-903 E/AR-903 W</td>
<td>Two Way</td>
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#### AIR DEFENSE IDENTIFICATION ZONE (ADIZ)

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#### AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)

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#### FLIGHT INFORMATION REGIONS (FIR) AND/OR (CTA)

<table>
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#### UPPER INFORMATION REGIONS (UIR)

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#### UPPER CONTROL AREAS (UTA)

<table>
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#### OCEANIC CONTROL AREAS (OCA) AND/OR (CTA/FIR)

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#### ADDITIONAL OCEANIC CONTROL AREAS

<table>
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Note: Limits not shown when coincident with Warning Areas.
**NAVIGATIONAL AND PROCEDURAL INFORMATION**

**MILEAGE CIRCLES**
Note: Mileages are Nautical (NM)

**TIME ZONE**
Note: All time is Coordinated Universal (Standard) Time (UTC)

**OVERLAP MARKS**
North Pacific Route Chart (NPRC) Only

**COMPASS ROSE**
Note: Compass Roses oriented to Magnetic North

**NOTES**
Warning

**BUFFERS ZONE**

**NON-FREE FLYING ZONE**

**NORTH ATLANTIC/MINIMUM NAVIGATION PERFORMANCE SPECIFICATIONS (NAT/MNPS)**

**FIXES/ATC REPORTING REQUIREMENTS**
In congested areas select fixes have coordinates, use, compl/noncompl tabulated.

**SPECIAL USE AIRSPACE**
Warning Area
12 Mile Limit

**UNCONTROLLABLE AIRSPACE**

**MILEAGE CIRCLES**
Note: Mileages are Nautical (NM)

**TIME ZONE**
Note: All time is Coordinated Universal (Standard) Time (UTC)

**OVERLAP MARKS**
North Pacific Route Chart (NPRC) Only

**COMPASS ROSE**
Note: Compass Roses oriented to Magnetic North

**NOTES**
Warning
# OCEANIC ROUTE PLANNING CHARTS

## CULTURAL BOUNDARIES

<table>
<thead>
<tr>
<th>INTERNATIONAL</th>
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### MARITIME

* NPRC Only

<table>
<thead>
<tr>
<th>RUSSIA</th>
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<td>UNITED STATES</td>
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### DATE LINE

* NPRC Only

<table>
<thead>
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<tbody>
<tr>
<td>SUNDAY</td>
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</tbody>
</table>

## HYDROGRAPHY

![Hydrography Image](#)
AeroNav Products

U.S. TERMINAL PROCEDURES

PUBLICATION
U.S. TERMINAL PROCEDURES PUBLICATION

The U.S. Terminal Procedure Publications include the Standard Instrument Approach Procedures (SIAPS), Standard Instrument Departure Procedures (SIDs), Standard Terminal Arrivals (STARs), IFR Takeoff Minimums and (Obstacle) Departure Procedures (ODPs), IFR Alternate Minimums, and Radar Instrument Approach Minimums for use by civil and military aviation.

EXPLANATION OF TPP TERMS AND SYMBOLS

The discussions and examples in this section will be based primarily on the IFR (Instrument Flight Rule) Terminal Procedures Publication (TPP). Other IFR products use similar symbols in various colors (see Section 2 of this guide). The publication legends list aeronautical symbols with a brief description of what each symbol depicts. This section will provide a more detailed discussion of some of the symbols and how they are used on TPP charts.

FAA charts are prepared in accordance with specifications of the Interagency Air Cartographic Committee (IACC), which are approved by representatives of the Federal Aviation Administration, and the Department of Defense. Some information on these charts may only apply to military pilots.

