

Federal Aviation Administration

UNITED STATES GOVERNMENT SPECIFICATIONS

FLIGHT INFORMATION PUBLICATION INSTRUMENT APPROACH PROCEDURES AND AIRPORT DIAGRAMS

IAC 4 17 June 2024

Prepared by the Interagency Air Committee (IAC)

17 June 2024

These specifications have been developed by the Interagency Air Committee (IAC), composed of representatives of the Department of Defense and the Federal Aviation Administration, for use in the preparation of the United States Government Flight Information Publication Instrument Approach Procedures and Airport Diagrams. These specifications shall be complied with, without deviation, until such time as they are amended by formal IAC action.

Changes to these specifications will be provided when necessitated by new requirements or through development action of the IAC.

Questions of interpretation that arise in the use of these specifications shall be referred to the Chair, Interagency Air Committee. Page Intentionally Left Blank

CHANGES APPLIED TO CURRENT EDITION

REQUIREMENT DOCUMENTS

a. RD 875 - Removal of Contour Lines from IAPs

EDITORIAL CHANGES

a. EC 24-03 – Part Time Ramp Control Frequencies

CHANGES APPLIED TO 16 APRIL 2024

REQUIREMENT DOCUMENTS

a. None applied to this edition

EDITORIAL CHANGES

a. EC 24-04 - FAA-O Clarification

CHANGES APPLIED 13 NOVEMBER 2023

REQUIREMENT DOCUMENTS

a. None applied to this edition

EDITORIAL CHANGES

a. EC 23-11 – Addition of Non-Movement Areas to Legend

CHANGES APPLIED 18 OCTOBER 2023

REQUIREMENT DOCUMENTS

- **a.** RD 844 Modification of Hot Spot Depiction
- **b.** RD 862 Landing Direction Indicators
- c. RD 865 Removal of Computer Based Nav System Data on IAPs
- d. RD 866 Extended Final Approach Track
- e. RD 869 Removal of AL Numbers on Military Charts

EDITORIAL CHANGES

a. EC 23-10 – TPP Planview Symbols Legend Cleanup

CHANGES APPLIED 30 AUGUST 2023

REQUIREMENT DOCUMENTS

a. RD 860 - Pilot Controlled Lighting on IAPs

EDITORIAL CHANGES

a. EC 23-08 - TPP Index Abbreviations

CHANGES APPLIED 28 AUGUST 2023

REQUIREMENT DOCUMENTS

- a. RD 848 Airport Diagram Modernization
- b. RD 861 NAVAID Box Depiction in TPP

EDITORIAL CHANGES

a. EC 23-07 – Office of Responsibility for Terminal Procedures

CHANGES APPLIED 22 JUNE 2023

REQUIREMENT DOCUMENTS

a. None applied to this edition

EDITORIAL CHANGES

a. EC 23-03 – Restrictive Altitudes on IAPs

CHANGES APPLIED 11 MAY 2023

REQUIREMENT DOCUMENTS

a. RD 855 - Localizer Back Course on IAPs

EDITORIAL CHANGES

a. EC 23-04 – Procedure Track Leadered Information

CHANGES APPLIED 5 APRIL 2023

REQUIREMENT DOCUMENTS

a. RD 854 - CVFP Communications

EDITORIAL CHANGES

a. None applied to this edition

CHANGES APPLIED 29 MARCH 2023

REQUIREMENT DOCUMENTS

a. None applied to this edition

EDITORIAL CHANGES

a. EC 23-02 – Fly-Over Symbology

CHANGES APPLIED 22 FEBRUARY 2023

REQUIREMENT DOCUMENTS

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EDITORIAL CHANGES

a. EC 23-01 - Self-Service Fuel Symbol on Airport Diagrams

CHANGES APPLIED 9 FEBRUARY 2023

REQUIREMENT DOCUMENTS

a. RD 849 - Remote Weather Communications on Terminal Procedures

EDITORIAL CHANGES

a. None applied to this edition

CHANGES APPLIED 22 AUGUST 2022

REQUIREMENT DOCUMENTS

a. None applied to this edition

EDITORIAL CHANGES

- a. EC 22-06 Reference NAVAIDs in IAP Profiles
- **b.** EC 22-07 Screened ILS Components on IAPs

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AMENDMENT OF SPECIFICATIONS

1. PROCEDURE

a. Recommendations for amendments to specifications from the Department of Defense shall be directed to:

National Geospatial-Intelligence Agency 7500 GEOINT Drive Springfield, VA 22150-7500

b. Recommendations for amendments to specifications from the Federal Aviation Administration shall be directed to:

Federal Aviation Administration Aeronautical Information Services SSMC-4 Sta # 4445 1305 East-West Highway Silver Spring, MD 20910

2. <u>AMENDMENT SYSTEM</u>

- a. Change to the specifications shall be issued at the effective date of the latest Requirement Document (RD) and / or Editorial Change (EC).
- b. The Specification shall be dated, indicated along the upper margin of each page, to reflect the most current change.

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CHAPTER 1 GENERAL

1.1 <u>PURPOSE AND SCOPE</u>

1.1.1 <u>General</u>

An Instrument Approach Procedure (IAP) Chart provides a pilot with information necessary for an orderly transition from en route flight to a safe and expeditious approach to either land or execute a missed approach at an airport under Instrument Flight Rules. Airport Diagrams are specifically designed to assist in the movement of ground traffic at locations with complex runway/taxiway configurations. Airport Diagrams are not intended for use in approach and landing or departure operations. Charted Visual Flight Procedures (CVFP) have been developed to provide a pictorial display of visual arrival routes/altitudes to enhance noise abatement at some locations. The word airport as used within these specifications is synonymous with the word heliport.

1.1.2 <u>Purpose</u>

The purpose of these specifications is to provide appropriate guidelines to ensure uniformity and standardization of content and portrayal techniques in the preparation and production of Low Altitude IAP charts, CVFP charts and Airport Diagrams for use by both civil and military pilots.

1.2 **REQUIREMENTS**

1.2.1 General

Low Altitude Instrument Approach Procedures Charts shall be prepared for all civil, military and civil/military airports within the United States, Puerto Rico and the Virgin Islands for which Standard Instrument Approach Procedures have been established and designated. CVFP charts shall be prepared similarly, but shall also apply to other areas of the world as needed, e.g., Caribbean, Pacific, etc.

1.2.2 **Quality and Accuracy**

The highest standards of accuracy in plotting, reproduction and currency of information shall be maintained.

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

1.2.3 <u>Color</u>

IAP Charts, CVFP charts and Airport Diagrams and associated textual material shall be printed in black color. Terrain will be printed in brown color. Various screens and percentages of color, as specified, shall be used to obtain a suitable contrast.

All supplemental information, both textual and graphic, will be in solid color unless otherwise specified.

1.2.4 <u>Symbolization</u>

Symbolization used in the preparation of the IAP Charts, CVFP charts and Airport Diagrams shall be in accordance with the Aeronautical Information/Chart Symbols included herein and in the appendices. Additionally for CVFP charts, symbology used in IAC Specification 2 may be used and land-marks can be depicted pictorially, as required.

The symbols contained in this manual have been developed for use in the production of U.S. Government aeronautical charts and publications.

These symbols have been developed through the United States Government Interagency Air Committee (IAC), and their supporting technical groups, for the purpose of standardization of the aeronautical symbols portrayed on charts and publications used by both military and civil aviation.

1.2.5 <u>Type Styles</u>

The use of capital letters is intended unless otherwise specified as C/L (capital and lower case letters) or lower case.

All type unless otherwise specified shall be Futura Medium or as indicated in the various appendices.

1.3 <u>SPECIFICATION APPENDICES</u>

Appendices are included within these specifications for use in layout, format and content of the various IAP Charts, CVFP charts and Airport Diagrams. Appendices do not necessarily reflect all possible operational content.

CHAPTER 2 FORMAT AND LAYOUT

2.1 <u>GENERAL</u>

Charts shall be designed and published to accommodate all IAPs, CVFPs and Airport Diagrams. All charts shall be oriented to true north. Information shall be presented in textual, tabulated and graphic form, normally printed to read parallel to the top edge of the publication.

2.2 SIZE AND DIMENSIONS

The trim size and dimensions of the finished charts shall be as shown in the appendices.

2.2.1 IAP Charts

References:

Appendix 5 - IAP Chart Format and Dimensions

2.2.2 <u>Airport Diagrams</u>

References:

Appendix 63 - Airport Diagram Chart (TPP) – Format

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CHAPTER 3 CONTENT

3.1 <u>GENERAL</u>

Instrument Approach Procedures and Charted Visual Flight Procedures are designed to provide the pilot with all electronic navigational aid information, together with procedural and other pertinent data required to execute the procedure.

3.2 <u>LEGENDS</u>

The legends shall define and depict all symbols used in the presentation of IAP charts, CVFP charts and Airport Diagrams, and provide general information and a listing of all abbreviations.

3.2.1 <u>IAP Planview Symbols</u>

References:

Appendix 9 - Legend – IAP Planview

3.2.2 IAP Profile Symbols

References:

Appendix 10 - Legend – IAP Profile

3.2.3 Airport Diagram/Airport Sketch Symbols

References:

Appendix 13 - Legend – Airport Diagram/Sketch

3.2.4 <u>Airport Sketch Lighting System Symbols</u>

The VGSI lighting symbols referenced in the Appendix shall be charted in the airport sketch on the side of the runway where they are actually located. In cases where the VGSI system lights are located on both sides of the runway (such as Vl2 and V16 systems), a single symbol shall be placed on the left side of the runway.

References:

Appendix 14 - Legend – Airport Diagram/Sketch Lighting Systems

3.3 <u>MINIMUMS</u>

3.3.1 IFR Takeoff Minimums, (Obstacle) Departure Procedures, and Diverse Vector Area (Radar Vectors)

A listing of airports with IFR takeoff minimums other than standard, and obstacle departure procedures (ODPs) designed specifically to assist pilots in avoiding obstacles during the climb to the minimum enroute altitude, Takeoff Obstacle Notes, Visual Climb Over Airport (VOCA) procedures and Diverse Vector Area (Radar Vectors) shall be provided. An explanatory note will precede the listing, on the first page only. Layout, format, content arrangement, type size and style shall be in accordance with the appendices. Civil airports within each volume shall be arranged in alphabetical order by the associated city name. Military airports shall be arranged in alphabetical order by the official airport name. When the first word of a city name (civil) or airport name (military) is abbreviated, it will be arranged in alphabetical order by the abbreviation, as shown in the authoritative database, with the exception of the abbreviation "St", e.g., St Louis, which will be arranged by the complete name Saint Louis.

References:

Appendix 1 - IFR Takeoff Minimums, (Obstacle) Departure Procedures, and Diverse Vector Area (Radar Vectors)

Appendix 2 - Diverse Vector Area (Radar Vectors) Example

3.3.1.1 Format

3.3.1.1.1 Civilian Airports

Page format shall be a listing of information in the following order:

• City and State, airport name extracted verbatim from the authoritative database, airport location identifier(s) (see Section 3.3.1.1.3) in parentheses, Takeoff Minimums and (Obstacle) Departure Procedure title, Diverse Vector Area (Radar Vectors).

