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Administration

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Edition

AERONAUTICAL

Chart User's **GUIDE**



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44-006

EXPLANATION OF VFR TERMS AND SYMBOLS

The discussions and examples in this section are based on the Sectional Aeronautical Chart (Sectional). Sectionals 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 ^{cabln}. Oil wells are shown by small open circles \circ ^{oil}. Water, oil and gas tanks are shown by small black circles \bullet ^{water} and labeled accordingly, if known. The scale of an item may be increased to make it easier to read on the chart.

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 (FAA) and the Department of Defense (DoD).

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: contour lines, shaded relief, color tints, obstruction symbols, and Maximum Elevation Figures (MEF).

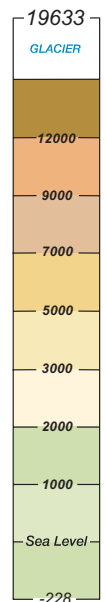
1. Contour lines are lines connecting points on the Earth of equal elevation. On Sectionals, basic contours are spaced at 500' intervals. Intermediate contours may also be shown at 250' intervals in moderately level or gently rolling areas. Occasionally, auxiliary contours at 50, 100, 125, or 150' intervals 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, also referred to as hypsotints, are used to depict bands of elevation relative to sea level. These colors range from light green for the lowest elevations to dark 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 database of over 118,000 obstacles in the United States, Canada, the Caribbean and Mexico. Each obstacle is evaluated by cartographers based on charting specifications 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 depicting 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 submitted 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, visually verifying cultural and topographic features and reviewing all obstacle data. Charts are generally flight-checked every three years. This review includes checking for obstructions that may have been constructed, altered, or dismantled without proper notification.

Generally, only man-made structures extending more than 200' above ground level (AGL) are charted. Objects 200' 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 hazardous obstacles to low level flight are smokestacks, tanks, factories, lookout towers, and antennas.

Obstacles less than 1000' AGL are shown by the symbol . Obstacles 1000' AGL and higher are shown by the symbol . Man-made features which are used by FAA Air Traffic Control as checkpoints may be represented with pictorial symbols shown in black with the required elevation data in blue.

The elevation of the top of the obstacle above mean sea level (MSL) and the height of the structure AGL are shown when known or when they can be reliably determined by the cartographer. The AGL height is shown in parentheses below the MSL elevation. In extremely congested areas the AGL 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  ⁴⁹⁷⁷ (1432), the group obstacle symbol.

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



5. The Maximum Elevation Figure (MEF) represents the highest elevation, including terrain and other vertical obstacles (towers, trees, etc.), within a quadrant. A quadrant on Sectionals is the area bounded by ticked lines dividing each 30 minutes of latitude and each 30 minutes of longitude. MEF figures are depicted to the nearest 100' value. The last two digits of the number are not shown. In this example the MEF represents 12,500'.

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

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' above the highest terrain within the quadrant:

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

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

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

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

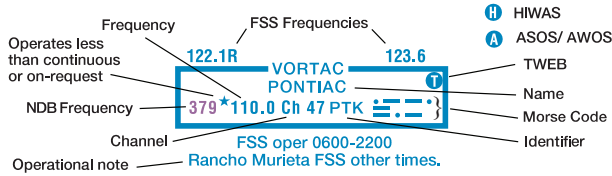
Example: Elevation of obstacle top (MSL) =	3450
Possible vertical error	+ 100
Obstacle Allowance	200
	equals 3750
Raise to the following 100 foot level	3800
Maximum Elevation Figure	38

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, users should consult the Aeronautical Chart Bulletin in the A/FD or NACO website to ensure that your chart has the latest MEF data available.

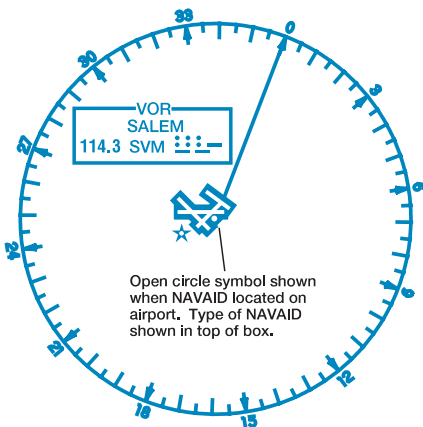
RADIO AIDS TO NAVIGATION

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, or VOR-DME, 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:

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

Military airports:

- ⊙ Other than hard-surfaced runways

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

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

Services available:



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

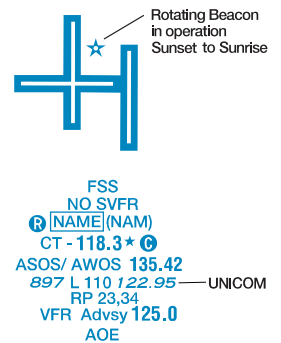
Other airports with or without services:



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

The figure at right illustrates the coded data that is provided along with the airport name. The elevation of an airport is the highest point on the usable portion of the landing areas. Runway length is the length of the longest active runway including displaced thresholds and excluding overruns. Runway length is shown to the nearest 100', using 70 as the division point; a runway 8070' in length is charted as 81, while a runway 8069' in length is charted as 80.



Airports with Control Towers (CT), and their related information, are shown in blue. All other airports,

and their related information, are shown in magenta (red-dish purple).

- 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
- 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 where full-time ATIS is not available). Some ASOS/AWOS facilities may not be located at airports. (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*** - Special conditions exist - see A/FD
- VFR Advsy 125.0** - VFR Advisory Service shown where full-time ATIS not available and frequency is other than primary CT frequency.
- AOE** - Airport of Entry

The symbol **L** indicates that runway lights are on during hours of darkness. A ***L** indicates that the pilot must consult the Airport/Facility Directory (A/FD) to determine runway lighting limitations, such as: available on request (by radio call, letter, phone, etc), part-time lighting or pilot/airport controlled lighting. Lighting codes refer to runway edge lights. The lighted runway may not be the longest runway available, and 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 A/FD. When information is lacking, the respective character is replaced by a dash. The symbol **★** indicates the existence of a rotating or flashing airport beacon operating continuously sunset to sunrise. The Aeronautical Information Manual (AIM) 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 control, such as Class A, Class B, Class C, Class D, Class E Surface (SFC) and Class E Airspace.

Class A Airspace within the United States extends from 18,000' up to 60,000' MSL. While visual charts do not depict Class A, it is important to note its existence.

Class B Airspace is shown in abbreviated form on the World Aeronautical Chart (WAC). The Sectional Aeronautical Chart (Sectional) and Terminal Area Chart (TAC) show Class B in greater detail. The MSL ceiling and floor altitudes of each sector are shown in solid blue figures with the last two digits omitted: $\frac{90}{20}$ Radials and arcs used to define Class B are prominently shown on TACs. Detailed rules and requirements associated with the particular Class B are shown. The name by which

the Class B is identified is shown as **LAS VEGAS CLASS B** for example.

Class C Airspace is shown in abbreviated form on WACs. Sectionals and TACs show Class C in greater detail.

The MSL ceiling and floor altitudes of each sector are shown in solid magenta figures with the last two digits eliminated: $\frac{70}{15}$. The following figures identify a sector that extends from the surface to the base of the Class

B: $\frac{T}{SFC}$. The name by which the Class C 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 (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 operating less than continuous is indicated by the following note: See NOTAMs/Directory for Class D eff hrs

of Class D are shown as follows: $[-30]$. A minus in front of the figure is used to indicate "from surface to but not including"

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

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

Class E Airspace exists at 1200' above ground level unless designated otherwise. The lateral and vertical limits of all Class E up to but not including 18,000' are shown by narrow bands of vignette on Sectionals and TACs. Controlled airspace floors of 700' above the ground are defined by a magenta vignette; floors other than 700' that abut uncontrolled airspace (Class G) are defined by a blue vignette; differing floors greater than 700' above

-  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.

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' 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.

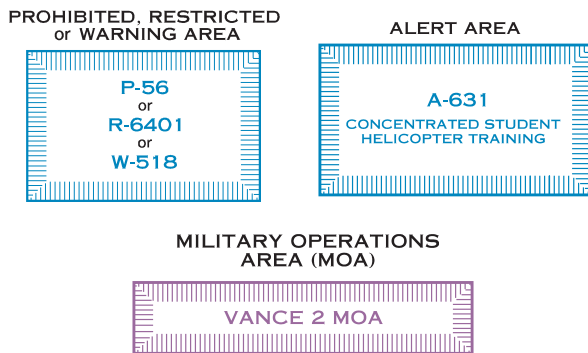
UNCONTROLLED AIRSPACE

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


SPECIAL USE AIRSPACE

Special use airspace confines certain flight activities and restricts entry, or cautions other aircraft operat-

ing 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.





OTHER AIRSPACE AREAS


Mode C Required Airspace (from the surface to 10,000' MSL) within 30 NM radius of the primary airport(s) for which a Class B is designated, is depicted by a solid magenta line . Mode C is required but not depicted for operations within and above all Class C up to 10,000' MSL. Enroute Mode C requirements (at and above 10,000' MSL except in airspace at and below 2500' AGL) are not depicted. See FAR 91.215 and the AIM.

FAR 93 Airports and heliports 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 indicated with a broken magenta line  and **Special Federal Aviation Regulations (SFAR) Areas** indicated with the following symbol: , consist of airspace with defined vertical and lateral dimensions established at locations where there is a requirement for increased security and safety of ground facilities. Pilots are requested to voluntarily avoid flying through these depicted areas. When necessary, flight may be temporarily prohibited.


Temporary Flight Restriction (TFR) Areas Relating to National Security are indicated with a broken blue line . A Temporary Flight Restriction

(TFR) is a type of Notices to Airmen (NOTAM). A TFR defines an area restricted to air travel due to a hazardous condition, a special event, or a general warning for the entire airspace. The text of the actual TFR contains the fine points of the restriction. It is important to note that only TFRs relating to National Security are charted.

Air Defense Identification Zones (ADIZs) are symbolized using the ADIZ symbol: . As defined in 14 CFR Part 99, an ADIZ is an area in which the ready identification, location, and control of all aircraft is required in the interest of national security. ADIZ boundaries include Alaska, Canada and the Contiguous U.S.


Due to federal security agencies' concerns about unidentified VFR aircraft flying too close to the nation's capital, in early 2003 the FAA adapted the ADIZ concept to address these concerns and issued a Flight Data Center (FDC) NOTAM that designated this airspace as the Washington DC Metropolitan Air Defense Identification Zone (DC ADIZ).

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

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

The following note appears on Sectionals and TACs covering the conterminous United States.

MILITARY TRAINING ROUTES (MTRs)

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

Since these routes are subject to change every 56 days, and the charts are 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 1500' AGL (with no segment above 1500') are identified by four-digit numbers; e.g., VR1007, etc. These routes are generally developed for flight under Visual Flight Rules.
- b. Routes above 1500' AGL (some segments of these routes may be below 1500') are identified by three-digit or less numbers; e.g., IR21, VR302, etc. These routes are developed for flight under Instrument Flight Rules.

MTRs can vary in width from 4 to 16 miles. Detailed route width information is available in the Flight Information Publication (FLIP) AP/1B (a DoD publication), or in the Digital Aeronautical Chart Supplement (DACS) produced by NACO.

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

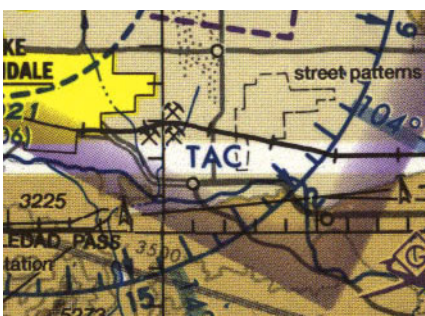
SPECIAL MILITARY ACTIVITY
CONTACT MOBILE FSS
ON 123.6
FOR ACTIVITY STATUS

TERMINAL AREA CHART (TAC) COVERAGE

TAC coverage is shown on appropriate Sectionals by a 1/4" masked line as indicated below. Within this area, pilots should use TACs which provide greater detail 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 Sectionals 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



CHART TABULATIONS

Airport Tower Communications are provided in a columnized tabulation for all tower-controlled airports that appear on the respective chart. Airport names are listed alphabetically. If the airport is military, the type of airfield, e.g., AAF, AFB, NAS, is shown after the airfield name. In addition to the airport name, tower operating hours, primary VHF/UHF local Control Tower (CT), Ground Control (GND CON), and Automatic Terminal Information Service (ATIS) frequencies, when available, will be given. An asterisk (*) indicates that the part-time tower frequency is remoted to a collocated full-time FSS for use as Local Airport Advisory (LAA) when the tower is closed. Airport Surveillance Radar (ASR) and/or Precision Approach Radar (PAR) procedures are listed when available.

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

Special Use Airspace (SUA) information is comprised of Prohibited, Restricted, Alert, and Warning Areas. They are presented in blue and listed numerically for U.S. and other countries. Restricted, Danger and Advisory Areas for Canada are tabulated separately in blue. A tabulation of Military Operations Areas (MOA) that appear on the chart are presented in magenta and listed alphabetically. All are supplemented with altitude, time of use and the controlling agency/contact facility, and its frequency, when available. The controlling agency will be shown when the contact facility and frequency data is unavailable.

VFR AERONAUTICAL CHARTS

Airports with control towers are indicated on the face of the chart by the letters CT followed by the primary VHF local control frequency (ies). Information for each tower is listed in the table below. Operational hours are local time. The primary VHF and UHF local control frequencies are listed. An asterisk (*) indicates the part-time tower frequency is removed to a collocated full-time FSS for use as Local Airport Advisory (LAA) during hours the tower is closed. The primary VHF and UHF ground control frequencies are listed.

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

ASR and/or PAR indicate Radar Instrument Approach available.
 MON-FRI indicates Monday through Friday.

Frequencies (VHF/UHF)

Airport Name	CONTROL TOWER	OPERATES	TWR FREQ	GND CON	ATIS	ASR/PAR
AIRBORNE		0700 MON-1800 SAT 0600-1800 SUN	119.475	121.6	124.925	
BLUE GRASS		CONTINUOUS	119.1 257.8	121.9	126.3	
BOLTON		0730-1930	128.1	121.3 (E) 121.8 (W)		ASR/PAR
CHARLOTTESVILLE-ALBEMARLE		0600-2300	124.5 338.275	121.9 338.275	118.425	PAR
CINCINNATI/NORTHERN KENTUCKY INTL		CONTINUOUS Runway dependent	118.3 (RWYS 18R/36L & 09/27) 118.975 360.85 (RWY 18L/36R)	121.3 (EAST) 121.7 (WEST)	134.375 ARR 135.3 DEP	ASR
COX DAYTON INTL		CONTINUOUS	119.9 257.8	121.9	125.8	
EASTERN WV RGNL/SHEPHERD		0700-2200 TUE-THU 0700-1600 FRI-SAT 1300-1800 SUN O/T BY NOTAM	124.3 236.6	121.8 275.8		

Hours of Operation (local time) Approach direction dependent

Radar Instrument Approach available

Frequencies (VHF/UHF)

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

Airspace Name	FACILITY	FREQUENCIES	SERVICE AVAILABILITY
CINCINNATI CLASS B	VHF	119.7 (RWY 09/27 090 -269) (RWY 18R/36L 180 -359)	CONTINUOUS
	UHF	123.875 (RWY 09/27 270 -089) (RWY 18L/36R 360 -179) 363.15	
CHARLESTON CLASS C		124.1 269.125 (NORTH) 119.2 269.125 (SOUTH)	CONTINUOUS
COLUMBUS CLASS C		120.2 317.775 (280 -099) 132.3 279.6 (100 -279)	CONTINUOUS
DAYTON CLASS C		127.65 294.5 (360 -090) 118.85 327.1 (091 -180) 134.45 316.7 (181 -359)	CONTINUOUS
BRISTOL TRSA		134.425 349.0 (047 -227) 125.5 317.5 (228 -046) O/T 127.85 371.85 ZIL CNTR	0600-2400 local time
HUNTINGTON TRSA		119.75 257.8 (SOUTH) 132.95 257.8 (NORTH)	CONTINUOUS
PERKINSON/BAAF RADAR		118.75 353.9	CONTINUOUS

O/T indicates Other times

Sectors for VHF and UHF traffic

SPECIAL USE AIRSPACE ON SECTIONAL CHART

Unless otherwise noted altitudes are MSL and in feet. Time is local.
 TO an altitude means "To and including."
 FL - Flight Level
 NO A/G - No air to ground communications.
 Contact nearest FSS for information.

