

## 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.

NACO 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. Altitudes, fre-

CARLSBAD, CALIFORNIA				
APP CRS <b>245°</b>	Rwy Idg TDZE Apt Elev <b>4600</b> <b>326</b> <b>328</b>	RNAV (GPS) RWY 24 CARLSBAD/MC CLELLAN-PALOMAR (CRQ)		
Baro-VNAV NA below -15°C (5°F). Inoperative table does not apply to LNAV CAT A. For inoperative MALSR increase LNAV CAT B visibility to 1 1/2.		MALSR 	MISSED APPROACH: Climb to 2000 via 245° course to IBUGE WP and hold.	
ATIS* <b>120.15</b>	SOCAL APP CON <b>127.3 323.0</b>	PALOMAR TOWER* <b>118.6 (CTAF) 392.0</b>	GND CON <b>121.8</b>	CLNC DEL <b>134.85</b>

quencies and channel, course and elevation values (except HATs and HAAs) are charted in bold type. The top row contains the primary procedure navigation information, final approach course, landing distance available, touchdown zone and airport elevations. The middle row contains procedure notes and limitations, icons indicating if nonstandard alternate and/or take-off 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.

**NOTE:** The **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 **W** will be removed.

### MISSED APPROACH ICONS

In addition to the full text description of the missed approach procedure contained in the notes section of the middle-briefing strip, the steps are also charted as boxed icons in the chart profile view. These



icons provide simple-to-interpret instructions, such as

direction of initial turn, next heading and/or course, next altitude, etc.

### RNAV CHART MINIMA

RNAV instrument approach procedure charts will now incorporate all types of approaches using Area Navigation systems, both ground based and satellite based. Below is an explanation of the RNAV minima.

The standard format for RNAV minima (and landing minima) is as shown below. RNAV minima are

CATEGORY	A	B	C	D	E
LPV DA	296/40		250	(300 - 3/4)	
LNAV/VNAV DA	500/50		454 (500-1)		
LNAV MDA	640/40	594 (600-3/4)	640/50 594 (600-1)	640/60 594 (600-1/4)	640-1 1/2 594 (600-1/2)
CIRCLING	640-1 1/2		594 (600-1 1/2)	640-2 594 (600-2)	740-2 1/2 694 (700-2 1/2)

dependent on navigational equipment capability, as stated in the applicable AFM or AFMS, or other FAA approved document, and as outlined below.

### GLS (Global Navigation Satellite System (GNSS) Landing System)

The GLS (NA) Minima line will be removed from the existing RNAV (GPS) approach charts when LPV minima is published.

### LPV (An Approach Procedure with Vertical Guidance (APV) based on WAAS lateral and vertical guidance)

Must have WAAS (Wide Area Augmentation System) avionics approved for LPV approach.

### LNAV/VNAV (Lateral Navigation/Vertical Navigation)

Must have either:

- WAAS avionics approved for LNAV/VNAV approach, or
- A certified Baro-VNAV system with an IFR approach GPS, or
- A certified Baro-VNAV system with an IFR approach approved WAAS, or
- An approach certified RNP-0.3 system..

Other RNAV approach systems require special approval.

**NOTES:**

1. LNAV/VNAV minima not applicable for Baro-VNAV equipment if chart is annotated "Baro-VNAV NA" or when below the minimum published temperature, e.g., Baro-VNAV NA below 17 C (2 F).

2. DME/DME based RNP-.03 systems may be used only when a chart note indicates DME/DME availability; e.g., "DME/DME RNP-0.3 Authorized." Specific DME facilities may be required; e.g., "DME/DME RNP-0.3 Authorized, ABC, XYZ required."

**LNAV (Lateral Navigation)**

Must have IFR approach approved GPS, WAAS, or RNP-0.3 system. Other RNAV systems require special approval.

**NOTE:** DME/DME RNP-0.3 systems may be used only when a chart note indicates DME/DME availability; e.g., "DME/DME RNP-0.3 Authorized." Specific DME facilities may be required; e.g., "DME/DME RNP-0.3 Authorized. ABC, XYZ required."

**TERMINAL ARRIVAL AREAS (TAAs)**

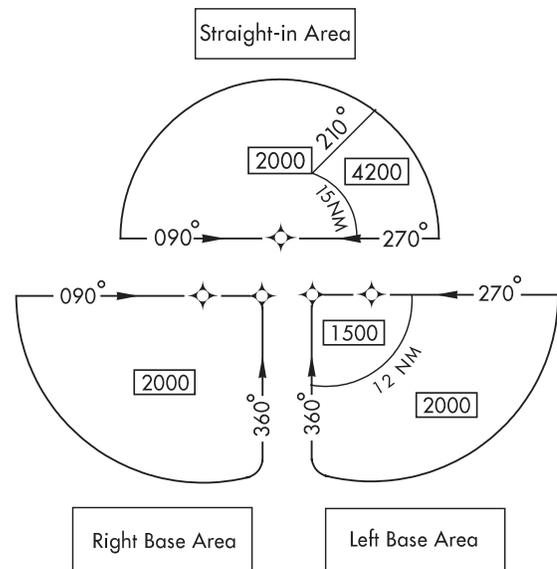
The objective of the Terminal Arrival Area (TAA) is to provide a seamless transition from the enroute structure to the terminal environment for arriving aircraft equipped with Flight Management System (FMS) and/or Global Positioning System (GPS) navigational equipment. The underlying instrument approach 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 current and new format GPS and RNAV IAP charts.

The standard TAA consists of three areas defined by the extension of the Initial Approach Fix (IAF) legs and the intermediate segment course. These areas are called the straight-in, left-base, and the right-base areas. TAA area lateral boundaries are identified by magnetic courses TO the IAF. The straight-in area can further be divided into pie-shaped sectors with the boundaries identified by magnetic courses TO the IF/IAF, and many contain stepdown sections defined by arcs based on RNAV distances (DME or ATD) from the IF/IAF. The right/left-base areas can only be subdivided using arcs based on RNAV distances from the IAF's for those areas.

**Straight-In Area:** The straight-in area is defined by a semi-circle with a 30 NM radius centered on and extending outward from the IF/IAF. The altitude shown

within the straight-in area icon provides minimum IFR obstacle clearance

**Base Areas:** the left and right base areas are bounded by the straight-in TAA and the extension of the intermediate segment course. The base areas are defined by a 30 NM radius centered on the IAF on either side of the IF/IAF. The IF/IAF is shown in the base area icons without its name. The altitude shown within the base area icons provides minimum IFR obstacle clearance.



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

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

**ALTERNATE MINIMUMS**

When an alternate airport is required, standard IFR alternate minimums apply. Precision approach procedures require a 600-foot ceiling and 2 statute miles visibility; nonprecision approaches require an 800-foot ceiling and 2 statute miles visibility. When a **▲** appears in the Notes section of the approach chart, it indicates non-standard IFR alternate minimums exist for the airport. This information is found in Section E of the TPP. If **▲<sub>NA</sub>** appears, alternate minimums are not authorized due to unmonitored facility or absence of weather reporting service. Civil pilots see FAR 91.

**Alternate Take-Off Minimums and (Obstacle) Departure Procedures**

When a **▼** appears in the Notes section, it signifies the airport has nonstandard IFR takeoff minimums.

CIVIL USERS NOTE: FAR 91 prescribes standard take-off rules and establishes take-off 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 C 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 take-off minimums other than standard, are listed in Section C of the TPP by city. Take-off 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 C 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 assigned another DP or radar vector by ATC, this procedure may be flown to ensure obstacle clearance.

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 C of the TPP.

### RNAV Departure Procedures (DP) and Standard Terminal Arrival Routes (STAR)

RNAV DPs and STARs are being developed to support a more efficient traffic flow and further National Airspace System (NAS) capacity. These procedures will be flown only by /E, /F, and /G aircraft, i.e., those with onboard databases. These procedures will extend over a larger geographic area to allow ATC spacing and sequencing to occur en route. In order to reduce the number of pages required to depict these longer procedures, changes to the graphic depictions and textual data are necessary.

NAVAID boxes will be removed and identified with only the name, the three-letter ident and the applicable symbol. Waypoints will be identified with waypoint symbol and five letter name. Waypoints that overlay NAVAIDs will be depicted only as NAVAIDs, not as a waypoint. A single graphic will be used when possible; how-

ever, if not feasible, the common portion of the procedure will be shown on a single page with transitions contained on subsequent pages. Subsequent pages will be subtitled with the transition area, i.e., CHEZZ ONE DEPARTURE Northeast Transitions, or JHAWK TWO ARRIVAL South Transitions. Text remarks that apply to the entire procedure, or all transitions, will be charted on the page that contains the common point and common portion of the procedure. Text remarks that apply to a specific transition will be charted on the page that contains that transition. Transition text will not include a description of the route but will instead state expectations for altitudes, clearances, FL restrictions, aircraft constraints, specific airport arrival use, etc.

### RNAV Departure Procedures (DP) and Standard Terminal Arrival Routes (STAR) Legs

Due to the variations in the development, documentation, charting and database coding of RNAV Departure Procedures (DPs), it has become necessary to chart RNAV legs with specific information based on their type. This data depiction will provide pilots with a clearer indication of the type of leg the aircraft will be flying and the ensuing flight profile.

Heading - no waypoints shown, "hdg" charted after degrees (i.e., 330<sup>o</sup> hdg), no mileage shown.

Direct - waypoint at termination of leg, no course shown, no mileage shown.

Course - waypoint at termination of leg, course shown, mileage shown only if first leg upon departure.

Track - waypoints at beginning and termination of leg, course shown, mileage shown.

Leg mileages will be listed differently based on certain criteria. Mileages on Course and Track legs will be shown to the nearest one-tenth of a NM when all three of the following conditions are met:

Leg termination is 30 NM or less to the Airport Reference Point (ARP) (for STARs, leg origination must be 30 NM or less from the ARP for the primary airport) and,

leg segment is less than 30 NM and,  
leg segment is not part of the En route structure.

In all other instances, leg mileages will be rounded off to the nearest whole NM, as they are currently.

# Instrument Approach Chart

Pilot Briefing Information

JACKSONVILLE, FLORIDA AL-5570 (FAA)

**RNAV (GPS) RWY 13**  
JACKSONVILLE INTL (JAX)

APP CRS <b>133°</b>	Rwy Idg <b>7701</b>	TDZE <b>27</b>	Apt Elev <b>30</b>
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▲ NA Baro-VNAV not authorized below -15°C (5°F). GPS or RNP-0.3 Required. DME/DME RNP-0.3 not authorized.

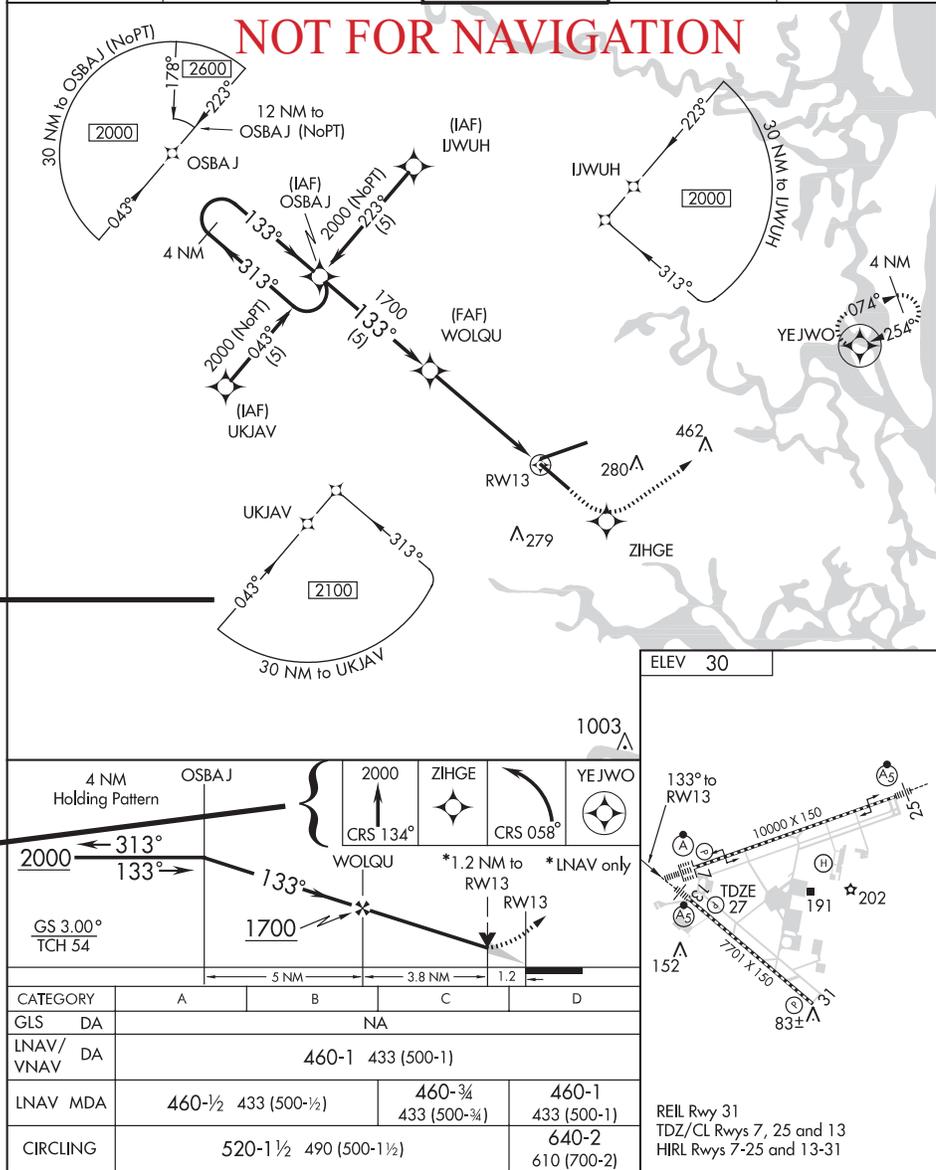
MALSR MISSED APPROACH: Climb to 2000 via course 134° to ZIHGE WP then left turn via course 058° to YEJWO WP and hold.

ATIS <b>125.85</b>	JACKSONVILLE APP CON <b>119.0 335.6</b>	JACKSONVILLE TOWER <b>118.3 317.7</b>	GND CON <b>121.9 348.6</b>	CLNC DEL <b>119.5 290.275</b>
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Terminal Arrival Areas (TAAs)

Missed Approach Icons

RNAV Minima

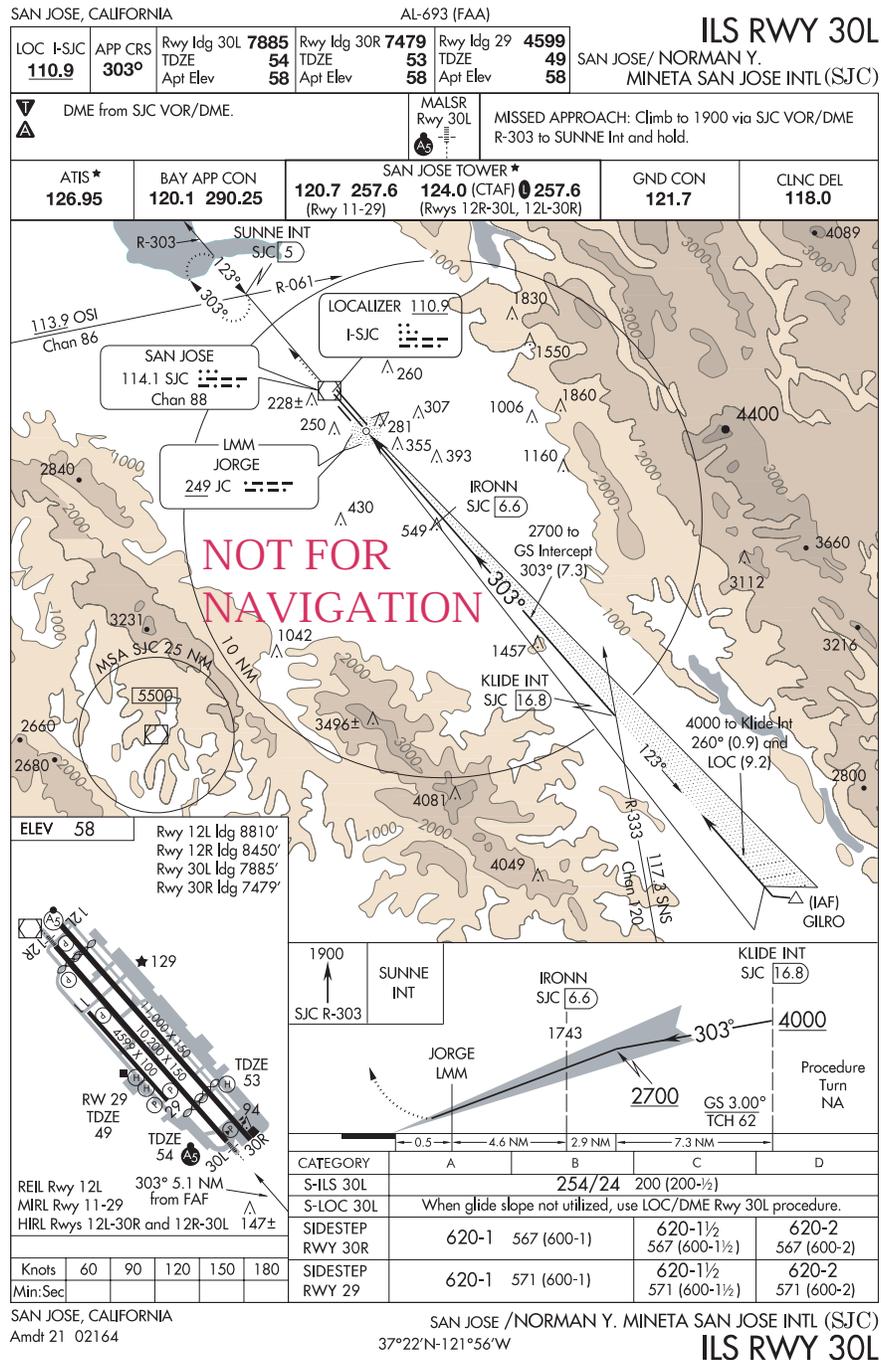


Terrain will be depicted in the planview portion of all IAPs at airports that meet the following criteria:

- 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 240 airports throughout the US currently meet the above criteria.

The initial contour value (lowest elevation) will be at least 500' but no more than 1000' above the airport elevation. The initial contour value may be less than 500' above the airport elevation if needed to depict a rise in terrain close to the runway end. The next contour value depicted will be at a 1000' increment (e.g., 1000'/2000'/3000', etc., NOT 1500'/2500'/3500', etc.). Subsequent contour intervals will be constant and at the most suitable intervals, 1000' or 2000', to adequately depict the rising terrain.



## TERMINAL PROCEDURES PUBLICATION SYMBOLS

### AERONAUTICAL INFORMATION

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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.