PILOT BRIEFING INFORMATION

The pilot briefing information format consists of three horizontal rows of boxed procedure-specific information along the top edge of the chart. Frequencies and channel, course and elevation values are charted in bold type. The top row contains the primary procedure navigation information, final approach course, landing distance available, touchdown zone, threshold and airport elevations. The middle row contains procedure notes and limitations, icons indicating if nonstandard alternate and/or takeoff minimums apply, approach lighting symbology, and the full text description of the missed approach procedure. The bottom row contains air to ground communication facilities and frequencies in the order in which they are used during an approach with the tower frequency box bolded.

When ▼ appears in the Notes section, it signifies the airport has IFR takeoff minimums and/or Departure Procedures published in Section L of the TPP.

CIVIL USERS NOTE: FAR 91 prescribes standard takeoff rules and establishes takeoff minimums for certain operators as follows: (1) Aircraft having two engines or less - one statute mile. (2) Aircraft having more than two engines - one-half statute mile. These standard minima apply in the absence of any different minima listed in Section L of the TPP.

ALL USERS: Airports that have Departure Procedures (DPs) designed specifically to assist pilots in avoiding obstacles during the climb to the minimum enroute altitude, and/or airports that have civil IFR takeoff minimums other than standard, are listed in Section L of the TPP by city. Takeoff Minimums and Departure Procedures apply to all runways unless otherwise specified. Altitudes, unless otherwise indicated, are minimum altitudes in MSL.

DPs specifically designed for obstacle avoidance may be described in Section L of the TPP in text or published as a graphic procedure. Its name will be listed, and it can be found in either the TPPs (civil) or a separate Departure Procedure volume (military), as appropriate. Users will recognize graphic obstacle DPs by the word “(OBSTACLE)” included in the procedure title; e.g., TETON TWO (OBSTACLE). If not specifically assigned a departure procedure (i.e., ODP, SID, or radar vector) as part of an IFR clearance, an ODP may be required to be flown for obstacle clearance, even though not specifically stated in the IFR clearance. When doing so in this manner, ATC should be informed when the ODP being used contains a specified route to be flown, restrictions before turning, and/or altitude restrictions.

Graphic DPs designed by ATC to standardize traffic flows, ensure aircraft separation and enhance capacity are referred to as “Standard Instrument Departures (SIDs).” SIDs also provide obstacle clearance and are published under the appropriate airport section. ATC clearance must be received prior to flying a SID.

NOTE: Graphic Departure Procedures that have been designed primarily to assist Air Traffic Control in providing air traffic separation (as well as providing obstacle clearance) are usually assigned by name in an ATC clearance and are not listed by name in Section L of the TPP.

When △ appears in the Notes section of the approach chart, it indicates non-standard IFR alternate minimums exist for the airport. When an alternate airport is required, standard IFR alternate minimums apply. Precision approach procedures require a 600’ ceiling and 2 statute miles visibility; nonprecision approaches require an 800’ ceiling and 2 statute miles visibility. This information is found in Section M of the TPP. If △ NA appears, alternate minimums are not authorized due to unmonitored facility or absence of weather reporting service. Civil pilots see FAR 91.
The \( \text{W} \) symbol indicates that outages of the WAAS vertical guidance may occur daily at this location due to initial system limitations. WAAS NOTAMs for vertical outages are not provided for this approach. Use LNAV minima for flight planning at these locations, whether as a destination or alternate. For flight operations at these locations, when the WAAS avionics indicate that LNAV/VNAV or LPV service is available, then vertical guidance may be used to complete the approach using the displayed level of service. Should an outage occur during the procedure, reversion to LNAV minima may be required. As the WAAS coverage is expanded, the \( \text{W} \) will be removed.

**PLANVIEW**

The data on the planview is drawn to scale, unless one of the following three charting devices are utilized: concentric rings, scale breaks or inset box(es). In many cases, obstructions close to the airport can be depicted within the parameters of the airport sketch.

**Terrain Depiction**

Terrain will be depicted with contour lines in shades of brown, in the planview portion of all IAPs at airports that meet the following criteria:

- If the terrain within the planview exceeds 4,000 feet above the airport elevation, or
- If the terrain within a 6.0 nautical mile radius of the Airport Reference Point (ARP) rises to at least 2,000 feet above the airport elevation.