3.3.1.1.1.1 Takeoff Minimums and (Obstacle) Departure Procedures

- Takeoff Minimums and (Obstacle) Departure Procedure title, amendment number, AIRAC date of the last procedural revision, date of last revision in parentheses (in Julian date format), office of responsibility (FAA, FAA-O), Takeoff Minimums, Departure Procedure, VCOA, Takeoff Obstacle Notes.
- Takeoff Obstacle Notes will list one obstacle note per line.

3.3.1.1.1.2 Diverse Vector Area (Radar Vectors)

• Diverse Vector Area (Radar Vectors) title, amendment number, AIRAC date of the last procedural revision, date of last revision in parentheses (in Julian date format), office of responsibility (FAA, FAA-O), Diverse Vector Area instructions.

3.3.1.1.2 Military Airports

Page format shall be a listing of information (when provided) in the following order:

- Official airport name extracted verbatim from the authoritative database, ICAO airport location identifier in parentheses, city and state, amendment number, AIRAC date of the last procedural revision, date of last revision in parentheses (in Julian date format), office of responsibility (USAF, USSF, USN or USA), Take-off Minimums, Departure Procedure, Takeoff Obstacles, VCOA, Takeoff Obstacle Notes.
- Takeoff Obstacle Notes will list one obstacle note per line.

3.3.1.1.3 Airports Identifiers

The airport identifier shall be placed in parentheses immediately to the right of the airport name.

Civil airports within the Contiguous U.S. shall be identified with their FAA airport identifier. Civil airports outside the Contiguous U.S. shall be shown with both the FAA identifier followed by the ICAO location indicator.

3.3.2 IFR Alternate Airport Minimums

A columnar tabulation of airports with IFR alternate minimums other than standard (standard for nonprecision approaches is 800-2 and for precision approaches is 600-2) shall be provided. An explanatory note will precede the listing, on the first page only. Layout, format, content arrangement, type size and style shall be in accordance with the appendices.

Civil airports within each volume shall be arranged in alphabetical order by the associated city name. Military airports shall be arranged in alphabetical order by the official airport name. When the first word of a city name (civil) or airport name (military) is abbreviated, it will be arranged in alphabetical order by the abbreviation, as shown in the authoritative database, with the exception of the abbreviation "St", e.g., St Louis, which will be arranged by the complete name Saint Louis.

References:

Appendix 3 - IFR Alternate Airport Minimums

3.3.2.1 Format

3.3.2.1.1 Civil Airports

Page format shall be a two-column listing information in the following order:

• City and state, airport name extracted verbatim from the authoritative database, domestic airport location identifier in parentheses (airports outside of Contiguous U.S. will also list ICAO identifier in parentheses), Alternate Minimums.

3.3.2.1.2 Military Airports

Page format shall be a two-column listing information in the following order:

• Airport name extracted verbatim from the authoritative database, ICAO airport location identifier in parentheses, city and state, Alternate Minimums.

3.3.2.1.3 Airport Identifiers

The airport identifier shall be placed in parentheses immediately to the right of the airport name.

Airports within the Contiguous U.S. shall be identified with their FAA airport identifier. Airports outside the Contiguous U.S. shall be shown with both the FAA airport identifier followed by the ICAO airport identifier.

3.3.3 Radar Instrument Approach Minimums

References:

Appendix 4 - Radar Instrument Approach Minimums

3.3.3.1 General

Layout, format, content arrangement, type size and style shall be in accordance with the appendices.

3.3.3.2 Arrangement of Information

Civil radar instrument approach minimums shall be arranged in alphabetical order by associated city name. Military radar approach minimums shall be arranged in alphabetical order by the official airport name. When the first word of a city name (civil) or airport name (military) is abbreviated, it will be arranged in alphabetical order by the abbreviation, as shown in the authoritative database, with the exception of the abbreviation "St", e.g., St Louis, which will be arranged by the complete name Saint Louis.

3.3.3.2.1 Civil Airports

Page format shall be a listing of information in the following order:

- Line 1: City and state, amendment number, AIRAC date of last procedural revision, date of last revision in parentheses (in Julian date format), office of responsibility (FAA, FAA-O), airport elevation (positioned by itself and right justified).
- Line 2: Airport Name extracted verbatim from the authoritative database, airport location identifier(s) in parentheses. See Section 3.3.3.2.3.
- Line 3: Radar frequencies (APP CON), prefaced by the heading "RADAR", "RADAR-1" or "RADAR-2" in agreement with the procedure source document. The "A" and "T" negative symbols for IFR Alternate Airport Minimums and IFR Takeoff Minimums, indicating other than standard minimums apply, shall be shown after the RADAR frequencies. The letters "NA" (not authorized) shall be shown immediately following the "A" symbol when IFR alternate minimums are not authorized. Radar minimums follow.

3.3.3.2.2 Military Airports

Page format shall be a listing of information (when provided) in the following order:

- Line 1: Official airport name extracted verbatim from the authoritative database, ICAO airport location identifier in parentheses, City and State, amendment number, date of last revision (in Julian date format), office of responsibility (USAF, USSF, USN or USA), airport elevation (positioned by itself and right justified).
- Line 2: Radar frequencies, prefaced by the heading "RADAR", "RADAR-1" or "RA-DAR-2" in agreement with the procedure source document. Radar minimums follow.

3.3.3.2.3 Airport Identifiers

Civil airports within the Contiguous U.S. shall be identified with their FAA airport identifier. Civil airports outside the Contiguous U.S. shall be shown with both the FAA airport identifier followed by the ICAO location indicator.

3.3.3.3 Column Headings

The following columnar headings shall be underlined and be shown on the next line after the radar communications frequencies.

- RWY (Runway)
- GP/TCH/RPI (Glidepath/Threshold Crossing Height/Runway Point of Intercept)
- CAT (Category)
- DH/MDA-VIS (Decision Height/Minimum Descent Altitude-Visibility) for military airports. DA/MDA-VIS (Decision Altitude/Minimum Descent Altitude-Visibility) for civilian airports.
- HAT/HAA (Height above Touchdown/Height Above Airport)
- CEIL-VIS (Ceiling-Visibility)
- If required, CAT, DH (or DA)/MDA-VIS, HAT/HAA, and CEIL-VIS may be shown in a two column format.

3.3.3.4 Minima

Minima data will be listed under the columnar heading in accordance with the following criteria:

3.3.3.4.1 Minima Data

Minima data for each type of radar approach shall be shown in the following order: PAR, PAR w/o GS, ASR, and CIRCLING.

3.3.3.4.2 PAR Approaches

PAR Approaches - The runway with the lowest CEIL-VIS value shall be listed first. The Glide Slope (GS) angle shall be listed in degrees and tenths, followed by TCH and RPI.

3.3.3.4.3 ASR Approaches

ASR, PAR w/o GS and CIRCLING Approaches - For ASR and PAR w/o GS: The runway with the lowest CEIL-VIS values shall be listed first. If CEIL-VIS values are the same then the following hierarchy will be used.

- 1. Lowest HAT
- 2. Lowest DA/DH
- 3. Runway number

For CIRCLING, Runway numbers will be used unless all runways have an approach, then "ALL RWY" will be used.

Add a negative C circling icon to the circling line of minima when the procedure source document indicates "Chart Circling Icon". The preferred placement is on the same line and before the Circling text. If there are space limitations, the icon may be placed below the Circling line of text. See **Appendix 4**.

3.3.3.4.4 Categories with the Same Minima

Categories that have the same minima shall be shown as a single entry.

3.3.3.4.5 Categories with Different Minima

Categories that have different minima for the same runway shall be listed in alphabetical order.

3.3.3.4.6 Runway Data

Data for each runway shall be complete before listing another runway.

3.3.3.5 Missed Approach Climb Rate

Radar Missed Approach Climb Rate will be shown when required, located below the radar minima. Minimum climb rates shall be shown as vertical velocity in feet per minute (FPM) in 60 knot increments, from 60 knots to 360 knots or as requested.

CAUTION - Missed apch climb rate to 0000'										
RWY	Knots	60	120	180	240	300	360			
PAR 3L	FPM	000	000	000	000	000	000			
ASR 3L, 3R	FPM	000	000	000	000	000	000			

Table 3.1 Missed Approach Climb Rate

3.3.3.6 Informational Notes

Informational notes will follow the minima data or, if required, the radar missed approach climb rate.

The current status or usability of radio communications and operational value of the radar data will be footnoted by a superscripted letter. The footnoted remarks will follow the above data.

3.4 INSTRUMENT APPROACH PROCEDURE (IAP) CHARTS

3.4.1 <u>General</u>

References:

Appendix 5 - IAP Chart Format and Dimensions

3.4.1.1 Scale

A scale of 1:500,000 shall be used. However, if necessary for a better portrayal of the procedure, a different scale may be used. (1:750,000 and 1:250,000 are most preferable.)

3.4.1.2 Projection

Projection shall be Lambert Conformal, Polyconic, or Polar Stereographic.

3.4.1.3 Horizontal Datum

Charts referenced to a horizontal datum other than North American Datum 1983 (NAD 83) or World Geodetic Survey 1984 (WGS 84) will show a note, e.g., "Horizontal Datum: WGS 72", indicating the datum used, in 7 point type centered above the bottom neatline in the planview.

3.4.1.4 Chart Sections

The IAPs (charts) shall be divided into various sections as follows:

- Briefing Strips
- Planview
- Missed Approach Icons
- Profile
- Minima Data
- Airport Sketch

References:

Appendix 5 - IAP Chart Format and Dimensions

3.4.1.5 Reference Mark Symbol Hierarchy

Reference Marks on IAPs will be applied using the following hierarchy:

- 1. * (9 pt) 2. # (7 pt) 3. †
- 4. **
- 5. ##
- 6. ††

3.4.2 <u>Margin Information</u>

Type size, style, and position shall be shown in accordance with the appendix unless otherwise stated below.

References:

Appendix 6 - Margin Data

3.4.2.1 Procedure Title

The title of the instrument approach procedure shall be abbreviated, e.g., ILS, RNAV, NDB, etc. Approaches. The title will be positioned flush right, immediately above the airport name in the top margin, and immediately below the airport name in the bottom margin.

Each procedure shall be named and numbered, as indicated on the procedure form. Note: Procedure title may refer to a geographic feature, e.g., BAY ILS/DME.

3.4.2.2 Amendment Number

The amendment number of the procedure, as indicated on the narrative procedure form, shall be shown abbreviated, e.g., Amdt 3.

The amendment number will be shown in the bottom margin only, flush left, immediately below the geographic location name.

Original procedures shall be indicated as "Orig", with the same placement as indicated above for amendment numbers.

The AIRAC date of the latest procedural (upnumber or upletter) revision applied to the chart shall be shown adjacent to and two spaces to the right of the amendment number or "Orig" as appropriate, as shown in the appendices.

The latest revision date (Julian), which reflects a chart revision of any type, shall be shown in the upper right hand corner, above the procedure name, preferably on the same line as the geographic name and chart reference number, as shown in the appendices.