STANDARD TERMINAL ARRIVAL (STAR) CHARTS DEPARTURE PROCEDURE (DP) CHARTS	
<p><b>RADIO AIDS TO NAVIGATION</b></p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  VOR   VOR/DME   VORTAC   NDB (Non-directional Beacon)   LMM, LOM (Compass locator)   Marker Beacon                 </div> <div style="text-align: center;">  TACAN   NDB/DME   LOC/DME   LOC  </div> </div> <div style="margin-top: 10px;">  Localizer Course   SDF Course                 </div> <div style="margin-top: 10px;"> <p>(T) indicates frequency protection range                      (Y) TACAN must be placed in "Y" mode to receive distance information</p> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>Frequency: 112.25 (T) - ORL                          Chan 59 (Y)                          N28°32.56' - W81°20.10'</p> <p>ORLANDO                          L-19, H-5                          Enroute Chart Reference</p> <p>Geographic Position</p> </div> <p>Underline indicates no voice transmitted on this frequency</p> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>Coordinates: PRAYS                          N38° 58.30' W89° 51.50'</p> <p>Frequency: 112.7 CAP 187.1°-56.2</p> <p>Waypoint Name</p> <p>Identifier: 590                          Reference Facility Elevation                          Radial-Distance (Facility to Waypoint)</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>LOCALIZER 108.5                          I-PZV                          Chan 22                          LOC offset 3.02°</p> <p>Localizer Offset</p> </div> </div>
<p><b>REPORTING POINTS/FIXES WAYPOINTS</b></p>	<p>Reporting Points                      N00° 00.00'                      W00° 00.00'</p> <p> 75 → DME Mileage (when not obvious)</p> <p>▲ Name (Compulsory)                      △ Name (Non-Compulsory)</p> <p>→ DME fix</p> <p>X Mileage Breakdown/                      Computer Navigation Fix (CNF)                      N00° 00.00'                      W00° 00.00'</p> <p> WAYPOINT  FLYOVER WAYPOINT</p>
<p><b>ROUTES</b></p>	<p>4500 MEA-Minimum Enroute Altitude                      *3500 MOCA-Minimum Obstruction Clearance Altitude</p> <p>← 270° → Departure Route - Arrival Route</p> <p>(65) Mileage between Radio Aids, Reporting Points, and Route Breaks</p> <p>Distance not to scale</p> <p>Transition Route</p> <p>R-275 Radial line and value</p> <p>Lost Communications Track</p> <p>V12 J80 Airway/Jet Route Identification</p> <p>(IAS) Holding Pattern  Changeover Point</p> <p>Holding pattern with max. restricted airspeed (175K) applies to all altitudes (210K) applies to altitudes above 6000' to and including 14000'</p>

STANDARD TERMINAL ARRIVAL (STAR) CHARTS DEPARTURE PROCEDURE (DP) CHARTS	
<p><b>SPECIAL USE AIRSPACE</b></p>	<div style="border: 1px solid black; padding: 5px; display: inline-block;">  R-352                 </div> <p>R-Restricted    W-Warning                      P-Prohibited    A-Alert</p>
<p><b>ALTITUDES</b></p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><u>5500</u> Mandatory Altitude</p> </div> <div style="text-align: center;"> <p><u>2300</u> Minimum Altitude</p> </div> <div style="text-align: center;"> <p><u>4800</u> Maximum Altitude</p> </div> <div style="text-align: center;"> <p>2200 Recommended Altitude</p> </div> </div> <p style="text-align: center;">MCA (Minimum Crossing Altitude)</p> <p>→ Altitude change at other than Radio Aids                      All altitudes/elevations are in feet-MSL.                      MRA- Minimum Reception Altitude.                      MAA- Maximum Authorized Altitude.</p>
<p><b>AIRPORTS</b></p>	<p><b>STAR Charts</b></p> <div style="display: flex; justify-content: space-around;">  Civil                  Military                  Joint Civil-Military             </div> <p><b>DP Charts</b></p> <div style="display: flex; justify-content: space-around;">   </div>
<p><b>NOTES</b></p>	<p>All mileages are nautical.                      # Indicates control tower temporarily closed UFN.                      * Indicates a non-continuously operating facility, see A/FD or flight supplement.                      All radials, bearings are magnetic.</p> <p>(NAME2.NAME) - Example of DP flight plan Computer Code.                      (NAME.NAME2) - Example of STAR flight plan Computer Code.                      SL-0000 (FAA) - Example of a chart reference number.</p> <p>▲ Alternate Minimums not standard.                      Civil users refer to tabulation. USA/USN/USAF pilots refer to appropriate regulations.</p> <p>▲ NA Alternate minimums are Not Authorized due to unmonitored facility or absence of weather reporting service.</p> <p>▼ Take-off Minimums not standard and/or Departure Procedures are published. Refer to tabulation.</p> <p>W WAAS VNAV outages may occur daily due to initial system limitations. WAAS VNAV NOTAM service is not provided for this approach.</p>

APPROACH LIGHTING SYSTEM	
RUNWAY TOUCH-DOWN ZONE AND CENTERLINE LIGHTING SYSTEMS	<p><b>TDZ/CL</b> RUNWAY CENTERLINE LIGHTS CL TDZL TDZL</p>
APPROACH LIGHTING SYSTEM	<p><b>ALSF-2</b></p> <p><b>ALSF-2</b> GREEN WHITE RED RED WHITE SEQUENCED FLASHING LIGHTS (High Intensity) LENGTH 2400/3000 FEET</p> <p>NOTE: CIVIL ALSF-2 MAY BE OPERATED AS SSALR DURING FAVORABLE WEATHER CONDITIONS</p>
APPROACH LIGHTING SYSTEM	<p><b>ALSF-1</b></p> <p><b>ALSF-1</b> RED GREEN WHITE SEQUENCED FLASHING LIGHTS (High Intensity) LENGTH 2400/3000 FEET</p>

APPROACH LIGHTING SYSTEM	
SHORT APPROACH LIGHTING SYSTEM	<p><b>SALS/SALSF</b> (High Intensity) SAME AS INNER 1500' of ALSF-1</p>
SIMPLIFIED SHORT APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS	<p><b>SSALR</b></p> <p><b>SSALR</b> GREEN WHITE SEQUENCED FLASHING LIGHTS (High Intensity) LENGTH 2400/3000 FEET</p>
MEDIUM INTENSITY (MALS AND MALSF) OR SIMPLIFIED SHORT (SSALS AND SSALF) APPROACH LIGHTING SYSTEMS	<p><b>MALS, MALSF, SSALS, SSALF</b></p> <p><b>MALS, MALSF, SSALS, SSALF</b> GREEN WHITE SEQUENCED FLASHING LIGHTS FOR MALSF/SSALF ONLY LENGTH 1400 FEET</p>
MEDIUM INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS	<p><b>MALSR</b></p> <p><b>MALSR</b> SAME LIGHT CONFIGURATION AS SSALR.</p>
OMNIDIRECTIONAL APPROACH LIGHTING SYSTEM	<p><b>ODALS</b></p> <p><b>ODALS</b> THRESHOLD SEQUENCED FLASHING LIGHTS LENGTH 1500 FEET</p>

APPROACH LIGHTING SYSTEM	
<p><b>VISUAL APPROACH SLOPE INDICATOR</b></p> <p style="text-align: center; padding: 10px;"><b>VASI</b></p>	<p style="text-align: center;">(V) <b>VASI</b></p> <p>VISUAL APPROACH SLOPE INDICATOR WITH STANDARD THRESHOLD CLEARANCE PROVIDED.</p> <p>ALL LIGHTS WHITE — — TOO HIGH</p> <p>FAR LIGHTS RED NEAR LIGHTS WHITE ] — ON GLIDE SLOPE</p> <p>ALL LIGHTS RED — — TOO LOW</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>VASI 2</p> <p>THRESHOLD</p> </div> <div style="text-align: center;"> <p>VASI 4</p> <p>THRESHOLD</p> </div> </div> <div style="text-align: center; margin-top: 10px;"> <p>VASI 12</p> <p>THRESHOLD</p> </div>

<p><b>"T"-VISUAL APPROACH SLOPE INDICATOR</b></p> <p style="text-align: center; padding: 10px;"><b>"T"-VASI</b></p>	<p style="text-align: center;">(V<sub>1</sub>) <b>"T"-VASI</b></p> <p>"T" ON BOTH SIDES OF RWY ALL LIGHTS VARIABLE WHITE. CORRECT APPROACH SLOPE- ONLY CROSS BAR VISIBLE. UPRIGHT "T"- FLY UP. INVERTED "T"- FLY DOWN. RED "T"- GROSS UNDERSHOOT.</p>
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APPROACH LIGHTING SYSTEM	
<p><b>VISUAL APPROACH SLOPE INDICATOR</b></p> <p style="text-align: center; padding: 10px;"><b>VASI</b></p>	<p style="text-align: center;">(V<sub>3</sub>) <b>VASI</b></p> <p>VISUAL APPROACH SLOPE INDICATOR WITH A THRESHOLD CROSSING HEIGHT TO ACCOMMODATE LONG BODIED OR JUMBO AIRCRAFT.</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>VASI 6</p> <p>THRESHOLD</p> </div> <div style="text-align: center;"> <p>VASI 16</p> <p>THRESHOLD</p> </div> </div>

<p><b>PRECISION APPROACH PATH INDICATOR</b></p> <p style="text-align: center; padding: 10px;"><b>PAPI</b></p>	<p style="text-align: center;">(P) <b>PAPI</b></p> <p>Legend: □ White ■ Red</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Too low</p> </div> <div style="text-align: center;"> <p>Slightly low</p> </div> </div> <div style="text-align: center; margin-top: 10px;"> <p>On correct approach path</p> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Slightly high</p> </div> <div style="text-align: center;"> <p>Too high</p> </div> </div>
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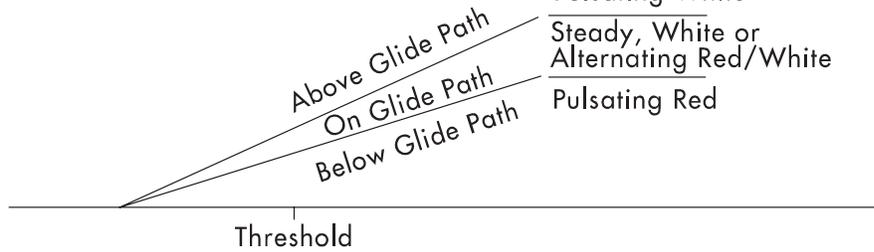
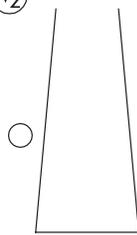
APPROACH LIGHTING SYSTEM

PULSATING VISUAL APPROACH SLOPE INDICATOR

PVASI

(V<sub>2</sub>)

PVASI



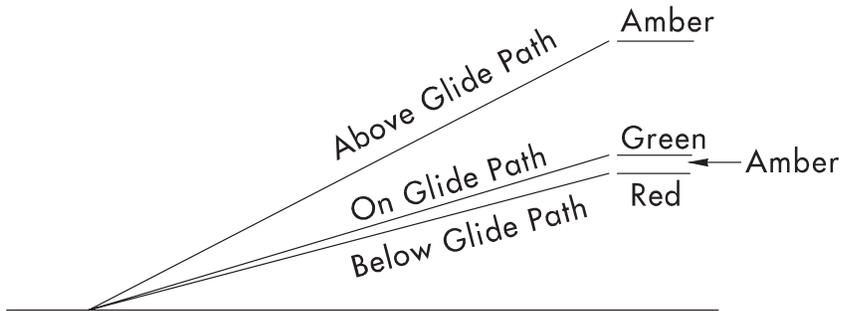
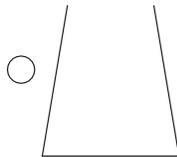
CAUTION: When viewing the pulsating visual approach slope indicators in the pulsating white or pulsating red sectors, it is possible to mistake this lighting aid for another aircraft or a ground vehicle. Pilots should exercise caution when using this type of system.

TRI-COLOR VISUAL APPROACH SLOPE INDICATOR

TRCV

(V<sub>4</sub>)

TRCV



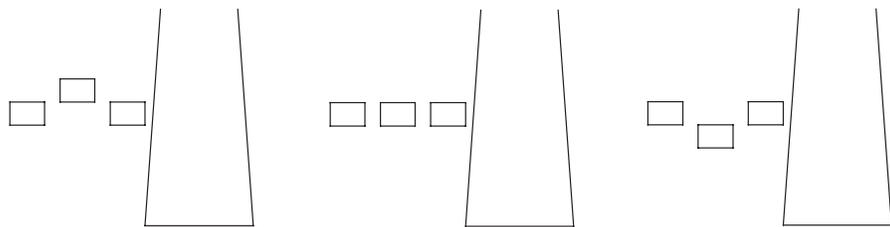
CAUTION: When the aircraft descends from green to red, the pilot may see a dark amber color during the transition from green to red.

ALIGNMENT OF ELEMENT SYSTEMS

APAP

(V<sub>5</sub>)

APAP



Above glide path

On Glide Path

Below Glide Path

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

AIRPORT DIAGRAM/SKETCH	
ARRESTING GEAR	 uni-directional  bi-directional  Jet Barrier <p>ARRESTING GEAR: Specific arresting gear systems; e.g., BAK12, MA-1A etc., shown on airport diagrams, not applicable to Civil Pilots. Military Pilots refer to appropriate DOD publications.</p>
REFERENCE FEATURES	<ul style="list-style-type: none"> <li>■ Buildings</li> <li>● Tanks</li> <li>∧ Obstruction</li> <li>∧ Highest Obstruction</li> <li>☆ Airport Beacon</li> <li>⚡ Runway Radar Reflectors</li> <li>■ Control Tower #</li> </ul> <p># When Control Tower and Rotating Beacon are co-located, Beacon symbol will be used and further identified as TWR.</p> <p style="text-align: center;">Helicopter Alighting Areas</p> <p style="text-align: center;">⊕ ⊕ ⊕ ⊕ ⊕</p> <p style="text-align: center;">Negative Symbols used to identify Copter Procedures landing point</p> <p style="text-align: center;">⊖ ⊖ ⊖ ⊖ ⊖</p> <p>TDZE 123 Runway TDZ elevation              — 0.3% DOWN Runway Slope              0.8% UP —</p> <p>(shown when runway slope exceeds 0.3%)              NOTE:              Runway Slope measured to midpoint on runways 8000 feet or longer.</p>

AIRPORT DIAGRAM/SKETCH	
NOTES	<p>☐ 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.</p> <p>Approach light symbols are shown in the Flight Information Handbook.</p> <p>Airport diagram scales are variable.</p> <p>True/magnetic North orientation may vary from diagram to diagram</p> <p>Coordinate values are shown in 1 or ½ minute increments. They are further broken down into 6 second ticks, within each 1 minute increments.</p> <p>Positional accuracy within ±600 feet unless otherwise noted on the chart.</p> <p>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 FLIP. (Foreign Only)</p>

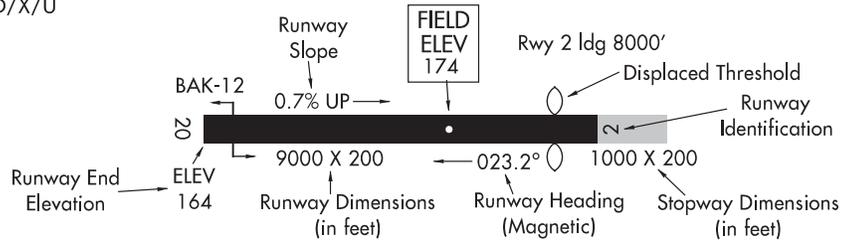
AIRPORT DIAGRAM/SKETCH

RUNWAYS

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

Runway length depicted is the physical length of the runway (end-to-end, including displaced thresholds if any) but excluding areas designated as stopways. Where a displaced threshold is shown and/or part of the runway is otherwise not available for landing, an annotation is added to indicate the landing length of the runway; e.g., Rwy 13 ldg 5000'.

Runway Weight Bearing Capacity/or PCN Pavement Classification Number is shown as a codified expression. Refer to the appropriate Supplement/Airport Facility Directory for applicable codes e.g., RWY 14-32 S75, T185, ST175, TT325 PCN 80 F/D/X/U



SCOPE

Airport diagrams are specifically designed to assist in the movement of ground traffic at locations with complex runway/taxiway configurations and provide information for updating Computer Based Navigation Systems (I.E., INS, GPS) aboard aircraft. Airport diagrams are not intended to be used for approach and landing or departure operations. For revisions to Airport Diagrams: Consult FAA Order 7910.4B.

**INSTRUMENT APPROACH PROCEDURES PLAN VIEW**

**TERMINAL ROUTES**

Procedure Track

Missed Approached

Visual Flight Path

Procedure Turn  
(Type degree and point of turn optional)

3100 NoPT 5.6 NM to GS Intcpt  
045°  
(14.2 to LOM)

Minimum Altitude 2000

Feeder Route 155°  
Mileage (15.1)

Penetrates Special Use Airspace

**HOLDING PATTERNS**

In lieu of Procedure Turn

Missed Approach

Arrival

Holding pattern with max. restricted airspeed: (175K) applies to all altitudes. (210K) applies to altitudes above 6000' to and including 14000'.

Limits will only be specified when they deviate from the standard. DME fixes may be shown.

**REPORTING POINTS / FIXES / WAYPOINTS**

▲ Name (Compulsory)

△ Name (Non-Compulsory)

X Mileage Breakdown/ Computer Navigation Fix (CNF)  
N00° 00.00'  
W00° 00.00'

DME Distance From Facility | ARC/DME/RNAV Fix

Radial line and value R-198

Lead Radial LR-198

Lead Bearing LB-198

Waypoint

MAP Waypoint

Flyover Waypoint

**INSTRUMENT APPROACH PROCEDURES PLAN VIEW**

**RADIO AIDS TO NAVIGATIONS**

VOR VOR/DME

TACAN VORTAC

NDB NDB/DME

LOM/LMM (Compass locator at Outer/Middle Marker)

Marker Beacon

Localizer (LOC/LDA) Right side shading-Front Course; Left side shading-Back Course

SDF Course

180° MLS Approach Azimuth

MLS Identifier MICROWAVE Chan 51.4 (Y) TACAN must be in "Y" mode to receive distance information.  
M-VDZ  
Glidepath 6.20°  
DME 111.5 Chan 48(Y)

LOC/DME

LOC/LDA/SDF/MLS Transmitter (shown when installation is offset from its normal position off the end of the runway.)

LOCALIZER 108.5  
IPZV Chan 22  
LOC offset 3.02° Localizer Offset

Waypoint Data

Coordinates: PRAYS  
N38° 58.30' W89° 51.50'

Frequency: 112.7 CAP 187.1°-56.2

Identifier: 590 Reference Facility Elevation

Radial-Distance (Facility to Waypoint)

Primary Navaid with Coordinate Values Secondary Navaid

LIMA  
114.5 LIM Chan 92  
S12° 00.80'  
W77° 07.00'

LMM  
LIMA  
248 NT

**MINIMUM SAFE ALTITUDE**

Facility Identifier

MSA CRW 25 NM

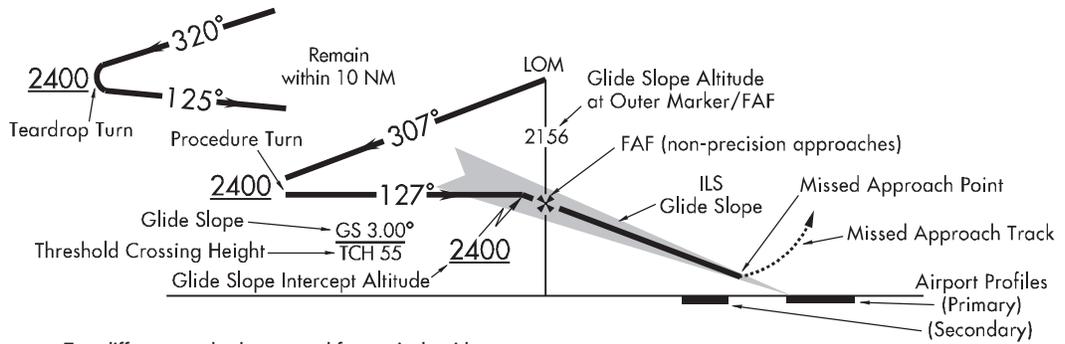
(arrows on distance circle identify sectors)

INSTRUMENT APPROACH PROCEDURES PLAN VIEW									
<b>TERMINAL ARRIVAL AREAS</b>	<p>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.</p>								
<b>SPECIAL USE AIRSPACE</b>									
<b>OBSTACLES</b>	<ul style="list-style-type: none"> <li>• Spot Elevation      ● Highest Spot Elevation</li> <li>△ Obstacle            ± Doubtful accuracy</li> <li>△ Highest Obstacle</li> </ul>								
<b>FACILITIES / FIXES</b>	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; vertical-align: top;">                     FM IM MM NDB OM VOR VORTAC TACAN WP                 </td> <td style="text-align: center; vertical-align: middle;">   </td> <td style="text-align: center; vertical-align: top;">                     FIX INT                 </td> </tr> </table>	FM IM MM NDB OM VOR VORTAC TACAN WP	 	FIX INT					
FM IM MM NDB OM VOR VORTAC TACAN WP	 	FIX INT							
<b>ALTITUDES</b>	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>5500</u></td> <td style="text-align: center;"><u>2300</u></td> <td style="text-align: center;"><u>4800</u></td> <td style="text-align: center;"><u>2200</u></td> </tr> <tr> <td style="text-align: center;">Mandatory Altitude</td> <td style="text-align: center;">Minimum Altitude</td> <td style="text-align: center;">Maximum Altitude</td> <td style="text-align: center;">Recommended Altitude</td> </tr> </table> <p style="text-align: center;">  MCA (Minimum Crossing Altitude)         </p>	<u>5500</u>	<u>2300</u>	<u>4800</u>	<u>2200</u>	Mandatory Altitude	Minimum Altitude	Maximum Altitude	Recommended Altitude
<u>5500</u>	<u>2300</u>	<u>4800</u>	<u>2200</u>						
Mandatory Altitude	Minimum Altitude	Maximum Altitude	Recommended Altitude						

INSTRUMENT APPROACH PROCEDURES PLAN VIEW	
<b>MISCELLANEOUS</b>	<p>VOR Changeover Point</p> <p>RWY 15 S12°00.52' End of Rwy Coordinates W77°06.91' (DOD only)</p> <p> Distance not to scale</p> <p> International Boundary</p> <p> Final Approach Fix (FAF) (for non-precision approaches)</p> <p> Glide Slope/Glide Path Intercept Altitude and Final Approach Fix for precision approaches. Unless otherwise indicated, the non- precision final approach altitude is to be maintained until the next fix.</p> <p> Visual Descent Point (VDP)</p> <p> Visual Flight Path</p>

INSTRUMENT APPROACH PROCEDURES PROFILE VIEW

PROFILE VIEW



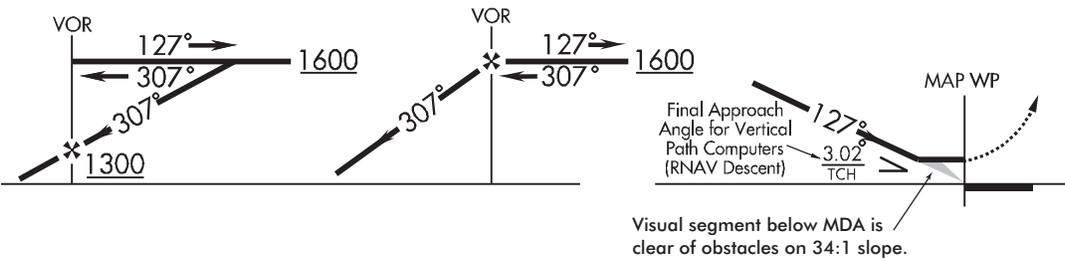
Two different methods are used for vertical guidance:

ILS and LNAV/VNAV use  $\frac{GS\ 3.00^\circ}{TCH\ 55}$  in the lower left or right corner.

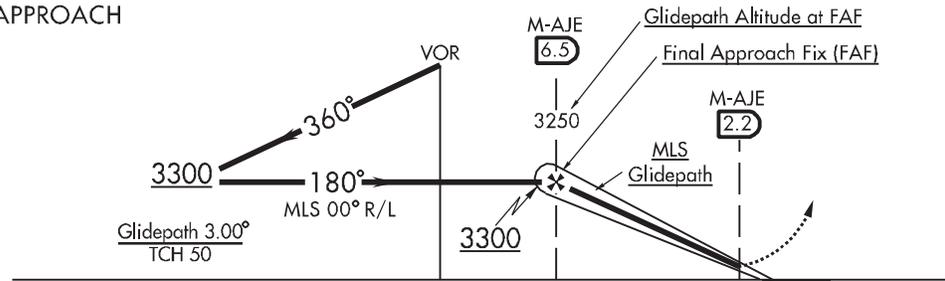
"GS" indicates an electronic glide slope is present in the case of an ILS approach and precision vertical guidance for LNAV/VNAV.