Approximately 1200 airports throughout the US currently meet the above criteria.

**Missed Approach Icons**

Boxed MAP icons, placed in the profile section, are intended to provide quick-at-a-glance intuitive guidance to the pilot to supplement, not replace, the textual missed approach instructions in the briefing strip. These step-by-step instructional graphics depict direction of turn, next heading/course/bearing/track, next altitude, etc. to give the pilot the “up and out” initial steps of the missed approach.

**IFR Landing Minima**

The United States Standard for Terminal Instrument Procedures (TERPS) is the approved criteria for formulating instrument approach procedures. Landing minima are established for six aircraft categories (ABCDE and COPTER). In the absence of COPTER MINIMA, helicopters may use the CAT A minimums of other procedures.
TERMINAL ARRIVAL AREAS (TAAs)

The objective of the Terminal Arrival Area (TAA) is to provide a seamless transition from the enroute structure to the terminal environment for arriving aircraft equipped with Flight Management System (FMS) and/or Global Positioning System (GPS) navigational equipment. The underlying instrument approach procedure is an area navigation (RNAV) procedure. The TAA contains within it a “T” structure that normally provides for a No Procedure Turn (NoPT) for aircraft using the approach. The TAA provides the pilot and air traffic controller with a very efficient method for routing traffic into the terminal environment with little required air traffic control interface, and with minimum altitudes depicted that provide standard obstacle clearance compatible with the instrument procedure associated with it. The TAA will not be found on all RNAV procedures, particularly in areas of heavy concentration of air traffic. When the TAA is published, it replaces the MSA for that approach procedure. TAAs may appear on GPS and RNAV IAP charts.

NOTE: Additional information for the TAAs can be found in the Aeronautical Information Manual (AIM) Para 5-4-5-d.
Instrument Approach Chart Format

For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -5°F (23°C) or above 54°F (29°C). For inoperative MALSR, increase LNAV/VNAV all CATs visibility to 1/2 mile and increase LNAV CAT A/B to 1 mile. DME/DME RNP-0.3 NA. Helicopter visibility reduction below 1/2 SM not authorized.

**Pilot Briefing Information**

- WAAS CH 70626
- App CRS 136°
- Rwy Idg THR 27
- Apt Elev 29

**Terminal Arrival Areas (TAAs)**

**Missed Approach Icons**

**RNAV Minima**

<table>
<thead>
<tr>
<th>Category</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPV DA</td>
<td>480-1/3</td>
<td>491 (500-1)</td>
<td>480-1/3</td>
<td>491 (500-1)</td>
</tr>
<tr>
<td>LNAV/VNAV DA</td>
<td>363-1/3</td>
<td>336 (400-1/3)</td>
<td>480-1/3</td>
<td>491 (500-1)</td>
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<tr>
<td>LNAV MDA</td>
<td>480-1/3</td>
<td>491 (500-1)</td>
<td>480-1/3</td>
<td>491 (500-1)</td>
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<td>CIRCLING</td>
<td>520-1</td>
<td>491 (500-1)</td>
<td>520-1/2</td>
<td>491 (500-1)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>640-2</td>
<td>611 (700-2)</td>
</tr>
</tbody>
</table>

**RNAP (GPS) Z RWY 14**

**JACKSONVILLE, FLORIDA**

**ATIS**

| 125.85 | JACKSONVILLE APP CON | 119.0 | 335.6 |
| 118.3 | 317.7 |

| GND CON | 121.9 | 348.6 |
| 119.5 | 290.275 |

**MALSR**

- Missed Approach: Climbing left turn to 2000 direct YEWO and hold.