† Other times by NOTAM.
 NOTAM - Use of this term in Restricted Areas indicates FAA and DoD NOTAM systems. Use of this term in all other Special Use areas indicates the DoD NOTAM system.

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

NUMBER	ALTITUDE	TIME OF USE	CONTROLLING AGENCY/ CONTACT FACILITY	FREQUENCIES — VHF/UHF
R-6602 A	TO BUT NOT INCL 4000	CONTINUOUS MAY 1-SEP 15 †24 HRS IN ADVANCE	WASHINGTON CNTR	118.75 377.1
R-6602 B	4000 TO BUT NOT INCL 11,000	BY NOTAM 24 HRS IN ADVANCE	WASHINGTON CNTR	118.75 377.1
R-6602 C	11,000 TO BUT NOT INCL 18,000	BY NOTAM 24 HRS IN ADVANCE	WASHINGTON CNTR	118.75 377.1

CANADA R-RESTRICTED, D-DANGER AND A-ADVISORY AREA

Restricted Danger Advisory	NUMBER	LOCATION	ALTITUDE	TIME OF USE	CONTROLLING AGENCY
	CYR754	CONFEDERATION BRIDGE, PE	TO 500	CONTINUOUS	
	CYD734	HALIFAX, NS	TO FL 200	OCCASIONAL BY NOTAM	MONCTON ACC
	CYA702 (P)	GREENWOOD, NS	TO 500	CONT DAYLIGHT	
	CYA752 (M)	LIVERPOOL, NS	TO FL 280	CONT DAYLIGHT MON-FRI EXC HOLT	MONCTON ACC

A-Acrobat F-Aircraft Test Area H-Hang Gliding M-Military Operations P-Parachuting S-Soaring T-Training

MOA NAME	ALTITUDE*	TIME OF USE†	CONTROLLING AGENCY/ CONTACT FACILITY	FREQUENCIES — VHF/UHF
BRUSH CREEK	100 AGL TO BUT NOT INCL 5000	0800-2200 MON-SAT	INDIANAPOLIS CNTR	134.0 135.57
BUCKEYE	5000	0800-2200 MON-FRI 0800-1600 SAT & SUN	INDIANAPOLIS CNTR	134.0 135.57
EVERS	1000 AGL	SR-SS BY NOTAM	WASHINGTON CNTR	
FARMVILLE	300 AGL TO 5000	0800-1700 MON-FRI	WASHINGTON CNTR	118.75 377.1
PICKETT 1	500 AGL TO 6000	SR-SS INTERMITTENT	WASHINGTON CNTR	118.75 377.1

*Altitudes indicate floor of MOA. All MOAs extend to but do not include FL 180 unless otherwise indicated in tabulation or on chart.
 †Other times by DoD NOTAM.

VFR AERONAUTICAL CHART SYMBOLS

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GENERAL INFORMATION

Symbols shown are for World Aeronautical Charts (WACs), Sectional Aeronautical Charts (Sectionals), Terminal Area Charts (TACs), VFR Flyway Planning Charts and Helicopter Route Charts. When a symbol is different on any VFR chart series, it will be annotated as such (e.g. WAC or Not shown on WAC).

AIRPORTS	
<p>LANDPLANE: CIVIL</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>SEAPLANE: CIVIL</p>	
<p>LANDPLANE: CIVIL-MILITARY</p>	
<p>LANDPLANE: MILITARY</p> <p><i>Refueling and repair facilities not indicated.</i></p>	

AIRPORTS	
<p>LANDPLANE: EMERGENCY</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 note as required: "CLOSED"</i></p>	<p>PUBLIC USE (Soft surface runway, or hard surface runway less than 1500' in length.) - Limited attendance or no service available</p> <p>R RESTRICTED OR PRIVATE (Soft surface runway, or hard surface runway less than 1500' in length.) - Use only in emergency, or by specific authorization</p> <p>U UNVERIFIED - A landing area available for public use but warranting more than ordinary precaution due to: (1) lack of current information on field conditions, and / or (2) available information indicates peculiar operating limitations.</p> <p>X ABANDONED - Depicted for landmark value or to prevent confusion with an adjacent usable landing area. (Normally at least 3000' paved)</p> <p>WAC</p>
<p>SEAPLANE: EMERGENCY</p> <p><i>No facilities or complete information is not available.</i></p>	<p>WAC</p>
<p>HELIPORT</p> <p>(Selected)</p>	<p>WAC</p>
<p>ULTRALIGHT FLIGHT PARK</p> <p>(Selected)</p>	<p>Not shown on WAC</p>
<p>AIRPORT DATA GROUPING</p> <p><i>(Pvt) - Non-public use having emergency or landmark value.</i></p>	<p>Rotating Beacon in operation Sunset to Sunrise</p> <p>FSS NO SVFR [NAME](NAM) CT - 118.3 * ASOS/ AWOS 135.42 897 L 110 122.95 — UNICOM RP 23,34 VFR Advsy 125.0 AOE</p> <p>FSS NO SVFR [NAME](NAM) CT - 118.3 * ATIS 123.8 897 L 110 U AOE WAC</p>
<p>FSS - Flight Service Station on field</p> <p>NO SVFR - Airports 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 Patterns</p> <p>R - Airport Surveillance Radar (not shown on WAC)</p> <p>(NAM) - Location Identifier</p> <p>CT - 118.3 - Control Tower (CT) - primary frequency</p> <p>* - Star indicates operation part-time. See tower frequencies tabulation for hours of operation</p> <p>C - Indicates Common Traffic Advisory Frequencies (CTAF) (not shown on WAC)</p> <p>ATIS 123.8 - Automatic Terminal Information Service</p> <p>ASOS/ AWOS 135.42 - Automated Surface Weather Observing Systems (shown where full-time ATIS is not available). Some ASOS/AWOS facilities may not be located at airports. (not shown on WAC)</p> <p>897 - 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>110 - Length of longest runway in hundreds of feet; usable length may be less.</p> <p>UNICOM - Aeronautical advisory station ("U" only on WAC)</p> <p>RP 23,34 - Runways with Right Traffic Patterns (public use) (not shown on WAC)</p> <p>RP* - Special conditions exist - see A/FD</p> <p>VFR Advsy 125.0 - VFR Advisory Service shown where full-time ATIS not available and frequency is other than primary CT frequency.</p> <p>AOE - Airport of Entry</p> <p>When information is lacking, the respective character is replaced by a dash. Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting.</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

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

NDB Frequency	Name	ASOS/AWOS	
379	PONTIAC	Ch 47 PTK	A

Frequency Channel Identifier Morse Code

Hazardous Inflight Weather Advisory Service (HIWAS)

NON-DIRECTIONAL RADIOBEACON (NDB)

WAC

Underline indicates no voice on this frequency

NDB-DME

WAC

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

BROADCAST STATIONS (BS)

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

FLIGHT SERVICE STATION (FSS)

Heavy line box indicates Flight Service Station (FSS). Frequencies 121.5, 122.2, 243.0 and 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. For Local Airport Advisory use FSS frequency 123.6. R - Receive only

No NAVAID of the same name as FSS

or

122.1R

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

122.35 122.35





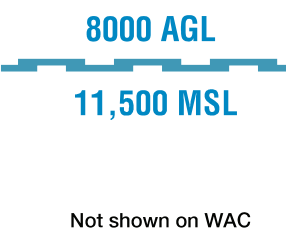





FSS providing voice communication

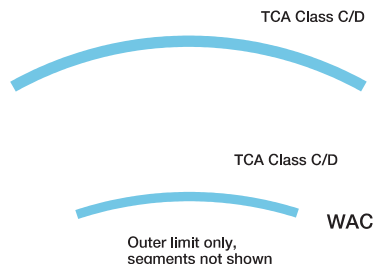

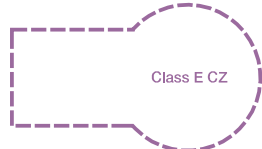

RADIO AIDS TO NAVIGATION	
AIR FORCE STATION (AFS)	<p>122.0 AFS 123.6 POINT BARROW</p> <p>122.4 AFS 123.6 CAPE LEWISTON 206 LWS</p> <p>AFS at airport with NDB</p>
LONG RANGE RADAR STATION (LRRS)	<p>122.4 LRRS 122.55 BARTER ISLAND</p> <p>122.4 LRRS 123.6 CAPE LISBURNE 385 LUR</p> <p>LRRS at airport with NDB</p>
OFF AIRPORT AWOS/ASOS	<p>SANDBERG ASOS 120.625</p>

AIRSPACE INFORMATION	
CLASS C AIRSPACE	<p>BURBANK CLASS C</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>See NOTAMs/Directory for Class C eff hrs</p> <p>WAC</p> <p>Outer limit only, segments not shown</p> <p>FOR FLIGHTS AT OR BELOW 6600 MSL SEE PHOENIX VFR SECTIONAL CHART</p> <p>WAC only</p> <p>48 - Ceiling of Class C in hundreds of feet MSL 30 - Floor of Class C in hundreds of feet MSL</p> <p>T - Ceiling is to but not including floor of Class B SFC - Surface</p> <p>CTC BURBANK APP WITHIN 20 NM ON 124.6 395.9</p> <p>Not shown on WAC</p>

AIRSPACE INFORMATION	
CLASS B AIRSPACE	<p>LAS VEGAS CLASS B</p> <p>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.</p> <p>Outer limit only, segments not shown</p> <p>FOR FLIGHTS AT AND BELOW 8000 MSL SEE KANSAS CITY VFR TERMINAL AREA CHART</p> <p>WAC only</p> <p>80 - Ceiling of Class B in hundreds of feet MSL 40 - Floor of Class B in hundreds of feet MSL</p> <p>CTC LAS VEGAS APP ON 121.1 OR 257.8</p> <p>TAC only</p>

CLASS D AIRSPACE	<p>See NOTAMs/Directory for Class D eff hrs</p> <p>See NOTAMs/Directory for Class D/E (sfc) eff hrs</p> <p>(A minus in front of the figure is used to indicate "from surface to but not including...") ALTITUDE IN HUNDREDS OF FEET MSL</p> <p>Not shown on WAC</p>
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AIRSPACE INFORMATION	
<p>CLASS E AIRSPACE</p> <p>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:</p> <p>Airspace beginning at the surface (sfc) designated around airports ...</p> <p>Airspace beginning at 700 feet AGL ...</p> <p>Airspace beginning at 1200 feet AGL or greater that abuts uncontrolled airspace (Class G) ...</p> <p>Differentiates floors of airspace greater than 700 feet above the surface...</p> <p>When the ceiling is less than 18,000 feet MSL, the value, prefixed by the word "ceiling," shall be shown along the limits.</p>	    
<p>OFFSHORE CONTROL AREAS</p>	     <p style="text-align: right;">WAC</p>

AIRSPACE INFORMATION	
<p>CANADIAN AIRSPACE</p> <p>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.</p> <p>Appropriate notes as required may be shown.</p>	 <p>125 - Ceiling of TCA Class C/D in hundreds of feet MSL 25 - Floor of TCA Class C/D in hundreds of feet MSL</p>  <p style="text-align: center;">ALTITUDE IN HUNDREDS OF FEET MSL</p>  <p style="text-align: center;">Not shown on WAC</p> <div style="border: 1px solid blue; padding: 5px; width: fit-content; margin: 10px auto;"> <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 blue; padding: 5px; width: fit-content; margin: 10px auto;"> <p>NOTE: REFER TO CURRENT CANADIAN CHARTS AND FLIGHT INFORMATION PUBLICATIONS FOR INFORMATION WITHIN CANADIAN AIRSPACE</p> </div>
<p>AIRSPACE OUTSIDE OF U.S.</p> <p>Other than Canada</p> <p>Appropriate notes as required may be shown.</p>	<div style="border: 1px solid blue; padding: 5px; width: fit-content; margin: 10px auto;"> <p>NOTE: REFER TO CURRENT DOD (NGA) FLIGHT INFORMATION PUBLICATIONS FOR INFORMATION OUTSIDE OF U.S. AIRSPACE</p> </div>
<p>FLIGHT INFORMATION REGIONS (FIR) and /or (CTA)</p> <p>OCEANIC CONTROL AREAS (OCA)</p>	<p style="text-align: center;">No FIR exists this side - No ticks</p> 

AIRSPACE INFORMATION

LOW ALTITUDE AIRWAYS
VOR and LF / MF (CLASS E AIRSPACE)

Low altitude Federal Airways are indicated by centerline.

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

Total mileage between NAVAIDS on direct Airways.

V2N ← 270°
Alternate Airway radial

V2 ← 255°
Enroute Airway radial

R40
LF / MF Airway

V2N ← 270°
Alternate Airway radial

V2 ← 255°
Enroute Airway radial

R40
LF / MF Airway

WAC

MISCELLANEOUS AIR ROUTES

BR 63V ← 265°
Bahama Route

A 301
Oceanic & ATS Route

AR5
Atlantic Route

GULF RTE 26
Gulf Route

B ROUTE 2
Class G Route

BR 63V ← 265°
Bahama Route

A 301
Oceanic & ATS Route

AR5
Atlantic Route

GULF RTE 26
Gulf Route

B ROUTE 2
Class G Route

WAC

AIRSPACE INFORMATION

SPECIAL USE AIRSPACE

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

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

P-56
or
R-6401
or
W-518

PROHIBITED, RESTRICTED
or **WARNING AREA**

ALERT AREA
A-631
CONCENTRATED STUDENT HELICOPTER TRAINING

ALERT AREA

VANCE 2 MOA

MILITARY OPERATIONS AREA (MOA)

MILITARY TRAINING ROUTES (MTR)

← IR292

Not shown on WAC

SPECIAL MILITARY ACTIVITY ROUTES (SMAR)

40
05 AGL



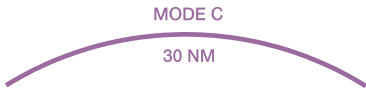


45
05 AGL


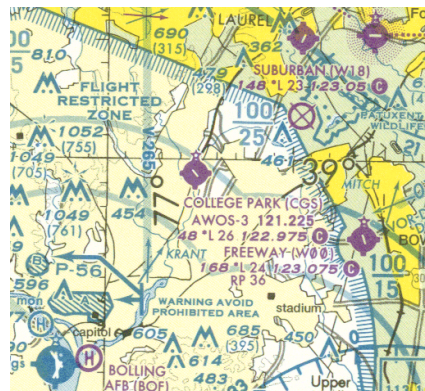

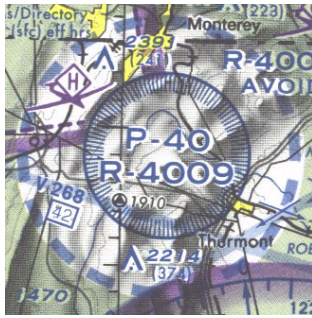
SPECIAL MILITARY ACTIVITY CONTACT MOBILE FSS ON 123.6 FOR ACTIVITY STATUS


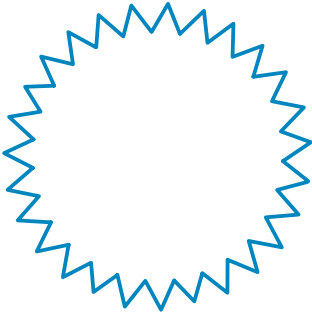
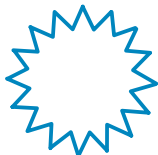

40 --- Ceiling of SMAR in hundreds of feet MSL

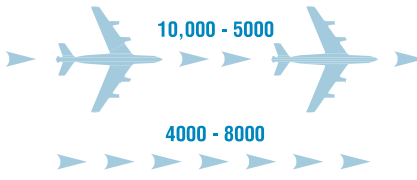
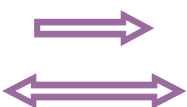
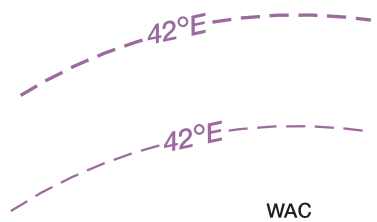
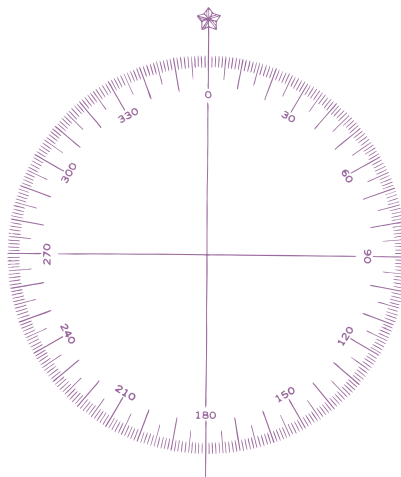
05 AGL -- Floor of SMAR in hundreds of feet AGL