Other charts use  $\frac{3.00^\circ}{TCH\ 55}$  as a non-precision vertical guidance to avoid controlled flight into terrain. It is placed above or below the procedure track following the fix it is based on.

DESCENT FROM HOLDING PATTERN



MLS APPROACH



## EXPLANATION OF IFR ENROUTE TERMS AND SYMBOLS

The discussions and examples in this section will be based primarily on the IFR (Instrument Flight Rule) Enroute Low Altitude Charts. Other IFR products use similar symbols in various colors (see Section 3 of this guide). The chart 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 IFR charts.

NACO 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. Some information on these charts may only apply to military pilots.

### AIRPORTS

All active airports with hard-surfaced runways of 3000' or longer are shown on FAA IFR Enroute Charts. All active airports with approved instrument approach procedures are also shown regardless of runway length or composition. Charted airports are classified according to the following criteria:

LOW/ HIGH ALTITUDE



**Blue** – Airports with an approved Department of Defense (DOD) Low Altitude Instrument Approach Procedure and/or DOD RADAR MINIMA published in DOD FLIPS (Flight Information Publications), the FAA Terminal Procedures Publication (TPP), the Supplement Alaska or the Terminal Alaska volume.

**Green** – Airports and seaplane bases with an approved Low Altitude Instrument Approach Procedure published in the FAA TPP volumes.

**Brown** – Airports and seaplane bases that do not have a published Instrument Approach Procedure.

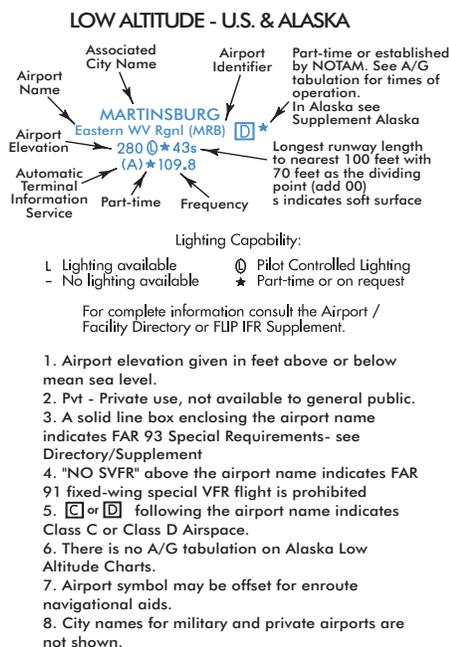
Airports are plotted in their true geographic position unless the symbol conflicts with a radio aid to navigation (navaid) at the same location. In such cases, the airport symbol will be displaced, but the relationship between the airport and the navaid is retained.

Airports are identified by the airport name. In the case of military airports, the abbreviated letters AFB (Air Force Base), NAS (Naval Air Station), NAF (Naval Air Field), MCAS (Marine Corps Air Station), AAF (Army Air Field), etc., 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, concrete, and tar macadam. Runways that are not hard-surfaced have a small letter "s" following the runway length, indicating a soft surface.



A L symbol following the elevation under the airport name means that runway lights are on during hours of darkness. A Ⓚ symbol indicates there is Pilot Controlled Lighting. A Ⓚ★ symbol means the lighting is less than continuous. The pilot should consult the Airport/Facility Directory for light operating procedures. The Airman's Information Manual thoroughly explains the types and uses of airport lighting aids.

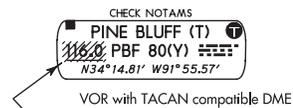
### RADIO AIDS TO NAVIGATION (NAVAIDS)

All IFR radio navaids that have been flight-checked and are operational are shown on IFR enroute charts. VHF/UHF navaids (VORs, TACANs, and UHF NDBs) are shown in black, and LF/MF navaids (Compass Locators and Aeronautical or Marine NDBs) are shown in brown.

On enroute charts, information about radio nav aids is boxed as illustrated below. To avoid duplication of data, when two or more radio nav aids 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 nav aids all shown in appropriate colors. The decision to use separate or combined boxes is made in each case on the basis of reducing chart clutter and providing clear identification of the radio nav aids.

In extremely congested areas, the nav aid box will contain only the 3-letter identifier, and you will find the complete nav aid box in the nearest open area on the chart.

Radio nav aids that may be scheduled for some alteration within the lifespan of the charts have an operational note added. This operational note may include the projected dates and new frequency, when known, and advises the pilot of the contemplated action. The affected component is indicated by diagonal lines over the frequency or channel.



Underline indicates No Voice Transmitted on this frequency

TACAN channels are without voice but not underlined

Overprint of affected data indicates Abnormal Status, i.e., CHECK NOTAMS/DIRECTORY

(T) Frequency Protection - usable range 25 NM at 12000' AGL

(Y) TACAN must be placed in "Y" mode to receive distance information

(A) ASOS/AWOS - Automated Surface Observing Station/Automated Weather Observing Station

(L) Frequency Protection - usable range 40 NM at 18000' AGL

(H) HIWAS - Hazardous Inflight Weather Advisory Service

(T) TWEB - Transcribed Weather Broadcast

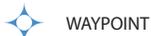
Automated weather, when available, is broadcast on the associated NAVAID frequency.

For terminal weather frequency see A / G Voice Communication Tab under associated airport. (U.S. Low only)

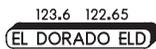


Part-time or On-Request NDB with DME

DME channel and paired VHF frequency are shown



FSS associated with a NAVAID



Name and identifier of FSS not associated with NAVAID

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

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

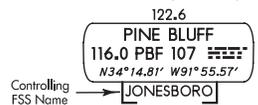
Frequencies transmit and receive except those followed by R or T: R - Receive only T - Transmit only

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



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

Location symbol for an FSS or RCO when not located at a facility or an airport.



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

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

CONTROLLED AIRSPACE

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

**Class A Airspace** is depicted as open area (white) on the Enroute High Charts. It consists of airspace from 18,000 MSL to FL600.

**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.

**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 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 "D" enclosed within a box following the airport name.

**Class E Airspace** is depicted as open area (white) on the Enroute Low Charts. It consists of airspace below 18,000 MSL.

Airports within which fixed-wing special VFR flight is prohibited are shown as:

NO SVFR  
AIRPORT NAME

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



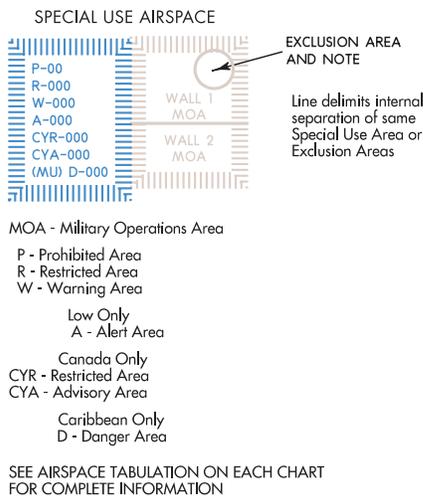
ARTCC sector frequencies are shown in boxes outlined by the same symbol.



ARTCC Remoted Sites with discrete VHF and UHF frequencies

**SPECIAL USE AIRSPACE**

Special use airspace confines certain flight activities or restricts entry, or cautions other aircraft operating within specific boundaries. Special use airspace areas are depicted on aeronautical charts. Special use airspace areas are shown in their entirety, even when they overlap, adjoin, or when an area is designated within another area. The areas are identified by type and identifying number or name (R4001), effective altitudes, operating time, weather conditions (VFR/IFR) during which the area is in operation, and voice call of the controlling agency, on the back or front panels of the chart. Special Use Airspace with a floor of 18,000' MSL or above is not shown on the Enroute Low Altitude Charts. Similarly, Special Use Airspace with a ceiling below 18,000' MSL is not shown on Enroute High Altitude Charts.



**OTHER AIRSPACE**

**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 Enroute Low Altitude Charts. Mode C is also depicted within 10 NM of all airports listed in Appendix D of FAR 91.215 and the Airman's Information Manual (AIM).



Mode C is required within the limits of a Class C airspace up to 10,000' MSL.

**INSTRUMENT AIRWAYS**

The FAA has established two fixed route systems for air navigation. The VOR and LF/MF (low or medium frequency) system—designated from 1,200' AGL to but not including 18,000' MSL—is shown on Low Altitude Enroute Charts, and the Jet Route system—designated from 18,000' MSL to FL 450 inclusive—is shown on High Altitude Enroute Charts.

**VOR LF/MF AIRWAY SYSTEM (LOW ALTITUDE ENROUTE CHARTS)**

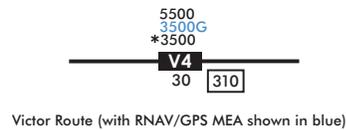
In this system VOR airways—airways based on VOR or VORTAC nav aids—are depicted in black and identified by a "V" (Victor) followed by the route number (e.g., "V12"). In Alaska, some segments of low-altitude airways are based on LF/MF nav aids and are charted in brown instead of black.

LF/MF airways—airways based on LF/MF nav aids—are sometimes called "colored airways" because they are identified by color name and number (e.g., "Amber One", charted as "A1"). 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. U.S. colored airways exist only in Alaska, those within the conterminous U.S. have been rescinded. (Note: In Mexican airspace on FAA charts, LF/MF airways are charted in black).

**AIRWAY/ROUTE DATA**

On both series of Enroute Charts, airway/route data such as the airway identifications, bearings or radials, mileages, and altitude (e.g., MEA, MOCA, MAA) are shown aligned with the airway and in the same color as the airway.

Airways/Routes predicated on VOR or VORTAC nav aids are defined by the outbound radial from the nav aid. Airways/Routes predicated on LF/MF nav aids are defined by the inbound bearing.



**OFF ROUTE OBSTRUCTION CLEARANCE ALTITUDE (OROCA)**

The Off Route Obstruction Clearance Altitude (OROCA) is represented in thousands and hundreds of feet above mean sea level. The OROCA represents the highest possible elevation including both terrain and other vertical obstructions (towers, trees., etc.) bounded by the ticked lines of latitude and longitude. In this example the OROCA represents 12,500 feet.

12<sup>5</sup>

OROCA is computed just as 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. Unlike a MEF, when determining an OROCA the area 4 NM around each quadrant is analyzed for obstructions. 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. OROCA's can be found over all land masses and open water areas containing man-made obstructions (such as oil rigs). OROCA's are shown in every 30 x 30 minute quadrant on Area Charts, every one degree by one degree quadrant for U.S. Low Altitude Enroute Charts and every two degree by two degree quadrant on Alaska Low Enroute Charts.

### 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 IAS). These routes are depicted in brown on Enroute Low Altitude Charts, and are not shown on inset charts or on IFR Enroute High Altitude Charts. Enroute Low Altitude Charts depict all IR (IFR Military Training Route) and VR (VFR Military Training Route) routes, except those VRs that are entirely at or below 1500 feet AGL.

Military Training Routes are identified by designators (IR-107, VR-134) which are shown in brown on the route centerline. Arrows 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. 

### JET ROUTE SYSTEM (HIGH ALTITUDE ENROUTE CHARTS)

Jet routes are based on VOR or VORTAC nav aids, and are depicted in black with a "J" identifier followed by the route number (e.g., "J12"). In Alaska, some segments of jet routes are based on LF/MF nav aids and are shown in brown instead of black.

### RNAV "Q" ROUTE SYSTEM (HIGH ALTITUDE ENROUTE CHARTS)

Recently, the FAA adopted certain amendments to Title 14, Code of Federal Regulations which paved the way for the development of new area navigation (RNAV) 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 Global Positioning System (GPS). Initially, these RNAV routes are being established only in the high altitude en route structure for use by suitably equipped aircraft. RNAV routes and associated data will be charted in



aeronautical blue. Magnetic reference bearings will be 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. RNAV MEAs will be identified with a "G" suffix. Altitude values will be stacked highest to lowest.



### TERRAIN CONTOURS ON AREA CHARTS

The National Transportation Safety Board (NTSB) recently recommended that terrain be added to Area Charts to increase pilots' situational awareness of terrain in the terminal area and to increase the safety of flight. When the terrain on an Area Chart rises at least 1000' above the airport elevation, terrain will be depicted in shades of brown. The initial contour value (lowest elevation) depicted will be at least 1000', but no more than 2000' above the airport elevation. The initial contour value may be less than 1000' only if needed to depict a rise in terrain close to the airport. Subsequent contour values will be depicted at a whole 1000' increment (2000'/4000', etc., NOT 2500'/4500', etc.). The following Area Charts are affected: Anchorage, Denver, Fairbanks, Juneau, Los Angeles, Prudhoe Bay, San Francisco and Vancouver.

The following boxed notes are added to affected Area Charts as necessary:

NOTE: TERRAIN CONTOURS HAVE BEEN ADDED TO THOSE AREA CHARTS WHERE THE TERRAIN ON THE CHART IS 1000 FOOT OR GREATER THAN THE ELEVATION OF THE PRIMARY AIRPORT

UNCONTROLLED AIRSPACE BOUNDARIES ARE DEPICTED WITH A SOLID BROWN LINE AND A .125" WIDE SHADED BROWN BAND. THE SHADED SIDE REPRESENTS THE UNCONTROLLED SIDE

## IFR AERONAUTICAL CHART SYMBOLS

### IFR Enroute Low/High Altitude (U.S. & Alaska Charts)

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CULTURAL BOUNDARIES .....	49
HYDROGRAPHY .....	49

### GENERAL INFORMATION

Symbols shown are for the Instrument Flight Rules (IFR) Enroute Low and High Altitude Charts.

AIRPORTS	
<p><b>AIRPORT DATA</b></p>	<p style="text-align: center;"><b>LOW/HIGH ALTITUDE</b></p> <p>Airports/Seaplane bases shown in BLUE and GREEN have an approved Instrument Approach Procedure published. Those in BLUE have an approved DOD Instrument Approach Procedure and/or DOD RADAR MINIMA published in DOD FLIPS or Alaska Terminal. Airports/Seaplane bases shown in BROWN do not have a published Instrument Approach Procedure.</p> <p>All IAP Airports are shown on the Low Altitude Charts.</p> <p>Non-IAP Airports shown on the U.S. Low Altitude Charts have a minimum hard surface runway of 3000'.</p> <p>Non-IAP Airports shown on the Alaska Low Altitude Charts have a minimum hard or soft surface runway of 3000'.</p> <p>Airports shown on the U.S. High Altitude Charts have a minimum hard surface runway of 5000'.</p> <p>Airports shown on the Alaska High Altitude Charts have a minimum hard or soft surface runway of 4000'.</p> <p>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.</p> <p>The airport identifier in parentheses follows the airport name or Pvt.</p> <p>Airport symbol may be offset for enroute navigational aids.</p> <p>Pvt - Private Use</p>

<p><b>AIRPORT DATA DEPICTION</b></p>	<p style="text-align: center;"><b>LOW ALTITUDE - U.S. &amp; ALASKA</b></p> <p style="text-align: center;"><b>HIGH ALTITUDE - U.S.</b></p> <p style="text-align: center;"><b>HIGH ALTITUDE - ALASKA</b></p>
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AIRPORTS	
<p><b>CIVIL</b></p>	<p style="text-align: center;">LOW/ HIGH ALTITUDE</p>
<p><b>CIVIL AND MILITARY</b></p>	<p style="text-align: center;">LOW/ HIGH ALTITUDE</p>
<p><b>MILITARY</b></p>	<p style="text-align: center;">LOW/ HIGH ALTITUDE</p>
<p><b>SEAPLANE - CIVIL</b></p>	<p style="text-align: center;">LOW ALTITUDE</p>
<p><b>HELIPORT</b></p>	<p style="text-align: center;">LOW ALTITUDE</p>

RADIO AIDS TO NAVIGATION	
<p>VHF OMNIDIRECTIONAL RADIO RANGE (VOR)</p> <p>DISTANCE MEASURING EQUIPMENT (DME)</p> <p>TACTICAL AIR NAVIGATION (TACAN)</p>	<p>LOW/ HIGH ALTITUDE</p> <p>VHF / UHF Data is depicted in Black LF / MF Data is depicted in Brown</p> <p>COMPASS ROSES are oriented to Magnetic North of the NAVAID which may not be adjusted to the charted isogonic values.</p> <p>"L" and "T" Category Radio Aids located off Jet Routes are depicted in screen black.</p>
<p>NON-DIRECTIONAL RADIO BEACON (NDB)</p> <p>MARINE RADIO BEACON (RBN)</p>	<p>LOW/ HIGH ALTITUDE</p> <p>NDB or RBN with Magnetic North Indicator</p> <p>UHF NDB</p> <p>NDB with DME</p>
<p>COMPASS LOCATOR BEACON</p>	<p>LOW ALTITUDE</p>
<p>ILS LOCALIZER</p>	<p>LOW ALTITUDE</p> <p>ILS Localizer Course with additional navigation function.</p>
<p>WAYPOINT DATA</p>	<p>HIGH ALTITUDE - ALASKA</p> <p>Coordinates: N00°00.00' W00°00.00'</p> <p>NAME: 000.0 NME 000.0°-00.0</p> <p>Frequency: 000</p> <p>Identifier: 000</p> <p>Radial/Distance (Facility to Waypoint)</p> <p>Reference Facility Elevation</p>
<p>WAYPOINT</p>	<p>LOW/ HIGH ALTITUDE</p>

RADIO AIDS TO NAVIGATION	
<p>NAVIGATION and COMMUNICATION BOXES</p>	<p>LOW/ HIGH ALTITUDE</p> <p>CHECK NOTAMS</p> <p>VOR with TACAN compatible DME</p> <p>Underline indicates No Voice Transmitted on this frequency</p> <p>TACAN channels are without voice but not underlined</p> <p>Overprint of affected data indicates Abnormal Status, i.e. CHECK NOTAMS/DIRECTORY</p> <p>(T) Frequency Protection - usable range 25 NM at 12000' AGL</p> <p>(Y) TACAN must be placed in "Y" mode to receive distance information</p> <p>(L) Frequency Protection - usable range 40 NM at 18000' AGL</p> <p>(A) ASOS/AWOS - Automated Surface Observing Station/Automated Weather Observing Station</p> <p>(H) HIWAS - Hazardous Inflight Weather Advisory Service</p> <p>(T) TWEB - Transcribed Weather Broadcast</p> <p>Automated weather, when available, is broadcast on the associated NAVAID frequency.</p> <p>For terminal weather frequency see A / G Voice Communication Tab under associated airport. (U.S. Low only)</p> <p>Part-time or On-Request NDB with DME</p> <p>DME channel and paired VHF frequency are shown</p> <p>122.65</p> <p>FSS associated with a NAVAID</p> <p>123.6 122.65</p> <p>Name and identifier of FSS not associated with NAVAID</p> <p>Shadow NAVAID Boxes indicate Flight Service Station (FSS) locations. Frequencies 122.2, 255.4 and emergency 121.5 and 243.0 are normally available at all FSSs and are not shown. All other frequencies are shown above the box.</p> <p>Certain FSSs provide Local Airport Advisory (LAA) on 123.6.</p> <p>Frequencies transmit and receive except those followed by R or T: R - Receive only T - Transmit only</p> <p>In Canada, shadow boxes indicate FSSs with standard group frequencies of 121.5, 126.7 and 243.0.</p> <p>JONESBORO 122.55</p> <p>Remote Communications Outlet (RCO)</p> <p>FSS name and remoted frequency are shown</p> <p>122.6</p> <p>Controlling FSS Name: JONESBORO</p> <p>Thin Line NAVAID Boxes without frequencies and controlling FSS name indicate no FSS frequencies available. Frequencies positioned above thin line boxes are remoted to the NAVAID sites. Other frequencies at the controlling FSS named are available, however, altitude and terrain may determine their reception.</p> <p>Morse Code is not shown in NAVAID boxes on High Altitude Charts.</p> <p>Location symbol for an FSS or RCO when not located at a facility or an airport.</p>

AIRSPACE INFORMATION	
<b>LOW ALTITUDE AIRWAYS</b>  <b>HIGH ALTITUDE ROUTES</b>	<p><b>LOW/ HIGH ALTITUDE</b>                      VHF / UHF Data is depicted in Black                      LF / MF Data is depicted in Brown</p> <p> VOR Airway / Jet Route</p> <p> LF / MF Airway</p> <p> Uncontrolled LF / MF Airway</p> <p> Oceanic Route</p> <p> ATS Route</p>
	<p><b>HIGH ALTITUDE</b></p> <p> RNAV Route</p> <p> Joint Jet/RNAV Route</p>
<b>SINGLE DIRECTION ROUTES</b>	<p><b>LOW/ HIGH ALTITUDE</b></p> <p> Effective Times of Route</p>
	<p><b>HIGH ALTITUDE</b></p> <p> AIR TRAFFIC SERVICE (ATS) ROUTE</p>
<b>DIRECTION OF FLIGHT INDICATOR</b>	<p><b>LOW ALTITUDE - CANADA</b></p> <p> ← EVEN</p>
<b>SUBSTITUTE ROUTE</b>	<p><b>LOW/ HIGH ALTITUDE</b></p> <p> All relative and supporting data shown in brown</p> <p>See NOTAMs or appropriate publication for specific information</p>
<b>UNUSABLE ROUTE</b>	<p><b>LOW/ HIGH ALTITUDE</b></p> <p> Unusable Route</p>
<b>BY-PASS ROUTE</b>	<p><b>HIGH ALTITUDE</b></p> <p> Jet Route centerline by-passing a facility which is not part of that specific route</p>
<b>MILITARY TRAINING ROUTES (MTR)</b>	<p><b>LOW ALTITUDE</b></p> <p>MTRs 5 NM or less both sides of centerline</p> <p> IR-000 VR-000</p> <p>MTRs greater than 5 NM either or both sides of centerline</p> <p> IR-000 VR-000</p> <p>Arrow indicates direction of route</p> <p>See MTR tabulation for altitude range information</p> <p>All IR and VR MTRs are shown except those VRs at or below 1500' AGL</p> <p>CAUTION: Inset charts do not depict MTRs</p>