3.4.2.3 Chart Reference Number

The chart reference number shall be preceded by the series code "AL" and dash followed by the abbreviated name of the appropriate authority for the procedure, placed inside parentheses, e.g., AL-000 (FAA). Procedures developed by an authorized non-FAA service provider will carry the designation (FAA-O) placed inside the parentheses, e.g., AL-000 (FAA-O). Military procedures do not show a chart reference number, but do show the appropriate authority for the procedure, e.g., (USN).

The chart reference number shall be shown in the top margin only, centered, on the same line as the geographic location name.

3.4.2.4 Geographic Location Name

The geographic location name shall be the city and state name with which the airport is associated, positioned flush left, immediately above the top briefing strip and immediately below the bottom neatline.

3.4.2.5 Airport Name

The airport name will be extracted verbatim from the authoritative database. The airport name will be shown flush right, immediately above the top neatline and immediately below the bottom neatline.

3.4.2.6 Airport Location Identifier

The airport location identifier shall be shown in parentheses positioned immediately following the airport name at the top and bottom of each Instrument Approach Procedure chart. Airports outside the contiguous United States will be shown with both the FAA designated identifier followed by the ICAO location indicator.

To distinguish between the number zero and the letter "O", a slash shall be shown through the zero.

3.4.2.7 Geographic Coordinates

Coordinates used shall be those of the airport reference point expressed to the nearest minute. The geographic coordinates will be in the bottom margin only, centered, on the Amendment number line. If there is no room on this line, then the geographic coordinates will be centered immediately below the bottom neatline.
3.4.3 Briefing Strips

The Briefing Strip box will consist of three stacked strips of information running from left to right immediately above the planview.

References:

Appendix 7 - Briefing Strips Appendix 8 - Briefing Strips – Copter

3.4.3.1 Top Briefing Strip

The top briefing strip will contain procedural information in three separate boxes, in the following sequence from left to right:

- **Box 1:** The primary navigation type (VOR, LOC, NDB, RNAV, etc.) with its identifier and frequency/channel. If applicable, WAAS, the WAAS Channel Number, and the WAAS Reference Path indicator shall be shown stacked top to bottom. If the primary navigation type is GBAS, then the following information shall be stacked top to bottom: GBAS, CH NNNN, RPI XXXX. If there is not a primary Navigation Box required, the first box shall be removed.
- Box 2: The inbound Approach Course (APP CRS) shall be shown.
- Box 3: Stacked top to bottom, the runway landing distance (Rwy ldg), the Touchdown Zone Elevation (TDZE), and the Airport Elevation (Apt Elev) shall be shown. Runway landing distance will be determined by comparing the total runway length with the displaced threshold accounted for against the published Declared Distance Landing Distance Available (LDA). The shortest of these lengths, either the published Declared Distance LDA housed in the authoritative database or the total runway length minus displaced threshold on the approach end of the runway, will be charted. Numbers will be bolded. For Circling approaches, use N/A in bold type for Rwy ldg and TDZE. For charts that have straight-in minimums for parallel runways, the entire briefing strip may be widened to show stacked information for each runway.

Figure 3.1	Expanded	Briefing	Strip	Example
------------	----------	----------	-------	---------

LOC/DME I-SJC	APP CRS	Rwy Idg	30L 7614	30R 7597	29 4599
<u>110.9</u>	303°	TDŹE	57	55	52
Chan 46		Apt E l ev	62	62	62

3.4.3.2 Middle Briefing Strip

The middle briefing strip will contain information in three separate boxes, when available, in the following sequence from left to right:

- Notes
- Approach Lighting System
- Missed Approach Procedure text

Standard size shall be maintained, but size adjustment may be made for charting circumstances, e.g., excessive notes, more space needed in planview.

3.4.3.2.1 Notes Section

3.4.3.2.1.1 Equipment/Requirements Box

When requested on the procedure source document, a separate Equipment/Requirement notes box shall be shown at the top of the existing briefing strip notes section. This box, separated from the larger procedure notes box by a 2 weight (.006") solid line, shall list equipment requirements notes for conventional procedures and requirements notes for Performance Based Navigation (PBN) procedures.

Figure 3.2 Equipment Requirements Box

RADAR requi	ired for procedure entry.
Simu	Itaneous approach authorized with Rwy 21L.
# RV	/R 1800 authorized with use of FD or AP or HUD to DA.

When the procedure source document requests both a PBN requirement note and a conventional equipment requirement note, two equipment/requirements boxes shall be used. PBN notes shall be listed in the first box, then conventional equipment requirement notes in the second box.

Figure 3.3 Two Equipment/Requirement Boxes

RN	AV 1.
Fro	m RYEDR and CPBBO: RNAV-1-DME/DME/IRU or GPS required. Aircraft
not	DME/DME/IRU or GPS equipped - RADAR required for procedure entry.
V	Simultaneous approach authorized. DME or RADAR required.
ľ	** RVR 1800 authorized with use of FD or AP or HUD to DA.

3.4.3.2.1.2 Briefing Strip Symbols

References:

Appendix 7 - Briefing Strips

3.4.3.2.1.2.1 IFR Takeoff Minimums ("T")

The negative "T" symbol shall be shown in the upper left corner of the Notes section of the briefing strip when an entry is published in the TAKEOFF MINIMUMS, (OB-STACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RA-DAR VECTORS) section of the TPP, regardless of what that entry contains.

3.4.3.2.1.2.2 IFR Alternate ("A") Airport

The negative "A" symbol shall be shown in the upper left corner (or below the "T" symbol, if present), of the Notes section of the briefing strip when IFR Alternate Minimums are published for the procedures. The letters "NA" (Not Authorized) shall be shown immediately following the "A" symbol when IFR Alternate Minimums are not authorized.

3.4.3.2.1.2.3 WAAS Symbol

If applicable, the negative "W" symbol for WAAS reception limitations shall be shown below any "A" and "T" symbols.

3.4.3.2.1.2.4 Cold Temperature Airport

A negative snowflake symbol and associated temperature shall be shown below all of the above applicable symbols when indicated in the authoritative source database.

Figure 3.4 Cold Temperature Airport

₿ -17°C

3.4.3.2.1.3 "ASR", "PAR" or "ASR/PAR"

"ASR", "PAR" or "ASR/PAR" shall be shown immediately below the Takeoff and Alternate symbols to indicate published Radar Instrument Approach Minimums.

3.4.3.2.1.4 Notes

3.4.3.2.1.4.1 Nonstandard IFR Alternate Airport and IFR Takeoff Minimums

Notes pertaining to nonstandard IFR Alternate Airport and IFR Takeoff Minimums shall be placed only with the nonstandard minimums in the appropriate columnar tabulation in the index of supplementary information.

3.4.3.2.1.4.2 Landing Minima Data

Notes pertaining to landing minima data shall be shown in the Notes Section on the left side of the second/middle briefing strip.

3.4.3.2.1.4.3 Order of Briefing Strip Notes

Briefing strip notes shall be placed in the order they appear on the procedure source document. Exception shall be made when the source document has a note that is referenced with an attention symbol. The note shall then be placed last in the sequence preferably on its own line.

Notes specifically identified for planview or profile charting will not be shown in the briefing strip.

3.4.3.2.1.4.4 Notes Exclusions

Notes, published on a single-source document (e.g., FAA Form 8260) that generates more than one chart depiction, must not be shown on the charts to which they do not apply. (For instance: Circling notes must not be published on depictions which do not support circling minimums. Notes referring to a localizer procedure must not be shown on depictions which do not support localizer minima. Helicopter notes, inoperative component notes revising minima or notes referring to remote altimeter usage must not be depicted on standard CAT II, CAT II & III or SA CAT I, SA CAT II, or SA CAT I & II portrayals.)

3.4.3.2.2 Approach Lighting System

When applicable, the approach lighting system name, miniature graphic, and its charting icon will be shown. Multiple approach lighting systems may be shown for approaches that have straight-in minimums for parallel runways. Each box will include the proper runway identification.

3.4.3.2.3 Missed Approach Procedure Text

The title MISSED APPROACH shall be shown along with a textual description of the primary missed approach procedure.

When the primary missed approach procedure contains the text "or as directed by ATC" or "when authorized by ATC", this portion of the instructions will not be charted.

When the primary missed approach also includes instructions for TACAN aircraft, they will be included in the primary missed approach procedure text in parentheses as shown in the Appendices.

3.4.3.3 Bottom Briefing Strip

The bottom briefing strip will contain communications information when available, in separate boxes, in the following sequence from left to right:

- ATIS, D-ATIS, AFIS (AK Only) or ASOS/AWOS frequencies (when available, ATIS or AFIS will be the only local weather frequency/s published)
- The primary Approach Control (APP CON) name and frequencies
- The Control Tower (TOWER) name and frequencies, to include Precision Runway Monitor (PRM) and frequency
- Ground Control (GND CON) frequencies
- Clearance Delivery (CLNC DEL) frequencies
- Ground Communications Outlet (GCO) frequency
- CTAF, shown in parentheses when shares a frequency, e.g., UNICOM 122.8 (CTAF)
- UNICOM or AUNICOM frequency (part-time and non-towered airports only)
- Controller Pilot Data Link Communication (CPDLC)

Frequencies will be bolded. A bolded box will be placed around the Control Tower name and frequencies. Hours of operation shall not be shown. Part-time operations for ATIS or AFIS, APP CON, and TOWER will be annotated with a star after the communication title.

References:

Appendix 7 - Briefing Strips

3.4.3.3.1 Approach Control (APP CON)

When the primary approach service is provided by other than Approach Control, e.g., FSS (Radio), Tower, Center, the appropriate air traffic facility call name shall be used.

At airports located in the contiguous U.S., FSS (Radio) will not be shown. At airports located outside the contiguous U.S. where communications are provided by FSS, its availability will be indicated by RADIO plus the appropriate frequency.

3.4.3.3.2 Weather Communications

3.4.3.3.2.1 Automatic Terminal Information Services (ATIS)

When the service is provided on one frequency for both arrival and departure information, it shall be shown, e.g., ATIS 111.8. When the service is provided on more than one frequency for both arrival and departure information, both (or all) frequencies shall be shown, e.g., ATIS 113.9 124.1. When the service provided is either arrival and/or departure on different frequencies, both frequencies shall be shown under the appropriate heading, i.e., ARR or DEP. If the service is digital and listed as D-ATIS in the authoritative source database, "D-ATIS" shall be shown.

3.4.3.3.2.2 (AK Only) Automated Flight Information Services (AFIS)

AFIS shall be shown by the letters "AFIS" followed by the specific frequency/s.

3.4.3.3.2.3 Remote Weather Frequencies

When a remote civil AWOS/ASOS is specified on the FAA Form 8260 for charting, the airport location identifier and frequencies will be charted on all IAP charts in the series. Civil airports located outside the Contiguous U.S will also include the ICAO identifier, e.g., ORT/PAOR.

When a remote military ATIS is specified on the FAA Form 8260 for charting, only the ICAO identifier and frequencies will be charted on all IAP charts in the series.