**NOT FOR NAVIGATION**

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U.S. TERMINAL PROCEDURES PUBLICATION SYMBOLS

AERONAUTICAL INFORMATION

STANDARD TERMINAL ARRIVAL (STAR) CHARTS .....................................................................................................................................77
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GENERAL INFORMATION

Symbols shown are for the Terminal Procedures Publication (TPP) which includes Standard Terminal Arrival Routes (STARs), Departure Procedures (DPs), Instrument Approach Procedures (IAP) and Airport Diagrams.
SHORT APPROACH LIGHTING SYSTEM

SALS/SALSF
(High Intensity)
SAME AS INNER 1500' of ALSF-1

SIMPLIFIED SHORT APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS
SSALR

(High Intensity)
LENGTH 2400/3000 FEET

MEDIUM INTENSITY (MALS AND MALSF) OR SIMPLIFIED SHORT (SSALS AND SSALF) APPROACH LIGHTING SYSTEMS
MALS
MALSF
SSALS
SSALF

LENGTH 1400 FEET

MEDIUM INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS
MALSR

SAME LIGHT CONFIGURATION AS SSALR.
**ODALS**

OmniDirectional Approach Lighting System

**VASI**

Visual Approach Slope Indicator

**PAPI**

Precision Approach Path Indicator

- **Legend:** □ White □ Red
- Too low
- Slightly low
- On correct approach path
- Slightly high
- Too high
U.S. TERMINAL PROCEDURES PUBLICATION
APPRAOCHE LIGHTING SYSTEM

PULSATING VISUAL APPROACH SLOPE INDICATOR
PVASI

CAUTION: When viewing the pulsating visual approach slope indicators in the pulsating white or pulsating red sectors, it is possible to mistake this lighting aid for another aircraft or a ground vehicle. Pilots should exercise caution when using this type of system.

TRI-COLOR VISUAL APPROACH SLOPE INDICATOR
TRCV

CAUTION: When the aircraft descends from green to red, the pilot may see a dark amber color during the transition from green to red.

ALIGNMENT OF ELEMENT SYSTEMS
APAP

Painted panels which may be lighted at night. To use the system the pilot positions the aircraft so the elements are in alignment.
ARRESTING GEAR

- uni-directional
- bi-directional
- Jet Barrier

ARRESTING GEAR: Specific arresting gear systems; e.g., BAX12, M-A-1A etc., shown on airport diagrams, not applicable to Civil Pilots. Military Pilots refer to appropriate DOD publications.

REFERENCE FEATURES

- Buildings
- 24-Hour Self-Serve Fuel ###.
- Tanks
- Obstruction
- Airport Beacon
- Runway Radar Reflectors
- Hot Spot

TWR: Control Tower #

# When Control Tower and Rotating Beacon are co-located, Beacon symbol will be used and further identified as TWR.

### A fuel symbol is shown to indicate 24-hour self-serve fuel available, see appropriate A/FD, Alaska or Pacific Supplement for information.

Helicopter Alighting Areas

- Negative Symbols used to identify Copter Procedures landing point

Runway Threshold elevation...THRE 123
Runway TDZ elevation............TDZE 123

- 0.3% DOWN Runway Slope
- 0.8% UP (shown when runway slope equals or exceeds 0.3%)

NOTE: Runway Slope measured to midpoint on runways 3000 feet or longer.

A  symbol is shown to indicate runway declared distance information available, see appropriate A/FD, Alaska or Pacific Supplement for distance information.

NOTES

- U.S. Navy Optical Landing System (OLS) "OLS" location is shown because of its height of approximately 7 feet and proximity to edge of runway may create an obstruction for some types of aircraft.

Approach light symbols are shown in the Flight Information Handbook.

Airport diagram scales are variable.

True/magnetic North orientation may vary from diagram to diagram.

Coordinate values are shown in 1 or ½ minute increments. They are further broken down into 6 second ticks, within each 1 minute increments.

Positional accuracy within ±600 feet unless otherwise noted on the chart.