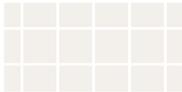
AIRSPACE INFORMATION	
<b>AIRWAY RESTRICTION</b>	<p><b>LOW ALTITUDE</b></p> <p> Airway penetrates Prohibited &amp; Restricted Airspace</p>
<b>REPORTING POINT</b>	<p><b>LOW/ HIGH ALTITUDE</b></p> <p> Compulsory Coordinates are shown for compulsory, offshore, and holding fixes</p> <p> Non-Compulsory</p> <p> Off-set arrows indicate facility forming a reporting point (toward LF / MF, away from VHF / UHF)</p>
	<p><b>HIGH ALTITUDE</b></p> <p> Non-Compulsory Reporting Indicator (No report required at the next compulsory reporting point)</p>
<b>TACTICAL AIR NAVIGATION (TACAN) FIX - ALASKA</b>	<p><b>LOW/ HIGH ALTITUDE</b></p> <p> Ident, NME 00, Channel, Radial from TACAN, 000°/00, Distance from TACAN</p>
<b>RADIALS AND BEARINGS</b>	<p><b>LOW/ HIGH ALTITUDE</b></p> <p> Radial outbound from a UHF / VHF NAVAID</p> <p> Bearing inbound to a LF / MF NAVAID</p> <p><i>All radials and bearings are magnetic</i></p>
<b>FACILITY LOCATORS</b>	<p><b>LOW/ HIGH ALTITUDE</b></p> <p> Facility Locators used with radial / bearing lines in the formation of reporting points</p> <p> Facility Locators used with radial / bearing lines in the formation of reporting points</p> <p> Overprint of affected data indicates Abnormal Status at the Facility</p>
<b>MILEAGES</b>  <i>All Mileages are Nautical (NM)</i>	<p><b>LOW/ HIGH ALTITUDE</b></p> <p> Total Mileage between Compulsory Reporting Points and / or NAVAIDs</p> <p> Mileage between other Reporting Points, NAVAIDs and / or Mileage Breakdown</p> <p> Mileage Breakdown or Computer Navigation Fix (CNF). Five-letter identifier in parenthesis indicates CNF with no ATC function</p>
	<p><b>DISTANCE MEASURING EQUIPMENT (DME) FIX</b></p> <p> Denotes DME fix (distance same as airway / route mileage)</p> <p> Denotes DME fix (encircled mileage shown when not otherwise obvious)</p>

AIRSPACE INFORMATION	
<p><b>MINIMUM ENROUTE ALTITUDE (MEA)</b></p> <p><i>All Altitudes Are MSL Unless Otherwise Noted</i></p>	<p>LOW ALTITUDE</p> <p>RNAV/GPS MEA</p> <p>Directional MEA</p> <p>HIGH ALTITUDE</p> <p>Shown along Routes when other than 18,000'</p>
<p><b>MINIMUM ENROUTE ALTITUDE (MEA) GAP</b></p>	<p>LOW/ HIGH ALTITUDE</p> <p>MEA is established with a gap in navigation signal coverage</p>
<p><b>MAXIMUM AUTHORIZED ALTITUDE (MAA)</b></p> <p><i>All Altitudes Are MSL Unless Otherwise Noted</i></p>	<p>LOW ALTITUDE</p> <p>HIGH ALTITUDE</p> <p>Shown along Routes when other than 45,000'</p>
<p><b>MINIMUM OBSTRUCTION CLEARANCE ALTITUDE (MOCA)</b></p> <p><i>All Altitudes Are MSL Unless Otherwise Noted</i></p>	<p>LOW ALTITUDE</p>
<p><b>CHANGEOVER POINT</b></p>	<p>LOW/ HIGH ALTITUDE</p> <p>VOR Changeover Point giving mileage to NAVAIDs (Not shown at midpoint locations)</p>
<p><b>ALTITUDE CHANGE</b></p>	<p>LOW/ HIGH ALTITUDE</p> <p>MEA, MOCA and / or MAA change at other than NAVAIDs</p>
<p><b>MINIMUM CROSSING ALTITUDE (MCA)</b></p>	<p>LOW/ HIGH ALTITUDE</p>
<p><b>MINIMUM RECEPTION ALTITUDE (MRA)</b></p>	<p>LOW/ HIGH ALTITUDE</p>
<p><b>HOLDING PATTERNS</b></p>	<p>LOW/ HIGH ALTITUDE</p> <p>NAMEE N00°00.00' W00°00.00'</p> <p>NAMEE N00°00.00' W00°00.00'</p> <p>Holding reporting points have coordinate values shown</p> <p>Left Turn Right Turn</p> <p> Holding Pattern with max. restricted airspeed 210K applies to altitudes above 6000' to and including 14000' 175K applies to all altitudes IAS: Indicated Airspeed</p>

AIRSPACE INFORMATION	
<p><b>AIR DEFENSE IDENTIFICATION ZONE (ADIZ)</b></p>	<p>LOW/ HIGH ALTITUDE</p> <p>CONTIGUOUS U.S. ADIZ</p> <p>ALASKA ADIZ</p> <p>CANADA ADIZ</p> <p>Adjoining ADIZ</p>
<p><b>AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)</b></p>	<p>LOW/ HIGH ALTITUDE</p> <p>NEW YORK WASHINGTON</p> <p>WASHINGTON Hagerstown 134.15 385.4</p> <p>ARTCC Remoted Sites with discrete VHF and UHF frequencies</p>
<p><b>AIR TRAFFIC SERVICE IDENTIFICATION DATA</b></p>	<p>LOW/ HIGH ALTITUDE</p> <p>Type of Area Traffic Service</p> <p>Ceiling Floor Call Sign Frequency</p>
<p><b>ALTIMETER SETTING CHANGE</b></p>	<p>LOW ALTITUDE</p>
<p><b>FLIGHT INFORMATION REGIONS (FIR)</b></p>	<p>LOW/ HIGH ALTITUDE</p> <p>MONTREAL FIR CZUL</p> <p>MONTREAL FIR CZUL</p> <p>TORONTO FIR CZYZ</p> <p>Adjoining FIR</p>
<p><b>CONTROL AREAS (CTA)</b></p>	<p>LOW/ HIGH ALTITUDE</p> <p>MIAMI OCEANIC CTA/FIR KZMA</p> <p>NEW YORK OCEANIC CTA/FIR KZNY</p> <p>MIAMI OCEANIC CTA/FIR KZMA</p> <p>Adjoining CTA</p>
<p><b>UPPER INFORMATION REGIONS (UIR)</b></p>	<p>HIGH ALTITUDE</p> <p>MONTERREY UTA/UIR SECTOR 2 MMTY</p> <p>MERIDA UTA/UIR SECTOR 1 MMID</p> <p>MONTERREY UTA/UIR SECTOR 1 MMTY</p> <p>HOUSTON OCEANIC CTA/FIR KZHU</p> <p>MONTERREY FIR/UIR MMTY</p> <p>Adjoining UTA / UIR</p> <p>Adjoining FIR and UIR</p>
<p><b>ADDITIONAL CONTROL AREAS</b></p>	<p>LOW ALTITUDE</p> <p>CONTROL 1234L</p> <p>HIGH ALTITUDE</p> <p>CONTROL 1234H</p>

AIRSPACE INFORMATION	
<p><b>OFF ROUTE OBSTRUCTION CLEARANCE ALTITUDE (OROCA)</b></p>	<p style="text-align: center;">LOW ALTITUDE</p> <p style="font-size: 2em; text-align: center;">12<sup>5</sup></p> <p style="text-align: center;">Example: 12,500 feet</p> <p>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.</p>
<p><b>SPECIAL USE AIRSPACE</b></p>	<p style="text-align: center;">LOW/ HIGH ALTITUDE</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>P-00 R-000 W-000 A-000 CYR-000 CYA-000 (MU) D-000</p> </div> <div style="width: 50%;"> <p>P - Prohibited Area R - Restricted Area W - Warning Area</p> <p>Low Only A - Alert Area</p> <p>Canada Only CYR - Restricted Area CYA - Advisory Area</p> <p>Caribbean Only D - Danger Area</p> </div> </div> <p>In the Caribbean, the first 2 letters represent the country code, i.e. MY: Bahamas, MU: Cuba</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>EXCLUSION AREA AND NOTE</p> <p>Internal lines delimit separation of the same Special Use Area or Exclusion Areas</p> </div> <div style="width: 50%;"> <p>W-000A</p> <p>W-000B</p> </div> </div> <p>SEE AIRSPACE TABULATION ON EACH CHART FOR COMPLETE INFORMATION ON:</p> <p>AREA IDENTIFICATION EFFECTIVE ALTITUDE OPERATING TIME CONTROLLING AGENCY VOICE CALL</p>
<p><b>SPECIAL USE AIRSPACE Continued</b></p>	<p style="text-align: center;">LOW ALTITUDE</p> <p>MOA - Military Operations Area</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>EXCLUSION AREA AND NOTE</p> <p>WALL 1 MOA</p> <p>WALL 2 MOA</p> <p>Internal lines delimit separation of the same Special Use Areas or Exclusion Areas</p> </div> <div style="width: 50%;"> </div> </div> <p>SEE AIRSPACE TABULATION ON EACH CHART FOR COMPLETE INFORMATION ON:</p> <p>AREA IDENTIFICATION EFFECTIVE ALTITUDE OPERATING TIME CONTROLLING AGENCY VOICE CALL</p>

AIRSPACE INFORMATION	
<p><b>CONTROLLED AIRSPACE</b></p>	<p style="text-align: center;">HIGH ALTITUDE</p> <p style="text-align: center;">CLASS A AIRSPACE</p> <p style="text-align: center;">Open Area (White)</p> <p>That airspace from 18,000' MSL to and including FL 600, 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 south of latitude 25 04'00"N, the Alaska peninsula west of longitude 160 00'00"W, and the airspace less than 1,500' AGL.</p> <p>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.</p>
	<p style="text-align: center;">LOW ALTITUDE</p> <p style="text-align: center;">CLASS B AIRSPACE</p> <p style="text-align: center;">Screened Blue with a Solid Blue Outline</p> <p>That airspace from the surface to 10,000' MSL (unless otherwise designated) surrounding the nation's busiest airports. Each Class B airspace area is individually tailored and consists of a surface area and two or more layers.</p> <p style="text-align: center;">MODE C AREA</p> <p style="text-align: center;">A Solid Blue Outline</p> <p>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)</p> <div style="text-align: center;"> <p>CLASS B AIRSPACE SEE ATLANTA VFR TERMINAL AREA CHART FOR DETAILS</p> <p>Mode C Area</p> </div>
	<p style="text-align: center;">LOW ALTITUDE</p> <p style="text-align: center;">CLASS C AIRSPACE</p> <p style="text-align: center;">Screened Blue with a Solid Blue Dashed Outline</p> <p>That airspace from the surface to 4,000' (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.</p> <div style="text-align: center;"> </div>
	<p style="text-align: center;">LOW ALTITUDE</p> <p style="text-align: center;">CLASS D AIRSPACE</p> <p style="text-align: center;">Open Area (White)</p> <p>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.</p>

AIRSPACE INFORMATION	
CONTROLLED AIRSPACE	<p>LOW ALTITUDE CLASS E AIRSPACE Open Area (White)</p> <p>That controlled airspace below 14,500' MSL which is not Class B, C, or D.</p> <p>Federal airways from 1,200' AGL to but not including 18,000' MSL (unless otherwise specified).</p> <p>Other designated control areas below 14,500' MSL. Not Charted</p> <p>That airspace from 14,500' MSL to but not including 18,000' MSL, including the airspace overlying the waters within 12 NM of the coast of the contiguous United States and Alaska and designated offshore areas, excluding the Alaska peninsula west of longitude 160 00'00"W and the airspace less than 1,500' AGL.</p>
	<p>LOW ALTITUDE CLASS B AIRSPACE Screened Brown Checkered Area Controlled airspace above 12,500' MSL</p> 
CONTROLLED AIRSPACE Canada Only	<p>LOW/ HIGH ALTITUDE CLASS G AIRSPACE Screened Brown Area Low Altitude</p> <p>That portion of the airspace below 14,500' MSL that has not been designated as Class B, C, D or E airspace.</p> <p>High Altitude</p> <p>That portion of the airspace from 18,000' MSL and above that has not been designated as Class A airspace.</p> 
UNCONTROLLED AIRSPACE	<p>LOW/ HIGH ALTITUDE CLASS G AIRSPACE Screened Brown Area Low Altitude</p> <p>That portion of the airspace below 14,500' MSL that has not been designated as Class B, C, D or E airspace.</p> <p>High Altitude</p> <p>That portion of the airspace from 18,000' MSL and above that has not been designated as Class A airspace.</p> 
CANADIAN AIRSPACE	<p>HIGH ALTITUDE</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>AIRSPACE CLASSIFICATION (SEE CANADA FLIGHT SUPPLEMENT) AND OPERATIONAL REQUIREMENTS (SEE DOD AREA PLANNING AP/1) MAY DIFFER BETWEEN CANADA AND UNITED STATES</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>NOTE: REFER TO CURRENT CANADIAN CHARTS AND FLIGHT INFORMATION PUBLICATIONS FOR INFORMATION WITHIN CANADIAN AIRSPACE</p> </div>
AIRSPACE OUTSIDE OF U.S.	<div style="border: 1px solid black; padding: 5px;"> <p>NOTE: REFER TO CURRENT DOD (NIMA) CHARTS AND FLIGHT INFORMATION PUBLICATIONS FOR INFORMATION OUTSIDE OF U.S. AIRSPACE</p> </div>

NAVIGATIONAL AND PROCEDURAL INFORMATION	
ISOGONIC LINE AND VALUE	<p>LOW/ HIGH ALTITUDE</p>  <p>Isogonic lines and values shall be based on the five year epoch.</p>
TIME ZONE	<p>LOW/ HIGH ALTITUDE</p> <p>Central Std +6=UTC      Eastern Std +5=UTC</p> <p>‡ During periods of Daylight Saving Time (DT), effective hours will be one hour earlier than shown. All states observe DT except Arizona and that portion of Indiana in the Eastern Time Zone.</p> <p>ALL TIME IS COORDINATED UNIVERSAL TIME (UTC)</p>
ENLARGEMENT AREA	<p>LOW/ HIGH ALTITUDE</p> <div style="border: 2px dashed gray; padding: 10px; text-align: center;"> <p>JACKSONVILLE AREA CHART A-1</p> </div>
MATCH MARK	<p>LOW ALTITUDE - ALASKA</p>  <p>HIGH ALTITUDE - U.S.</p> 

NAVIGATIONAL AND PROCEDURAL INFORMATION

**CRUISING ALTITUDES U.S. only**

**LOW ALTITUDE**

VFR above 3000' AGL unless otherwise authorized by ATC

IFR outside controlled airspace

IFR within controlled airspace as assigned by ATC

All courses are magnetic

**HIGH ALTITUDE**

18,000' MSL to Flight Level 290

Flight Level 290 and Above

NO VFR FLIGHTS WITHIN CLASS A AIRSPACE

VFR above 3000' AGL unless otherwise authorized by ATC

IFR outside controlled airspace

IFR within controlled airspace as assigned by ATC

All courses are magnetic

**NOTES**

**LOW/ HIGH ALTITUDE**

FAA AIR TRAFFIC SERVICE OUTSIDE U.S. AIRSPACE IS PROVIDED IN ACCORDANCE WITH ARTICLE 12 AND ANNEX 11 OF ICAO CONVENTION. ICAO CONVENTION NOT APPLICABLE TO STATE AIRCRAFT BUT COMPLIANCE WITH ICAO STANDARDS AND PRACTICES IS ENCOURAGED.

CAUTION: POSSIBLE DAMAGE AND/OR INTERFERENCE TO AIRBORNE RADIO DUE TO HIGH LEVEL RADIO ENERGY IN THE VICINITY OF R-2206

CAUTION: ACCURACY OF AIR TRAFFIC SERVICES RELATIVE TO HAVANA FIR 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).

NAVIGATIONAL AND PROCEDURAL INFORMATION

**MORSE CODE**

**LOW/ HIGH ALTITUDE**

A ---	N --	1 -----
B ----	O ----	2 -----
C ----	P ----	3 -----
D ---	Q ----	4 -----
E -	R ---	5 -----
F ----	S ...	6 -----
G ----	T -	7 -----
H ----	U ----	8 -----
I ..	V ----	9 -----
J ----	W ---	0 -----
K ---	X ----	
L ----	Y ----	
M ---	Z ----	

**CULTURE**

**BOUNDARIES**

*International*

*U.S. /Russia Maritime Line*

*Date Line*

**LOW/ HIGH ALTITUDE**

----- Omitted when coincident with ARTCC or FIR

**LOW/ HIGH ALTITUDE**

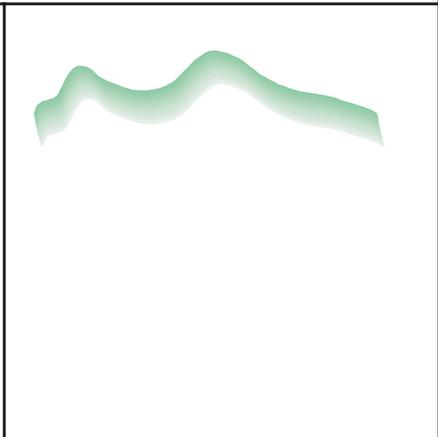
RUSSIA  
+---+  
UNITED STATES

**LOW/ HIGH ALTITUDE**

INTERNATIONAL DATE LINE MONDAY  
SUNDAY

**HYDROGRAPHY**

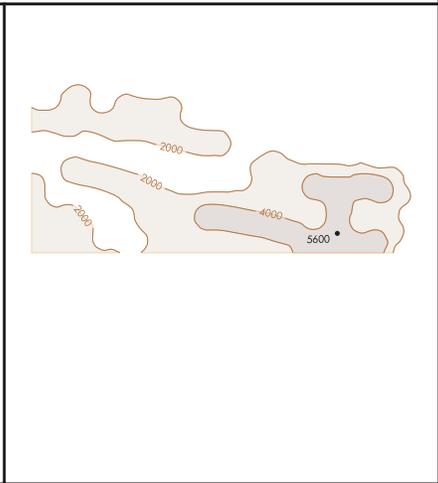
**SHORELINE**



**TOPOGRAPHY**

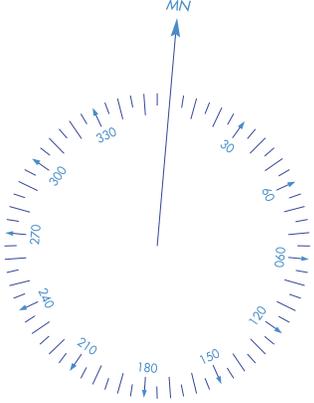
**TERRAIN**

*Area Charts*



AIRPORTS	
AIRPORT DATA	Airport of Entry (AOE) are shown with four letter ICAO Identifier
LANDPLANE-CIVIL Refueling and repair facilities for normal traffic.	HONOLULU INTL (PHNL)
LANDPLANE-CIVIL AND MILITARY Refueling and repair facilities for normal traffic.	HILO INTL (PHTO)
LANDPLANE-MILITARY Refueling and repair facilities for normal traffic.	KALAELOA (PHJR)
RADIO AIDS TO NAVIGATION	
VHF OMNIDIRECTIONAL RADIO RANGE (VOR)	VOR
DISTANCE MEASURING EQUIPMENT (DME)	VOR / DME
TACTICAL AIR NAVIGATION (TACAN)	VORTAC TACAN
NON-DIRECTIONAL RADIO BEACON (NDB)	NARC  NPRC
DISTANCE MEASURING EQUIPMENT (DME)	NDB NDB / DME
IDENTIFICATION BOX	
AIRSPACE INFORMATION	
AIR TRAFFIC SERVICE (ATS) OCEANIC ROUTES	<p>A450 Identification Mileage 283</p> <p>UB891 UHF Caribbean Identification Mileage 114</p> <p>Note: Mileages are Nautical (NM)</p>
ATS SINGLE DIRECTION ROUTE	
AERIAL REFUELING TRACKS	<p>AR-900 E FL 180/270 One Way</p> <p>AR-903 E,W FL 180/270 Two Way</p>

AIRSPACE INFORMATION	
AIR DEFENSE IDENTIFICATION ZONE (ADIZ)	<p>HAWAIIAN ADIZ</p> <p>TAIWAN ADIZ</p> <p>JAPAN ADIZ</p>
AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)	<p>SEATTLE (ZSE)</p> <p>OAKLAND (ZOA)</p>
FLIGHT INFORMATION REGIONS (FIR) and/or (CTA)	<p>HONOLULU FIR PHZH</p> <p>HONIARA FIR ANAU</p> <p>HONOLULU FIR PHZH</p>
UPPER INFORMATION REGIONS (UIR)	<p>JAKARTA UIR WIJZ</p> <p>MERIDA UTA / UIR MMID</p> <p>MAZATLAN UTA / UIR MMZT</p> <p>MEXICO FIR / UIR MMFR FL 450</p>
UPPER CONTROL AREAS (UTA)	
OCEANIC CONTROL AREAS (OCA) and /or (CTA /FIR)	<p>OAKLAND OCEANIC CTA / FIR KZAK</p> <p>TOKYO FIR / OCA RJTG</p> <p>NAHA FIR / OCA RORG</p>
ADDITIONAL OCEANIC CONTROL AREAS	<p>CONTROL 1485</p> <p>Note: Limits not shown when coincident with Warning Areas.</p>
BUFFER ZONE	Teeth point to area
NON-FREE FLYING ZONE	Teeth point to area
NORTH ATLANTIC / MINIMUM NAVIGATION PERFORMANCE SPECIFICATIONS (NAT/MNPS)	NAT MNPS (FL 285-FL420)
REPORTING POINTS	<p>Name — ARTOP N20°52.7' W80°00.0'</p> <p>▲ Compulsory</p> <p>△ Non-Compulsory</p> <p>✦ Waypoint</p>
SPECIAL USE AIRSPACE	<p>W-470 W-517</p> <p>NARC NPRC</p>
Warning Area	
Special Use	ATLANTIC FLEET WEAPONS RANGE
12 Mile Limit	
UNCONTROLLED AIRSPACE	

NAVIGATIONAL AND PROCEDURAL INFORMATION		CULTURAL BOUNDARIES	
<p><b>MILEAGE CIRCLES</b></p> <p>Note: Mileages are Nautical (NM)</p>		<p><b>INTERNATIONAL</b></p> 	
<p><b>Time Zone</b></p> <p>Note: All time is Coordinated Universal (Standard) Time (UTC)</p>		<p><b>MARITIME</b></p> 	
<p><b>Overlap Marks</b></p> <p>NPRC Only</p>		<p><b>DATE LINE</b></p> 	
<p><b>COMPASS ROSE</b></p> <p>Note: Compass Roses oriented to Magnetic North</p>		<p><b>HYDROGRAPHY</b></p>	
<p><b>NOTES</b></p> <p><b>WARNING</b></p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px; text-align: center;"> <p>— WARNING —</p> <p>AIRCRAFT INFRINGING UPON NON FREE FLYING TERRITORY MAY BE FIRED UPON WITHOUT WARNING</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>— WARNING —</p> <p>UNLISTED RADIO EMISSIONS FROM THIS AREA MAY CONSTITUTE A NAVIGATION HAZARD OR RESULT IN BORDER OVERFLIGHT UNLESS UNUSUAL PRECAUTION IS EXERCISED.</p> </div>	<p><b>SHORELINES</b></p> 	

## EXPLANATION OF VFR TERMS AND SYMBOLS

The discussions and examples in this section are based on the Sectional aeronautical charts. These charts include the most current data and are at a scale (1:500,000) most beneficial to pilots flying under Visual Flight Rules. A pilot should have little difficulty in reading these charts which are, in many respects, similar to automobile road maps. Each chart is named for a major city within its area of coverage.