When a local AWOS/ASOS is commissioned at an airport where a remoted ASOS/ AWOS/ATIS is still specified for charting on any 8260 in the series, the local AWOS/ ASOS will be added to the briefing strip along with the remoted AWOS/ASOS/ATIS.

3.4.3.3.3 Clearance Delivery (CLNC DEL) Frequencies

There are three ways CLNC DEL frequencies can be shown:

- Towered airports with a CLNC DEL frequency/s.
- Towered airports that list a primary CLNC DEL and a secondary CLNC DEL when the tower is closed. The secondary CLNC DEL will include the frequency, and the note "(When twr closed)".
- Untowered airports that have a remoted APP CON and CLNC DEL will show the CLNC DEL without the remoted city name.

3.4.3.3.4 Controller Pilot Data Link Communications (CPDLC)

When CPDLC service is provided, "CPDLC" shall be shown.

3.4.3.3.5 Non-Towered Airport

When there is not a tower located on the airport or the tower on the airport is part-time, the availability of a UNICOM facility at the airport shall be indicated by the word UNICOM, plus the appropriate frequency. If the UNICOM system is automated, it shall be indicated by the word AUNICOM, plus the appropriate frequency.

3.4.3.3.6 Primary VHF & UHF Frequencies

The primary VHF and UHF frequencies only shall be shown in conjunction with and on a second line centered under the air traffic facility name.

When requested, the frequencies may be sectorized.

3.4.3.3.7 Pilot Activated Airport Lighting

Pilot capability to activate airport lighting systems shall be shown using negative symbols following the applicable frequency, e.g., 122.7**Q**.

Hours of operation shall not be shown.

3.4.4 <u>Planview</u>

References:

Appendix 5 - IAP Chart Format and Dimensions Appendix 9 - Legend – IAP Planview

3.4.4.1 General

The planview of the IAP charts shall be concerned with the portrayal of instrument approach procedure information, en route facilities, feeder facilities, approach facilities, missed approach, terminal routings and related base detail.

The en route and feeder facilities shall be used for depicting terminal routes from NAVAIDs, fixes and intersections to the initial approach facility or fix.

Reference to the en route low altitude structure pertains to both the Flight Information Publication En route Low Altitude Chart and the IFR Area Chart.

All textual data and numerical values within the planview shall be shown using 7 point type unless otherwise stated.

3.4.4.2 Hydrography

Hydrographic features shall be shown. Outlines or names shall not be shown.

Criteria depiction of hydrographic features:

- Oceans
- Significant rivers and streams: When depicted as a perennial double line (not braided) feature on a Sectional/Tactical/Pilotage chart.
- Significant lakes: When depicted as a perennial water area measuring a minimum of 3.0 NM in a straight line direction on a Sectional/Tactical/Pilotage chart.
- If only one river or one small lake is involved, not located in the immediate airport vicinity, the hydrographic information requirement may be waived.

Hydrographic features shall be limited to within the inner distance ring when the concentric ring format is employed.

Hydrographic features shall not be shown within inset boxes.

3.4.4.3 Relief (Terrain Features)

Care should be taken in the selection of relief features to be shown. Any terrain features which meet the criteria established for obstacles will be considered for charting.

Terrain elevations shall be indicated by a dot, .02" diameter, with the elevation values placed nearby. Terrain elevations shall be plotted accurately according to geographic location. When the highest elevation within the chart area is a spot (terrain) elevation, it shall be indicated by a dot, .04" diameter, with the elevation style depicted in 8 point type.

Terrain elevations of doubtful accuracy shall be indicated by a \pm sign following the elevation value.

Any terrain specifically requested for charting on the procedure shall be charted.

• Terrain and obstacle notes, as documented on the procedure source document (Form 8260) for charting, shall be shown in C/L and shall reflect the exact text provided by that authority.

Relief shall not be shown in inset boxes. Relief shall be limited to within the inner distance ring when the concentric ring format is employed.

An airport will be designated as a terrain impacted airport, and will be charted as below, when it meets the criteria in Section **3.4.4.3.1** below.

References:

Appendix 33 - ILS with Terrain Elevations Depicted

3.4.4.3.1 Terrain Impacted Airport Criteria

Terrain within the planview area exceeds 4,000 feet above the airport elevation, or

Terrain within a 6 NM radius of the Airport Reference Point (ARP) rises to 2,000 feet or more above the airport elevation.

When an airport meets either of the above criteria, terrain will be charted by use of contours (gradient tints of brown) on all IAPs for that airport. However, if an IAP chart for the airport does not meet the initial contour value below, then contours will not be charted on that specific IAP chart.

3.4.4.3.2 Contour Values

The initial contour value (lowest elevation) will be at least 500 feet above the airport elevation. The initial contour value may be less than 500 feet if needed to depict a rise in terrain close to the runway end.

The next contour value depicted will be at a 1000 foot increment, e.g., 1000/2000/3000, not 1500/2500/3500.

Subsequent contour intervals will be constant and at the most suitable intervals, 1000 foot or 2000 foot, to adequately depict the rising terrain.

3.4.4.3.3 Contour Layers and Values

Contour values will be shown with a brown tint that is darker than the darkest tint used for the contour layers.

Contour layers will be shown in no more than five brown tints, with consecutively darker tints used for consecutively higher elevation contour layers.

If a contour layer is higher than the highest determined terrain point or obstacle, that layer shall have the 0.4' diameter dot placed inside it with a value matching the contour value followed by a doubtful accuracy symbol.

3.4.4.4 Cultural Features

Cultural features shall not be shown, e.g., roads, railroads, populated places, etc.

3.4.4.5 International Boundary

International boundaries shall be shown by a 3 weight (.006") dashed line.

International boundaries shall be identified with country name in solid color, positioned adjacent and parallel to the boundary, within the country area.

3.4.4.6 Obstacles (Man-made, Terrain, and Vegetation)

Obstacles shall be symbolized as indicated in the appendix. Obstacles shall be positioned in their exact coordinate location. The elevation of the top of the obstacle above mean sea level shall be shown to the nearest foot. Unverified obstacles shall be indicated by a doubtful accuracy symbol \pm following the elevation value.

Any obstacle which penetrates a slope of 67:1 emanating from any point along the centerline of any runway shall be considered for charting within the area shown to scale. Obstacles with "chart" preceding the requested obstacle specifically identified on the authoritative source shall be charted regardless of the 67:1 requirement. This will be waived if the position of the requested obstacle makes it indistinguishable from a higher MSL obstacle.

The highest obstacle or spot elevation within the area of coverage of the chart will be shown using the larger highest obstacle/spot elevation symbol and the elevation value depicted in 8 point type.

When portrayal of several obstacles with the same MSL height would result in extreme overlap, only the one closest to the airport need be shown. If multiple obstacles are clustered, all may be shown if sufficient symbol separation is possible.

Obstacles shall be limited to within the inner distance ring when the concentric ring format is used.

Obstacles shall not be shown within inset boxes.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.6.1 Final Approach Segment (FAS) Obstacles

Final Approach Segment (FAS) obstacles that are provided on the procedure source document in the Additional Flight Data section, shall be depicted when they either penetrate the 67:1 slope or are specifically indicated for charting (prefaced by the word "CHART"). Charted FAS obstacles identified as trees shall be indicated by a doubtful accuracy symbol following the elevation value. Man-made and terrain FAS obstacles shall be considered verified and when charted, shall not be indicated by a doubtful accuracy symbol following the elevation value.

3.4.4.6.2 Adverse Assumption Obstacles (AAO)

Adverse Assumption Obstacles (AAO) listed on the procedure source document will not be charted.

3.4.4.7 Airports

Airports shall be shown to scale by a pattern of all runways that exist in the authoritative source database (including those indicated as "closed" runways by remark). If an airport has parallel runways in close proximity to each other, the lineweight of the runways may be reduced to a minimum of 4 weight (.010") to ensure the runway pattern is distinguishable.

Heliports shall be shown by the circle H symbol.

Seaplane bases shall be symbolized as shown in **Appendix 9** - Legend – IAP Planview. The symbol shall only be shown in the planview when it is strictly a seaplane base. If there is a seaplane landing area as part of an airport, the Seaplane Base symbol will not be used in the planview.

Airports other than the airport of intended landing will be shown only when requested on the procedure source document. These airports will be shown by pattern and name only, using 5 point type C/L. The airport name will be extracted verbatim from the authoritative database.

3.4.4.8 Special Use Airspace (SUA)

SUA that falls within the area of coverage of the instrument approach procedure chart shall be shown only when designated by the approving authority.

SUA shall be portrayed by a 2 weight (.006") diagonal line pattern, .10" in width, positioned so as to have the lines in a NE to SW direction. In no case will the portrayal of SUA obliterate the functional procedural data. Should an area be too small to portray the specified width, the width shall be proportionately reduced in size to adequately portray the area.

SUA outer boundaries shall be depicted by a 3 weight (.006") line.

SUA internal boundaries shall be depicted by a 1 weight (.005") line to separate the individual SUA areas.

SUA shall be identified by the designated number and/or name of the area, e.g., P-1234, R-1235, CYR 123, YUKON 1 MOA.

Figure 3.5 Special Use Airspace



References:

Appendix 9 - Legend – IAP Planview

3.4.4.9 Air Defense Identification Zone (ADIZ)

When designated on the procedure source document, ADIZ boundaries that fall within the area of coverage of the instrument approach procedure chart planview shall be shown.

ADIZ boundaries shall be portrayed by a 4 weight line (.010"). The diameter of the dots is .015". The width of the symbol is .05". Identification shall be placed within or along the boundary. In no case, will the portrayal of the ADIZ obliterate the functional procedural data.

Figure 3.6 Air Defense Identification Zone (ADIZ) Boundary

CONTIGUOUS U.S. ADIZ

References:

Appendix 9 - Legend – IAP Planview

3.4.4.10 Scale

Normally, all information between the planview neatlines, including base detail, shall be shown to scale.

In the event a facility falls beyond (but no more than .25" beyond) the established neatline of the planview, this facility may be brought, or moved, within the planview neatlines, thereby retaining the chart to scale and precluding the use of the concentric ring format. Mileages, bearings, etc., to or from this facility shall, however, be accurate.

When concentric rings are not used, all NAVAIDs shall be identified by name, frequency, identifier and code, enclosed within a box. Intersections shall be shown by reporting point symbol when shown on the En route Low Altitude Chart as part of the airway structure, and by the intersection of radials/bearings when not part of the airway structure.

When concentric rings are used, information beyond the 10 NM distance ring shall not be depicted to scale.

Depiction of the procedure track and/or terminal routes may be shown not to scale if it will enhance and depict the procedure more clearly. Such a depiction may be necessary due to distances involved in some procedures which would extend beyond the neatline or border of the planview. Those segments of the track not to scale shall be broken by the scale break symbol illustrated in **Appendix 9** - Legend – IAP Planview. Multiple scale break symbols can be used when along the same bearing.

3.4.4.10.1 Terminal Route/Procedure Track Inset Box

A portion of the terminal route and/or procedure track may be shown in an inset box on procedures covering a large geographical area or containing multiple routes, and when the use of scale breaks is not adequate for a clear depiction.