Not shown on WAC

AIRSPACE INFORMATION	
<p>SPECIAL AIR TRAFFIC RULES / AIRPORT PATTERNS (FAR 93)</p> <p><i>Appropriate boxed note as required shown adjacent to area.</i></p>	 <p>SPECIAL NOTICE Pilots are required to obtain an ATC clearance prior to entering this area.</p>
<p>SPACE OPERATIONS AREA (FAR 91.143)</p>	 <p>DARKER TINT IS FAR 91.143 AREA</p> <p>Not shown on WAC</p>
<p>MODE C (FAR 91.215)</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <p>MODE C 30 NM</p>
<p>MISCELLANEOUS AIRSPACE AREAS</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>Not shown on WAC</p>
<p>SPECIAL CONSERVATION AREAS</p> <p>National Park, Wildlife Refuge, Primitive and Wilderness Areas, etc.</p>	 <p>PAHRANAGAT NATIONAL WILDLIFE REFUGE</p> <p>Not shown on WAC</p>

AIRSPACE INFORMATION	
<p>SPECIAL AIRSPACE AREAS</p> <p>SPECIAL FEDERAL AVIATION REGULATIONS (SFAR) AREAS</p> <p><i>Appropriate notes as required may be shown.</i></p> <p><i>Note. Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.</i></p>	 <p>SPECIAL FEDERAL AVIATION REGULATIONS (SFAR) 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>
<p>FLIGHT RESTRICTED ZONE RELATING TO NATIONAL SECURITY</p> <p>Example: Washington DC</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <p>Washington DC Metropolitan Area Air Defense Identification Zone/Flight Restricted Zone restrictions are in effect. Special regulations apply to all aircraft operations below Flight Level 180 in the Washington DC Metropolitan Area. Pilots should contact a local FSS for NOTAM information prior to flight in the Washington DC Metropolitan Area.</p>
<p>AIR DEFENSE IDENTIFICATION ZONE (ADIZ)</p> <p><i>Note. Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.</i></p>	<p>WASHINGTON DC METROPOLITAN ADIZ</p> 
<p>TEMPORARY FLIGHT RESTRICTION (TFR) RELATING TO NATIONAL SECURITY</p> <p>Example: P-40/R-4009</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <p>CAUTION P-40 AND R-4009 EXPANDED BY TEMPORARY FLIGHT RESTRICTION. CONTACT AFSS FOR LATEST STATUS AND NOTAMS</p> <p>Not shown on WAC</p>

AIRSPACE INFORMATION	
<p>NATIONAL SECURITY AREA</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <p style="text-align: center;">NOTICE FOR REASONS OF NATIONAL SECURITY PILOTS ARE REQUESTED TO AVOID FLIGHT BELOW 1200 MSL IN THIS AREA</p> <p style="text-align: center;">Not shown on WAC</p>
<p>HIGH ENERGY RADIATION AREAS</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <p style="text-align: center;">HAZARDOUS LASER TRANSMISSIONS SFC to infinity See Airport Facility/Directory</p>  <p style="text-align: right;">WAC</p>
<p>TERMINAL RADAR SERVICE AREA (TRSA)</p> <p><i>Appropriate notes as required may be shown.</i></p>	<p style="text-align: center;">PALM SPRINGS TRSA</p>  <p>80 - Ceiling of TRSA in hundreds of feet MSL 40 - Floor of TRSA in hundreds of feet MSL</p> <p style="text-align: center; border: 1px solid black; padding: 2px;">SEE TWR FREQ TAB</p> <p style="text-align: center;">Not shown on WAC</p>

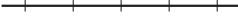





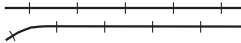

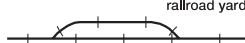

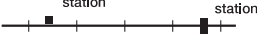
AIRSPACE INFORMATION	
<p>IFR ROUTES</p> <p><i>Appropriate notes as required may be shown.</i></p> <p>Arrival</p> <p>Departure</p>	 <p style="text-align: center;">TAC only</p>
<p>TRANSITION ROUTES</p> <p><i>Appropriate notes as required may be shown.</i></p> <p>Uni-directional</p> <p>Bi-directional</p>	<p style="text-align: center; border: 1px solid purple; padding: 5px;">VFR TRANSITION ROUTE ATC CLEARANCE REQUIRED SEE SHOWBOAT GRAPHIC ON SIDE PANEL</p>  <p style="text-align: center;">TAC only</p>
NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p>ISOGONIC LINE & VALUE</p> <p><i>Isogonic lines and values shall be based on the five year epoch magnetic variation model.</i></p>	 <p style="text-align: right;">WAC</p>
<p>LOCAL MAGNETIC NOTES</p> <p>Unreliability Notes</p>	<p style="text-align: center; border: 1px solid purple; padding: 5px;">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>
<p>COMPASS ROSETTE</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>	

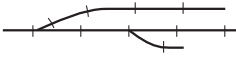









NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p>INTERSECTIONS</p> <p><i>Named intersections used as reporting points. Arrows are directed toward facilities which establish intersection.</i></p>	<p>ANGOO VHF ROAMS LF / MF</p> <p>WATSY Combined VHF - LF / MF</p> <p>Not shown on WAC</p>
<p>AERONAUTICAL LIGHTS</p>	<p>Rotating or Oscillating Located at Aerodrome</p> <p>★ 2520 ★ 2520</p> <p>In isolated location on top of high structure</p> <p>WAC</p>
<p>AERONAUTICAL LIGHTS</p>	<p>Rotating Light with Flashing Code Identification Light</p> <p>★ - - - ★ - - -</p> <p>★ - - - ★ - - -</p> <p>Rotating Light with Course Lights and Site Number</p> <p>Site # .5 .5</p> <p>18 18</p> <p>.4B .4B</p> <p>Flashing Light</p> <p>FI FI</p> <p>FI FI</p> <p>WAC</p>

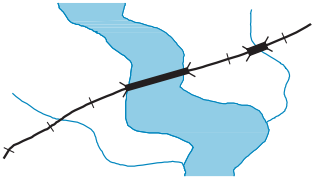
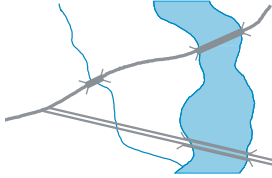

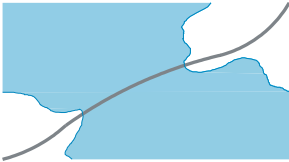
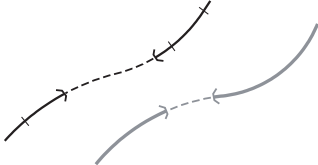
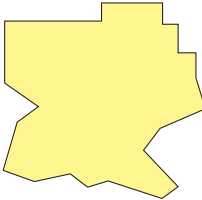


NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p>MARINE LIGHTS</p> <p>With Characteristics of Light</p>	<p>Oc R SEC AI</p> <p>Land Light Land Light</p> <p>WAC</p> <ul style="list-style-type: none"> R Red W White G Green B Blue SEC Sector F Fixed Oc Single Occulting Oc (2) Group Occulting Oc (2+1) Composite Group Occulting Iso Isophase Fl Flashing Fl (2) Group Flashing Fl (2+1) Composite Group Flashing Q Quick IQ Interrupted Quick Mo (A) Morse Code FFI Fixed and Flashing Al 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><small>*Marine Lights are white unless otherwise noted. Alternating lights are red and white unless otherwise noted.</small></p>
<p>VISUAL GROUND SIGNS</p> <p><i>Shore and Landmarkers</i></p>	<p>A33</p> <p>Arrow points to location of marker</p> <p>M</p> <p>Actual location of ground sign</p>
<p>VFR CHECKPOINTS</p>	<p>Pictorial STATE CAPITOL</p> <p>SIGNAL HILL</p> <p>NORTHBROOK 113.0 Ch 77 OBK</p> <p>LEWIS (Pvt) 989 - 27</p> <p>Not shown on WAC</p>
<p>VFR WAYPOINTS</p> <p>Stand-Alone</p> <p>Collocated with VFR Checkpoint</p>	<p>VPXYZ</p> <p>NAME (VPXYZ)</p> <p>Not shown on WAC</p>

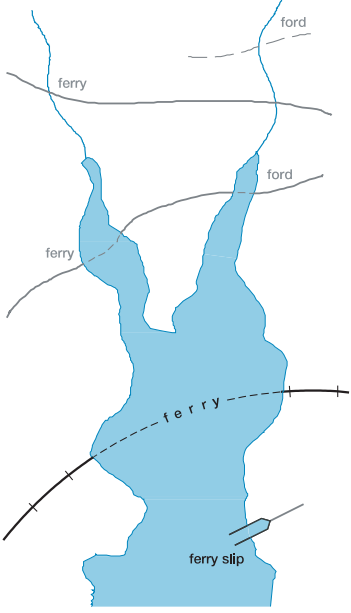





NAVIGATIONAL AND PROCEDURAL INFORMATION	
OBSTRUCTION	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p>1473 (394) bldg</p> </div> <div style="text-align: center;"> <p>Less than 1000' AGL</p> </div> <div style="text-align: center;"> <p>1158 (553) stack</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="text-align: center;"> <p>628 UC</p> </div> <div style="text-align: center;"> <p>Under Construction or reported and position / elevation unverified</p> </div> <div style="text-align: center;"> <p>507 UC</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="text-align: center;"> <p>3368 (1529)</p> </div> <div style="text-align: center;"> <p>1000' AGL and higher</p> </div> <div style="text-align: center;"> <p>2967 (1697)</p> </div> </div> <p style="text-align: center;">WAC</p>
GROUP OBSTRUCTION	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p>1062 (227)</p> </div> <div style="text-align: center;"> <p>Less than 1000' AGL</p> </div> <div style="text-align: center;"> <p>1524 (567)</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="text-align: center;"> <p>4977 (1432)</p> </div> <div style="text-align: center;"> <p>1000' AGL and higher</p> </div> <div style="text-align: center;"> <p>3483 (1634)</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="text-align: center;"> <p>2889 (1217)</p> </div> <div style="text-align: center;"> <p>At least two in group over 1000' AGL</p> </div> <div style="text-align: center;"> <p>4892 (1573)</p> </div> </div> <p style="text-align: center;">WAC</p>
HIGH-INTENSITY OBSTRUCTION LIGHTS <i>High-intensity lights may operate part-time.</i>	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p>Less than 1000' AGL</p> </div> <div style="text-align: center;"> <p>1000' AGL and higher</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="text-align: center;"> <p>Group Obstruction</p> </div> <div style="text-align: center;"> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> </div> <p style="text-align: center;">WAC</p>
WINDMILL FARMS <i>When highest windmill is unverified, UC will be shown after MSL value.</i>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; font-size: small;"> <p>CAUTION NUMEROUS WINDMILLS HIGHEST 3624' MSL UC</p> </div> <div style="border: 1px solid black; padding: 2px; font-size: small;"> <p>CAUTION NUMEROUS WINDMILLS HIGHEST 3624' MSL</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> </div> <p style="text-align: center;">WAC</p>
MAXIMUM ELEVATION FIGURE (MEF) <i>(see page 2 for explanation).</i>	135
WARNING AND CAUTION NOTES <i>Used when specific area is not demarcated.</i>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px; text-align: center;"> <p>WARNING</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; text-align: center;"> <p>CAUTION: Be prepared for loss of horizontal reference at low altitude over lake during hazy conditions and at night.</p> </div>





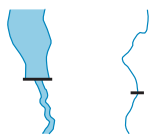


CHART LIMITS	
OUTLINE ON SECTIONAL OF TERMINAL AREA CHART	<div style="border: 1px solid black; padding: 5px; margin-top: 10px; text-align: center;"> <p>LOS ANGELES TERMINAL AREA</p> <p>Pilots are encouraged to use the Los Angeles VFR Terminal Area Chart for flights at or below 10,000'</p> </div> <p style="text-align: center;">Not shown on WAC</p>
OUTLINE ON SECTIONAL OF INSET CHART	<p style="text-align: center; font-size: small;">If inset chart is on a different chart:</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; text-align: center;"> <p>INDIANAPOLIS INSET</p> <p>See inset chart on the St. Louis Sectional for additional information</p> </div> <p style="text-align: center; font-size: small;">If inset chart is on the same chart as outline:</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; text-align: center;"> <p>INDIANAPOLIS INSET</p> <p>See inset chart for additional detail</p> </div> <p style="text-align: center;">Not shown on WAC</p>

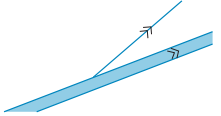
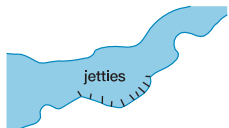
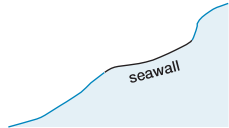
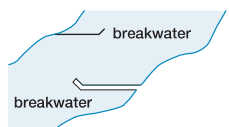
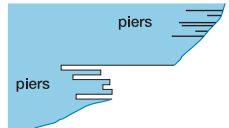


CULTURE	
RAILROADS <i>All gauges</i> Single Track	 
Double Track	 
More Than Two Tracks	
Electric	
RAILROADS IN JUXTAPOSITION	
RAILROAD-NONOPERATING, ABANDONED, DESTROYED OR UNDER CONSTRUCTION	
RAILROAD YARDS Limiting Track To Scale	
Location Only	
RAILROAD STATIONS	

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

CULTURE	
BRIDGES AND VIADUCTS	Railroad 
	Road 
OVERPASSES AND UNDERPASSES	
CAUSEWAYS	
TUNNELS-ROAD AND RAILROAD	
POPULATED PLACES	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 or Province 
	Convention or Mandate Line 
	Date Line 


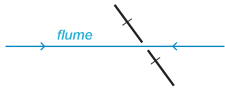

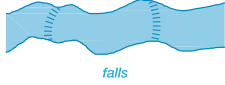




CULTURE	
TIME ZONES	<p>PST (-7DT) = UTC +8</p> <p>MST (-6DT) = UTC +7</p> <p>Not shown on WAC</p>
MINES OR QUARRIES <i>Shaft Mines or Quarries</i>	
POWER TRANSMISSION & TELECOMMUNICATION LINES	 <p>----- WAC</p>
PIPELINES	<p>pipeline</p> 
Underground	<p>underground pipeline</p> 
DAMS	
DAM CARRYING ROAD	
PASSABLE LOCKS	<p>locks</p> 




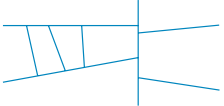

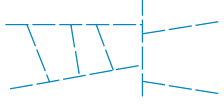
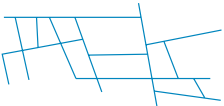

CULTURE	
SMALL LOCKS	
WEIRS AND JETTIES	<p>jetties</p> 
SEAWALLS	<p>seawall</p> 
BREAKWATERS	<p>breakwater</p> 
PIERS, WHARFS, QUAYS, ETC.	<p>piers</p> 
MISCELLANEOUS CULTURAL FEATURES	<ul style="list-style-type: none"> ■ stadium ■ fort ■ cemetery
OUTDOOR THEATER	
WELLS Other Than Water	<p>o all</p> 

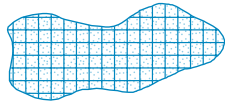




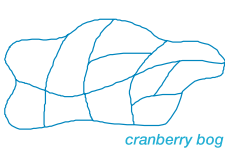
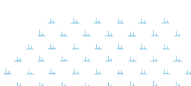
CULTURE	
RACE TRACKS	
LOOKOUT TOWERS Air marked identification	618 (Elevation Base of Tower)
LANDMARK AREAS	
TANKS	<ul style="list-style-type: none"> • water • oil • gas
COAST GUARD STATION	
AERIAL CABLEWAYS, CONVEYORS, ETC.	
HYDROGRAPHY	
OPEN WATER	
INLAND WATER	