The chart legend lists various aeronautical symbols as well as information concerning terrain and contour elevations. You may identify aeronautical, topographical, and obstruction symbols (such as radio and television towers) by referring to the legend. Many landmarks which can be easily recognized from the air, such as stadiums, pumping stations, refineries, etc., are identified by brief descriptions adjacent to small black squares marking their exact locations  $\blacksquare$  <sup>cabin</sup>. Oil wells are shown by small circles  $\circ$  <sup>oil</sup>. Water, oil and gas tanks are shown by small black circles  $\bullet$  <sup>water</sup> and labeled accordingly, if known. The depictions of many items larger than scale are exaggerated on the charts for improved legibility.

NACO 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.

### TERRAIN AND OBSTRUCTIONS

The elevation and configuration of the Earth's surface are certainly of prime importance to pilots. Cartographers devote a great deal of attention to showing relief and obstruction data in a clear and concise manner. Five different techniques are used to show this information: Contour lines, shaded relief, color tints, obstruction symbols, and Maximum Elevation Figures. (MEF)

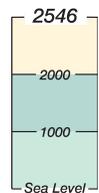
1. Contour lines are lines connecting points on the Earth of equal elevation. On Sectional aeronautical charts, basic contours are spaced at 500 foot intervals. Intermediate contours may also be shown at 250 foot intervals in moderately level or gently rolling areas. Occasionally, auxiliary contours at 50, 100, 125, or 150 foot intervals may be used to portray 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 is a depiction of how the terrain might appear from the air. The cartographer shades the areas that would appear in shadow if illuminated by a light from the northwest. Studies have indicated that our visual perception has been conditioned to this view.



3. Color tints are used to depict bands of elevation. These colors range from light green for the lowest elevations to brown for the higher elevations.



4. Obstruction symbols are used to depict man-made vertical features that may affect the National Airspace System. NACO maintains a file of over 90,000 obstacles in the United States, Canada, the Caribbean and Mexico. Each obstacle is evaluated by cartographers before it is added to the visual charts. When the position or elevation of an obstacle is unverified, it is marked UC (under construction or reported but not verified).

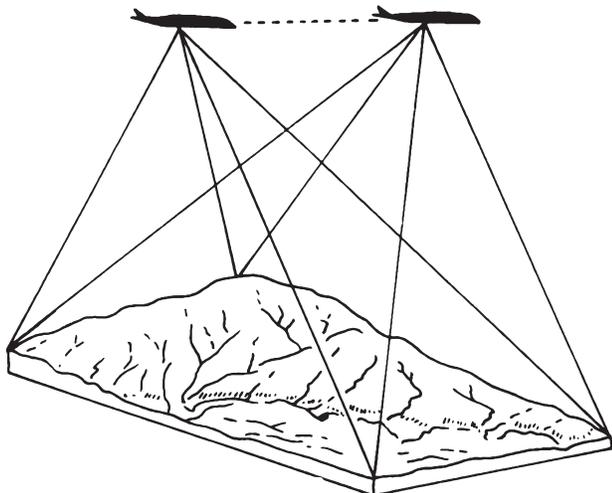
The data in the Digital Obstacle File (DOF) is collected and disseminated as part of NACO's responsibility for managing the National Airspace System.

Source data on terrain and obstructions is sometimes not complete or accurate enough for use in aeronautical publications; for example, a reported obstruction may be plotted on a map with insufficient detail for determining the obstruction's position and elevation. Such cases are identified by NACO and investigated by the FAA Flight Edit program.

The FAA Flight Edit crew conducts data verification missions in an aircraft equipped with an aerial mapping camera. The pilots visually verify cultural and topographic features and review all obstacle data.

This review includes checking for obstructions that may have been constructed, altered, or dismantled without proper notification. Unverified obstacles are pho-

tographed and the position and elevation are determined photogrammetrically.



Generally, only man-made structures extending more than 200 feet above ground level are charted. Objects 200 feet or less are charted only if they are considered hazardous obstructions; for example, an obstruction is much higher than the surrounding terrain or very near an airport. Examples of features considered obstacles to low level flight are antennas, tanks, factories, lookout towers, and smoke-stacks.

Obstacles less than 1000 feet above ground level are shown by the symbol . Obstacles 1000' and

higher above ground level are shown by the symbol . Man-made features which can be seen clearly from the air and can be used as checkpoints may be represented with pictorial symbols shown in black with the required elevation data in blue.

The height of the structure above ground level and the elevation of the top of the obstacle above sea level are shown when known or when they can be reliably determined by the cartographer. The height above ground level is shown in parentheses below the elevation above mean sea level of the top of the obstacle. In extremely congested areas the above ground level values may be omitted to avoid confusion.



Obstacles are portrayed wherever possible. But since legibility would be impaired if all obstacles within city complexes or within high density groups of obstacles were portrayed, only the highest obstacle in an area is shown using  <sup>4977</sup> (1432), the group obstacle symbol.

Obstacles under construction are indicated by the letters **uc** immediately adjacent to the symbol. If available, the above ground level height of the obstruction is shown in parentheses; for example, (1501). Obstacles with high intensity strobe lighting systems are shown

as:  

5. The Maximum Elevation Figure (MEF) represents the highest elevation, including terrain and other vertical obstacles (towers, trees, etc.), bounded by graticules. Graticules on Sectional aeronautical charts are the ticked lines dividing each 30 minutes of latitude and each 30 minutes of longitude. MEF figures are depicted to the nearest 100 foot value. The last two digits of the number are not shown. In this example the MEF represents

ATTENTION

THIS CHART CONTAINS MAXIMUM ELEVATION FIGURES (MEF). The Maximum Elevation Figures shown in quadrangles bounded by ticked lines of latitude and longitude are represented in THOUSANDS and HUNDREDS of feet above mean sea level. The MEF is based on information available concerning the highest known feature in each quadrangle, including terrain and obstructions (trees, towers, antennas, etc.).

125

Example: 12,500 feet .....

12,500 feet. MEFs are shown over land masses as well as over open water areas containing man-made obstacles such as oil rigs.

In the determination of MEFs, extreme care is exercised to calculate the values based on the existing elevation data shown on source material. Cartographers use the following procedure to calculate MEFs:

When a man-made obstacle is more than 200 feet above the highest terrain within the area bounded by graticules:

1. Determine the elevation of the top of the obstacle above mean sea level (MSL).
2. Add the possible vertical error of the source material to the above figure (100 feet or 1/2 contour interval when interval on source exceeds 200 feet. U.S. Geological Survey Quadrangle Maps with contour intervals as small as 10 feet are normally used).
3. Round the resultant figure up to the next higher hundred foot level.

**Example: Elevation of obstacle top (MSL) = 2424**  
**Possible vertical error + 100**  
**equals 2524**  
**Raise to the following 100 foot level 2600**  
**Maximum Elevation Figure (MSL) 26**

When a natural terrain feature or natural vertical obstacle (e.g. a tree) is the highest feature within the area bounded by graticules:

1. Determine the elevation of the feature.
2. Add the possible vertical error of the source to the above figure (100 feet or 1/2 the contour interval when interval on source exceeds 200 feet).
3. Add a 200 foot allowance for natural or man-made obstacles which are not portrayed because they are below the minimum height at which the chart specifications require their portrayal.

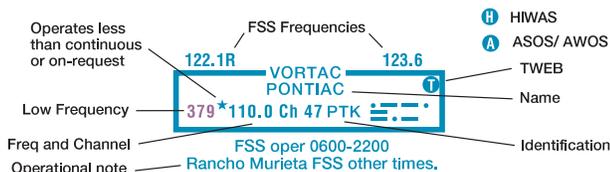
- Round the figure up to the next higher hundred foot level.

**Example: Elevation of obstacle top (MSL) = 3450**  
**Possible vertical error + 100**  
**Obstacle Allowance 200**  
**equals 3750**  
**Raise to the following 100 foot level 3800**  
**Maximum Elevation Figure (MSL) 38**

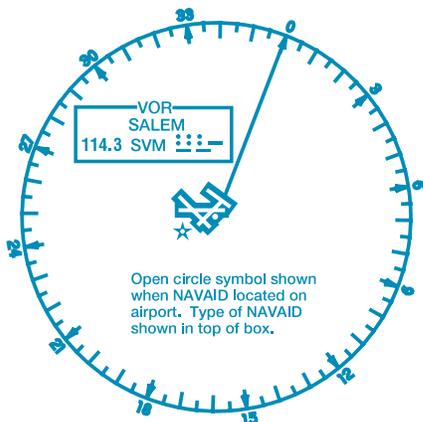
Pilots should be aware that while the MEF is based on the best information available to the cartographer, the figures are not verified by field surveys. Also, you must consult the Aeronautical Chart Bulletin in the Airport/Facility Directory or NACO website to ensure that your chart has the latest MEF data available.

**RADIO AIDS TO NAVIGATION**

On visual charts, information about radio aids to navigation 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, 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. VHF/UHF radio aids to navigation names and identification boxes (shown in blue) take precedence. Only those items that are different (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.



Radio aids to navigation located on an airport depicted by the pattern symbol may not always be shown by the appropriate symbol. A small open circle indicates the NAVAID location when co-located with an airport symbol. The type of radio aid to navigation may be indicated by letter identification; e.g., VOR, VORTAC, etc., positioned on and breaking the top line of the identification box.



**AIRPORTS**

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

Public use airports:

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

Military airports:

- Other than hard-surfaced runways

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

Military airports are identified by abbreviations such as AFB, NAS, AAF, NAAS, NAF, MCAS, DND, etc.

Services available:

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

Other airports with or without services:

- 
- 
- 
- 
- 

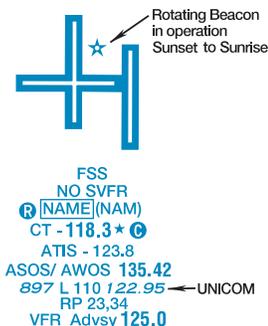
Airports are plotted in their true geographic position unless the symbol conflicts with a radio aid to navigation (navaid) at the same location. In such cases, the airport symbol will be displaced, but the relationship between the airport and the navaid will be retained.

Airports are identified by their designated name. Military airport names all include abbreviations (such as AFB, NAS, AAF, NAAS, NAF, MCAS, DND, etc.) indicating the type of facility. 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 following figure 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 feet, using 70 as the division point; a runway 8070' long is charted as 81, and a runway 8069' long is charted as 80.

Airports with control towers, and their related information, are shown in blue. All other airports, and their related information, are shown in magenta (reddish purple).



Class E Airspace with floor 700 ft. above surface.  
 Class E Airspace with floor 1200 ft or greater above surface that abuts Class G Airspace.

control, such as Class B, Class C, Class D and Class E airspace.

Class E airspace exists at 1200 feet above ground level unless designated otherwise. The lateral and vertical limits of all Class E controlled airspace up to but not including 18,000 feet are shown by narrow bands of vignette on Sectional aeronautical charts and Terminal Area Charts. Controlled airspace floors of 700 feet above the ground are defined by a magenta vignette; floors other than 700 feet that abut uncontrolled airspace are defined by a blue vignette; differing floors greater than 700 feet above the

ground are annotated by a symbol  $\frac{2400\text{ AGL}}{4500\text{ MSL}}$  and a number indicating the floor. If the ceiling is less than 18,000 feet MSL, the value (prefixed by the word "ceiling") is shown along the limits of the controlled airspace. These limits are shown with the same symbol indicated above.

**Class B Airspace** is shown in abbreviated form on World Aeronautical Charts (WAC). The Sectional aeronautical charts and Terminal Area Charts (TAC) show Class B airspace in greater detail. The MSL ceiling and floor altitudes of each sector are shown in solid blue figures with the last two digits eliminated:

$\frac{90}{20}$  Radials and arcs used to define Class B airspace are prominently shown on Terminal Area Charts. Detailed rules and requirements associated with the particular Class B airspace are shown. The name by which the Class B airspace is identified is shown as: **LAS VEGAS CLASS B**

**Class C Airspace** is shown in abbreviated form on World Aeronautical Charts. The Sectional aeronautical charts and Terminal Area Charts show Class C airspace in greater detail.

The MSL ceiling and floor altitudes of each sector are shown in solid magenta figures with the last two digits eliminated:  $\frac{70}{15}$ . The following figures identify a sector that extends from the surface to the base of the Class B airspace:  $\frac{T}{SFC}$ . The name by which the Class C airspace is identified is shown as: **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 airspace (generally within 20 NM):

CTC BURBANK APP WITHIN 20 NM ON 124,6 395,9

**Class D Airspace** is symbolized by a blue dashed line. Class D airspace operating less than continuous is indicated by the following note: See NOTAMS/Directory for Class D eff hrs. Ceilings of Class D airspace are shown as follows:

$\frac{30}{-}$ . A minus in front of the figure is used to indicate "from surface to but not including ...."

- 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
- [ ] - Indicates F.A.R. 93 Special Air Traffic Rules and Airport Traffic Patterns
- (R) - Airport Surveillance Radar (Not shown on WAC)
- (NAM) - Location Identifier (Not shown on WAC)
- CT - 118.3 - Control Tower (CT) - primary frequency
- ★ - Star indicates operation part-time. See tower frequencies tabulation for hours of operation
- (C) - Indicates Common Traffic Advisory Frequencies (CTAF) (Not shown on WAC)
- ATIS 123.8 - Automatic Terminal Information Service
- ASOS/ AWOS 135.42 - Automated Surface Weather Observing Systems (Shown when full-time ATIS is not available) Some ASOS/AWOS facilities may not be located at airport. (Not shown on WAC)
- 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 Right Traffic Patterns (public use) (Not shown on WAC)
- RP\* - (See Airport/Facility Directory)
- VFR Advsy 125.0 - VFR Advisory Service shown where ATIS is not available and frequency is other than primary CT frequency.

The symbol ★ indicates the existence of a rotating or flashing airport beacon operating continuously sunset to sunrise.

The symbol L indicates that runway lights are on during hours of darkness. A \*L indicates that the pilot must consult another source (e.g., the Airport/Facility Directory) to determine runway lighting limitations, such as: available on request (by radio call, letter, phone, etc), part-time lighting or pilot/airport controlled lighting. The lighted runway may not be the longest runway available, and may not be lighted full length. A detailed description of airport and air navigation lighting aids available at each airport can be found in the Airport/Facility Directory. The Aeronautical Information Manual thoroughly explains the types and uses of airport lighting aids.

**CONTROLLED AIRSPACE**

Controlled airspace consists of those areas where some or all aircraft may be subject to air traffic

**Surface Class E Airspace** is symbolized by a magenta dashed line. Class E airspace operating less than continuous is indicated by the following note:

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

**SPECIAL USE AIRSPACE**

Special use airspace confines certain flight activities and restricts entry, or cautions other aircraft operating within specific boundaries. Except for Controlled Firing Areas, special use airspace areas are depicted on visual aeronautical 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. Special use airspace 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 or number, positioned either within or immediately adjacent to the area.

PROHIBITED, RESTRICTED OR WARNING AREA



ALERT AREA



MILITARY OPERATIONS AREA (MOA)



**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 airspace is designated, is

depicted by a solid magenta line.



Mode C is also depicted within 10 NM of any airport listed in Appendix D of FAR 91.215. Mode C is required but not depicted for operations within and above all Class C airspace up to 10,000' MSL. Enroute Mode C requirements (at and above 10,000' MSL except in airspace at and below 2,500 ft AGL) are not depicted. See FAR 91.215 and the Aeronautical Information Manual (AIM).

**FAR 93** Airports and heliports where Federal Aviation Regulation (FAR 93) special air traffic rules and airport traffic patterns apply 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** are indicated on VFR charts with a broken magenta line. Unauthorized aircraft are requested to remain clear of these areas.

**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 slightly 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 digits. A leader line is used when the altitude values must be positioned outside the respective sectors because of 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 Sectional and Terminal Area Charts and 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 all Sectional aeronautical charts and VFR Terminal Area Charts 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 reissued every 6 months, you are cautioned and advised to contact the nearest FSS 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 of the Airport/Facility Directory.

Military Pilots refer to Area Planning AP/1B Military Training Route North and South America for current routes.

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

- a. Routes at or below 1,500 feet AGL (with no segment above 1,500 feet) are identified by four-digit numbers; e.g., VR1007, etc. These routes are generally developed for flight under Visual Flight Rules.
- b. Routes above 1,500 feet AGL (some segments of these routes may be below 1,500 feet) are identified by three-digit or less numbers; e.g., IR21, VR302, etc. These routes are developed for flight under Instrument Flight Rules.

Route widths vary for each MTR and can extend several miles on either side of the charted MTR centerline. Detailed route width information is available in the Flight Information Publication (FLIP) AP/1B (a Department of Defense publication), or in the Digital Aeronautical Chart Supplement (DACS).

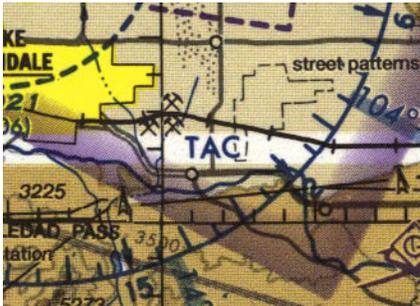
**Special Military Activity** areas are indicated on the Sectional charts by a boxed note in black type. The note contains radio frequency information for obtaining area activity status.

SPECIAL MILITARY ACTIVITY  
CONTACT MOBILE FSS  
ON 123.6  
FOR ACTIVITY STATUS

**TERMINAL AREA CHART (TAC) COVERAGE**

Terminal area chart coverage is shown on appropriate Sectional charts by a 1/4" masked line as indicated below. Within this area, pilots should use TACs which provide greater detail and clarity of information. A note to this effect appears near the masked boundary line.

LOS ANGELES TERMINAL AREA  
Pilots are encouraged to use the Los Angeles VFR Terminal Area Chart for flights at or below 10,000'

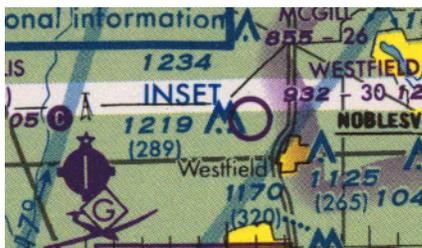


**INSET COVERAGE**

Inset coverage is shown on appropriate Sectional charts by a 1/8" masked line as indicated below. A note to this effect appears near the masked boundary line.

INDIANAPOLIS INSET  
See inset chart for additional detail

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



# VFR AERONAUTICAL CHART SYMBOLS

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## GENERAL INFORMATION

Symbols shown are for World Aeronautical Charts (WAC), Sectional aeronautical charts and Terminal Area Charts (TAC). When a symbol is different on any VFR chart series, it will be annotated thus:  
WAC or Not shown on WAC.