References:

Appendix 52 - RNAV (RNP) with Inset

3.4.4.10.1.1 Inset Reference Box

A 2 weight (.006") dashed line box will encompass the common point of the route to be shown in the inset box. Contours, hydrography, and obstacles that lie within the parameters of the inset reference box will be shown.

The inset reference box will be clearly labeled "SEE INSET FOR ROUTING TO (COM-MON POINT)."

Box size is not fixed but will be of a size to encompass the standard note and common point.



Figure 3.7 Inset Reference Box

3.4.4.10.1.2 Inset Box

The preferred location of the inset box is along the neatline and as close to the common point as possible.

The 2 weight (.006") inset box will be clearly labeled "ROUTING TO (COMMON POINT)." If the inset is not depicted to the same scale as the chart, the routing note will be followed by "(not to scale)."

The inset box will include all fix-specific information. When space allows, procedure NA notes that only apply to points within the inset box will be included within the parameters of the box. Contours, hydrography, and obstacles will not be shown in the inset box.



3.4.4.11 Notched Planview

The planview may be 'extended' on the bottom, on either the right or left side, to allow a larger geographic area to be depicted. "White space" in both the minima box and the airport sketch shall be eliminated, resulting in a 'notched' planview.

3.4.4.12 Concentric Rings

The planview may be depicted with or without concentric rings.

The planview will be depicted without concentric rings when all the procedural and terminal route information can be depicted to scale between the neatlines. The use of scale breaks is preferable to the concentric ring depiction.

Concentric rings may be used when all procedural and terminal route information cannot be depicted to scale, including facilities that form fixes/intersections not a part of the enroute low altitude airway structure or are used for the missed approach.

A 10NM distance ring shall only be shown when use of concentric ring depiction is necessary.

3.4.4.12.1 Inner Ring (10 NM Distance Ring)

A ring 1.45" radius with a .010" line shall be shown, centered and labeled "10 NM" within the planview. This ring shall be referred to as the inner ring or the 10 NM distance ring.

- The 10 NM distance ring may be replaced (in whole or in part) by a DME arc, when required, and where the arc distance is 8 to 12 miles. In such cases, the DME arc shall be shown as a .020" solid line.
- The 10 NM distance ring shall be cut back or broken so that the 10 NM distance ring and the DME arc will not cross or intersect one another. When the DME arc and the 10 NM distance ring are coincidental, or tend to be, the 10 NM distance ring shall be cut back to effect a break in the continuity.

The NAVAID upon which the final approach of the instrument approach procedure is based shall be positioned in the center of the inner ring. All other information shall be positioned in relation to this facility. Exception shall be made when the location of the airport, radio aid to navigation and/or procedure pattern necessitates that the ring be centered on other facilities or geographical points for better portrayal of the instrument approach procedure. Portions of the ring may be deleted to avoid overprinting of information.

3.4.4.12.2 Middle Ring (Feeder Facilities)

The middle ring shall be concentric with the inner ring, having a radius of 1.70" and symbolized by a .007" dashed line. The dashes shall be .20" long with a .10" space between the dashes. The line may be broken as required to show facilities, fixes and intersections as clearly as possible. The label "FEEDER FACILITIES" shall be in line with the labels on other rings.

Feeder facilities/fixes shown on the middle ring shall be those utilized by the air traffic controller to direct aircraft to intervening facilities/fixes between the en route structure and the initial approach fix.

Feeder facilities shall be placed on the middle ring (except when their location will plot within the 10 NM distance ring) at the point where their magnetic bearing relationship between the feeder facility and the primary facility or fix will be maintained, but the distance may not necessarily be to scale. In congested areas, the bearing relationship may be altered for better portrayal.

When the DME arc is shown in lieu of the ring and is other than the normal 10 NM inner ring, the middle ring, when required, shall be displaced and equally positioned between the DME arc and the outer ring.

NAVAIDs shown on the middle ring shall be identified by name, frequency and call sign (Channel number for TACAN, VORTAC, VOR/DME, and DME), but shall not be boxed unless the NAVAID is utilized as part of the procedure, in which case it will be shown in accordance with Section 3.4.4.22 - Bearing Lines.

Intersections shown on the middle ring shall be shown by the intersection of radials from or bearings to the NAVAIDs which establish them. These NAVAIDs shall be shown on the outer (en route facility) ring except when they will plot to scale within the 10 NM distance ring, and be identified by name, frequency and call sign (Channel number for TACAN and VORT-AC), but not boxed, except when located within the 10 NM distance ring.

If feeder facilities are not utilized for terminal routes, missed approach facilities/fixes or holding patterns, then the middle (feeder facility) ring shall not be shown.

3.4.4.12.3 Outer Ring (En route Facilities)

An outer ring labeled "EN ROUTE FACILITIES" shall be concentric with the inner and middle rings, having a radius of 2.10" and symbolized in the same manner as the middle ring, using .25" dashes with a .10" space between the dashes. This ring may be broken, as required, to show facilities, fixes and intersections as clearly as possible. The label "EN ROUTE FA-CILITIES" shall be positioned in line with the labels on the other rings. En route facilities shall be those NAVAIDs, fixes and intersections which are part of the en route low altitude airway structure. Terminal routing, giving bearing, distance and altitude information direct or via feeder facilities to other facilities/fixes, shall be shown.

En route facilities shall be positioned on the outer ring in the same manner as feeder facilities are on the middle ring, i.e., the facility symbol shall be positioned at the point of intersection of the magnetic bearing from the primary facility or fix to the en route facility on the outer ring.

En route facilities shall be identified by name only. Intersections shall be shown using the same reporting point symbol and name as used on the En route Low Altitude chart. NAVAIDs and intersections/fixes identified by the approving authority as an Initial Approach Fix (IAF) shall be identified by the letters IAF within parentheses and, where named, positioned normally above the name or adjacent, as appropriate, depending upon space considerations.

When en route facilities are used in a dual capacity, such as a transition facility and missed approach facility, they shall be identified by name, frequency, call sign and code (Channel number for VORTAC, TACAN, VOR/DME, and DME) within a communication data box.

En route facilities not utilized in the approach procedure, and which would normally be positioned on the outer ring, may be positioned in the space between the outer ring and the planview neatline. This may be done when the facility is employed in the designation and formation of en route and/or feeder fixes and intersections germane to terminal routes or missed approaches. This technique will obviate the need to position multiple facilities, fixes or intersections within close proximity of each other, within or between the concentric rings, thereby retaining the integrity of the chart format.

3.4.4.13 Terminal Routes

Terminal routes shall be shown, when included as part of the procedure, as an approved terminal route from a facility/fix.

- Discretion must be exercised in portraying the length of terminal routes, depending on the position of the facility/fix, so as to adequately depict the terminal route from and toward the appropriate facility/fix.
- Where the terminal route destination may be in question due to intervening fixes or length of route, a clarifier may be added following the altitude. Names or facility types (all CAPS) will suffice, e.g., 2300 to BATOU, 3600 to VORTAC.
- Terminal routes with a dogleg turn shall graphically illustrate this dogleg turn.

Terminal routes shall be shown as 4 weight (.010") arrowed line extending from the en route facility/feeder facility symbol along the magnetic bearing line toward the initial approach facility/ fix or another facility/fix.

Terminal routes identified as No Procedure Turn (NoPT) or beginning at an Initial Approach Fix (IAF) shall be shown using an 8 weight (.020") line. When the procedure source document indicates a NoPT the letters "NoPT" shall be shown adjacent and parallel to the terminal route. When the beginning of a NoPT route is designated as an IAF, the abbreviation shall also be used to identify this fix/facility.

Terminal routes (except Radius-to-fix legs and DME arcs) shall include the bearing, distance and minimum altitude. The arrowed line shall be broken for insertion of bearing values.

- The magnetic bearing value shall be shown on and breaking the terminal route. Bearing values shall be given to the nearest degree, using three digits, e.g., 061°.
- The distance shall be shown to the nearest tenth of a nautical mile, enclosed within parentheses, e.g., (16.4), positioned directly below the bearing value.
- The minimum altitude shall be positioned directly above the magnetic bearing value.
- Dogleg routes shall have leadered route information with reference to the terminating point and both segments stacked on two or more lines as shown below.

Figure 3.9 Dogleg 3200 NoPT to RYENS 140° (3.1) and 210° (1.6)

• Dogleg route segments based on a heading as specified by (HDG) on the procedure source document shall indicate "hdg" on the route segment as shown below.

Figure 3.10 Dogleg Segment Based on Heading



- Terminal routing normally ends at the FAF/PFAF, but RNAV (RNP) charts shall have routing information included all the way to the runway end.
- Radius-to-fix legs on RNAV (RNP) procedures shall be shown with distance and altitude information only; no track value shall be shown. DME arc routes shall be shown with altitude, "NoPT" designation if provided, and DME arc value only.

Terminal routes that are DME arcs or Radius-to-fix legs (RF) shall be shown as smooth arcs from a designated start point to a designated terminus. Arc origin (center point) will be identified on the procedure source document (NAVAID for DME arc, CNF for RF leg). RF routes will have an appropriate arrowhead at each terminal point. DME arcs that conclude at a fix on a procedure track will be filleted (curved) into the track so as not to obliterate the fix. If lead radials/bearings are identified by the procedure, the curve will begin at the point.



In congested areas, the informational data may be positioned in a clear area and related to the terminal route by a 1 weight (.005") arrowed leader line. On precision approaches when descent on the glide slope is authorized after interception without a procedure turn, a note providing the minimum altitude and distance to the glide slope intercept point shall be shown along the terminal route in lieu of that described above. When this NoPT note is shown, the overall distance to the LOM shall be provided below the NoPT note in parentheses.

VOR changeover points, other than midpoint (plus or minus one mile) shall be shown when so identified and submitted by the approving authority.

3.4.4.14 Procedure Track

The procedure track shall be indicated by an 8 weight (.020") line, broken for bearing values and navigational symbols. The inbound bearing, in 9 point type, and directional arrow, shall be positioned on the final approach track to indicate direction of flight. Outbound procedure bearing, shown on and breaking the radial/bearing line, shall be shown using the appropriate radial, outbound localizer course or an outbound heading shown in the same method as depicting a radial. A degree sign shall be shown with all headings/bearings/courses.

The procedure track may be coincident with one or more IAF terminal routes. In this case, the route(s) may be shown shortened (or broken and not extending completely to an intermediate or final approach fix) indicating the direction (with an arrowhead) toward the fix. Discretion must be exercised in portraying the length of these tracks so as to adequately depict the track from and toward the appropriate facility/fix.





Positioning, type size and style shall be as specified for terminal routes. If the terminal route occurs where the procedure track can't be broken, i.e., after the start of the procedure profile, the route information will be stacked with a 9 point type course value when space allows, or leadered where it does not. Leadered information may contain only altitude, and distance if the course value would repeat the final approach course shown. All leadered information will be stacked together in 7 point type.





If a feeder terminal route is coincident with the procedure track, but going in the opposite direction, the terminal route line may be offset parallel to the procedure track so as not to overrun it.