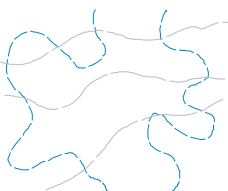
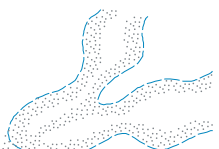
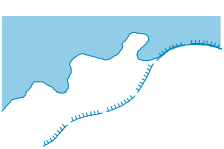
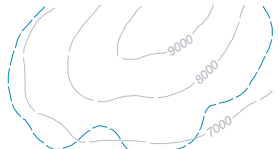

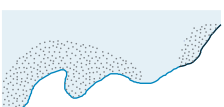
HYDROGRAPHY	
SHORELINES	Definite
	Fluctuating
	Unsurveyed Indefinite
	Man-made
LAKES	<i>Label as required</i> Perennial <i>When too numerous to show individual lakes, show representative pattern and descriptive note.</i>
	Non-Perennial <i>(dry, intermittent, etc.)</i> <i>Illustration includes small perennial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

HYDROGRAPHY		HYDROGRAPHY		
<p>STREAMS</p> <p>Perennial</p> <p>Non-Perennial</p> <p>Fanned Out <i>Alluvial fan</i></p> <p>Braided</p> <p>Disappearing</p> <p>Seasonally Fluctuating <i>with undefined limits</i></p> <p><i>with maximum bank limits, prominent and constant</i></p> <p>Sand Deposits In and Along Riverbeds</p>		<p>WET SAND AREAS</p> <p><i>Within and adjacent to desert areas</i></p>		
			<p>AQUEDUCTS</p> <p><i>aqueduct</i></p>	
			<p>Abandoned or Under Construction</p> <p><i>abandoned aqueduct</i></p>	
			<p>Underground</p> <p><i>underground aqueduct</i></p>	
			<p>Suspended or Elevated</p>	
			<p>Tunnels</p>	
			<p>Kanats</p> <p><i>Underground aque- duct with air vents</i></p>	

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	
Abandoned 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	
SWAMPS, MARSHES AND BOGS	
HUMMOCKS AND RIDGES	
MANGROVE AND NIPA	
PEAT BOGS	
TUNDRA	tundra
CRANBERRY BOGS	
RICE PADDIES	




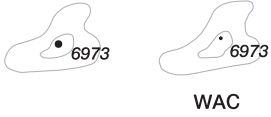



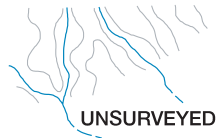
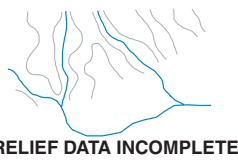
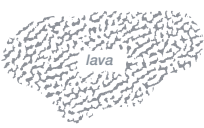

HYDROGRAPHY	
LAND SUBJECT TO INUNDATION	
SPRINGS, WELLS AND WATERHOLES	
GLACIERS	
GLACIAL MORAINES	
ICE CLIFFS	
SNOWFIELDS, ICE FIELDS AND ICE CAPS	
ICE PEAKS	
FORESHORE FLATS	



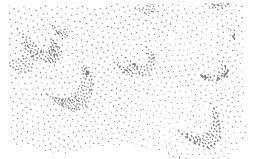
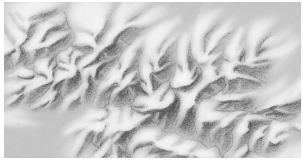

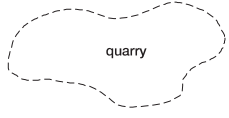

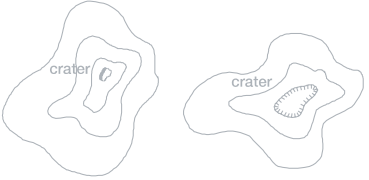
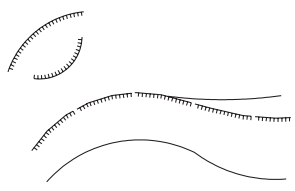

Extensive areas indicated by label only.










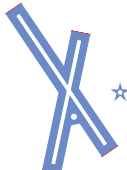
Tidal flats exposed at low tide.



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

RELIEF	
CONTOURS	
Basic	
Approximate	
Intermediate	
Auxiliary	
Depression	
Values	


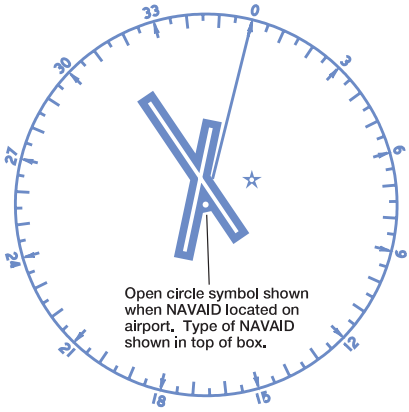

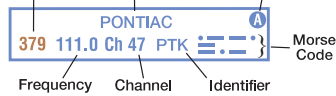

RELIEF	
SPOT ELEVATIONS	
Position Accurate	
Position Accurate, Elevation Approximate	
Approximate location	
Highest in General Area	
Highest on Chart	
MOUNTAIN PASS	
HACHURING	
UNSURVEYED AREAS	
UNCONTOURED AREAS	
DISTORTED SURFACE AREAS	
LAVA FLOWS	





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

AIRPORTS	
<p>LANDPLANE</p> <p>All recognizable runways, including some which may be closed, are shown for visual identification.</p>	 Public  Private 
<p>HELIPORT</p>	Heliports public and private  Hospital Helipads  Trauma Center  Helipads located at major airports 
<p>SEAPLANE</p>	
<p>ULTRALIGHT FLIGHT PARK</p>	
<p>AIRPORT DATA GROUPING</p> <p>Boxed airport name indicates airport for which a Special Traffic Rule has been established.</p> <p>(Pvt) - Non-public use having emergency or landmark value.</p>	 <p>Rotating Beacon in operation Sunset to Sunrise</p> <p>FSS NO SVFR [NAME] (NAM) CT -119.1 * (119.8 HELI) ATIS 115.4 ASOS / AWOS 135.42 03 L 122.95 AOE</p>

FSS - Flight Service Station on field
NO SVFR - Airspace 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
(NAM) - Location Identifier
CT - 119.1
 * - Star indicates operation part-time. See tower frequencies tabulation for hours of operation.
ATIS 115.4
ASOS / AWOS 135.42 - Automated Surface Weather Observing Systems (shown where full-time ATIS is not available). Some ASOS/AWOS facilities may not be located at airports.
03 - Elevation in feet
L - Lighting in operation Sunset to Sunrise
 ***L** - Lighting limitations exist, refer to Airport/Facility Directory.
122.95 - UNICOM - Aeronautical advisory station
 - Indicates Common Traffic Advisory Frequencies (CTAF)
(Unverified) - Unverified Helipoint
AOE - Airport of Entry


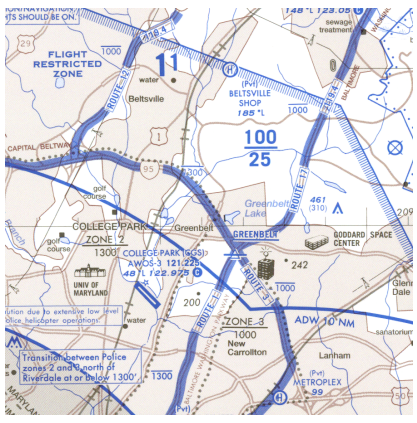

When information is lacking, the respective character is replaced by a dash.
 Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting. Dashes are not shown on heliports or helipads unless additional information follows the elevation (e.g. UNICOM, CTAF).







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>Underline indicates no voice on this frequency.</p> <p>NDB Frequency Name ASOS/AWOS</p>  <p>Frequency Channel Identifier Morse Code</p> <p>When an NDB NAVAID shares the same name and Morse Code as the VOR NAVAID the frequency can be colocated inside the same box to conserve space.</p> <p>Hazardous Inflight Weather Advisory Service (HIWAS)</p> 
<p>VOR</p>	
<p>VORTAC</p>	
<p>VOR-DME</p>	

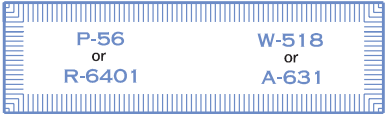


























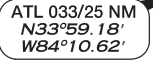
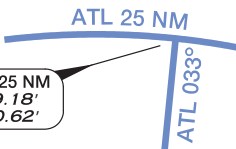


<p>NON-DIRECTIONAL RADIOBEACON (NDB)</p>	  <p>Underline indicates no voice on this frequency.</p>
<p>NDB-DME</p>	 







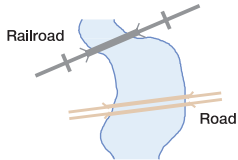
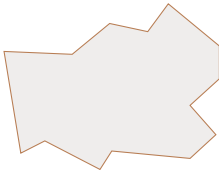


RADIO AIDS TO NAVIGATION	
<p>NAVAIDS USED TO DEFINE CLASS B AIRSPACE</p>	<p>ILS - DME</p> <p>SALT LAKE CITY DME ANT (I-BNT) Ch 52 (111.5)</p>
<p>BROADCAST STATIONS (BS)</p> <p><i>On request by the proper authority or when a VFR Checkpoint.</i></p>	<p>KFTM BS KFTM 1400</p>
<p>FLIGHT SERVICE STATION (FSS)</p>	<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. For Local Airport Advisory use FSS frequency 123.6. 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 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.</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>REMOTE COMMUNICATIONS OUTLET (RCO)</p>	<p>122.35 ST PAUL 108.6 STP MINNEAPOLIS</p> <p>122.35 GAMBELL 369 GAM MILES CITY</p> <p>FSS providing voice communication</p>





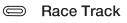




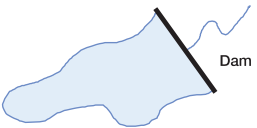

AIRSPACE INFORMATION	
<p>CLASS B AIRSPACE</p> <p><i>Appropriate notes as required may be shown. (Mode C see FAR 91.215/AIM)</i></p> <p><i>All mileages are nautical (NM)</i></p> <p><i>All radials are magnetic.</i></p>	<p>LAS VEGAS CLASS B</p> <p>NAVAID identifier and distance from facility.</p> <p>NAVAID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




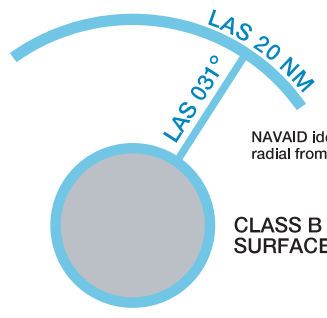



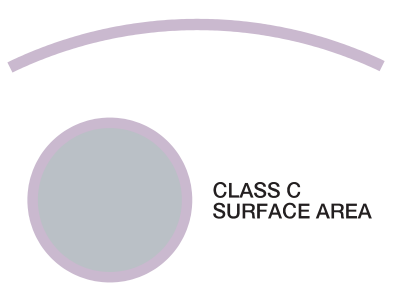


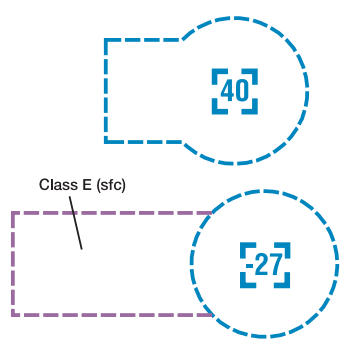

AIRSPACE INFORMATION	
<p>CLASS E SURFACE (SFC) AIRSPACE</p>	<p>See NOTAMs/Directory for Class E (sfc) eff hrs</p> 
<p>SPECIAL AIRSPACE AREAS</p> <p>FLIGHT RESTRICTED ZONE RELATING TO NATIONAL SECURITY</p> <p>Example: Washington DC</p> <p><i>Appropriate notes as required may be shown.</i></p>	 <div style="border: 1px solid brown; padding: 5px; margin-top: 10px;"> <p>Washington DC Metropolitan Area Air Defense Identification Zone/Flight Restricted Zone restrictions are in effect. Special regulations apply to all aircraft operations below Flight Level 180 in the Washington DC Metropolitan Area. Pilots should contact a local FSS for NOTAM information prior to flight in the Washington DC Metropolitan Area.</p> </div>
<p>AIR DEFENSE IDENTIFICATION ZONE (ADIZ)</p> <p><i>Note. Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.</i></p>	<p>WASHINGTON DC METROPOLITAN ADIZ</p> 

AIRSPACE INFORMATION									
<p>CANADIAN AIRSPACE</p> <p><i>Appropriate notes as required may be shown.</i></p>	<p style="text-align: center;">TCA Class C/D</p>  <p>80 - Ceiling of TCA Class C/D in hundreds of feet MSL</p> <p>40 - Floor of TCA Class C/D in hundreds of feet MSL</p> <p style="text-align: center;">Class C or D Control Zone</p>  <p style="text-align: center;">ALTIMITUDE IN HUNDREDS OF FEET MSL</p> <p style="text-align: center;">Class E Control Zone</p>  <div style="border: 1px solid blue; padding: 5px; margin-top: 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 blue; padding: 5px; margin-top: 10px;"> <p>NOTE: REFER TO CURRENT CANADIAN CHARTS AND FLIGHT INFORMATION PUBLICATIONS FOR INFORMATION WITHIN CANADIAN AIRSPACE</p> </div>								
<p>HELICOPTER ROUTES</p>	<p style="text-align: center;">Primary Route</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Route Name</th> <th style="text-align: left;">Tower Frequency</th> <th style="text-align: left;">One-way Route</th> <th style="text-align: left;">Altitude Changeover Point</th> </tr> </thead> <tbody> <tr> <td style="background-color: #e0e0e0;">MARRIOT</td> <td>118.3</td> <td style="text-align: center;">➡</td> <td style="text-align: center;"> </td> </tr> </tbody> </table> <p style="text-align: center;">Reporting or Holding Points BAHAI Name</p> <p style="text-align: center;">Non-Compulsory Compulsory</p>  <p style="text-align: center;">Secondary Route</p>  <p style="text-align: center;">Transition Route</p>  <p style="text-align: center;">Police Zone</p> <p style="text-align: center;">..... ZONE 8 / 1000</p> <p style="text-align: center;">Recommended Route Altitude</p> <p style="text-align: center;"><u>500</u> Maximum</p> <p style="text-align: center;"><u>500</u> Minimum</p> <p style="text-align: center;"><u>500</u> Recommended</p>	Route Name	Tower Frequency	One-way Route	Altitude Changeover Point	MARRIOT	118.3	➡	
Route Name	Tower Frequency	One-way Route	Altitude Changeover Point						
MARRIOT	118.3	➡							

AIRSPACE INFORMATION		NAVIGATIONAL AND PROCEDURAL INFORMATION	
<p>SPECIAL USE AIRSPACE</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>P-56 or R-6401 W-518 or A-631</p> <p>PROHIBITED, RESTRICTED, WARNING or ALERT AREA</p>  <p>FALCON 1 MOA</p> <p>MILITARY OPERATIONS AREA (MOA)</p>	<p>VFR CHECKPOINTS</p> <p>Pictorial</p>  <p>STATE CAPITOL</p>  <p>STACKS</p>  <p>122.2 FRANCIS PEAK RCO CEDAR CITY</p>  <p>(Pvt) LEWIS 420</p>	
<p>MILITARY TRAINING ROUTES (MTR)</p>	 <p>← VR269</p>	<p>VFR WAYPOINTS</p> <p>Stand-Alone</p>  <p>VPXYZ</p> <p>Collocated with VFR Checkpoint</p>  <p>NAME (VPXYZ)</p>	
<p>SPECIAL AIR TRAFFIC RULES / AIRPORT TRAFFIC AREAS (FAR PART 93)</p> <p><i>Appropriate boxed notes as required shown adjacent to area.</i></p>	 <p>SPECIAL NOTICE Pilots are required to obtain an ATC clearance prior to entering this area.</p>	<p>OBSTRUCTIONS</p>  <p>bldg</p>  <p>1000' AGL and higher</p>  <p>300' AGL and higher</p>  <p>or</p>  <p>Group Obstruction</p>  <p>or</p>  <p>Obstruction with high-intensity lights.</p>  <p>2049</p>  <p>(1149)</p>  <p>UC</p> <p>Elevation of the top above mean sea level Height above ground Under Construction or reported and position / elevation unverified</p>	
<p>MODE C (FAR 91.215)</p> <p><i>Appropriate notes as required may be shown.</i></p>	<p>MODE C</p>  <p>30 NM</p>	<p>MAXIMUM ELEVATION FIGURE (MEF)</p> <p>(see page 2 for explanation).</p>	<p>124</p>
<p>MISCELLANEOUS AIRSPACE AREAS</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 033/25 NM N33°59.18' W84°10.62'</p>  <p>ATL 25 NM N33°59.18' W84°10.62'</p>	
<p>SPECIAL CONSERVATION AREAS</p> <p>National Park, Wildlife Refuge, Primitive and Wilderness Areas, etc.</p>	 <p>HAVASU LAKE NATIONAL WILDLIFE REFUGE</p> <p>PALM SPRINGS TRSA</p>  <p>SEE TWR FREQ TAB</p> <p>80 - Ceiling of TRSA in hundreds of feet MSL 40 - Floor of TRSA in hundreds of feet MSL</p>	<p>TERMINAL RADAR SERVICE AREA (TRSA)</p> <p><i>Appropriate notes as required may be shown.</i></p>	