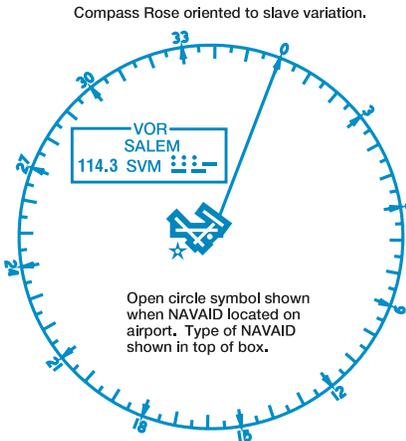
AIRPORTS	
<p><b>LANDPLANE-CIVIL</b></p> <p><i>Airports having control towers (CT) are shown in blue, all others are shown in magenta.</i></p> <p><i>All recognizable runways, including some which may be closed, are shown for visual identification purposes.</i></p> <p><i>Refueling and repair facilities for normal traffic.</i></p> <p><i>Runway patterns will be depicted at airports with at least one hard surface runway 1500' or greater in length.</i></p>	<p>WAC</p>
<p><b>SEAPLANE-CIVIL</b></p>	<p>WAC</p>
<p><b>LANDPLANE CIVIL-MILITARY</b></p>	<p>WAC</p>
<p><b>LANDPLANE-MILITARY</b></p> <p><i>Refueling and repair facilities not indicated.</i></p>	<p>WAC</p>
<p><b>LANDPLANE-EMERGENCY</b></p> <p><i>No facilities</i></p> <p><i>or</i></p> <p><i>Complete information is not available.</i></p> <p><i>Add appropriate notes as required: "closed, approximate position, existence unconfirmed."</i></p>	<p>WAC</p>

AIRPORTS	
<p><b>SEAPLANE-EMERGENCY</b></p> <p>No facilities or complete information is not available</p>	<p>WAC</p>
<p><b>HELIPORT (Selected)</b></p>	<p>WAC</p>
<p><b>ULTRALIGHT FLIGHT PARK (Selected)</b></p>	<p>Not shown on WAC</p>
<p><b>AIRPORT DATA GROUPING</b></p>	<p>Rotating Beacon in operation Sunset to Sunrise</p> <p>FSS NO SVFR [NAME](NAM) CT - 118.3 * C ASOS/ AWOS 135.42 897 L 110 122.95 RP 23,34 VFR Advsy 125.0</p> <p>FSS NO SVFR [NAME](NAM) CT - 118.3 * ATIS 123.8 897 L 110 U Airport of Entry</p> <p>WAC</p>
<p><b>Legend:</b></p> <ul style="list-style-type: none"> <li>FSS - Flight Service Station on field</li> <li>NO SVFR - Airports where fixed wing special visual flight rules</li> <li>FSS - Flight Service Station on field</li> <li>NO SVFR - Airports where fixed wing special visual flight rules operations are prohibited (shown above airport name) F.A.R. 91</li> <li>[ ] - Indicates F.A.R. 93 Special Air Traffic Rules and Airport Traffic Patterns</li> <li>R - Airport Surveillance Radar (Not shown on WAC)</li> <li>(NAM) - Location Identifier (Not shown on WAC)</li> <li>CT - 118.3 - Control Tower (CT) - primary frequency</li> <li>* - Star indicates operation part-time. See tower frequencies tabulation for hours of operation</li> <li>C - Indicates Common Traffic Advisory Frequencies (CTAF) (Not shown on WAC)</li> <li>ATIS 123.8 - Automatic Terminal Information Service</li> <li>ASOS/ AWOS 135.42 - Automated Surface Weather Observing Systems (Shown when full-time ATIS is not available.) Some ASOS/AWOS facilities may not be located at airport. (Not shown on WAC)</li> <li>897 - Elevation in feet</li> <li>L - Lighting in operation Sunset to Sunrise</li> <li>*L - Lighting limitations exist; refer to Airport/Facility Directory.</li> <li>110 - Length of longest runway in hundreds of feet; usable length may be less.</li> <li>UNICOM - Aeronautical advisory station ("U" only on WAC)</li> <li>RP 23,34 - Runways with Right Traffic Patterns (public use) (Not shown on WAC)</li> <li>RP* - (See Airport/Facility Directory)</li> <li>VFR Advsy 125.0 - VFR Advisory Service shown where ATIS is not available and frequency is other than primary CT frequency.</li> </ul> <p>When lighting is not available, the respective character is replaced by a dash. All lighting codes refer to runway lights. Lighted runway may not be the longest or lighted full length.</p>	

### RADIO AIDS TO NAVIGATION

**VHF OMNI-DIRECTIONAL RADIO (VOR) RANGE**

Compass Rose oriented to slave variation.



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

**VOR**

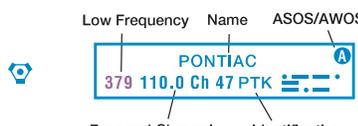
Operates less than continuous or on-request Transcribed Weather Broadcast (TWEB)



Underline indicates no voice on this frequency

**VORTAC**

Low Frequency Name ASOS/AWOS



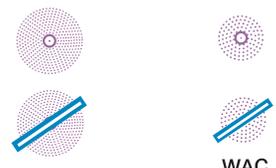
Freq and Channel Identification

**VOR-DME**

Hazardous Inflight Weather Advisory Service (HIWAS)



**NON-DIRECTIONAL RADIOBEACON (NDB)**



WAC



Underline indicates no voice on this frequency



WAC



DME Ch 92 (114.5)

### RADIO AIDS TO NAVIGATION

**ILS COMPONENTS**

*Shown when component of airway system or used in the description of Class B airspace.*

Localizer

○ LCZR OR ○ LOCALIZER 109.5 I-BED

Locator Beacon

○ LOM OR  LOM 388 DT

ILS - DME

○  SALT LAKE CITY DME ANT (I-BNT) Ch 52 (111.5)

**BROADCAST STATIONS (BS)**

○  BS KFTM 1400

**FLIGHT SERVICE STATION (FSS)**

Heavy line box indicates Flight Service Station (FSS). Frequencies 121.5, 122.2, 243.0, and 255.4 (Canada - 121.5, 126.7, and 243.0) are normally available at all FSS's and are not shown above boxes. All other frequencies are shown. Frequencies transmit and receive except those followed by an R. R - receive only.

 PONTIAC PTK

No NAVAID of the same name as FSS

OR

122.1R

 IDAHO FALLS 109.0 Ch 27 IDA with Morse code.

FSS oper 0500-2300 Boise FSS other times.

NAVAID same name as FSS but not an RCO

**REMOTE COMMUNICATIONS OUTLET (RCO)**

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

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

123.6

 OLYMPIA RCO

[McCHORD]

122.35 122.35

 ST PAUL 108.6 STP with Morse code.

[MINNEAPOLIS]

 HUMPHREY 275 HPY with Morse code.

[MILES CITY]

FSS providing voice communication

**AIR FORCE STATION (AFS)**

122.0 AFS 123.6 122.4 AFS 123.6

 POINT BARROW

 CAPE LEWISTON 206 LWS with Morse code.

AFS at airport with NDB

**LONG RANGE RADAR STATION (LRRS)**

122.4 LRRS 122.55 122.4 LRRS 123.6

 BARTER ISLAND

 CAPE LISBURNE 385 LUR with Morse code.

LRRS at airport with NDB

**AIRSPACE INFORMATION**

**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.*

**LAS VEGAS CLASS B**

Outer limit only, segments not shown

**FOR FLIGHTS AT AND BELOW 8000' MSL SEE KANSAS CITY VFR TERMINAL AREA CHART**

(WAC only)

**80** - Ceiling of Class B in hundreds of feet MSL  
**40** - Floor of Class B in hundreds of feet MSL

**CTC LAS VEGAS APP ON 121.1 OR 257.8**

(TAC only)

**CLASS C AIRSPACE**

*Appropriate notes as required may be shown.*

*(Mode C see FAR 91.215 /AIM)*

**BURBANK CLASS C**

Outer limit only, segments not shown

**BOISE CLASS C**

(WAC only)

**48** - Ceiling of Class C in hundreds of feet MSL  
**30** - Floor of Class C in hundreds of feet MSL

**CTC BURBANK APP WITHIN 20 NM ON 124,6 395,9**

Not shown on WAC

**AIRSPACE INFORMATION**

**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...")

ALTITUDE IN HUNDREDS OF FEET MSL

Not shown on WAC

**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 designated around airports ...*

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

*Airspace beginning at 700 feet AGL ...*

See NOTAMs/Directory for 700' Class E eff hrs

*Airspace beginning at 1200 feet AGL or greater that abuts uncontrolled airspace (Class G) ...*

**8000 AGL**

**CEILING 14,000 MSL**

Not shown on WAC

**OFFSHORE CONTROL AREAS**

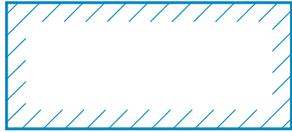
Class G Airspace

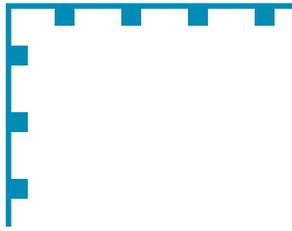
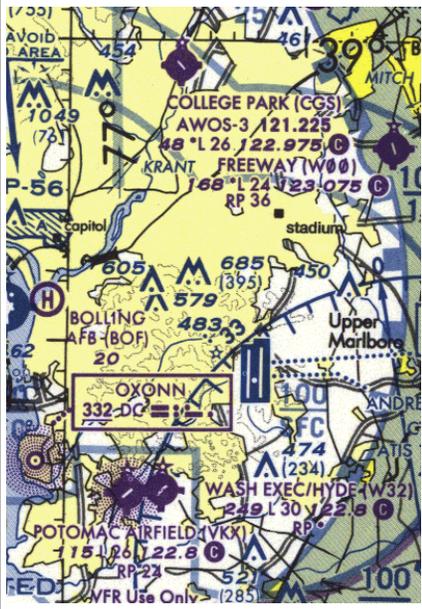
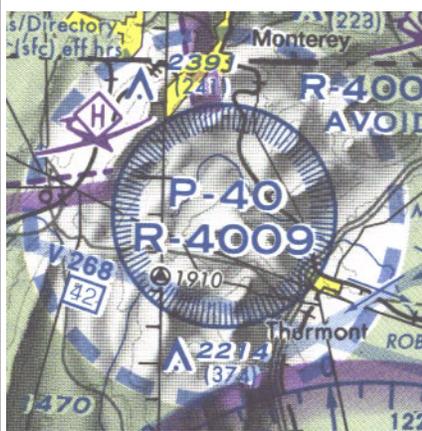
WAC

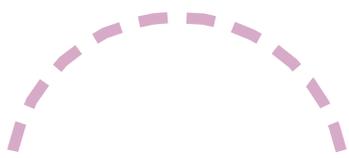
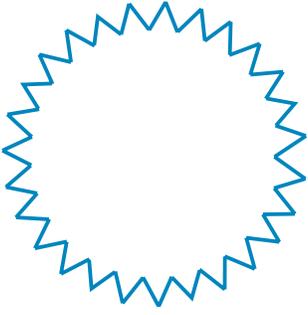
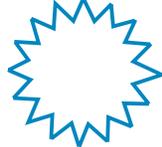
AIRSPACE INFORMATION	
<p><b>CANADIAN AIRSPACE</b></p> <p><i>Individual units of designated Canadian airspace are not necessarily shown; instead, the aggregate lateral and vertical limits shall be portrayed as closely as possible to the comparable U.S. airspace.</i></p> <p><i>Appropriate notes as required may be shown.</i></p>	<p style="text-align: right;">TCA Class C/D</p> <p style="text-align: right;">TCA Class C/D</p> <p style="text-align: right;">WAC</p> <p style="text-align: center;">Outer limit only, segments not shown</p> <p><b>125</b> - Ceiling of TCA Class C/D in hundreds of feet MSL <b>25</b> - Floor of TCA Class C/D in hundreds of feet MSL</p>
<p><b>AIRSPACE OUTSIDE OF U.S.</b></p> <p><i>Other than Canada</i></p> <p><i>Appropriate notes as required may be shown.</i></p>	<p style="text-align: center;">Class D CZ</p> <p style="text-align: center;">Class C or D Control Zone</p> <p style="text-align: center;">ALTITUDE IN HUNDREDS OF FEET MSL</p> <p style="text-align: center;">Class E Control Zone</p> <p style="text-align: center;">Not shown on WAC</p> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>AIRSPACE CLASSIFICATION (SEE CANADA FLIGHT SUPPLEMENT) AND OPERATIONAL REQUIREMENTS (SEE DOD AREA PLANNING AP/1) MAY DIFFER BETWEEN CANADA AND UNITED STATES</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>NOTE: REFER TO CURRENT CANADIAN CHARTS AND FLIGHT INFORMATION PUBLICATIONS FOR INFORMATION WITHIN CANADIAN AIRSPACE</p> </div>
<p><b>FLIGHT INFORMATION REGIONS (FIR) and/or (CTA)</b></p> <p><b>OCEANIC CONTROL AREAS (OCA)</b></p>	<p style="text-align: center;">No FIR exists this side - No ticks</p> <p style="text-align: center;">MONCTON FIR CZQM</p> <p style="text-align: center;">WINNIPEG FIR CZWG</p> <p style="text-align: center;">EDMONTON FIR CZEG</p> <p style="text-align: center;">OAKLAND OCEANIC CONTROL AREA</p>

AIRSPACE INFORMATION	
<p><b>AIR DEFENSE IDENTIFICATION ZONE (ADIZ)</b></p> <p><i>Note. Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.</i></p>	<p style="text-align: center;"><b>ALASKA ADIZ</b></p>
<p><b>LOW ALTITUDE AIRWAYS VOR and LF / MF (CLASS E AIRSPACE)</b></p> <p><i>Low altitude Federal Airways are indicated by centerline.</i></p> <p><i>Only the controlled airspace effective below 18,000 feet MSL is shown.</i></p>	<p style="text-align: center;">V2N ← 270°</p> <p style="text-align: center;">Alternate Airway radial</p> <p style="text-align: center;">Total mileage between NAVAIDS on direct Airways.</p> <p style="text-align: center;">25</p> <p style="text-align: center;">V2 ← 255°</p> <p style="text-align: center;">Enroute Airway radial</p> <p style="text-align: center;">R40</p> <p style="text-align: center;">LF / MF Airway</p> <p style="text-align: center;">V2N ← 270°</p> <p style="text-align: center;">Alternate Airway radial</p> <p style="text-align: center;">V2 ← 255°</p> <p style="text-align: center;">Enroute Airway radial</p> <p style="text-align: center;">R40</p> <p style="text-align: center;">LF / MF Airway</p> <p style="text-align: center;">WAC</p>
<p><b>MISCELLANEOUS AIR ROUTES</b></p>	<p style="text-align: center;">BR 63V ← 265°</p> <p style="text-align: center;">Bahama Route</p> <p style="text-align: center;">A 301</p> <p style="text-align: center;">Oceanic &amp; ATS Route</p> <p style="text-align: center;">AR5</p> <p style="text-align: center;">Atlantic Route</p> <p style="text-align: center;">GULF RTE-26</p> <p style="text-align: center;">Gulf Route</p> <p style="text-align: center;">B ROUTE-2</p> <p style="text-align: center;">Class G Route</p> <p style="text-align: center;">BR 63V ← 265°</p> <p style="text-align: center;">Bahama Route</p> <p style="text-align: center;">A 301</p> <p style="text-align: center;">Oceanic &amp; ATS Route</p> <p style="text-align: center;">AR5</p> <p style="text-align: center;">Atlantic Route</p> <p style="text-align: center;">GULF RTE-26</p> <p style="text-align: center;">Gulf Route</p> <p style="text-align: center;">B ROUTE-2</p> <p style="text-align: center;">Class G Route</p> <p style="text-align: center;">WAC</p>

AIRSPACE INFORMATION	
<p><b>SPECIAL USE AIRSPACE</b></p> <p><i>Only the airspace effective below 18,000 feet MSL are shown.</i></p> <p><i>The type of area shall be spelled out in large areas if space permits.</i></p>	 <p><b>PROHIBITED, RESTRICTED OR WARNING AREA</b></p>  <p><b>ALERT AREA</b></p>  <p><b>MILITARY OPERATIONS AREA (MOA)</b></p>
<p><b>MILITARY TRAINING ROUTES (MTR)</b></p>	 <p>Not shown on WAC</p>
<p><b>SPECIAL MILITARY ACTIVITY ROUTES (SMAR)</b></p> <p><i>Boxed notes (as in text) shown adjacent to route.</i></p>	 <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>SPECIAL MILITARY ACTIVITY CONTACT MOBILE FSS ON 123.6 FOR ACTIVITY STATUS</p> </div> <p> <b>40</b> --- Ceiling of SMAR in hundreds of feet MSL  <b>05 AGL</b> --- Floor of SMAR in hundreds of feet AGL         </p> <p>Not shown on WAC</p>

AIRSPACE INFORMATION	
<p><b>SPECIAL AIR TRAFFIC RULES / AIRPORT PATTERNS (FAR 93)</b></p> <p><i>Appropriate boxed note as required shown adjacent to area.</i></p>	 <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p><b>SPECIAL NOTICE</b> Pilots are required to obtain an ATC clearance prior to entering this area.</p> </div>
<p><b>SPACE OPERATIONS AREA (FAR 91.143)</b></p>	 <p>DARKER TINT IS FAR 91.143 AREA</p> <p>Not shown on WAC</p>
<p><b>MODE C (FAR 91.215)</b></p> <p><i>Appropriate notes as required may be shown.</i></p>	
<p><b>MISCELLANEOUS AIRSPACE AREAS</b></p> <p>Parachute Jumping Area with Frequency</p> <p>Glider Operating Area</p> <p>Ultralight Activity</p> <p>Hang Glider Activity</p>	    <p>Not shown on WAC</p>
<p><b>SPECIAL CONSERVATION AREAS</b></p> <p>National Park, Wildlife Refuge, Primitive and Wilderness Areas, etc.</p>	 <p>Not shown on WAC</p>

AIRSPACE INFORMATION	
<p><b>SPECIAL AIRSPACE AREAS</b></p> <p><b>SPECIAL FEDERAL AVIATION REGULATIONS (SFAR) AREAS</b></p> <p><i>Appropriate notes as required may be shown.</i></p>	 <div style="border: 1px solid blue; padding: 5px; margin-top: 10px;"> <p><b>SPECIAL FEDERAL AVIATION REGULATIONS (SFAR)</b>                      14 CFR Part 93, Subpart U and SFAR 50.2 - GRAND CANYON NATIONAL PARK SPECIAL FLIGHT RULES AREA. Special regulations apply to all aircraft operations below 18,000 feet MSL.</p> </div>
<p><b>SFAR AREA RELATING TO NATIONAL SECURITY</b></p> <p>Example: Washington DC</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <div style="border: 1px solid blue; padding: 5px; margin-top: 10px;"> <p><b>WASHINGTON, DC METROPOLITAN AREA SPECIAL FLIGHT RULES AREA IN EFFECT</b> (See SFAR 94 description in chart border).</p> </div>
<p><b>TEMPORARY FLIGHT RESTRICTION (TFR) RELATING TO NATIONAL SECURITY</b></p> <p>Example: P-40/R-4009</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <div style="border: 1px solid blue; padding: 5px; margin-top: 10px;"> <p><b>CAUTION</b>                      P-40 AND R-4009 EXPANDED BY TEMPORARY FLIGHT RESTRICTION. CONTACT AFSS FOR LATEST STATUS AND NOTAMS</p> </div> <p style="text-align: center;">Not shown on WAC</p>

AIRSPACE INFORMATION	
<p><b>NATIONAL SECURITY AREA</b></p> <p><i>Appropriate notes as required may be shown.</i></p>	 <div style="border: 1px solid purple; padding: 5px; margin-top: 10px;"> <p><b>FOR REASONS OF NATIONAL SECURITY PILOTS ARE REQUESTED TO AVOID FLIGHT BELOW 1200' MSL IN THIS AREA</b></p> </div> <p style="text-align: center;">Not shown on WAC</p>
<p><b>HIGH ENERGY RADIATION AREAS</b></p> <p><i>Appropriate notes as required may be shown.</i></p>	 <div style="border: 1px solid blue; padding: 5px; margin-top: 10px;"> <p><b>HAZARDOUS LASER TRANSMISSIONS SFC to infinity</b>                      See Airport Facility/Directory</p> </div>  <p style="text-align: right;">WAC</p>
<p><b>TERMINAL RADAR SERVICE AREA (TRSA)</b></p> <p><i>Appropriate notes as required may be shown.</i></p>	<p style="text-align: center;">PALM SPRINGS TRSA</p>  <p><b>80</b> - Ceiling of TRSA in hundreds of feet MSL  <b>40</b> - Floor of TRSA in hundreds of feet MSL</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">SEE TWR FREQ TAB</p> </div> <p style="text-align: center;">Not shown on WAC</p>

AIRSPACE INFORMATION	
<p><b>IFR ROUTES</b></p> <p><i>Appropriate notes as required may be shown.</i></p> <p>Arrival</p> <p>Departure</p> <p>TAC only</p>	
<p><b>TRANSITION ROUTES</b></p> <p><i>Appropriate notes as required may be shown.</i></p> <p>Uni-directional</p> <p>Bi-directional</p> <p>TAC only</p>	<div style="border: 1px solid purple; padding: 5px; text-align: center;"> <p>VFR TRANSITION ROUTE ATC CLEARANCE REQUIRED SEE SHOWBOAT GRAPHIC ON SIDE PANEL</p> </div>
NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p><b>ISOGONIC LINE &amp; VALUE</b></p> <p><i>Isogonic lines and values shall be based on the five year epoch magnetic variation model.</i></p>	<p>WAC</p>
<p><b>LOCAL MAGNETIC NOTES</b></p> <p>Unreliability Notes</p>	<div style="border: 1px solid purple; padding: 5px;"> <p>Magnetic disturbance of as much as 78° exists at ground level and 10° or more at 3000 feet above ground level in this vicinity.</p> </div>
<p><b>COMPASS ROSETTE</b></p> <p><i>Shown only in areas void of VOR roses.</i></p> <p><i>Compass rosette will be based on the five year epoch magnetic variation model.</i></p>	

NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p><b>INTERSECTIONS</b></p> <p><i>Named intersections used as reporting points. Arrows are directed toward facilities which establish intersection.</i></p>	<p>Not shown on WAC</p>
<p><b>AERONAUTICAL LIGHTS</b></p>	<p><b>Rotating or Oscillating</b> Located at Aerodrome</p> <p>WAC</p>
<p><b>AERONAUTICAL LIGHTS</b></p>	<p><b>Rotating Light with Flashing Code Identification Light</b></p> <p><b>Rotating Light with Course Lights and Site Number</b></p> <p><b>Flashing Light</b></p> <p>WAC</p>

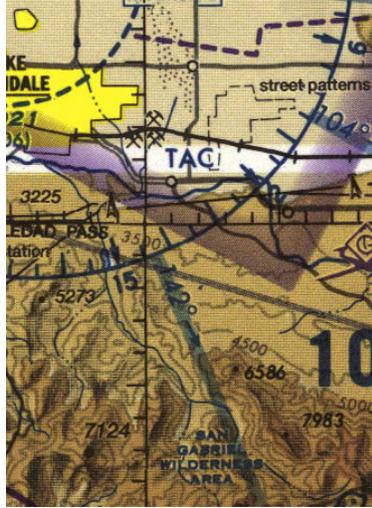
NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p><b>MARINE LIGHTS</b> With Characteristics of Light</p>	<p>Land Light                      Land Light</p> <p style="text-align: center;"><b>WAC</b></p> <p>R            Red *W         White G            Green B            Blue SEC        Sector F            Fixed Oc         Single Occulting Oc (2)     Group Occulting Oc (2+1)   Composite Group Occulting Iso         Isophase FI          Flashing FI (2)     Group Flashing FI (2+1)   Composite Group Flashing Q          Quick IQ         Interrupted Quick Mo (A)    Morse Code FFI        Fixed and Flashing AI         Alternating Gp         Group LFI        Long Flash Q (3)     Group Quick Flashing IQ         Interrupted Quick Flashing VQ         Very Quick Flashing VQ (3)    Group Very Quick Flashing IVQ       Interrupted Very Quick Flashing UQ         Ultra Quick Flashing IUQ        Interrupted Ultra Quick Flashing</p> <p>*Marine Lights are white unless otherwise noted. Alternating lights are red and white unless otherwise noted.</p>
<p><b>VISUAL GROUND SIGNS</b></p> <p><i>Shore and Landmarks</i></p>	<p>Arrow points to location of marker</p> <p>Actual location of ground sign</p>
<p><b>VFR CHECK POINTS</b></p>	<p>STATE CAPITOL</p> <p>SIGNAL HILL</p> <p>Not shown on WAC</p>
<p><b>VFR WAYPOINTS</b></p> <p>Stand-Alone</p> <p>Collocated with VFR Checkpoint</p>	<p>VPXYZ</p> <p>NAME (VPXYZ)</p> <p>Not shown on WAC</p>

NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p><b>OBSTRUCTION</b></p>	<p>1473 (394) bldg    Less than 1000' (AGL)</p> <p>628 UC    Under Construction or reported and position / elevation unverified</p> <p>3368 (1529)    1000' &amp; higher (AGL)</p> <p>1158 (253) stack    WAC</p> <p>507 UC    WAC</p> <p>2967 (1697)    WAC</p>
<p><b>GROUP OBSTRUCTION</b></p>	<p>1062 (227)    Less than 1000' (AGL)</p> <p>524 (367)    WAC</p> <p>4977 (1432)    1000' and higher (AGL)</p> <p>3483 (1634)    WAC</p> <p>2889 (1217)    At least two in group over 1000' (AGL)</p> <p>4892 (1573)    WAC</p>
<p><b>HIGH INTENSITY OBSTRUCTION LIGHTS</b></p> <p><i>High intensity lights may operate part-time.</i></p>	<p>Less than 1000' (AGL)</p> <p>1000' and higher (AGL)</p> <p>Group Obstruction</p> <p>WAC</p>
<p><b>MAXIMUM ELEVATION FIGURE (MEF)</b></p>	<p><b>135</b></p>
<p><b>WARNING, CAUTION NOTES</b></p> <p><i>Used when specific area is not demarcated.</i></p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;"><b>WARNING</b></p> <p>Extensive fleet and air operations being conducted in offshore areas to approximately 100 miles seaward.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p><b>CAUTION:</b> Be prepared for loss of horizontal reference at low altitude over lake during hazy conditions and at night.</p> </div>

CHART LIMITS

CHART LIMITS

OUTLINE ON SECTIONAL OF TERMINAL AREA CHART



LOS ANGELES TERMINAL AREA  
Pilots are encouraged to use the Los Angeles VFR Terminal Area Chart for flights at or below 10,000'

Not shown on WAC

OUTLINE ON SECTIONAL OF THE INSET CHART



If inset chart is on a different chart:

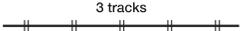
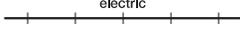
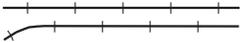
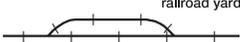
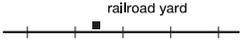
INDIANAPOLIS INSET  
See inset chart on the St. Louis Sectional for additional information

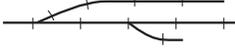
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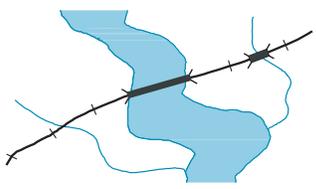
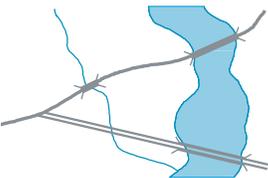
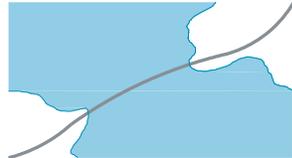
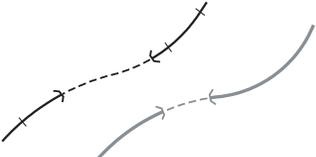
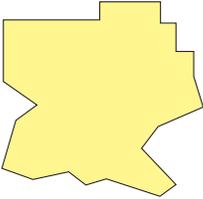
INDIANAPOLIS INSET  
See inset chart for additional detail

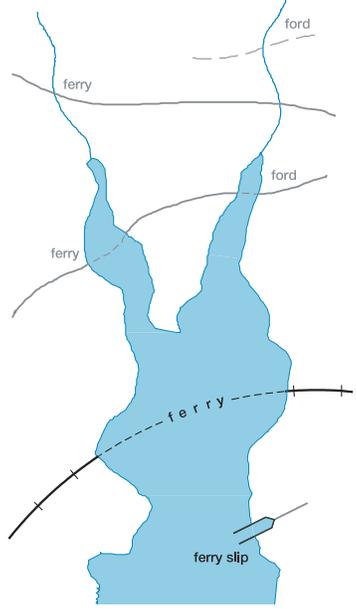
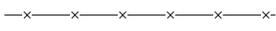
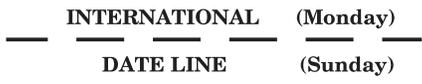
Not shown on WAC

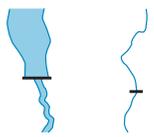
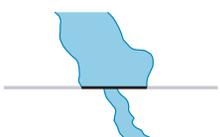
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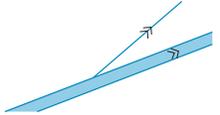
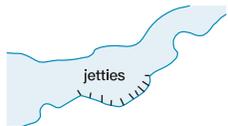
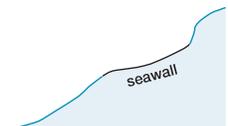
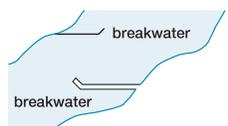
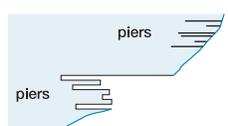
CULTURE	
<b>RAILROADS</b> <i>All gauges</i> Single Track	 
Double Track	 
More Than Two Tracks	
Electric	
<b>RAILROADS IN JUXTAPOSITION</b>	
<b>RAILROAD-NONOPERATING, ABANDONED, DESTROYED, OR UNDER CONSTRUCTION</b>	
<b>RAILROAD YARDS</b>	
Limiting Track To Scale	
Location Only	
<b>RAILROAD STATIONS</b>	

CULTURE	
<b>RAILROAD SIDINGS AND SHORT SPURS</b>	
<b>ROADS</b>	
Dual Lane Category 1	
Primary Category 2	
Secondary Category 2	
<b>TRAILS</b> Category 3	
<i>Provides symbolization for dismantled railroad when combined with label "dismantled railroad."</i>	
<b>ROAD MARKERS</b>	
Interstate Route No.	
U.S. Route No.	
Air Marked Identification Label	
<b>ROAD NAMES</b>	
<b>ROADS UNDER CONSTRUCTION</b>	

CULTURE	
BRIDGES AND VIADUCTS	Railroad 
	Road 
OVERPASSES AND UNDERPASSES	
CAUSEWAYS	
TUNNELS-ROAD AND RAILROAD	
POPULATED PLACES OUTLINED	
Large Cities Category 1	
Cities and Large Towns Category 2	
POPULATED PLACES	
Towns and Villages Category 3	

CULTURE	
FERRIES, FERRY SLIPS AND FORDS	
PROMINENT FENCES	
BOUNDARIES	
International	
State and Provincial	
Convention or Mandate Line	
Date Line	

CULTURE	
TIME ZONES	<p>PST (+7DT) = UTC                      .....                      MST (+6DT) = UTC                      .....                      Not shown on WAC</p>
MINES AND QUARRIES <i>Shaft Mines and Quarries</i>	
POWER TRANSMISSION & TELECOMMUNICATION LINES	 <p>..... WAC</p>
PIPELINES	<p>pipeline</p> 
Underground	<p>underground pipeline</p> 
DAMS	
DAM CARRYING ROAD	
PASSABLE LOCKS	<p>locks</p> 

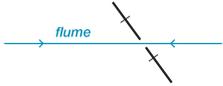
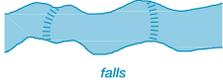
CULTURE	
SMALL LOCKS	
WEIRS AND JETTIES	<p>jetties</p> 
SEAWALLS	<p>seawall</p> 
BREAKWATERS	<p>breakwater</p> 
PIERS, WHARFS, QUAYS, ETC.	<p>piers</p> 
MISCELLANEOUS CULTURAL FEATURES	<ul style="list-style-type: none"> <li>■ stadium</li> <li>■ fort</li> <li>■ cemetery</li> </ul>
OUTDOOR THEATER	
WELLS	<p>Other Than Water</p> <p>oil</p> 

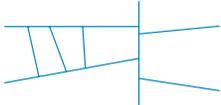
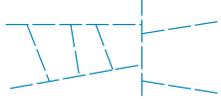
CULTURE	
RACE TRACKS	
LOOKOUT TOWERS	<p>Air marked identification</p> <p> P-17 (Site number) 618 (Elevation base of tower)</p>
LANDMARK AREAS	
TANKS	<ul style="list-style-type: none"> <li>• water</li> <li>• gas</li> </ul>
COAST GUARD STATION	
AERIAL CABLEWAYS, CONVEYORS, ETC.	<p>aerial cableway      aerial cableway</p> <p>■-----■      ■-----■</p> <p>WAC</p>
HYDROGRAPHY	
OPEN WATER	
INLAND WATER	

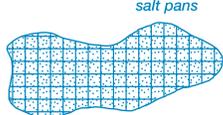
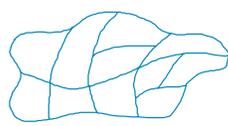
HYDROGRAPHY	
SHORELINES	<p>Definite</p>
	<p>Fluctuating</p>
	<p>Unsurveyed <i>Indefinite</i></p>
	<p>Man-made</p>
LAKES	<p>Label as required</p> <p>Perennial</p> <p><i>When too numerous to show individual lakes, show representative pattern and descriptive note.</i></p>
	<p>Non-Perennial</p> <p><i>(dry, intermittent, etc.)</i></p> <p><i>Illustration includes small perennial lake</i></p>
	RESERVOIRS
RESERVOIRS	<p>Man-made Shorelines</p> <p><i>Label when necessary for clarity</i></p>
	<p><i>Too small to show to scale</i></p>
	<p>Under Construction</p>

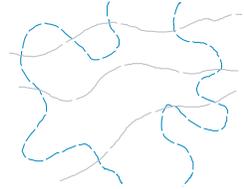
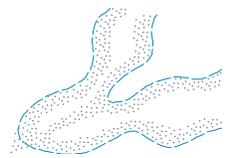
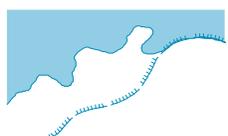
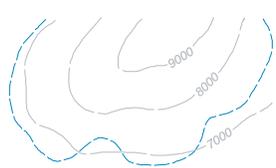
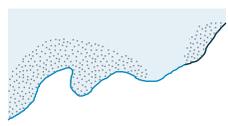
HYDROGRAPHY	
<b>STREAMS</b>	
Perennial	
Non-Perennial	
Fanned Out <i>Alluvial fan</i>	
Braided	
Disappearing	
Seasonally Fluctuating <i>with undefined limits</i>	
<i>with maximum bank limits, prominent and constant</i>	
Sand Deposits In and Along Riverbeds	

HYDROGRAPHY	
<b>WET SAND AREAS</b>  <i>Within and adjacent to desert areas</i>	
<b>AQUEDUCTS</b>	
Abandoned or Under Construction	
Underground	
Suspended or Elevated	
Tunnels	
Kanats <i>Underground aqueduct with air vents</i>	

HYDROGRAPHY	
FLUMES, PENSTOCKS AND SIMILAR FEATURES	
Elevated	
Underground	
FALLS	
Double-Line	
Single-Line	
RAPIDS	
Double-Line	
Single-Line	
CANALS	

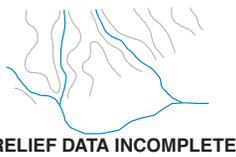
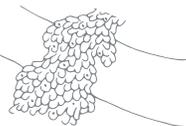
HYDROGRAPHY	
To Scale	
Abandoned or Under Construction	
To Scale	
SMALL CANALS AND DRAINAGE / IRRIGATION DITCHES	
Perennial	
Non-Perennial	
Abandoned or Ancient	
Numerous <i>Representative pattern and/or descriptive note.</i>	
Numerous	

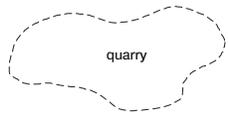
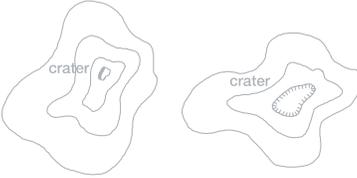
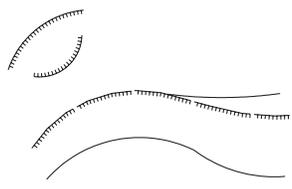
HYDROGRAPHY	
SALT EVAPORATORS AND SALT PANS MAN EXPLOITED	 salt pans
SWAMPS, MARSHES AND BOGS	
HUMMOCKS AND RIDGES	
MANGROVE AND NIPA	 mangrove
PEAT BOGS	 peat bog
TUNDRA	tundra
CRANBERRY BOGS	 cranberry bog
RICE PADDIES	 <i>Extensive areas indicated by label only.</i>

HYDROGRAPHY	
LAND SUBJECT TO INUNDATION	
SPRINGS, WELLS AND WATERHOLES	
GLACIERS	
Glacial Moraines	
ICE CLIFFS	
SNOWFIELDS, ICE FIELDS AND ICE CAPS	
ICE PEAKS	
FORESHORE FLATS	 <i>Tidal flats exposed at low tide.</i>

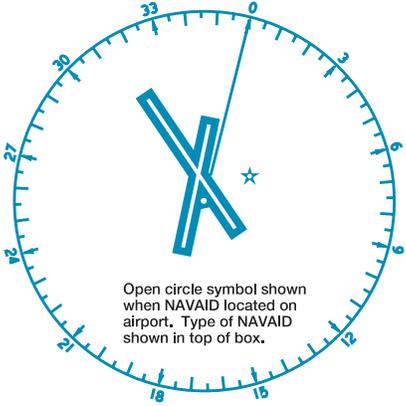
HYDROGRAPHY	
ROCKS-ISOLATED Bare or Awash	*
WRECKS Exposed	
REEFS-ROCKY OR CORAL	
MISCELLANEOUS UNDERWATER FEATURES NOT OTHERWISE SYMBOLIZED	
FISH PONDS AND HATCHERIES	
ICE	

RELIEF	
CONTOURS	
Basic	
Approximate	
Intermediate	
Auxiliary	
Depression	
Values	

RELIEF	
SPOT ELEVATIONS	Position Accurate 
	Position Accurate, Elevation Approximate 
Approximate location	
	Critical 
	Highest on Chart 
MOUNTAIN PASS	
HACHURING	
UNSURVEYED AREAS <i>Label appropriately as required</i>	
UNCONTOURED AREAS <i>Label appropriately as required</i>	
DISTORTED SURFACE AREAS	
LAVA FLOWS	

RELIEF	
SAND OR GRAVEL AREAS	
SAND RIDGES To Scale	
SAND DUNES To Scale	
SHADED RELIEF	
ROCK STRATA OUTCROP	
QUARRIES TO SCALE	
STRIPMINES, MINE DUMPS AND TAILINGS To Scale	
CRATERS	
ESCARPMENTS, BLUFFS, CLIFFS, DEPRESSIONS, ETC.	
LEVEES AND ESKERS	

AIRPORTS	
<p><b>LANDPLANE</b></p> <p>All recognizable runways, including some which may be closed, are shown for visual identification.</p>  <p>Public </p> <p>Private </p>	
<p><b>HELIPORT</b></p> <p>Heliports public and private </p> <p>Hospital Helipads </p> <p>Trauma Center </p> <p>Helipads located at major airports </p>	
<p><b>SEAPLANE</b></p> 	
<p><b>ULTRALIGHT FLIGHT PARK</b></p> 	
<p><b>AIRPORT DATA GROUPING</b></p> <p>Boxed airport name indicates airport for which a Special Traffic Rule has been established.</p>  <p>Rotating Beacon in operation Sunset to Sunrise</p> <p>FSS NO SVFR <b>NAME</b> (NAM) CT -119.1 * (119.8 HELI) ATIS 115.4 ASOS/ AWOS 135.42 03 L 122.95  Airport of Entry</p>	
<p>FSS - Flight Service Station on field</p> <p>NO SVFR - Airspace where fixed wing special visual flight rules operations are prohibited (shown above airport name) F.A.R. 91.</p> <p> - Indicates F.A.R. 93 Special Air Traffic Rules and Airport Traffic</p> <p>(NAM) - Location Identifier</p> <p>CT - 119.1 - Control Tower (CT) - primary frequency</p> <p>* - Star indicates operation part-time. See tower frequencies tabulation for hours of operation.</p> <p>ATIS 115.4 - Automatic Terminal Information Service</p> <p>ASOS / AWOS 135.42 - Automated Surface Weather Observing Systems (Shown when full-time ATIS is not available.) NDBs broadcasting ASOS / AWOS data may not be located at the airport.</p> <p>03 - Elevation in feet</p> <p>L - Lighting in operation Sunset to Sunrise</p> <p>*L - Lighting limitations exist, refer to Airport/Facility Directory.</p> <p>122.95 - UNICOM - Aeronautical advisory station</p> <p> - Indicates Common Traffic Advisory Frequencies (CTAF)</p> <p>(Unverified) - Unverified Heliport</p> <p>When lighting is not available, the respective character is replaced by a dash. All lighting codes refer to runway lights. Lighted runway may not be the longest or lighted full length. Dashes are not shown on heliports or helipads unless additional information follows the elevation (e.g. UNICOM, CTAF).</p>	

RADIO AIDS TO NAVIGATION							
<p>VHF OMNI-DIRECTIONAL RADIO (VOR) RANGE</p>   <p>Open circle symbol shown when NAVAID located on airport. Type of NAVAID shown in top of box.</p> <p>Compass Rose oriented to slave variation.</p> <p>Operates less than continuous or on-request Transcribed Weather Broadcast (TWEB)</p> <p>VOR</p>  <p>Underline indicates no voice on this frequency.</p> <p>VORTAC</p> <table border="1"> <thead> <tr> <th>Low Frequency</th> <th>Name</th> <th>ASOS/AWOS</th> </tr> </thead> <tbody> <tr> <td>379 111.0 Ch 47 PTK</td> <td>PONTIAC</td> <td></td> </tr> </tbody> </table> <p>Freq and Channel Identification</p> <p>VOR-DME</p>  <p>Hazardous Inflight Weather Advisory Service (HIWAS)</p> <p>NON-DIRECTIONAL RADIOBEACON (NDB)</p>  <p>Underline indicates no voice on this frequency.</p> <p>NDB-DME</p> 	Low Frequency	Name	ASOS/AWOS	379 111.0 Ch 47 PTK	PONTIAC		
Low Frequency	Name	ASOS/AWOS					
379 111.0 Ch 47 PTK	PONTIAC						