Figure 3.14 Offset Feeder Route



3.4.4.14.1 Procedure Turn Barb

The procedure turn shall be shown by a barb symbol as illustrated below. The barb shall be a half arrowhead .10" long and .05" wide positioned on the maneuvering side. The tip of the barb shall be shown at the procedure turn limit listed on the procedure source document (e.g., 10 NM, 15 NM). Inbound and outbound 45° off-course bearing values (a directional arrow with the inbound value only) shall be shown on either side of the procedure turn barb in 7 point type.



3.4.4.14.2 Procedures Using Teardrop or Holding Pattern

Procedures using a teardrop or holding pattern configuration shall be shown in their entirety and shall include both inbound and outbound bearings. See Section **3.4.4.20** for a detailed explanation of Holding Patterns.



References:

Appendix 34 - Teardrop Turn

3.4.4.14.3 ILS Components

Components of an ILS that are not specifically part of the procedure, but are requested for charting on the procedure source document, will be shown in screened color.

3.4.4.15 Restrictive Altitudes and Airspeeds Along the Procedure Track

Restrictive altitudes that deviate from the route altitude and airspeeds along the procedure track shall be shown paired with their respective fix/facility.

Туре	Description		Speed
Minimum	Minimum altitude/speed shall be depicted as an underlined number	2300	<u>170K</u>
Maximum	Maximum altitude/speed shall be depicted as a number with a line above it	4800	170K
Mandatory	Mandatory altitude/speed shall be depicted as a number with a line above and below it	5500	170K
Block	Block altitudes shall be depicted with two altitudes with a line above and below	7500 5500	NA

Table 3.2 Restrictive Altitudes and Airspeeds

Restrictive altitudes that deviate from the route altitude and airspeeds at the same point (fix, intersection, waypoint, DME, NAVAID) shall be shown side by side with altitude listed first, e.g., $12000 \ \overline{250K}$.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.16 Missed Approach Procedure Track

To distinguish the runway from the procedure track, an arrow shall be positioned on the end of the final approach track, just short of the end of the runway, or where the missed approach begins. When a turn is required, the missed approach track shall be curved to indicate the proper direction. A definite break shall appear between the final approach arrow and the beginning of the missed approach track. The missed approach track shall be placed so as to clear the runway pattern and radio facilities on or near the airport. The missed approach track shall be symbolized as indicated below and shall begin at the missed approach point.

Non-RNAV charts shall not show heading or course figures. The track symbol will be oriented to reflect the given heading or course.

On RNAV procedures, legs in the missed approach procedure will be depicted with the course, and/or distance, if designated, in the same manner as terminal routes.



Figure 3.17 Missed Approach Track

Figure 3.18 Missed Approach Point Off Chart



On non-RNAV charts, if a radial/bearing is being used to navigate to the missed approach point off the chart, the radial/bearing shall be shown to the chart border.

Figure 3.19 Missed Approach Using Radial/Bearing



3.4.4.17 Visual Procedure Track

Instrument approach procedures, including Copter approach procedures, that terminate or have missed approaches prior to the airport/heliport, and are authorized to proceed visually, shall depict the visual flight path by the dashed line symbol illustrated, from the missed approach point to the airport.

On RNAV charts where the visual track may only apply to LNAV/VNAV, the visual procedure track line will not be shown in the planview. There will be a note directed to that portion of the procedure track.

Figure 3.21 Visual Track Applies to LNAV/VNAV Only LNAV/VNAV Fly Visual 208° 2.4 NM

3.4.4.18 Notes

Notes shall be held to an absolute minimum and shall be based on user requirements consistent with a safe execution of the procedure.

Appropriate explanatory notes, when required, shall be placed along the procedure track or in any open area of the planview, using 7 point type (C/L). Notes specifically referring to a fix or facility shall be shown in close proximity to that fix or facility whenever possible.

When ADF, DME, RADAR, or any combination of these are required for the execution of the procedure entry from the en route environment, a note "ADF REQUIRED" or "DME RE-QUIRED" or "RADAR REQUIRED", as appropriate, shall be shown in 14 point type positioned in a clear area of the planview. Planview placement of subject note will be specifically denoted on the procedure source document in the format "Chart planview note: RADAR REQUIRED." Any radar or equipment notes not specified for planview charting shall be depicted in the briefing strip.

When "CHART PLANVIEW NOTE: NOT FOR CIVIL USE" is denoted on the procedure source document, the note shall be shown in 14 point type and positioned in a clear area of the planview.

3.4.4.19 Minimum Safe Altitudes (MSA)

MSAs provided in source documentation shall be shown for each airport where instrument approach procedures have been established. MSAs will not be depicted on procedures where Terminal Arrival Areas (TAA) have been established for all sectors.

MSAs shall be provided as a 3 weight (.006") circular diagram positioned normally in the lower right corner of the planview. The appropriate symbol of the NAVAID/waypoint/airport on which the MSA is predicated shall be positioned at the center of the circle. When the MSA is predicated on an airport reference point, the symbol for the type airport, i.e., civil, military, joint-use, shall be used.

- The magnetic courses forming the sectors shall be shown in their proper magnetic orientation within the circle as inbound magnetic bearings using a 1 weight (.005") arrowed line.
- The magnetic bearing value shall be shown centered on the bearing line.
- The MSA values shall be shown in enclosed in a 1 weight (.005") box, centrally positioned within the sector.
- The MSA diagram shall be identified by the letters "MSA," the NAVAID/waypoint/airport identifier, and the applicable mileage, e.g., MSA ABC 25 NM, positioned outside and along the upper portion of the circle. (When an airport identifier is required, airports within the contiguous U.S. shall depict the FAA designated identifier, those outside the contiguous U.S. shall depict the FAA designated identifier and the ICAO location indicator, seperated by a slash.)
- MSAs with the same altitude value for each of the four sectors shall be shown by the boxed altitude value applicable to all sectors centrally positioned within the circle and above the NAVAID/waypoint/airport symbol.

An Emergency Safe Altitude for 100 NM may be depicted at the option of the approving authority. When a minimum safe altitude for 100 NM is required, it shall be depicted by a common note, e.g., Emergency Safe Altitude 100 NM 0000. The term "Emergency Safe Altitude" is used to ensure added distinction between the 25 NM and 100 NM radius. Sectors are not used for Emergency Safe Altitudes.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.20 Holding Patterns

3.4.4.20.1 General

Holding patterns shall be shown only when identified and submitted with the procedure source document.

Holding patterns shall be depicted with a racetrack type symbol. Line pattern or line weight will be determined by holding usage. The symbol may be expanded laterally, when required, to include mileage fixes, intersections, or other facilities upon which the holding pattern may be premised. When the arrival holding pattern is shown in the planview and not affixed to the beginning of the approach track, a .007" lead arrow shall be shown leading from the approach side of the holding pattern to the initial approach fix or facility. The arrow may be curved in order to properly depict the flight path from the holding pattern to the initial approach point. Holding patterns shall be oriented on the proper flight path bearing or radial, and both inbound and outbound bearings (including degree sign) must be shown, except where the nearness of the procedure track bearing may preclude the need for the holding pattern bearing. When the holding is on a VOR facility, the outbound radial will also be depicted.

Holding patterns with maximum restricted airspeeds that deviate from the standard will have the maximum airspeed shown in parentheses inside the holding pattern racetrack symbol.

When a maximum holding pattern altitude restriction is requested on the procedure source document, the minimum and maximum holding pattern altitudes will be shown as a block altitude outside the holding pattern symbol with the word "HOLD". A leader line will be used.

Figure 3.22 Holding Pattern Altitude Restrictions



RNAV holding patterns will be supplemented with a leg length as defined by the procedure source document. A 2 weight (.006") line, 0.2" in length will placed at the end of the outbound leg perpendicular to the leg. The leg length shall be shown in nautical miles, e.g., 4 NM.

Non-RNAV hold-in-lieu of procedure turn holding patterns will be supplemented with the timing value specified on the source document, e.g., 1 min. The timing value will be shown inside the holding pattern symbol. In some cases, a distance limit may specified on the source document. When indicated, it will be shown as a 2 weight (.006") line, 0.2" in length will placed at the end of the outbound leg perpendicular to the leg, e.g., 4 NM.

If two types of holds are requested for the same point, e.g. procedural/missed, arrival/missed, with matching inbound and outbound legs, an order of precedence will be followed. Procedural holding pattern shall be depicted in lieu of either arrival or missed. Arrival holding pattern shall be depicted in lieu of missed.

3.4.4.20.2 Missed Approach Inset Box

The following types of missed approach holding patterns will be shown as a boxed inset within the planview:

- All alternate missed approach holding patterns.
- Missed approach holding patterns that lie outside the geographic parameters of the planview and are unable to be shown with a scale break.
- Missed approach holding pattern when the missed approach holding pattern is also used for another segment of the approach (i.e., arrival holding) at the same point and the holding pattern information is not identical.

The boxed inset will be clearly labeled (MISSED APCH FIX, ALTERNATE MISSED APCH FIX, or if necessary such labels as TACAN MISSED APCH FIX, CAT E MISSED APCH FIX may be applied).

- The preferred location of the boxed inset is a corner of the planview in the proximity of the actual missed approach point.
- Wherever possible, the box shall be placed away from the path of the missed approach track to avoid the appearance of a "to scale" depiction.
- The inset box for the primary missed approach may be expanded to include multiple maneuvers that would otherwise fall outside the planview. If the track is not depicted to scale, the inset box will include a "(not to scale)" note.



Figure 3.23 Missed Approach Inset Box Examples

3.4.4.20.3 Arrival Holding Patterns with Altitude Restrictions

Arrival Holding Patterns with an altitude restriction that deviate from the inbound or outbound leg from the holding pattern will have the altitude shown outside the racetrack symbol with the word "HOLD" preceding the prescribed altitude. A leader line between the holding altitude and the holding altitude type will be shown. Minimum altitudes will be shown with an underline, maximum altitudes will be shown with a line above the type and mandatory altitudes will have a line above and below the altitude type.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.21 Radial Lines

All radials pertinent to the procedure, missed approach, or holding patterns shall be shown and identified. Radial lines shall be shown by 2 weight (.006") arrowed line emanating from the facility with the values positioned on and breaking the arrowed line, preceded by the letter "R." The radial value shall be in three digits, e.g., R-000. Lead radials, when identified and submitted with the procedure, shall be additionally identified with the letters "LR" preceding the numerical value, e.g., LR-053. A degree sign shall not be shown with radial values.

In congested areas, radial values may be placed in a clear area and related to the radial by a 1 weight (.005") arrowed leader line.

3.4.4.22 Bearing Lines

Bearing lines shall be shown by a 2 weight (.006") line and are normally pointing to the facility. Exceptions will be when an outbound bearing is needed for a procedure turn depiction or an outbound bearing is requested in the missed approach instructions. Bearing values shall be shown using three digits positioned on and breaking the arrowed line. A degree symbol shall be shown with all bearing values.

In congested areas, values may be placed in a clear area and related to the bearing line by a 1 weight (.005") arrowed leader line.