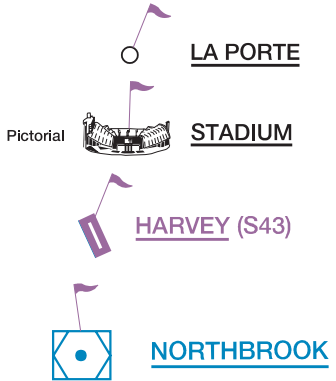

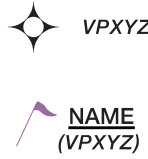
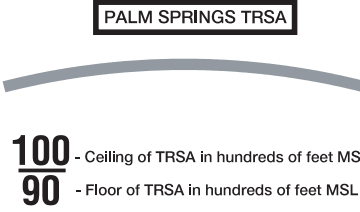
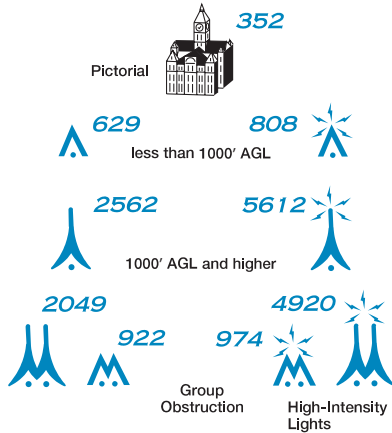

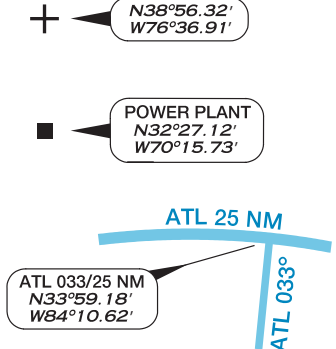
NAVIGATIONAL AND PROCEDURAL INFORMATION	
WARNING AND CAUTION NOTES	<p style="text-align: center;">WARNING Extensive fleet and air operations being conducted in offshore areas to approximately 100 miles seaward.</p> <p style="text-align: center;">CAUTION: Be prepared for loss of horizontal reference at low altitude over lake during hazy conditions and at night.</p>
LOCAL MAGNETIC NOTES	<p style="text-align: center;">Unreliability Notes</p> <p style="text-align: center;">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>
CULTURE	
RAILROADS	<p>Single Track </p> <p>Double Track </p>
ROADS	<p>Dual-Lane: Divided Highways Major Boulevards & Major Streets</p> <p style="text-align: center;">     </p> <p>Primary</p>
BRIDGES	
POPULATED PLACES	<p>Built-up Areas </p>
BOUNDARIES	<p>International </p> <p>State and Provincial </p>

CULTURE	
POWER TRANSMISSION LINES	
PROMINENT PICTORIALS	<p style="text-align: center;"> TEMPLE</p>
LANDMARKS	<ul style="list-style-type: none">  Landmark Feature-stadium, factory, school, etc.  Mines or Quarries  Race Track  Outdoor Theater  Tank-water, oil or gas
HYDROGRAPHY	
SHORELINES	
MAJOR LAKES AND RIVERS	
RESERVOIRS	
RELIEF	
SPOT ELEVATIONS	<p>Position Accurate  405</p>

AIRPORTS		AIRSPACE INFORMATION	
<p>LANDPLANE</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><i>(Pvt) - Non-public use having emergency or landmark value.</i></p>	 <p>NO SVFR RIVERSIDE (RAL)</p> <p>Paved Runways</p>  <p>AGUA DOLCE (L70)</p> <p>Unpaved Runways</p>  <p>(Pvt) COMPTON</p>	<p>CLASS B AIRSPACE</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>LAS VEGAS CLASS B</p>  <p>NAVAID identifier and distance from facility</p> <p>NAVAID identifier and radial from facility</p> <p>CLASS B SURFACE AREA</p> <p>80 - Ceiling of Class B in hundreds of feet MSL</p> <p>40 - Floor of Class B in hundreds of feet MSL</p>
RADIO AIDS TO NAVIGATION		CLASS C AIRSPACE	
<p>VHF OMNI-DIRECTIONAL RADIO RANGE (VOR)</p> <p>VOR</p> <p>VORTAC</p> <p>VOR-DME</p>	 <p>Identifier Frequency</p> <p>MAL 109.6</p>  <p>GCY 113.4</p>  <p>FHM 114.2</p> <p>Underline indicates no voice on this frequency</p>	<p>CLASS C AIRSPACE</p> <p><i>Appropriate notes as required may be shown.</i></p> <p><i>(Mode C see FAR 91.215 /AIM)</i></p>	<p>EL TORO CLASS C</p>  <p>CLASS C SURFACE AREA</p> <p>48 - Ceiling of Class C in hundreds of feet MSL</p> <p>30 - Floor of Class C in hundreds of feet MSL</p> <p>T - Ceiling is to but not including floor of Class B</p> <p>SFC - Surface</p>
<p>NON-DIRECTIONAL RADIOBEACON (NDB)</p> <p>NDB-DME</p>	 <p>WDP 396</p> <p>Underline indicates no voice on this frequency</p>  <p>LSJ 206</p>	<p>CLASS D AIRSPACE</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>
<p>NAVAIDS USED TO DEFINE CLASS B AIRSPACE</p>	 <p>SALT LAKE CITY DME ANTENNA (I-BNT) Ch 52 (111.5)</p>		

AIRSPACE INFORMATION	
CLASS E SURFACE (SFC) AIRSPACE	
SPECIAL AIRSPACE AREAS	
FLIGHT RESTRICTED ZONE RELATING TO NATIONAL SECURITY Example: Washington DC	<div style="border: 1px solid purple; padding: 5px;"> <p>Washington DC Metropolitan Area Air Defense Identification Zone/Flight Restricted Zone restrictions are in effect. Special regulations apply to all aircraft operations below Flight Level 180 in the Washington DC Metropolitan Area. Pilots should contact a local FSS for NOTAM information prior to flight in the Washington DC Metropolitan Area.</p> </div>
Appropriate notes as required may be shown.	
AIR DEFENSE IDENTIFICATION ZONE (ADIZ)	<p style="text-align: center;">WASHINGTON DC METROPOLITAN ADIZ</p>
Note. Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.	
TEMPORARY FLIGHT RESTRICTION (TFR) RELATING TO NATIONAL SECURITY	
Example:	
Appropriate notes as required may be shown.	<div style="border: 1px solid blue; padding: 5px;"> <p>CAUTION P-40 AND R-4009 EXPANDED BY TEMPORARY FLIGHT RESTRICTION. CONTACT AFSS FOR LATEST STATUS AND NOTAMS.</p> </div>

AIRSPACE INFORMATION	
SUGGESTED VFR FLYWAY AND ALTITUDE	
IFR ROUTES	<p>Appropriate notes as required may be shown.</p> <p>Arrival </p> <p>Departure </p>
TRANSITION ROUTES	<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> <p>Uni-directional </p> <p>Bi-directional </p>
SPECIAL USE AIRSPACE	<div style="border: 1px solid blue; padding: 5px; text-align: center;"> <p>P-56 or R-6401 W-518 or A-631</p> <p>PROHIBITED, RESTRICTED ALERT or WARNING AREA</p> </div> <div style="border: 1px solid purple; padding: 5px; text-align: center; margin-top: 10px;"> <p>FALCON 1 MOA</p> <p>MILITARY OPERATIONS AREA (MOA)</p> </div> <p>Only the airspace effective below 18,000 feet MSL is shown.</p>
MILITARY TRAINING ROUTES (MTR)	

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

CULTURE	
RAILROADS Single and Multiple Tracks	
ROADS Dual-Lane Divided Highway Primary	
POPULATED PLACES Built-up Areas Towns	
BOUNDARIES International	
POWER TRANSMISSION LINES	
PROMINENT PICTORIALS	
LANDMARKS	
HYDROGRAPHY	
SHORELINES	
MAJOR LAKES AND RIVERS	
RESERVOIRS	

RELIEF	
Spot Elevations Position Accurate Mountain Peaks	

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:



Blue – Airports with an approved Department of Defense (DoD) Low Altitude Instrument Approach Procedure and/or DoD RADAR MINIMA published in DOD FLIP (Flight Information Publication or the FAA U.S. Terminal Procedures Publication (TPP).

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.

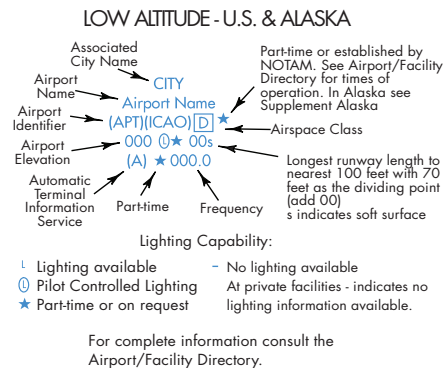
Airports are plotted in their true geographic position unless the symbol conflicts with a radio aid to navigation (NAVAID) at the same location. In such cases, the airport symbol will be displaced, but the relationship between the airport and the NAVAID is retained.

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 Facility), 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.



1. Airport elevation given in feet above or below mean sea level.
2. Pvt - Private use, not available to general public.
3. A solid line box enclosing the airport name indicates FAR 93 Special Requirements- see Directory/Supplement
4. "NO SVFR" above the airport name indicates FAR 91 fixed-wing special VFR flight is prohibited
5. [C] or [D] following the airport identifier indicates Class C or Class D Airspace.
6. Airport symbol may be offset for enroute navigational aids.
7. Associated city names for public airports are shown above or preceding the airport name. If airport name and city name are the same, only the airport name is shown. The airport identifier in parentheses follows the airport name. City names for military and private airports are not shown.

A L symbol following the elevation under the airport name means that runway lights are in operation sunset to sunrise. A @ symbol indicates there is Pilot Controlled Lighting. A L* symbol means the lighting is part-time or on request. The pilot should consult the Airport/Facility Directory for light operating procedures. The Aeronautical 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 NAVAIDs is boxed as illustrated below. To avoid duplication of data, when two or more NAVAIDs in a general area have the same name, the name is usually printed only once inside an identification box with the frequencies, TACAN channel numbers, identification letters, or Morse Code identifications of the different NAVAIDs all shown in appropriate colors.

NAVAIDs which may be, or are, scheduled for some future corrective action within the life-span of the chart shall be indicated by the note "CHECK NOTAMS". The affected component is indicated by diagonal lines over the frequency or channel which indicates an abnormal status.

CHECK NOTAMS

NAME (T) 000.0 IDT 000(Y) ☹☹☹

VOR with TACAN compatible DME

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 at 12,000' AGL - 25NM

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

NAME 000.0 IDT 000 ☹☹☹ (000.0) N00°00.00' W000°00.00'

TACAN Channel paired with VHF Frequency in parenthesis.

Automated Weather Broadcast Systems:

ASOS/AWOS HIWAS TWEB

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

NAME ASOS 000.0 Stand Alone ASOS/AWOS

Part-Time or On-Request

NAME 000 IDT 00(000.0) ☹☹☹

LF/MF Non-directional Radiobeacon/DME VHF Freq paired with TACAN Channel

000.0

NAME 000.0 IDT 000 ☹☹☹ N00°00.00' W000°00.00'

NAME ← FSS name

Freq(s) positioned above thin line NAVAID box is remoted to the NAVAID site. Other freq(s) at the controlling FSS named are available, however, altitude and terrain may determine their reception.

Thin line NAVAID boxes without freq(s) and controlling FSS name indicates no FSS freq(s) available.

000.0 000.0

NAME 000.0 IDT 000 ☹☹☹ N00°00.00' W000°00.00'

Shadow NAVAID box indicates NAVAID and Flight Service Station (FSS) have same name

000.0 000.0

NAME IDT FSS Name and identifier not associated with NAVAID

000.0 000.0

NAME Remote Communications Outlet (RCO). FSS name and remoted freq(s) are shown.


SHADOW BOXES indicate Flight Service Stations (FSS). 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. 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

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  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:

NOSVFR AIRPORTNAME

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.

NEW YORK WASHINGTON Air Route Traffic Control Center (ARTCC)

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

WASHINGTON Hagerstown 134.15 385.4 ARTCC Remoted Sites with discrete VHF and UHF frequencies

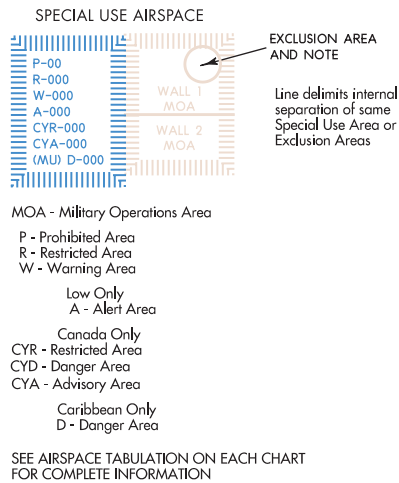
CONTROLLED AIRSPACE

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.

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 (R-4001), 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 Aeronautical 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 NAVAIDs—are depicted in black and identified by a "V" (Victor) followed by the route number

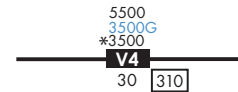
(e.g., "V12"). In Alaska, some segments of low-altitude airways are based on LF/MF navaids and are charted in brown instead of black.

LF/MF airways—airways based on LF/MF NAVAIDs—are sometimes called "colored airways" because they are identified by color name and number (e.g., "Amber One", charted as "A1"). 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.

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 NAVAIDs are defined by the outbound radial from the NAVAID. Airways/Routes predicated on LF/MF NAVAIDs are defined by the inbound bearing.



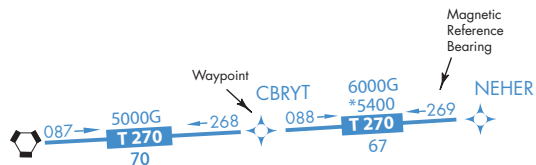
Victor Route (with RNAV/GPS MEA shown in blue)

AREA NAVIGATION (RNAV) "T" ROUTE SYSTEM

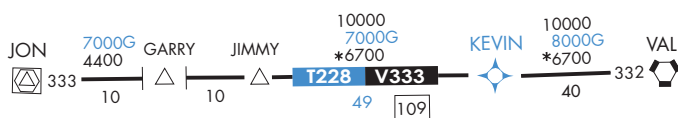
The FAA has created new low altitude area navigation (RNAV) routes for the en route and terminal environments. The RNAV routes will provide more direct routing for IFR aircraft and enhance the safety and efficiency of the National Airspace System. To utilize these routes aircraft will need to be equipped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

Low altitude RNAV only routes are identified by the letter "T" prefix, followed by a three digit number (T-200 to T-500). Routes are depicted in aeronautical blue on the IFR Enroute Low Altitude charts. RNAV route data (route line, identification boxes, mileages, waypoints, waypoint names, magnetic reference bearings, and MEAs) will also be printed in aeronautical blue. Magnetic reference bearings will be shown originating from a waypoint, fix/reporting point or NAVAID. A GNSS minimum IFR en route altitude (MEA) for each segment will be established to ensure obstacle clearance and

communications reception. MEAs will be identified with a "G" suffix..