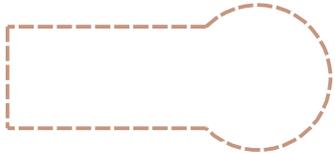
RADIO AIDS TO NAVIGATION	
NAVAIDS USED TO DEFINE CLASS B AIRSPACE	<p>ILS - DME</p> <p>SALT LAKE CITY DME ANT (I-BNT) Ch 52 (111.5)</p>
BROADCAST STATIONS (BS)	<p>BS KFTM 1400</p>
FLIGHT SERVICE STATION (FSS)	<p>Heavy line box indicates Flight Service Station (FSS) Frequencies 121.5, 122.2, 243.0, and 255.4 (Canada - 121.5, 126.7, and 243.0) are normally available at all FSS's and are not shown above boxes. All other frequencies are shown. Frequencies transmit and receive except those followed by R. R - receive only</p> <p>DENVER DEN</p> <p>No NAVAID of the same name as FSS</p> <p>OR</p> <p>122.1R NORTHWAY 123.6 116.3 Ch 110 ORT</p> <p>FSS oper 0600-2200 Rancho Murieta FSS other times.</p> <p>NAVAID same name as FSS but not an RCO</p> <p>Frequencies above thin line box are remote to NAVAID site. Other frequencies at FSS providing voice communication may be available determined by altitude and terrain. Consult Airport/Facility Directory for complete information.</p> <p>Thin line box without frequencies and controlling FSS name indicates no FSS frequencies available.</p> <p>123.6 OLYMPIA RCO McCHORD</p> <p>122.35 ST PAUL 122.35 108.6 STP MINNEAPOLIS 369 GAM MILES CITY</p> <p>FSS providing voice communication</p>
REMOTE COMMUNICATIONS OUTLET (RCO)	

AIRSPACE INFORMATION	
CLASS B AIRSPACE	<p><b>LAS VEGAS CLASS B</b></p> <p>Appropriate notes as required may be shown. (Mode C see FAR 91.215/AIM)</p> <p>All mileages are nautical (NM)</p> <p>All radials are magnetic.</p> <p>NAVAID identifier and distance from facility. LAS 20 NM LAS 031°</p> <p>NAVAID identifier and radial from facility.</p> <p>CLASS B SURFACE AREA</p> <p>70 SFC</p> <ul style="list-style-type: none"> <li>- Ceiling of Class B in hundreds of feet MSL</li> <li>- Floor of Class B in hundreds of feet MSL</li> </ul> <p>CTC LAS VEGAS APP ON 121.1 OR 257.8</p>
CLASS C AIRSPACE	<p><b>BURBANK CLASS C</b></p> <p>Appropriate notes as required may be shown. (Mode C see FAR 91.215/AIM)</p> <p>See NOTAMs/Directory for Class C eff hrs</p> <p>CLASS C SURFACE AREA</p> <p>See NOTAMs/Directory for Class C eff hrs</p> <p>70 / 30</p> <ul style="list-style-type: none"> <li>- Ceiling of Class C in hundreds of feet MSL</li> <li>- Floor of Class C in hundreds of feet MSL</li> </ul> <p>CTC BURBANK APP WITHIN 20 NM ON 124.6 395.9</p>
CLASS D AIRSPACE	<p>See NOTAMs/Directory for Class D eff hrs</p> <p>31</p> <p>See NOTAMs/Directory for Class D/E (sfc) eff hrs</p> <p>20</p> <p>(A minus in front of the figure is used to indicate "from surface to but not including...")</p> <p>ALTITUDES IN HUNDREDS OF FEET MSL</p>

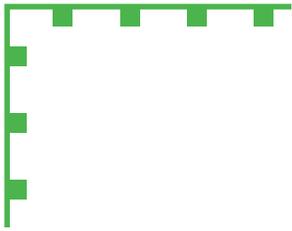
**AIRSPACE INFORMATION**

**CLASS E (SFC) AIRSPACE**

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

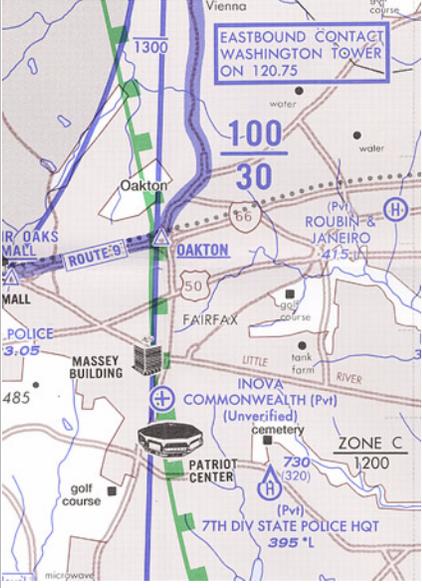


**SPECIAL AIRSPACE AREAS**



**SPECIAL FEDERAL AVIATION REGULATIONS (SFAR) AREAS RELATING TO NATIONAL SECURITY**

Example: Washington DC



*Appropriate notes as required may be shown.*

**WASHINGTON DC METROPOLITAN SPECIAL FLIGHT RULES AREA IN EFFECT (See SFAR 94 description in chart border).** Special regulations apply to all aircraft operations below Flight Level 180 in the Washington, DC Metropolitan Area. Pilots should contact a local AFSS for NOTAM information prior to flight in the Washington DC Metropolitan Area.

**AIRSPACE INFORMATION**

**CANADIAN AIRSPACE**

*Appropriate notes as required may be shown.*

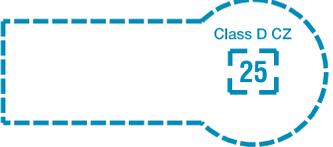
TCA Class C/D



**80** - Ceiling of TCA Class C/D In hundreds of feet MSL

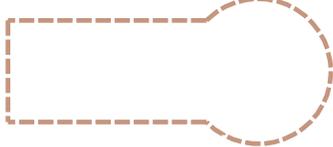
**40** - Floor of TCA Class C/D in hundreds of feet MSL

Class C or D Control Zone



ALTIMUDE IN HUNDREDS OF FEET MSL

Class E Control Zone



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

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

**HELICOPTER ROUTES**

Route Name	Tower Frequency	One-way Route	Altitude Changeover Point
MARRIOT	118.3	➔	

Reporting or Holding Points **BAHAI** Name

Non-Compulsory      Compulsory

Secondary Route

Transition Route

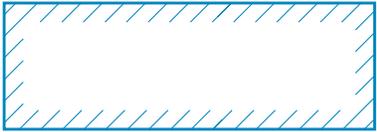
Police Zone

Recommended Route Altitude

500 Maximum

500 Minimum

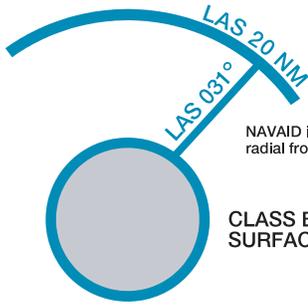
500 Recommended

AIRSPACE INFORMATION		NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p><b>SPECIAL USE AIRSPACE</b></p> <p><i>Only the airspace effective below 18,000 feet MSL is shown.</i></p> <p><i>The type of area shall be spelled out in large areas if space permits.</i></p>	 <p>PROHIBITED, RESTRICTED, WARNING OR ALERT AREA</p>  <p>MILITARY OPERATIONS AREA (MOA)</p>	<p>VFR CHECKPOINTS</p>  <p>STATE CAPITOL</p>  <p>STACKS</p>	
<p><b>MILITARY TRAINING ROUTES (MTR)</b></p>		<p>VFR WAYPOINTS</p> <p>Stand-Alone</p>  <p>VPXYZ</p> <p>Collocated with VFR Checkpoint</p>  <p>NAME (VPXYZ)</p>	
<p><b>SPECIAL AIR TRAFFIC RULES / AIRPORT TRAFFIC AREAS (FAR PART 93)</b></p> <p><i>Appropriate boxed notes as required shown adjacent to area.</i></p>	 <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>SPECIAL NOTICE</b> Pilots are required to obtain an ATC clearance prior to entering this area.</p> </div>	<p>OBSTRUCTIONS</p>  <p>bldg</p>  <p>1000' and higher AGL</p>  <p>300' and higher AGL</p> <p>or</p>  <p>Group Obstruction</p> <p>or</p>  <p>or</p>  <p>Obstruction with hi-intensity lights.</p>  <p>2049 (1149) UC</p> <p>Elevation of the top above mean sea level</p> <p>Height above ground Under Construction or reported and position / elevation unverfied</p>	
<p><b>MODE C (FAR 91.215)</b></p> <p><i>Appropriate notes as required may be shown.</i></p>	<p>MODE C</p> 	<p>MAXIMUM ELEVATION FIGURE (MEF)</p> <p style="font-size: 2em; font-weight: bold;">124</p>	
<p><b>MISCELLANEOUS AIRSPACE AREAS</b></p> <p>Parachute Jumping Area with Frequency</p> <p>Glider Operating Area</p> <p>Ultralight Activity</p> <p>Hang Glider Activity</p>	 <p>122.9</p>   	<p>NAVIGATION DATA</p>  <p>N38°56.32' W76°36.91'</p>  <p>POWER PLANT N32°27.12' W70°15.73'</p>  <p>ATL 25 NM</p> <p>ATL 033/25 NM N33°59.18' W84°10.62'</p> <p>ATL 033°</p>	
<p><b>SPECIAL CONSERVATION AREAS</b></p> <p>National Park, Wildlife Refuge, Primitive and Wilderness Areas, etc.</p>	 <p>HAVASU LAKE NATIONAL WILDLIFE REFUGE</p>	<p>WARNING, CAUTION NOTES</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b>WARNING</b> Extensive fleet and air operations being conducted in offshore areas to approximately 100 miles seaward.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p><b>CAUTION:</b> Be prepared for loss of horizontal reference at low altitude over lake during hazy conditions and at night.</p> </div>	
<p><b>TERMINAL RADAR SERVICE AREA (TRSA)</b></p> <p><i>Appropriate notes as required may be shown.</i></p>	<p><b>PALM SPRINGS TRSA</b></p>  <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>SEE TWR FREQ TAB</p> </div> <p><b>80</b> - Ceiling of TRSA in hundreds of feet MSL</p> <p><b>40</b> - Floor of TRSA in hundreds of feet MSL</p>		

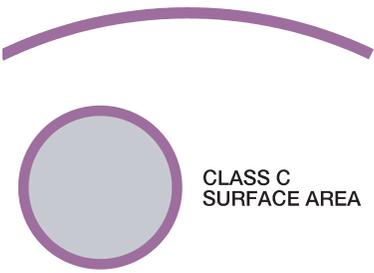
CULTURE	
RAILROADS	
Single Track	
Double Track	
ROADS	
Dual Lane	
Primary	
BRIDGES	
POPULATED PLACES	
Built-up Areas	
BOUNDARIES	
International	
State and Provincial	
POWER TRANSMISSION LINES	
PROMINENT PICTORIALS	
LANDMARKS	
	<ul style="list-style-type: none"> <li> Landmark Feature-stadium, factory, school, etc.</li> <li> Mines and Quarries       Race Track</li> <li> Outdoor Theater       Tank-water, oil or gas</li> </ul>

HYDROGRAPHY	
SHORELINES	
MAJOR LAKES AND RIVERS	
RESERVOIRS	
RELIEF	
SPOT ELEVATIONS	
Position Accurate	

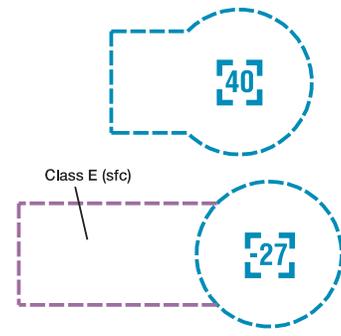
AIRPORTS	
<p><b>LANDPLANE</b></p> <p><i>No distinction is made between airports with services and those without services. Runways may be exaggerated to clearly portray the pattern. Hard-surfaced runways which are closed but still exist are included in the charted pattern.</i></p> <p><i>FAR 91 - Fixed wing special VFR operations prohibited.</i></p>	<p>Rotating Beacon in operation Sunset to Sunrise</p>  <p><b>NO SVFR RIVERSIDE (RAL)</b></p> <p>Paved Runways</p>  <p><b>AGUA DOLCE (L70)</b></p> <p>Unpaved Runways</p>  <p><b>(Pvt) COMPTON</b></p>

AIRSPACE INFORMATION	
<p><b>CLASS B AIRSPACE</b></p> <p><i>Appropriate notes as required may be shown.</i></p> <p><i>(Mode C see FAR 91.215 /AIM)</i></p> <p><i>All mileages are nautical (NM).</i></p> <p><i>All radials are magnetic.</i></p>	<p><b>LAS VEGAS CLASS B</b></p>  <p>NAVAID identifier and distance from facility <b>LAS 20 NM</b></p> <p>NAVAID identifier and radial from facility <b>LAS 031°</b></p> <p><b>CLASS B SURFACE AREA</b></p> <p><b>80</b> - Ceiling of Class B in hundreds of feet MSL <b>40</b> - Floor of Class B in hundreds of feet MSL</p>

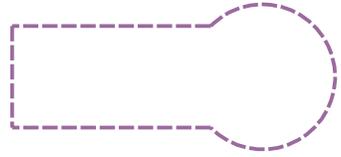
RADIO AIDS TO NAVIGATION	
<p><b>VHF OMNI-DIRECTIONAL RADIO RANGE (VOR)</b></p> <p>VOR</p>	 <p>Identification Frequency</p> <p><b>MAL 109.6</b></p>
<p>VORTAC</p>	 <p><b>GCY 113.4</b></p>
<p>VOR-DME</p>	 <p><b>FHM <u>114.2</u></b></p> <p>Underline indicates no voice on this frequency</p>

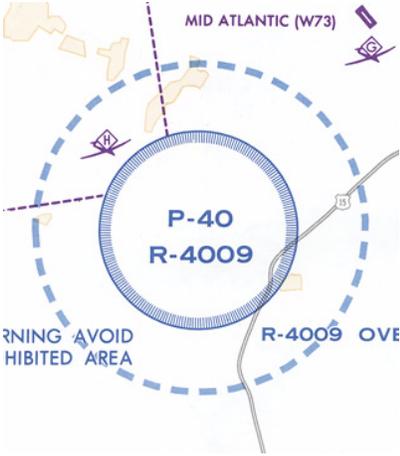
<p><b>CLASS C AIRSPACE</b></p> <p><i>Appropriate notes as required may be shown.</i></p> <p><i>(Mode C see FAR 91.215 /AIM)</i></p>	<p><b>EL TORO CLASS C</b></p>  <p><b>CLASS C SURFACE AREA</b></p> <p><b>48</b> - Ceiling of Class C in hundreds of feet MSL <b>30</b> - Floor of Class C in hundreds of feet MSL</p>
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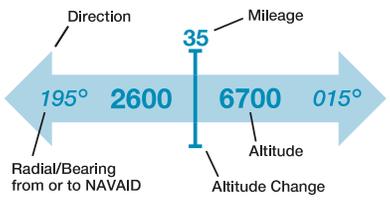
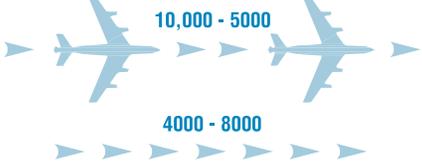
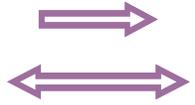
<p><b>NON-DIRECTIONAL RADIOBEACON (NDB)</b></p>	 <p><b>WDP <u>396</u></b></p> <p>Underline indicates no voice on this frequency</p>
<p>NDB-DME</p>	 <p><b>LSJ 206</b></p>

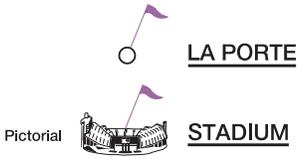
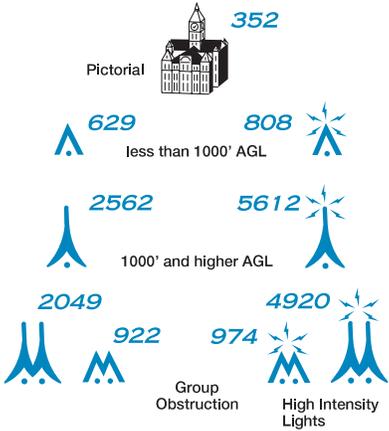
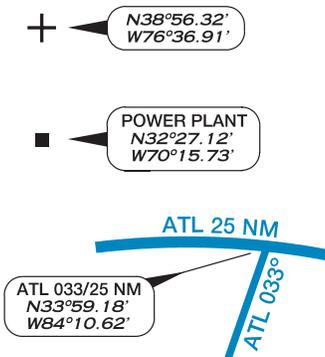
<p><b>CLASS D AIRSPACE</b></p>	 <p><b>40</b></p> <p><b>27</b></p> <p>Class E (sfc)</p> <p>(A minus in front of the figure is used to indicate *from surface to but not including...*)</p> <p>ALTITUDE IN HUNDREDS OF FEET MSL</p>
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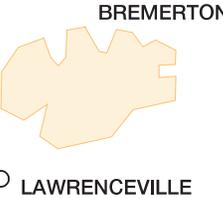
<p><b>NAVAIDS USED TO DEFINE CLASS B AIRSPACE</b></p>	 <p><b>SALT LAKE CITY DME ANTENNA (I-BNT) Ch 52 (111.5)</b></p>
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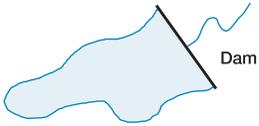
<p><b>CLASS E (SFC) AIRSPACE</b></p>	
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AIRSPACE INFORMATION	
<p><b>SPECIAL AIRSPACE AREAS</b></p>	
<p><b>SPECIAL FEDERAL AVIATION REGULATIONS (SFAR) AREAS RELATING TO NATIONAL SECURITY</b></p> <p>Example: Washington DC</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <div style="border: 1px solid blue; padding: 5px; margin-top: 10px;"> <p><b>WASHINGTON DC METROPOLITAN AREA SPECIAL FLIGHT RULES AREA IN EFFECT</b> (See SFAR 94 description in chart border). Special regulations apply to all aircraft operations below Flight Level 180 in the Washington DC Metropolitan Area. Pilots should contact a local AFSS for NOTAM information prior to flight in the Washington, DC Area.</p> </div>
<p><b>TEMPORARY FLIGHT RESTRICTION (TFR) RELATING TO NATIONAL SECURITY</b></p> <p>Example: P-40/R-4009</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <div style="border: 1px solid blue; padding: 5px; margin-top: 10px;"> <p><b>CAUTION</b> P-40 AND R-4009 EXPANDED BY TEMPORARY FLIGHT RESTRICTION. CONTACT AFSS FOR LATEST STATUS AND NOTAMS.</p> </div>

AIRSPACE INFORMATION	
<p><b>VFR FLYWAYS</b></p>	
<p><b>IFR ROUTES</b></p> <p><i>Appropriate notes as required may be shown.</i></p> <p>Arrival</p> <p>Departure</p>	
<p><b>TRANSITION ROUTES</b></p> <p><i>Appropriate notes as required may be shown.</i></p> <p>Uni-directional</p> <p>Bi-directional</p>	<div style="border: 1px solid purple; padding: 5px; margin-bottom: 10px;"> <p>VFR TRANSITION ROUTE ATC CLEARANCE REQUIRED SEE SHOWBOAT GRAPHIC ON SIDE PANEL</p> </div> 
<p><b>SPECIAL USE AIRSPACE</b></p> <p><i>Only the airspace effective below 18,000 feet MSL is shown.</i></p>	<div style="border: 1px solid blue; padding: 5px; margin-bottom: 10px;"> <p>P-56 OR R-6401      W-518 OR A-631</p> </div> <p>PROHIBITED, RESTRICTED ALERT OR WARNING AREA</p> <div style="border: 1px solid purple; padding: 5px; margin-bottom: 10px;"> <p>FALCON 1 MOA</p> </div> <p>MILITARY OPERATIONS AREA (MOA)</p>
<p><b>MILITARY TRAINING ROUTES (MTR)</b></p>	

AIRSPACE INFORMATION		NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p><b>SPECIAL AIR TRAFFIC RULES / AIRPORT TRAFFIC AREAS (FAR Part 93)</b></p> <p><i>Appropriate boxed note as required shown adjacent to area.</i></p>		<p><b>VFR CHECKPOINTS</b></p>	
<p><b>MODE C (FAR 91.215)</b></p> <p><i>Appropriate notes as required may be shown.</i></p>		<p><b>VFR WAYPOINTS</b></p> <p>Stand-Alone</p> <p>Collocated with VFR Checkpoint</p>	
<p><b>AIR DEFENSE IDENTIFICATION ZONE (ADIZ)</b></p>		<p><b>OBSTRUCTIONS</b></p> <p><i>Only those obstacles specified by the FAA shall be shown.</i></p> <p><i>Above Ground Level (AGL) heights are not shown.</i></p>	
<p><b>TERMINAL RADAR SERVICE AREA (TRSA)</b></p>	 <p><b>100</b> - Ceiling of TRSA in hundreds of feet MSL</p> <p><b>90</b> - Floor of TRSA in hundreds of feet MSL</p>	<p><b>NAVIGATIONAL DATA</b></p>	
<p><b>MISCELLANEOUS AIRSPACE AREAS</b></p> <p>Parachute Jumping Area</p> <p>Glider Operating Area</p> <p>Ultralight Activity</p> <p>Hang Glider Activity</p>			

CULTURE	
<b>RAILROADS</b>  Single and Multiple Tracks	
<b>ROADS</b>  Dual Lane  Primary	
<b>POPULATED PLACES</b>  Built-up Areas  Towns	
<b>BOUNDARIES</b>  International	
<b>POWER TRANSMISSION LINES</b>	
<b>PROMINENT PICTORIALS</b>	
<b>LANDMARKS</b>	

HYDROGRAPHY	
<b>SHORELINES</b>	
<b>MAJOR LAKES AND RIVERS</b>	
<b>RESERVOIRS</b>	
RELIEF	
<b>Spot Elevations</b>  Position Accurate Mountain Peaks	