3.4.4.23 **NAVAIDs - General**

All NAVAIDs that are to be portrayed within the planview borders shall use the appropriate symbol as shown in Appendix 9. The NAVAID symbology will be used in cases where the same point is also used as a waypoint on the same procedure. NAVAIDs shall be plotted in their exact geographic position except as provided in Section 3.4.4.10 - Scale.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.23.1 **NAVAIDs Used on Non-RNAV Charts**

The NAVAID symbol shall be accompanied by a data box containing all pertinent information for that NAVAID. A leader will extend from the data box to the symbol. The leader shall be a straight 3 weight (.006") line.

Boxes shall be of a size consistent with the informational data contained therein. The procedure facility (primary) NAVAID box shall be 7 weight (.015"). All others shall be 3 weight (.006").

3.4.4.23.2 **NAVAIDs Used on RNAV Charts**

NAVAIDs used on RNAV charts shall use the appropriate symbol and be identified by name and ident.

3.4.4.23.3 **NAVAIDS Off the Chart**

Those NAVAIDs that are utilized in the procedure solely for fix make-up, but are located off the chart shall be portrayed by a radial line emanating from the chart border to the fix or a bearing line from the fix to the chart border. Frequency and identification of the NAVAID shall be shown above the line and Channel below. Information may be leadered where necessary.



Figure 3.24 NAVAIDs Off the Chart

A NAVAID utilized in the primary missed approach or TACAN missed approach that is off the chart but is also used for navigation to the MAP will additionally include the Morse Code after the NAVAID identification above the radial line. If the NAVAID off the chart is depicted in more than one location on the chart, then the Morse Code along the radial will only be shown in the planview.





3.4.4.23.4 NAVAIDs Used in Missed/Alternate Missed Approach Holding

Those NAVAIDs utilized as the missed/alternate missed approach hold and shown in a boxed inset shall be identified by name, location identifier, morse code, frequency and channel. NAVAIDs utilized as holding fix make-ups shall be portrayed the same as NAVAIDs off the chart.



Figure 3.26 Missed Approach Box Inset

3.4.4.23.5 Arrangement of Data Within Data Box

Arrangement of the data within the data box shall be in the following sequence: name, frequency, call or identification and Morse Code. Channel numbers for TACAN, VORTAC, VOR/DME, and DME shall be abbreviated "Chan" using C/L type followed by the channel number, positioned below other data within the box.

Figure 3.27 Arrangement of Data in the NAVAID Box



When the DME operates in the "Y" mode, the "Y" will be enclosed in parentheses and positioned immediately following the channel number, e.g., Chan 00(Y).

When the degree of localizer offset is provided, it will be displayed on the bottom line of type as "LOC offset X.XX".

For GLS procedures, the text 'GBAS RPI', the RPI, and its Morse Code will be shown in the facility box without a pointer line.

For DME and TACAN facilities, the data shall be shown as follows with the paired VHF frequencies, if available, on the last line of the data box in parentheses.

Figure 3.28 DME or TACAN NAVAID Box

SCOTT	
Chan 59	
SKE 🚟 –	
(112.2)	
(112.2)	_

3.4.4.23.5.1 Frequencies Without Voice Capability

Frequencies without voice capability shall be underlined, with the exception of TACAN and DME, using a 2 weight (.006") line, the length of the frequency numbers.

3.4.4.23.6 NAVAIDs Identified as Initial Approach Fix (IAF) or Intermediate Fix (IF)

NAVAIDs identified by the approving authority as an initial approach fix (IAF) and/or an intermediate fix (IF), shall be identified by the letters "IAF", "IF", or "IF/IAF" positioned on and breaking the top line of the identification box. Identification boxes that have the top line broken for other information, e.g., LOM, shall have the letters "/IAF" following the letters "LOM". If there is no identification box, the letters, in parentheses, will be placed above the NAVAID name. An IAF identified on the procedure form as being 30 NM or more from the ARP of the airport will be shown in negative type with the note "IAF ARM APPROACH MODE PRIOR TO IAF."

Figure 3.29 IAF Note

IAF ARM APPROACH MODE PRIOR TO IAF.

References:

Appendix 54 - GPS with Armed Approach

3.4.4.24 Marker Beacons

Marker beacons shall be positioned in their exact geographical positions oriented perpendicular to the procedure track. If the marker beacon is assigned a name and identification code, this data will be enclosed within a data box and leadered to the symbol. Marker beacons identified on the procedure as fan markers shall show the code "FM" breaking the top line of the box. If no box exists, the "FM" will go after the name and be placed adjacent to the symbol.

Figure 3.30 Marker Beacon



Marker beacons of an instrument landing system shall be identified by the letters "IM" (inner marker), "MM" (middle marker) or "OM" (outer marker) positioned adjacent to the symbol. If assigned a name, the name will precede the identifier, e.g., NIKEE OM. If the marker is collocated with a compass locator, a data box will be used as outlined in Section **3.4.4.26**.





Marker beacons that are not specifically a part of the procedure, but are requested for charting on the procedure source document, will be shown in screened color.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.25 Non-Directional Radio Beacons (NDB)

NDBs shall be plotted in their exact geographical position using the appropriate symbol.

NDBs that are paired with DME shall be shown with the NDB/DME symbol as indicated in **Appendix 9**. The DME channel shall be identified within the NDB communications box and below the NDB data and on a separate line. Paired frequency data shall be shown in parentheses, e.g., DME Chan 30 (109.3).

When LF and UHF NDBs are collocated, both frequencies shall be shown, positioning the UHF frequencies first, and the LF frequency directly beneath.

When NDBs are paired with marker beacons on the ILS course, they shall be treated as LOM/ LMM as outlined in Section **3.4.4.26**.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.26 Compass Locators / Marker Beacons

Compass locators are similar to NDBs but use a 20% reduced NDB symbol. Data box arrangement shall be the same as an NDB. Compass locators are typically collocated with a marker beacon of an ILS course.

When collocated with the outer marker/middle marker, compass locators shall be identified as "LOM" or "LMM" centered on and breaking the top line of the data box.

Figure 3.32 Compass Locators/Marker Beacons

LMM VINEE 253 UR ::)\$	207	LOM BECCA 233 LG:
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References:

Appendix 9 - Legend – IAP Planview

3.4.4.27 VOR, VORTAC, VOR/DME, DME

VORs, VORTACs, VOR/DMEs, and DMEs shall be plotted in their exact geographic position, using the appropriate symbol, as indicated in the appendix. Data boxes shall contain information as outlined in Section **3.4.4.23.5**.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.28 TACAN

TACAN facilities shown shall be plotted in their exact geographic position using the appropriate symbol as indicated in the appendix.

The TACAN initial approach fix shall be indicated by a distance measuring fix line, using a 2 weight (.006") line .2" long, centered across the radial. The fix line shall be formed from the TA-CAN transmitter and labeled with the letters "IAF" within parentheses and the TACAN identifier and nautical mile distance indicated.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.29 Instrument Landing System (ILS)

Only those components of the Instrument Landing System utilized in the instrument approach procedure shall be shown.

The localizer course shall be shown by the symbol illustrated in the appendix. The localizer course symbol shall be centered on the magnetic bearing as projected outward from the transmitter site, cleared for the runway, the patterned portion of the symbol shall be positioned on the right for front courses, and on the left for back courses. However, a transmitter symbol shall not be graphically depicted on the chart except when offset from its normal position off the end of the runway on the centerline. If the transmitter symbol is not required, the data box leader will point to the exact geographical position of the transmitter site.

Figure 3.33 Localizer Depiction



The Outer Marker (OM), Middle Marker (MM) and Inner Marker (IM) beacon symbols shall be centered across, and perpendicular to, the localizer course.

On ILS procedures, glideslope frequencies will not be shown.

Procedures based on the back course of the localizer shall have the words "BACK COURSE" displayed in the planview using 14 point type.

Procedures that use a back course from a localizer that is not the procedure facility (primary) shall be identified as "BACK COURSE" positioned parallel to the course using 7 point type. See **Appendix 39** - LOC/DME – Back Course Used Other than as Procedure Facility (Primary).

Simplified Directional Facilities (SDF) course shall be shown the same as the ILS localizer course except that the course symbol shall be left open, void of any pattern.

The outbound bearing shall be depicted in the outer extremity of the localizer symbol. The localizer symbol shall typically end in a "V" shape within the planview. Where space is a consideration, the symbol may be extended to the chart border and the "V" eliminated.





References:

Appendix 9 - Legend – IAP Planview

3.4.4.30 Intersections/Fixes

3.4.4.30.1 General

All Intersection/Fixes that are to be portrayed within the planview borders shall use the appropriate symbol as shown in **Appendix 9**. Intersection/Fix symbology will be used in cases where the same point is also used as a waypoint on the same procedure.

3.4.4.30.2 Enroute

Intersections (defined by two or more NAVAID make-ups) and DME fixes (single NAVAID make-up), designed for enroute charting (enroute low, enroute high or area), will be shown with a triangle symbol as illustrated in the **Appendix 9** - Legend – IAP Planview. The INT/ fix will be identified with the assigned five letter name.

Any DME component requested by the procedure shall be listed below the name, shown to the nearest tenth of a nautical mile.

Figure 3.35 Enroute Fix with DME Component

 $\triangle \frac{\text{BEYAY}}{\text{ENA} 24.1}$

If the INT/fix is the start of a terminal route; i.e., coming off the enroute structure, no radial/ bearing make-ups shall be shown unless specifically requested by the FAA procedure source document. Any enroute INT/fix used as a feeder route inside the enroute structure shall be shown with all requested radial/bearing make-ups as defined on the procedure source document. Also, if the INT/fix serves in the capacity of missed approach point, all requested radial/ bearing make-ups shall be shown.

Any make-up lines shall run through the symbol but will be cleared from the inside of the triangle.



INT/fix identification shall typically be shown in the close proximity to the symbol. In congested areas, the information may be leadered to the symbol by a lightning type leader.

3.4.4.30.3 IAP Only Intersections (No Enroute Component)

IAP only INTs shall be symbolized as two or more crossing radial/bearing/course lines as requested by the procedure source document. They will be identified by the assigned five letter name followed by the designator "INT". The information shall be leadered to the symbol by a lightning type leader.

Any DME component requested by the procedure shall be listed below the name, shown to the nearest tenth of a nautical mile.

Figure 3.37 IAP Only Intersection with DME Component



If a RADAR component is requested, the word "RADAR" will follow all other identification.

3.4.4.30.4 IAP Only DME Fixes/Step-down Fixes (No Enroute Component)

DME fixes shall be symbolized with a 2 weight (.006") line, 0.2" long (tick mark) centered on and perpendicular to the terminal route or procedure track. When a DME fix is not along a route, it will be shown with the tick mark perpendicular to the radial/bearing defining it.



Step-down fixes are DME fixes that are established between designated procedure points; i.e., IAF, IF, FAF, MAP, for altitude restriction. They are symbolized and identified the same as any IAP only DME fix. On ILS procedures, step-down fixes within the final approach segment will not be shown in the planview of any CAT II, CAT II & III, or Special Authorization (SA) charts.