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



OFF ROUTE OBSTRUCTION CLEARANCE ALTITUDE (OROCA)

The Off Route Obstruction Clearance Altitude (OROCA) is 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.

12⁵

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. For areas in Mexico and the Caribbean, located outside the U.S. ADIZ, the OROCA provides obstruction clearance with a 3,000 foot vertical buffer. 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, highspeed 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. —IR-000—→

Route segments with a width greater than 5 NM, either or both sides of the centerline, are shown by a .035" line. —VR-000—→

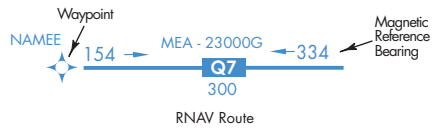
JET ROUTE SYSTEM (HIGH ALTITUDE ENROUTE CHARTS)

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

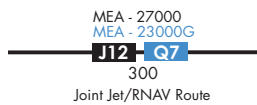
AREA NAVIGATION (RNAV) "Q" ROUTE SYSTEM (HIGH ALTITUDE ENROUTE CHARTS)

The FAA has 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). RNAV "Q" Route MEAs are shown when other than 18,000'. MEAs for GNSS RNAV aircraft are identified with a "G" suffix. MEAs for DME/DME/IRU RNAV aircraft do not have a

“G” suffix.. RNAV routes and associated data are charted



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



TERRAIN CONTOURS ON AREA CHARTS

The National Transportation Safety Board (NTSB) 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, Phoenix, 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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Oceanic Route Charts

North Atlantic and North Pacific Route Charts

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GENERAL INFORMATION

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

AIRPORTS	
AIRPORT DATA	<p style="text-align: center;">LOW/HIGH ALTITUDE</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 FAA TPP. 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>

AIRPORT DATA DEPICTION	<p style="text-align: center;">LOW ALTITUDE - U.S. & ALASKA</p> <p>Associated City Name → CITY</p> <p>Airport Name → Airport Name</p> <p>Airport Identifier → (APT)(ICAO) [] *</p> <p>Airspace Class → []</p> <p>Airport Elevation → 000 (A) * 000.0</p> <p>Automatic Terminal Information Service → 000</p> <p>Part-time → *</p> <p>Frequency → *</p> <p>Longest runway length to nearest 100 feet with 70 feet as the dividing point (add 00) s indicates soft surface</p> <p>Lighting Capability: ↓ Lighting available - No lighting available 0 Pilot Controlled Lighting At private facilities - indicates no lighting information available. ★ Part-time or on request</p> <p>For complete information consult the Airport/Facility Directory.</p> <ol style="list-style-type: none"> Airport elevation given in feet above or below mean sea level Pvt - Private use, not available to general public. A solid line box enclosing the airport name indicates FAR 93 Special Requirements- see Directory/Supplement "NO SVFR" above the airport name indicates FAR 91 fixed-wing special VFR flight is prohibited [C] or [D] following the airport identifier indicates Class C or Class D Airspace. Airport symbol may be offset for enroute navigational aids. Associated city names for public airports are shown above or preceding the airport name. If airport name and city name are the same, only the airport name is shown. The airport identifier in parentheses follows the airport name. City names for military and private airports are not shown.
	<p style="text-align: center;">HIGH ALTITUDE - U.S.</p> <p>Associated City Name → CITY</p> <p>Airport Name → Airport Name</p> <p>Airport Identifier → (APT)</p>
	<p style="text-align: center;">HIGH ALTITUDE - ALASKA</p> <p>Airport Name → Airport Name</p> <p>Associated City Name → CITY</p> <p>Airport Identifier → (APT)(ICAO)</p> <p>Airport Elevation → 000 (A) * 000.0</p> <p>Automatic Terminal Information Service → 000</p> <p>Part-time → *</p> <p>Frequency → *</p> <p>Longest runway length to nearest 100 feet with 70 feet as the dividing point (add 00) s indicates soft surface</p>

AIRPORTS	
CIVIL	<p>LOW/ HIGH ALTITUDE</p>
CIVIL AND MILITARY	<p>LOW/ HIGH ALTITUDE</p>
MILITARY	<p>LOW/ HIGH ALTITUDE</p>
SEAPLANE - CIVIL	<p>LOW ALTITUDE</p>
HELIPORT	<p>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>VOR/DME RNAV WAYPOINT DATA</p>	<p>HIGH ALTITUDE - ALASKA</p> <p>Coordinates</p> <p>NAME</p> <p>Frequency</p> <p>Identifier</p> <p>Radial/Distance (Facility to Wwaypoint)</p> <p>Reference Facility Elevation</p>
<p>RNAV WAYPOINT</p>	<p>LOW/ HIGH ALTITUDE</p> <p>NAMEE</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>(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>(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>Part-time or On-Request</p> <p>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>EL DORADO ELD</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) FSS name and remoted frequency are shown</p> <p>122.6</p> <p>Controlling FSS Name</p> <p>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>○ Flight Service Station (FSS), Remote Communications Outlet (RCO) or Automated Weather Observing Station (AWOS/ASOS) not associated with a charted NAVAID or airport.</p>

AIRSPACE INFORMATION	
LOW ALTITUDE AIRWAYS HIGH ALTITUDE ROUTES	<p>LOW/HIGH ALTITUDE</p> <p>VHF / UHF Data is depicted in Black LF / MF Data is depicted in Brown RNAV Route data is depicted in Blue</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> Low Altitude RNAV Route GNSS Required</p>
	<p>HIGH ALTITUDE</p> <p>Waypoint NAMEE 154 → MEA - 23000G → Q7 300 ← 334 Magnetic Reference Bearing RNAV Route</p> <p>MEA - 27000 MEA - 23000G J12 - Q7 300 Joint Jet/RNAV Route</p>
SINGLE DIRECTION ROUTES	<p> 1000-0600Z → Effective Times of Route → 1300-0600Z </p> <p>Other times routes revert to bi-directional</p>
	<p>HIGH ALTITUDE</p> <p> AIR TRAFFIC SERVICE (ATS) ROUTE</p>
DIRECTION OF FLIGHT INDICATOR	<p>LOW ALTITUDE - CANADA</p> <p>←EVEN</p>
SUBSTITUTE ROUTE	<p>LOW/ HIGH ALTITUDE</p> <p> All relative and supporting data shown in brown</p> <p>See NOTAMS or appropriate publication for specific information</p>
UNUSABLE ROUTE	<p>LOW ALTITUDE HIGH ALTITUDE</p> <p></p>
BY-PASS ROUTE	<p>HIGH ALTITUDE</p> <p>Jet Route centerline by-passing a facility which is not part of that specific route</p> <p></p>
AIRWAY RESTRICTION	<p>LOW ALTITUDE</p> <p>Airway penetrates Prohibited & Restricted Airspace</p> <p></p>

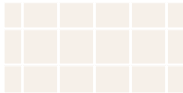

AIRSPACE INFORMATION	
MILITARY TRAINING ROUTES (MTR)	<p>LOW ALTITUDE</p> <p>MTRs 5 NM or less both sides of centerline</p> <p> </p> <p>MTRs greater than 5 NM either or both sides of centerline</p> <p> </p> <p>Arrow indicates direction of route</p> <p>See MTR tabulation for altitude range information</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>
	<p>FIXES/ATC REPORTING REQUIREMENTS</p> <p>LOW/HIGH ALTITUDE</p> <p>VHF/UHF LF/MF </p> <p> Fix-Compulsory Position Report</p> <p>NAMEE $N00^{\circ}00.00'$ $W00^{\circ}00.00'$ NAMEE $N00^{\circ}00.00'$ $W00^{\circ}00.00'$ Coordinates are shown for compulsory, offshore and holding fixes</p> <p> NAMEE NAMEE Fix-Non-Compulsory Position Report</p> <p>Off-set arrows indicate facility forming a fix</p> <p> Airway away from VHF/UHF NAVAID</p> <p> Airway toward LF/MF NAVAID</p> <p>RNAV </p> <p> Waypoint-Compulsory Report</p> <p> Waypoint-Non-Compulsory Report</p>
TACTICAL AIR NAVIGATION (TACAN) FIX - ALASKA	<p>LOW/ HIGH ALTITUDE</p> <p>Ident Channel</p> <p>Radial from TACAN Distance from TACAN</p>
RADIALS AND BEARINGS	<p>LOW/ HIGH ALTITUDE</p> <p> Radial outbound from a VHF / UHF NAVAID</p> <p> Bearing inbound to a LF / MF NAVAID</p>
FACILITY LOCATORS	<p>LOW/ HIGH ALTITUDE</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>
MILEAGES	<p>LOW /HIGH ALTITUDE</p> <p> Total Mileage between Compulsory Reporting Points and/or NAVAIDs</p> <p> Mileage between other Fixes, NAVAIDs and/or Mileage Breakdown</p> <p> Mileage Breakdown or Computer Navigation Fix (CNF)(no ATC function)</p> <p>(RCRCP) Five-letter identifier in parenthesis indicates CNF with no ATC function</p>
	<p>DISTANCE MEASURING EQUIPMENT (DME) FIX</p> <p>LOW/ HIGH ALTITUDE</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>MINIMUM ENROUTE ALTITUDE (MEA)</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>MEA-31000</p> <p>Shown along Routes when other than 18,000'</p>
<p>MINIMUM ENROUTE ALTITUDE (MEA) GAP</p>	<p>LOW/HIGH ALTITUDE</p> <p>MEA GAP</p> <p>MEA is established when there is a gap in navigation signal coverage</p>
<p>MAXIMUM AUTHORIZED ALTITUDE (MAA)</p> <p><i>All Altitudes Are MSL Unless Otherwise Noted</i></p>	<p>LOW ALTITUDE</p> <p>MAA-15500</p> <p>HIGH ALTITUDE</p> <p>MAA-41000</p> <p>Shown along Routes when other than 45,000'</p>
<p>MINIMUM OBSTRUCTION CLEARANCE ALTITUDE (MOCA)</p> <p><i>All Altitudes Are MSL Unless Otherwise Noted</i></p>	<p>LOW ALTITUDE</p> <p>MOCA</p>
<p>CHANGEOVER POINT</p>	<p>LOW/ HIGH ALTITUDE</p> <p>VOR Changeover Point giving mileage to NAVAIDs (Not shown at midpoint locations)</p>
<p>ALTITUDE CHANGE</p>	<p>LOW/ HIGH ALTITUDE</p> <p>MEA, MOCA and / or MAA change at other than NAVAIDs</p>
<p>MINIMUM CROSSING ALTITUDE (MCA)</p>	<p>LOW/ HIGH ALTITUDE</p>
<p>MINIMUM RECEPTION ALTITUDE (MRA)</p>	<p>LOW/HIGH ALTITUDE</p>
<p>HOLDING PATTERNS</p> <p><i>RNAV Holding Pattern Magnetic Reference Bearing is determined by the isogonic value at the waypoint or fix.</i></p>	<p>LOW/HIGH ALTITUDE</p> <p>NAMEE</p> <p>NAMEE</p> <p>Holding reporting points have coordinate values shown</p> <p>Left Turn</p> <p>Right Turn</p> <p>(IAS) 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> <p>Magnetic Reference Bearing</p> <p>Waypoint</p> <p>NAMEE</p> <p>RNAV Holding</p>

AIRSPACE INFORMATION	
<p>AIR DEFENSE IDENTIFICATION ZONE (ADIZ)</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>AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)</p>	<p>LOW/ HIGH ALTITUDE</p> <p>NEW YORK</p> <p>WASHINGTON</p> <p>WASHINGTON Hagerstown 134.15 385.4</p> <p>ARTCC Remoted Sites with discrete VHF and UHF frequencies</p>
<p>AIR TRAFFIC SERVICE IDENTIFICATION DATA</p>	<p>LOW/ HIGH ALTITUDE</p> <p>CTA/FR</p> <p>MIAMI OCEANIC</p> <p>KZMA</p> <p>FL 180</p> <p>FLND</p> <p>NY RADIO 129.9</p> <p>Type of Area Traffic Service</p> <p>Ceiling</p> <p>Floor</p> <p>Call Sign</p> <p>Frequency</p>
<p>ALTIMETER SETTING CHANGE</p>	<p>LOW ALTITUDE</p> <p>QNH</p> <p>ALTIMETER</p> <p>QNE</p>
<p>FLIGHT INFORMATION REGIONS (FIR)</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>CONTROL AREAS (CTA)</p>	<p>LOW/ HIGH ALTITUDE</p> <p>MIAMI OCEANIC CTA/FR KZMA</p> <p>NEW YORK OCEANIC CTA/FR KZNY</p> <p>MIAMI OCEANIC CTA/FR KZMA</p> <p>Adjoining CTA</p>
<p>UPPER INFORMATION REGIONS (UIR)</p> <p>UPPER CONTROL AREAS (UTA)</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/FR KZHU</p> <p>MONTERREY FIR/UIR MMTY</p> <p>Adjoining UTA / UIR</p> <p>Adjoining FIR and UIR</p>
<p>ADDITIONAL CONTROL AREAS</p>	<p>LOW ALTITUDE</p> <p>CONTROL 1234L</p> <p>HIGH ALTITUDE</p> <p>CONTROL 1234H</p>

AIRSPACE INFORMATION	
<p>OFF ROUTE OBSTRUCTION CLEARANCE ALTITUDE (OROCA)</p>	<p style="text-align: center;">LOW ALTITUDE</p> <p style="font-size: 2em; text-align: center;">12⁵</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>SPECIAL USE AIRSPACE</p>	<p style="text-align: center;">LOW/ HIGH ALTITUDE</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>P - Prohibited Area R - Restricted Area W - Warning Area</p> <p>Low Only A - Alert Area</p> <p>Canada Only CYR - Restricted Area CYD - Danger Area CYA - Advisory Area</p> <p>Caribbean Only D - Danger Area</p> </div> <div style="width: 45%;"> <p>In the Caribbean, the first 2 letters represent the country code, i.e. MY: Bahamas, MU: Cuba</p> <p>EXCLUSION AREA AND NOTE</p> <p>Internal lines delimit separation of the same Special Use Areas or Exclusion Areas</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>SPECIAL USE AIRSPACE Continued</p>	<p style="text-align: center;">LOW ALTITUDE</p> <p>MOA - Military Operations Area</p> <p>EXCLUSION AREA AND NOTE</p> <p>Internal lines delimit separation of the same Special Use Area or Exclusion Areas</p> <p>SEE AIRSPACE TABULATION ON EACH CHART FOR COMPLETE INFORMATION ON:</p> <p>AREA IDENTIFICATION EFFECTIVE ALTITUDE OPERATING TIME CONTROLLING AGENCY VOICE CALL</p>

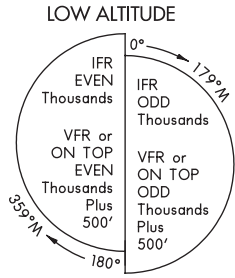
AIRSPACE INFORMATION	
<p>CONTROLLED AIRSPACE</p>	<p style="text-align: center;">HIGH ALTITUDE</p> <p style="text-align: center;">CLASS A AIRSPACE</p> <p style="text-align: center;">Open Area (White)</p> <p>That airspace from 18,000' MSL to and including FL 600, including the airspace overlying the waters 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>CONTROLLED AIRSPACE</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> <p style="border: 1px solid black; padding: 2px; font-size: 0.8em;">CLASS B AIRSPACE SEE ATLANTA VFR TERMINAL AREA CHART FOR DETAILS</p>
<p>CONTROLLED AIRSPACE</p>	<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>
<p>CONTROLLED AIRSPACE</p>	<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	
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: 5px 0;"> <p>DOD USERS REFER TO CURRENT DOD (NGA) CHARTS AND FLIGHT INFORMATION PUBLICATIONS FOR INFORMATION OUTSIDE OF U.S. AIRSPACE</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <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; margin: 5px 0;"> <p>AIRSPACE CLASSIFICATION (SEE CANADA FLIGHT SUPPLEMENT) AND OPERATIONAL REQUIREMENTS (DOD USERS SEE DOD AREA PLANNING AP/11) MAY DIFFER BETWEEN CANADA AND THE UNITED STATES</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 Hawaii.</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/HIGH ALTITUDE</p> 

NAVIGATIONAL AND PROCEDURAL INFORMATION

CRUISING ALTITUDES U.S. only



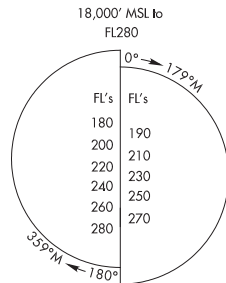
VFR above 3000' AGL unless otherwise authorized by ATC

IFR outside controlled airspace

IFR within controlled airspace as assigned by ATC

All courses are magnetic

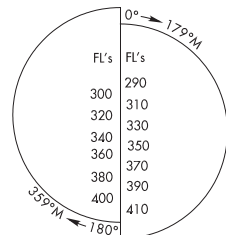
HIGH ALTITUDE



VFR or VFR On Top add 500'

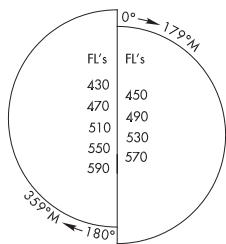
No VFR flights within Class A Airspace above 3000' AGL unless otherwise authorized by ATC.

