Aeronautical Information Services

Aeronautical Chart
User’s Guide

Effective as of 25 April 2019
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INTRODUCTION

KEEP YOUR CHARTS CURRENT

COLOR VARIATION

REPORTING CHART DISCREPANCIES

EFFECTIVE DATE OF CHART USER’S GUIDE AND UPDATES
WHAT'S NEW?
Update as of 25 April 2019

The following charting items have been added to the Online Chart User’s Guide since the Guide was last published on 13 September 2018:

VFR CHARTS

No Changes Applied

IFR ENROUTE CHARTS

INCLUSION OF ASOS/AWOS IN THE AIRPORT DATA BLOCK

Chart users have identified the need for more weather source on charts. In response, Enroute Charting has begun including ASOS/AWOS system type and frequency to the existing airport data block on Enroute Low Charts when an on-airport automated weather system is present.

TERMINAL PROCEDURE PUBLICATIONS (TPPS)

COMPARABLE VALUES OF RUNWAY VISUAL RANGE (RVR) AND VISIBILITY

Runway Visual Range (RVR) values have been revised in order to harmonize the values in the Comparable Values of RVR and Visibility table that is published in the Legend of the TPP with the values that are published in FAA Order 8260.3C. The Table that has previously been published in the TPP did not contain all of the values used in the 8260.3C so sometimes the next higher RVR value had to be used to determine the visibility that is published on the chart. This can result in visibility values that are unnecessarily high. In order to resolve this problem, the missing RVR values have been added to the table in the TPP and the affected IAP Charts have been revised with the new visibility values.

<table>
<thead>
<tr>
<th>RVR (feet)</th>
<th>Visibility (SM)</th>
<th>RVR (feet)</th>
<th>Visibility (SM)</th>
<th>RVR (feet)</th>
<th>Visibility (SM)</th>
<th>RVR (feet)</th>
<th>Visibility (SM)</th>
</tr>
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<tbody>
<tr>
<td>1600</td>
<td>1/4</td>
<td>2400</td>
<td>1/2</td>
<td>3500</td>
<td>1/4</td>
<td>5500</td>
<td>1</td>
</tr>
<tr>
<td>1800</td>
<td>1/2</td>
<td>2600</td>
<td>1/2</td>
<td>4000</td>
<td>1/4</td>
<td>6000</td>
<td>1/4</td>
</tr>
<tr>
<td>2000</td>
<td>1/2</td>
<td>3000</td>
<td>1/4</td>
<td>4500</td>
<td>1/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td>1/2</td>
<td>3200</td>
<td>1/4</td>
<td>5000</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comparative Values of RVR and Visibility

The following table shall be used for converting RVR to ground or flight visibility. For converting RVR values that fall between listed values, use the next higher RVR value, do not interpolate. For example, when converting 4600 RVR, use 5000 RVR with the resultant visibility of 1 mile.
EXPLANATION OF VFR TERMS AND SYMBOLS

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

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

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

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

WATER FEATURES (HYDROGRAPHY)

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

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

LAND FEATURES (TERRAIN) AND OBSTRUCTIONS

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

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

2. Shaded relief shows how terrain may appear from the air. Shadows are shown as if light is coming from the northwest, because studies have shown that our visual perception has been conditioned to this view.

3. Different color tints show bands of elevation relative to sea level. These colors range from light green for the lower elevations, to dark brown for the higher elevations.
4. Obstruction symbols show man made vertical features that could affect safe navigation. FAA’s Aeronautical Information Manual (AIM) maintains a database of over obstacles in the United States, Canada, the Caribbean, Mexico and U.S. Pacific Island Territories. Aeronautical Specialists evaluate each obstacle based on charting specifications before adding it to a visual chart. When a Specialist is not able to verify the position or elevation of an obstacle, it is marked UC, meaning it is “under construction” or being reported, but has not been verified.

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

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

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

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:

**MEF - Manmade Obstacle**

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’. U.S. Geological Survey Quadrangle Maps with contour intervals as small as 10’ are normally used).

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

**Example:**

<table>
<thead>
<tr>
<th>Elevation of obstacle top (MSL)</th>
<th>2649</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible obstacle error</td>
<td>+100</td>
</tr>
<tr>
<td>equals</td>
<td>2749</td>
</tr>
<tr>
<td>Raise to the following 100’ level</td>
<td>2800</td>
</tr>
<tr>
<td>Maximum Elevation Figure (MEF)</td>
<td>28</td>
</tr>
</tbody>
</table>

The definitive FAA reference source for understanding and interpretation of all aviation charts

Aeronautical Information Services
Federal Aviation Administration

The Federal Aviation Administration (FAA) publishes aeronautical charts for each stage of visual (VFR) and instrument (IFR) flight, including training, planning, departure, enroute (low and high altitude), approach, and taxiing. This guide is an excellent reference for novice and experienced pilots alike, as well as for international pilots becoming familiar with U.S. charts. This 13th Edition of the Aeronautical Chart User’s Guide is the definitive learning aid, reference document, and introduction to the wealth of information provided on FAA charts and in chart navigation publications.

Produced by the FAA’s Aeronautical Information Services branch, it explains all the symbology for FAA sectional, world, terminal area, flyway planning, helicopter route, enroute low- and high-altitude, and oceanic route charts, as well as standard terminal arrival routes, standard instrument departures, and instrument approach procedures. Also includes chart legends, airspace classification tables, and is illustrated throughout with full-color graphics.

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