NOTE: All new and revised airport diagrams are shown referenced to the World Geodetic System (WGS) (noted on appropriate diagram), and may not be compatible with local coordinates published in FIP. (Foreign Only)
U.S. TERMINAL PROCEDURES PUBLICATION

AIRPORT DIAGRAM/SKETCH

RUNWAYS

- Hard Surface
- Other than hard surface
- Stopways, Taxiways, Parking Areas
- Displaced Threshold
- Closed Runway
- Closed Taxiway
- Under Construction
- Metal Surface

Runway length depicted is the physical length of the runway (end-to-end, including displaced thresholds if any) but excluding areas designated as stopways.

Runway Weight Bearing Capacity/or PCN Pavement Classification Number is shown as a codified expression. Refer to the appropriate Supplement/Directory for applicable codes e.g., RWY 14-32 PCN 80 F/D/X/U S-75, D-185, 25-175, 20-325

SCOPE

Airport diagrams are specifically designed to assist in the movement of ground traffic at locations with complex runway/taxiway configurations. Airport diagrams are not intended to be used for approach and landing or departure operations. For revisions to Airport Diagrams: Consult FAA Order 7910.4.
TERMINAL ROUTES

Procedure Track
Missed Approach
Visual Flight Path
Procedure Turn (Type degree and point of turn optional)

TERMINAL ROUTES

HOLDING PATTERNS

In lieu of Procedure Turn

MISSED APPROACH

ARRIVAL HOLDING PATTERN

RADIO AIDS TO NAVIGATIONS

VOR (Compulsory)
VORTAC (Compulsory)
VOR/DME (Compulsory)
TACAN (Compulsory)

MINIMUM SAFE ALTITUDE

MCK CRW 25 NM

11500
22000
270

ARRIVAL PATTERN ALTITUDE LIMITS

175K to 6000'
210K to 14000'

FIXES/ATC REPORTING REQUIREMENTS

Reporting Point
A Name (Compulsory)
A Name (Non-Compulsory)

WAYPOINT (Compulsory)
WAYPOINT (Non-Compulsory)

FLYOVER POINT
Intersection
MAP WP (Flyover)

U.S. TERMINAL PROCEDURES PUBLICATION

INSTRUMENT APPROACH PROCEDURES PLANVIEW

aeronav.faa.gov

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Minimum MSL altitudes are charted within each of these defined areas/subdivisions that provide at least 1,000 feet of obstacle clearance, or more as necessary in mountainous areas.
PROFILE VIEW

Two different methods are used for vertical guidance:

a. "GS" indicates an electronic glide slope or barometric vertical guidance is present. In the case of an Instrument Landing System (ILS) and Wide Area Augmentation System (WAAS) LPV approach procedures, an electronic signal provides vertical guidance. Barometric vertical guidance is provided for RNP and LNAV/VNAV instrument approach procedures. All ILS, LPV, RNP, and LNAV/VNAV will be in this format GS 3.00°, located in the lower left or right corner.

b. Other charts without electronic or barometric vertical guidance will be in this format TCH 55, indicating a non-precision vertical descent angle to assist in preventing controlled flight into terrain. On Civil (FAA) procedures, this information is placed above or below the procedure track following the fix it is based on.

**U.S. TERMINAL PROCEDURES PUBLICATION**

**INSTRUMENT APPROACH PROCEDURES PROFILE VIEW**

**PROFILE SYMBOLS**

- Glide Slope/Glide Path Intercept
- Altitude and final approach fix for vertically guided approach procedures.

Visual Flight Path

- Visual Descent Point (VDP)

- Visual segment below MDA/DA is clear of obstacles on 34:1 slope.
- Absence of shaded area indicates 34:1 is not clear.

**ATLITUDES**

- 3500: Mandatory Altitude
- 3000: Recommended Altitude
- 2500: Minimum Altitude
- 5000: Mandatory Block Altitude
- 4300: Maximum Altitude