RVSM Levels FL290 to FL410



No VFR or VFR On Top authorized above FL285 in RVSM airspace.

FL430 and Above



IFR within controlled airspace as assigned by ATC All courses are magnetic

NAVIGATIONAL AND PROCEDURAL INFORMATION

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).

MORSE CODE

LOW/ HIGH ALTITUDE

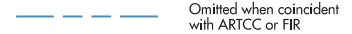
A ---	N ---	1 -----
B ----	O ----	2 -----
C ----	P ----	3 -----
D ---	Q ----	4 -----
E -	R ---	5 -----
F ----	S ---	6 -----
G ---	T -	7 -----
H ----	U ----	8 -----
I --	V ----	9 -----
J ----	W ----	0 -----
K ---	X ----	
L ----	Y ----	
M ---	Z ----	

CULTURE

BOUNDARIES

LOW/ HIGH ALTITUDE

International



U.S. /Russia Maritime Line

LOW/ HIGH ALTITUDE



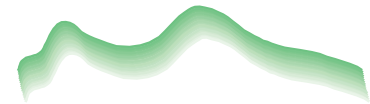
Date Line

LOW/ HIGH ALTITUDE



HYDROGRAPHY

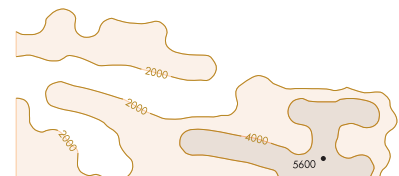
SHORELINE



TOPOGRAPHY







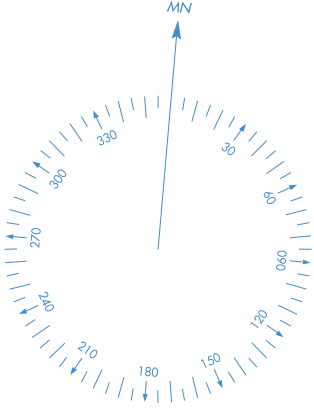

TERRAIN

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 One Way FL 180/270</p> <p>AR-903 E,W Two Way FL 180/270</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 Compulsory Latitude & Longitude — N20°52.7' W80°00.0'</p> <p> Non-Compulsory</p> <p> Waypoint</p>
SPECIAL USE AIRSPACE	<p>W-470 W517 </p> <p>Warning Area NARC NPRC</p> <p>Special Use ATLANTIC FLEET WEAPONS RANGE</p> <p>12 Mile Limit </p>
UNCONTROLLED AIRSPACE	

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

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 245°	Rwy Idg TDZE Apt Elev	4600 326 328	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 TBUGE WP and hold.	
ATIS* 120.15	SOCAL APP CON 127.3 323.0	PALOMAR TOWER* 118.6 (CTAF) 392.0	GND CON 121.8	CLNC DEL 134.85

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 boxed.

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.

PLANVIEW

The majority of instrument flight procedure charts contain a reference or distance circle. In such cases only the data within the reference circle is drawn to scale. This circle is centered on an approach fix and normally has a radius of 10 NM, unless otherwise indicated. When a route segment, outside the circle, is not to scale the **W** symbol interrupts the segment.

Obstacles close-in to the airport that can not be properly depicted in the planview are shown on the airport sketch. Some of these obstacles could be controlling obstructions for instrument procedures.

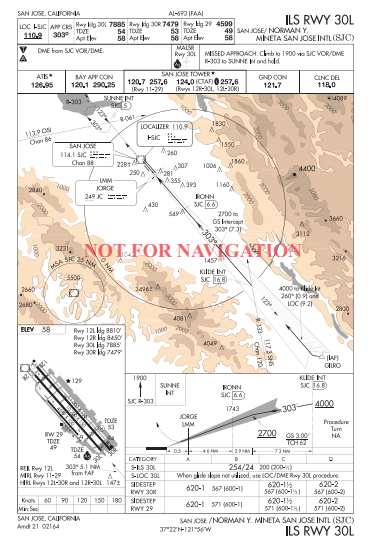
Terrain Depiction

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.



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	(300-34)	
LNAV/VNAV DA	500/50		454 (500-1)		
LNAV MDA	640/40	594 (600-¾)	640/50 594 (600-1)	640/60 594 (600-1¼)	640-1½ 594 (600-1½)
CIRCLING	640-1½ 594 (600-1½)		640-2 594 (600-2)		740-2½ 694 (700-2½)

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) 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) and precise lateral based on WAAS

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 approved 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-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."

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."

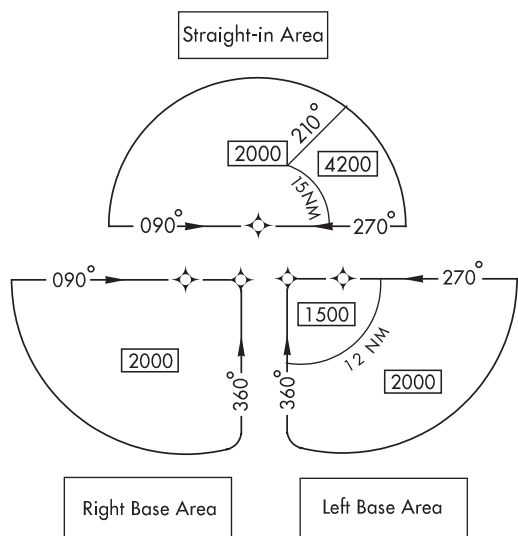
TERMINAL ARRIVAL AREAS (TAAs)

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' ceiling and 2 statute miles visibility; nonprecision approaches require an 800' 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 **▲_{NA}** 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 should be flown if visual avoidance of terrain/obstacles cannot be maintained.

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 those aircraft 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; however, 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 DEPAR-

TURE 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.

There are two types of RNAV SIDs and graphic Obstacle DPs (ODPs): Type A and Type B. Type A generally starts with a heading or vector from the departure runway end and Type B generally starts with an initial RNAV leg near the departure runway end. Type A procedures require the aircraft's track keeping accuracy remain bounded by ± 2 NM for 95% of the total flight time (Type B bounded by ± 1 NM). See the AIM for more specific information.

RNAV Procedures Legs (IAPs, SIDs/DPs and STARs)

Due to the variations in the development, documentation, charting and database coding of RNAV Procedures (IAPs, STARs SIDs/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° 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 Format

Pilot Briefing Information

JACKSONVILLE, FLORIDA AL-5570 (FAA)

APP CRS 133°	Rwy Idg 7701	TDZE 27	Apt Elev 30
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RNAV (GPS) RWY 13
JACKSONVILLE INTL (JAX)

NA Baro-VNAV not authorized below -15° C (5° F).
GPS or RNP-0.3 Required.
ASR DME/DME RNP-0.3 not authorized.

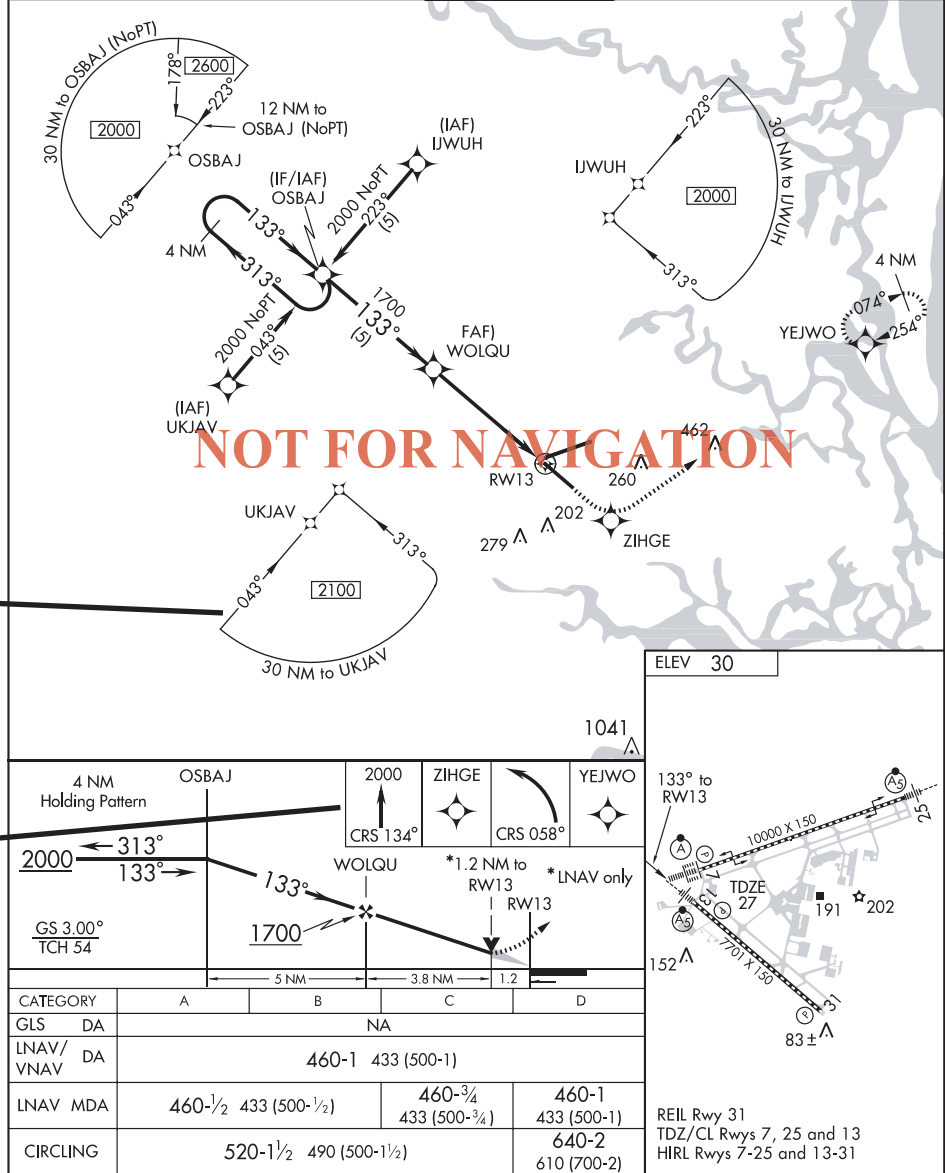
MALSR MISSED APPROACH: Climb to 2000 via course 134° to ZIHGE WP then left turn via course 058° to YEJWO WP and hold.

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

Missed Approach Icons

RNAV Minima



JACKSONVILLE, FLORIDA JACKSONVILLE INTL (JAX)
Orig 05020 30° 30' N-81° 41' W **RNAV (GPS) RWY 13**














TERMINAL PROCEDURES PUBLICATION SYMBOLS






AERONAUTICAL INFORMATION

STANDARD TERMINAL ARRIVAL (STAR) CHARTS	58
DEPARTURE PROCEDURE (DP) CHARTS	58
APPROACH LIGHTING SYSTEM	59
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INSTRUMENT APPROACH PROCEDURES PLAN VIEW	64
INSTRUMENT APPROACH PROCEDURES PROFILE VIEW	66

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>RADIO AIDS TO NAVIGATION</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  VOR </div> <div style="text-align: center;">  TACAN </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  VOR/DME </div> <div style="text-align: center;">  NDB/DME </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  VORTAC </div> <div style="text-align: center;">  LOC/DME </div> </div> <div style="text-align: center; margin-top: 10px;">  LOC </div> <div style="margin-top: 10px;">  NDB (Non-directional Beacon) </div> <div style="margin-top: 10px;">  LMM, LOM (Compass locator) </div> <div style="margin-top: 10px;">  Marker Beacon </div> <div style="margin-top: 10px;">  Localizer Course </div> <div style="margin-top: 10px;">  SDF Course </div> <div style="margin-top: 10px;"> <p>(T) indicates frequency protection range Identifier</p> <p>(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>Geographic Position</p> <p>ORLANDO</p> <p>L-19, H-5 DME or TACAN Channel Reference</p> </div> <p>Underline indicates no voice transmitted on this frequency</p> <p>Coordinates</p> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>PRAYS - Waypoint Name</p> <p>N38° 58.30' W89° 51.50'</p> <p>112.7 CAP 187.1°-56.2</p> <p>590 Radial-Distance (Facility to Waypoint)</p> <p>Identifier Reference Facility Elevation</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>LOCALIZER 108.5</p> <p>I-PZV Chan 22 LOC offset 3.02°</p> <p>Localizer Offset</p> </div> </div>
<p>REPORTING POINTS/FIXES WAYPOINTS</p>	<p>Reporting Points N00° 00.00' W00° 00.00'</p> <p> 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>X (NAME) ("X" omitted when it conflicts with runway pattern)</p> <p>◆ WAYPOINT (Compulsory)</p> <p>◇ WAYPOINT (Non-Compulsory)</p> <p>⊕ ⊙ ⊙ FLYOVER POINT</p> <p>⊕ MAP WP (Flyover)</p>

STANDARD TERMINAL ARRIVAL (STAR) CHARTS DEPARTURE PROCEDURE (DP) CHARTS	
<p>ROUTES</p>	<p>4500 MEA-Minimum Enroute Altitude</p> <p>*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>..... Last Communications Track</p> <p>V12 J80 Airway/Jet Route Identification</p> <p>(IAS) Holding Pattern</p> <p>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>
<p>SPECIAL USE AIRSPACE</p>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">R-352</div> <div>R-Restricted</div> <div>W-Warning</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div>P-Prohibited</div> <div>A-Alert</div> </div>
<p>ALTITUDES</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><u>5500</u></p> <p>Mandatory Altitude</p> <p>(Cross at)</p> </div> <div style="text-align: center;"> <p><u>2300</u></p> <p>Minimum Altitude</p> <p>(Cross at or above)</p> </div> <div style="text-align: center;"> <p><u>4800</u></p> <p>Maximum Altitude</p> <p>(Cross at or below)</p> </div> <div style="text-align: center;"> <p><u>2200</u></p> <p>Recommended Altitude</p> </div> </div> <p style="text-align: center;">MCA (Minimum Crossing Altitude)</p> <p>→ Altitude change at other than Radio Aids</p> <p>All altitudes/elevations are in feet-MSL.</p> <p>MRA- Minimum Reception Altitude.</p> <p>MAA- Maximum Authorized Altitude.</p>
<p>AIRPORTS</p>	<p>STAR Charts</p> <div style="display: flex; justify-content: space-around;"> <div> Civil</div> <div> Military</div> <div> Joint Civil-Military</div> </div> <p>DP Charts</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div></div> <div></div> </div>
<p>NOTES</p>	<p>All mileages are nautical.</p> <p># Indicates control tower temporarily closed UFN.</p> <p>* Indicates a non-continuously operating facility, see A/FD or flight supplement.</p> <p>All radials, bearings are magnetic.</p> <p>(NAME2.NAME) - Example of DP flight plan Computer Code.</p> <p>(NAME.NAME2) - Example of STAR flight plan Computer Code.</p> <p>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>TDZ/CL</p> <p>RUNWAY CENTERLINE LIGHTS</p> <p>CL</p> <p>TDZL</p>
APPROACH LIGHTING SYSTEM	<p>ALSF-2</p> <p>ALSF-2</p> <p>GREEN</p> <p>WHITE</p> <p>RED</p> <p>SEQUENCED FLASHING LIGHTS</p> <p>NOTE: CIVIL ALSF-2 MAY BE OPERATED AS SSALR DURING FAVORABLE WEATHER CONDITIONS</p> <p>(High Intensity) LENGTH 2400/3000 FEET</p>
APPROACH LIGHTING SYSTEM	<p>ALSF-1</p> <p>ALSF-1</p> <p>GREEN</p> <p>RED</p> <p>WHITE</p> <p>SEQUENCED FLASHING LIGHTS</p> <p>(High Intensity) LENGTH 2400/3000 FEET</p>

APPROACH LIGHTING SYSTEM	
SHORT APPROACH LIGHTING SYSTEM	<p>SALS/SALSF (High Intensity)</p> <p>SAME AS INNER 1500' of ALSF-1</p>
SIMPLIFIED SHORT APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS	<p>SSALR</p> <p>GREEN</p> <p>WHITE</p> <p>SEQUENCED FLASHING LIGHTS</p> <p>(High Intensity) LENGTH 2400/3000 FEET</p>
MEDIUM INTENSITY (MALS AND MALSF) OR SIMPLIFIED SHORT (SSALS AND SSALF) APPROACH LIGHTING SYSTEMS	<p>MALS, MALSF, SSALS, SSALF</p> <p>GREEN</p> <p>SEQUENCED FLASHING LIGHTS FOR MALSF/SSALF ONLY</p> <p>WHITE</p> <p>LENGTH 1400 FEET</p>
MEDIUM INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS	<p>MALSR</p> <p>SAME LIGHT CONFIGURATION AS SSALR.</p>
OMNIDIRECTIONAL APPROACH LIGHTING SYSTEM	<p>ODALS</p> <p>36 THRESHOLD</p> <p>SEQUENCED FLASHING LIGHTS</p> <p>LENGTH 1500 FEET</p>

APPROACH LIGHTING SYSTEM	
<p>VISUAL APPROACH SLOPE INDICATOR</p> <p style="text-align: center; padding: 10px;">VASI</p>	<p style="text-align: center;">(V) VASI</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>"T"-VISUAL APPROACH SLOPE INDICATOR</p> <p style="text-align: center; padding: 10px;">"T"-VASI</p>	<p style="text-align: center;">(V₁) "T"-VASI</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> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> </div>
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APPROACH LIGHTING SYSTEM	
<p>VISUAL APPROACH SLOPE INDICATOR</p> <p style="text-align: center; padding: 10px;">VASI</p>	<p style="text-align: center;">(V₃) VASI</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>PRECISION APPROACH PATH INDICATOR</p> <p style="text-align: center; padding: 10px;">PAPI</p>	<p style="text-align: center;">(P) PAPI</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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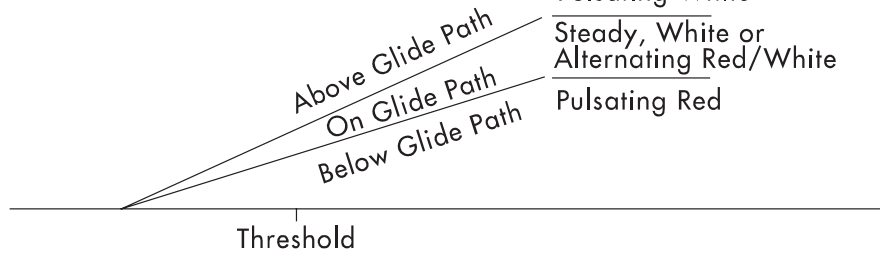
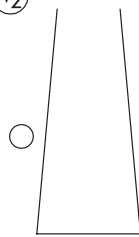
APPROACH LIGHTING SYSTEM

PULSATING VISUAL APPROACH SLOPE INDICATOR

PVASI

(V₂)

PVASI



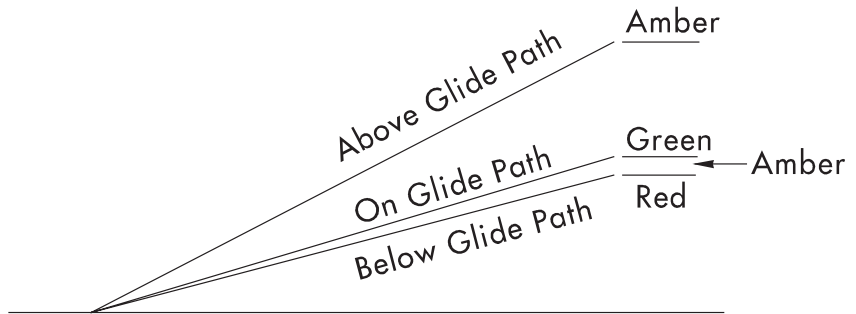
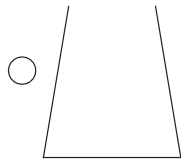
CAUTION: When viewing the pulsating visual approach slope indicators in the pulsating white or pulsating red sectors, it is possible to mistake this lighting aid for another aircraft or a ground vehicle. Pilots should exercise caution when using this type of system.

TRI-COLOR VISUAL APPROACH SLOPE INDICATOR

TRCV

(V₄)

TRCV



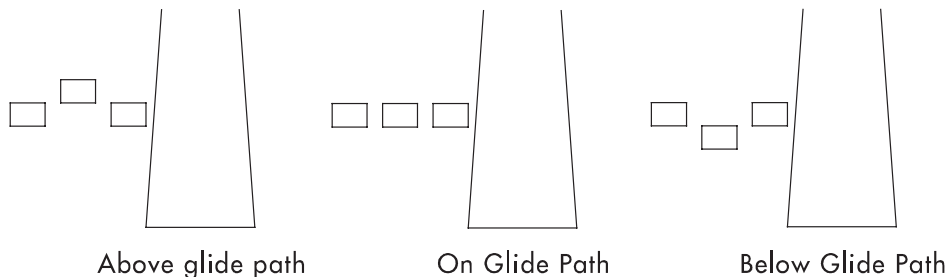
CAUTION: When the aircraft descends from green to red, the pilot may see a dark amber color during the transition from green to red.

ALIGNMENT OF ELEMENT SYSTEMS






APAP

(V₅)

APAP



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	
<p>ARRESTING GEAR</p>	 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>
<p>REFERENCE FEATURES</p>	<ul style="list-style-type: none"> ■ Buildings ● Tanks △ Obstruction △ Highest Obstruction ☆ Airport Beacon ⌘ Runway Radar Reflectors ■ Control Tower # <p># When Control Tower and Rotating Beacon are co-located, Beacon symbol will be used and further identified as TWR.</p> <p>Helicopter Alighting Areas</p>  <p>Negative Symbols used to identify Copter Procedures landing point</p>  <p>TDZE 123 Runway TDZ elevation —0.3% DOWN 0.8% UP— Runway Slope (shown when runway slope equals or exceeds 0.3%) NOTE: Runway Slope measured to midpoint on runways 8000 feet or longer.</p>

AIRPORT DIAGRAM/SKETCH	
<p>NOTES</p>	<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>

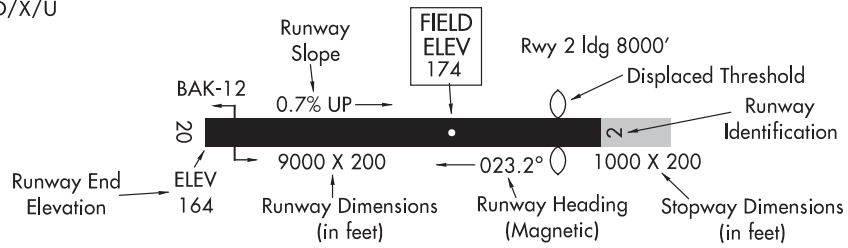
AIRPORT DIAGRAM/SKETCH

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	<p>Procedure Track </p> <p>Missed Approached </p> <p>Visual Flight Path </p> <p>Procedure Turn (Type degree and point of turn optional) </p> <p></p>
HOLDING PATTERNS	<p style="text-align: center;">In lieu of Procedure Turn</p> <p style="text-align: center;"></p> <p>Missed Approach </p> <p>Arrival </p> <p>Limits will only be specified when they deviate from the standard. Holding pattern with max. restricted airspeed: (175K) applies to all altitudes. (210K) applies to altitudes above 6000' to and including 14000'. DME fixes may be shown.</p>
REPORTING POINTS / FIXES/ WAYPOINTS	<p>NAVAID Fix</p> <ul style="list-style-type: none"> Compulsory Position Report Non-Compulsory Position Report <p>RNAV Waypoint</p> <ul style="list-style-type: none"> Compulsory Position Report Non-Compulsory Position Report <p>Flyover Point Intersection MAP WP (Flyover)</p> <p></p> <p>Computer Navigation Fix (CNF) x (NAME) ("x" omitted when it conflicts with runway pattern)</p> <p></p> <ul style="list-style-type: none"> R-198 → Radial line and value LR-198 → Lead Radial LB-198 → Lead Bearing

INSTRUMENT APPROACH PROCEDURES PLAN VIEW

RADIO AIDS TO NAVIGATIONS	<ul style="list-style-type: none"> VOR TACAN NDB VOR/DME VORTAC NDB/DME <p>LOM/LMM (Compass locator at Outer/Middle Marker) </p> <p>Marker Beacon </p> <p>Localizer (LOC/LDA) Course </p> <p style="font-size: small;">Right side shading-Front Course; Left side shading-Back Course</p> <p>SDF Course </p> <p style="text-align: center;">180° → MLS Approach Azimuth</p> <p>MLS Identifier </p> <p style="font-size: x-small;">MICROWAVE Chan 51.4 M-VDZ Glidepath 6.20° DME 111.5 Chan 48(Y)</p> <p style="font-size: x-small;">(Y) TACAN must be in "Y" mode to receive distance information.</p> <p><input checked="" type="checkbox"/> LOC/DME</p> <p><input type="checkbox"/> LOC/LDA/SDF/MLS Transmitter (shown when installation is offset from its normal position off the end of the runway.)</p> <p></p> <p style="font-size: x-small;">LOCALIZER 108.5 I-PZV Chan 22 LOC offset 3.02°</p> <p style="font-size: x-small;">Localizer Offset</p> <p>Waypoint Data</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr> <td>Coordinates</td> <td>N38° 58.30' W89° 51.50'</td> <td>Waypoint Name</td> <td>PRAYS</td> </tr> <tr> <td>Frequency</td> <td>112.7 CAP 187.1°-56.2</td> <td>Radial-Distance (Facility to Waypoint)</td> <td>590</td> </tr> <tr> <td>Identifier</td> <td>Reference Facility Elevation</td> <td></td> <td></td> </tr> </table> <p>Primary Navaid with Coordinate Values Secondary Navaid</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr> <td style="text-align: center;"> LIMA 114.5 LIM Chan 92 S12°00.80' W77°07.00' </td> <td style="text-align: center;"> LMM LIMA 248 NT </td> </tr> </table>	Coordinates	N38° 58.30' W89° 51.50'	Waypoint Name	PRAYS	Frequency	112.7 CAP 187.1°-56.2	Radial-Distance (Facility to Waypoint)	590	Identifier	Reference Facility Elevation			LIMA 114.5 LIM Chan 92 S12°00.80' W77°07.00'	LMM LIMA 248 NT
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MINIMUM SAFE ALTITUDE	<p>Facility Identifier </p> <p>MSA CRW 25 NM</p> <p></p> <p>(arrows on distance circle identify sectors)</p>														

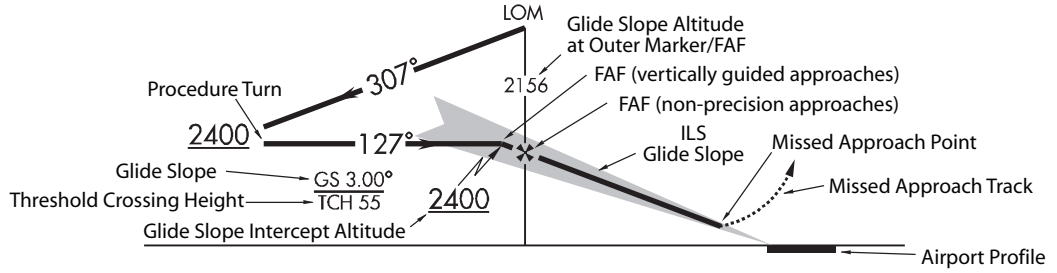
INSTRUMENT APPROACH PROCEDURES PLAN VIEW									
<p>TERMINAL ARRIVAL AREAS</p>	<p>Minimum MSL altitudes are charted within each of these defined areas/subdivisions that provide at least 1,000 feet of obstacle clearance, or more as necessary in mountainous areas.</p>								
<p>SPECIAL USE AIRSPACE</p>	<p>R-352 R-Restricted W-Warning P-Prohibited A-Alert</p>								
<p>OBSTACLES</p>	<p>• Spot Elevation ● Highest Spot Elevation ▲ Obstacle ± Doubtful accuracy ▲ Highest Obstacle</p>								
<p>FACILITIES / FIXES</p>	<p>FM IM MM NDB OM VOR VORTAC TACAN WP</p> <p>FIX INT</p>								
<p>ALTITUDES</p>	<table border="0"> <tr> <td><u>5500</u></td> <td><u>2300</u></td> <td><u>4800</u></td> <td><u>2200</u></td> </tr> <tr> <td>Mandatory Altitude</td> <td>Minimum Altitude</td> <td>Maximum Altitude</td> <td>Recommended Altitude</td> </tr> </table> <p> 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
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Mandatory Altitude	Minimum Altitude	Maximum Altitude	Recommended Altitude						

INSTRUMENT APPROACH PROCEDURES PLAN VIEW	
<p>MISCELLANEOUS</p>	<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 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 vertically guided approach procedures. 2400</p> <p> Visual Descent Point (VDP)</p> <p> Visual Flight Path</p>

INSTRUMENT APPROACH PROCEDURES PROFILE VIEW

PROFILE VIEW

ILS or LOC APPROACH



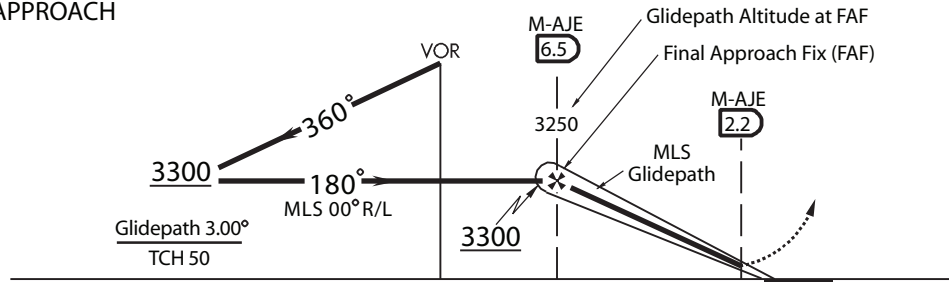
Two different methods are used for vertical guidance:

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

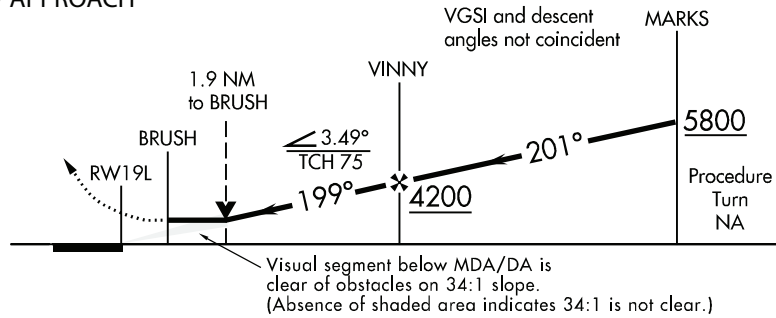
"GS" indicates an electronic glide slope is present in the case of an ILS approach and precision vertical guidance for LNAV/VNAV.

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.

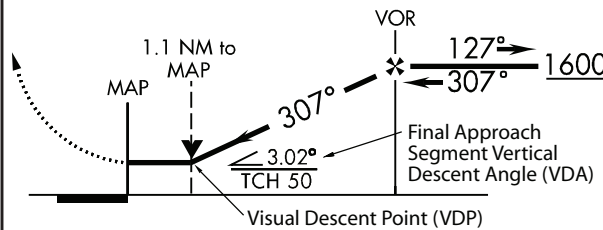
MLS APPROACH



RNAV APPROACH



NON PRECISION



DESCENT FROM HOLDING PATTERN