Named DME fixes established as the missed approach point and in close proximity to the runway pattern, will be identified the same as above. The symbology however, will be a straight, 1 weight (.005") leader drawn from the exact geographical position of the fix to the name. Unnamed DME fixes established as the missed approach point will be shown only in the profile.

Figure 3.39 Named Missed Approach Point Fix



Visual Descent Points (VDPs), when established by the procedure, are not shown in the planview, but appear in the profile.

All intersections and fixes that are identified as an Initial Approach Fix (IAF) on the procedure source document, shall be identified by "(IAF)" positioned above the name.

3.4.4.30.4.1 Computer Navigation Fix (CNF)

Points-in-space used solely for electronic database identification are known as CNFs. The location of the CNF shall be indicated by a 7 point lower case "x" and its five letter designator in parentheses. The "x" shall not be shown when the CNF is established as a missed approach point near the runway end. A straight 1 weight (.005") leader shall be used to point to the exact geographical location. The "x" will also not be shown when the CNF is coincident with an unnamed DME fix. In this case, the CNF designator shall go above the DME distance information.



IAC 4

When the CNF is a final approach course fix and it falls near the procedure turn (PT) barb, the PT barb shall be adjusted before the CNF. In cases of extreme congestion, placing the PT barb after the CNF would be the next option. Do not place the PT barb with CNF at the apex of the turn. When the CNF falls in a holding pattern, the CNF will be placed in its exact geographic position, breaking the line of the holding pattern for the "x".

Figure 3.41 Final Approach Course CNFs



References:

Appendix 9 - Legend – IAP Planview

3.4.4.31 Area Navigation (RNAV) Waypoints

RNAV waypoints, as designated and identified by the approving authority, shall be shown by the symbol illustrated in the appendices. The missed approach point (MAP) will be depicted by a 50% reduction of the fly-over waypoint symbol with the following exceptions: when specified as FB on the procedure source document, the MAP shall be depicted by a 50% reduction of the fly-by waypoint symbol.

If an RNAV waypoint is collocated with an intersection, DME fix, or NAVAID, the appropriate Intersection, DME fix, or NAVAID symbol will be used.

RNAV waypoints, as designated, shall be identified by name.

Unnamed step-down waypoints, defined by an along-track distance (ATD), shall be identified with reference to the associated runway or the associated fix and symbolized by a 2 weight (.006") line, 0.2" long, centered on and perpendicular to the terminal route or procedure track.

Figure 3.42 Unnamed Step-down Waypoints

2.5 NM to 2.5 NM to RW35 IVERS

When the step-down waypoint is named, the name shall be shown near the waypoint symbol with the along-track distance information, centered beneath.

Figure 3.43 Named Step-down Waypoints

HELNO	HELNO
2.5 NM to	2.5 NM to
RW35	IVERS

On RNAV (RNP) charts, any requirement/capability notes will be depicted in parentheses below the fix/waypoint/NAVAID name, and also below any existing altitude/speed restrictions. The order of the notes shall be RNP, RF, and RADAR. The word REQUIRED shall be shortened to REQD. The format of the notes shall be as depicted in Figure 3.44.

	-		
SHNON (RNP 0.50)	△ DRUZZ (RNP 0.50) (RADAR REQD)	(IAF) <u>BILIT</u> 280K (RNP 0.50)	(IF) COLUM 2500 (RNP 0.50)
(IAF) WESTMINSTER \bigcirc $\frac{EMI}{4000}$ (RNP 0.50)	△ (IAF) RENOL (RNP 0.50) (RF REQD) (RADAR REQD)	(IAF) TRING (RNP 0.50) (RF REQD)	(IAF) △ BILIT <u>11000</u> 280K (RNP 0.50)

Figure	3.44	RNP	Values
iguic	V.TT		V uluco

Waypoints identified as IAF, IF, FAF or MAP shall be identified by the letters indicated above, positioned on and breaking the top line of the waypoint identification box. If a data box is not required, the identifier shall go above the name in parentheses. An IAF identified on the procedure form as being 30 NM or more from the ARP of the airport will be shown in negative type with the note "IAF ARM APPROACH MODE PRIOR TO IAF."

Figure 3.45 IAF Note

IAF ARM APPROACH MODE PRIOR TO IAF.

References:

Appendix 9 - Legend – IAP Planview

3.4.4.32 Fly-over Symbology

Enroute fixes/intersections, waypoints, and NAVAIDs that are designated as fly-over will be shown with a circle around the symbol. However, enroute fixes/intersections, waypoints, and NAVAIDs designated as a holding point will be charted as a fly-by, without the circle around the symbol. In the event the holding point is also designated in all other parts of the procedure unrelated to holding with a fly-over function, then the holding point will be charted as a fly-over point.

3.4.4.33 Copter Point-in-Space Procedures

3.4.4.33.1 Visual Segment

Visual flight path segments shall be shown by an 8 weight (.020") dashed line symbol as illustrated below.

Figure 3.46 Visual Segment

.15" dash .05" space

3.4.4.33.2 VFR Segments

VFR segments shall not be depicted with a line, but will include the reference bearing and distance text, when provided on the procedure source document, at the end point of the VFR segment as illustrated in **Appendix 60** - COPTER – Point-in-Space.

3.4.4.33.3 Insets

On point-in-space procedures, when a visual flight path or VFR segment is required from the MAP to the heliport or alighting area, a circular inset or blow-up of the MAP area shall be provided, except when the parameters of the airport sketch allow clear depiction of the MAP to heliport or alighting area, including significant visual landmark features along the path that aid containment within that area (see 3.4.4.33.4).

This circular inset shall be 1.45" in diameter with a minimum area of coverage of 1 nautical mile in radius and labeled with the radius in nautical miles. Line weight of circle shall be .010".

The note "See Inset", using 7 point type, shall be positioned at the MAP in the planview.

This MAP area shall be limited to and depict significant landmark visual features at the breakout point (MAP). The procedure track, value and distance to the MAP and the visual segment and value to the landing point shall be shown within this inset. If it is a VFR segment, the reference bearing and distance text, when provided on the procedure source document, shall be shown at or leadered to the landing point.

The highest obstacle charted in the planview area of the inset shall also be shown within the inset.

References:

Appendix 61 - COPTER - Point-in-Space with Inset

3.4.4.33.4 Significant Visual Landmark Features

Significant visual landmark features are items which, due to their location, are prominent or are readily identifiable because of their distinctive size, shape or form and are identified as follows:

- Primary roads to include route or highway names in populated areas
- Railroads
- Water features
- Power lines along the route of flight will be shown when no other landmarks are available
- Prominent buildings will be shown when required or as requested by Flight Inspection.
- Other landmark features requested by Flight Inspection
- Commercial names, such as Sears Tower, will not be used to identify features, and instead, only generic names will be used, i.e., building, stadium, etc.

3.4.4.34 Airways

Airways shall only be shown when referenced in the approach and/or missed approach parts of the procedure, or when depiction of the airway is requested by the approving authority.

Airways, when shown, shall be depicted inside an appropriately sized 2 weight (.006") box. The box shall be positioned above or below the line in a clear area.

Figure 3.47 Airway Example

V321

3.4.4.35 End of Runway Coordinates (Military Only)

End of runway coordinates will be depicted in geographic coordinates in degrees, minutes and hundredths of a minute. They shall be depicted when requested and provided by the military Office of Primary Responsibility (OPR) and will depict the point where the runway threshold and centerline intersect.

The data shall be depicted in solid color in 6 point type enclosed in a .007" line weight box. A pointer line (.007") shall extend from the data box to and without touching the runway end.

3.4.4.36 Terminal Arrival Areas (TAA)

When identified in source documentation, chart the single straight-in and the two base TAA sectors as three separate icons, at reduced scale, as shown in the appendix.

Each TAA icon will contain: inbound courses to define the sector limits; a boxed altitude centered in the icon; the distance to the IAF as text curved along the outer edge of the icon, e.g., "30 NM to TTURN"; the waypoint upon which the TAA is based will be named and charted at a reduced size; and, in the base TAAs only, the IF waypoint will also be charted at a reduced size but will not be named.

Figure 3.48 Terminal Arrival Areas



TAA icons will not have Feeder Routes, Airways, or Radar Vectors depicted.

Inner sectors that are defined by nautical mile arcs shall be labeled in the same manner as on the outer edge.



The TAA icons will be positioned in the planview relative to their relationship to the procedure. Avoid placing an icon where it captures a spot elevation or obstacle inside.

Areas identified on source documentation as a "NO TAA" sector will have that term placed where the boxed altitude would go. The curved text along the outer edge of the "NO TAA" icon will contain a Minimum Sector Altitude (MSA), e.g., "30 NM 8000 MSA to FIRST".

When the TAA deviates from the standard depiction; i.e., one base leg, no base legs, the symbology will be altered to accommodate the requested sectors, e.g., expanded straight-in area, two straight-in hemispheres.



References:

Appendix 9 - Legend – IAP Planview

3.4.5 <u>Profile</u>

References:

Appendix 5 - IAP Chart Format and Dimensions **Appendix 10** - Legend – IAP Profile
3.4.5.1 General

A profile diagram of the instrument approach procedure shall be placed in the space provided below the planview. Those facilities, intersections, fixes, etc. identified in the procedure to be used in executing a course reversal and/or involved in the intermediate/final approach segment with minimum altitudes, as required by the procedure, shall be shown.

The profile box shall be kept at the standard 1.2" height whenever possible. When necessary, the profile box may be shortened to increase planview space, or lengthened for excessive profile data.

The direction of the profile will be shown left to right or right to left based on the true final approach course. Approaches with a true final approach course 000.01 CW 180.00 will be a left to right depiction and 180.01 CW 360.00 will be a right to left depiction.

When the procedure provides differing altitudes for with and without a procedure turn, a dual profile shall be provided.

Dual approaches to parallel runways shall also be provided by a dual profile.

All textual data and numerical values within the profile shall be shown using 7 point type, unless otherwise stated.

Profile component lines shall be shown progressively shorter from the start of the profile to the missed approach point to give the appearance of descent, except where level flight is to be main-tained.

Any components designated for non-precision use shall not be shown on CAT II, CAT II & III and Special Authorization (SA) profiles.

3.4.5.2 Airport Profile

The airport profile shall be shown by a solid rectangle, .3" long, positioned below the underline (airport elevation line).

Airports other than the airport of intended landing will be shown only when requested on the procedure source document and will be portrayed in the same manner as the primary airport, placed in its approximate location along the final approach course.

3.4.5.3 NAVAIDs

All NAVAIDs shown, shall be positioned relative to the airport profile and other facilities, using a vertical 2 weight (.006") line.

The primary on-airport NAVAID facility shall extend 1" above the underline (airport elevation line) on VOR and TACAN charts.

A NAVAID located between the start of the profile and the non-precision DME MAP that is only used to provide DME guidance in the final approach will be shown in the profile and extend 1" above the underline (airport elevation line). See Section **3.4.5.11.3** - Components Used for Reference for further explanation and examples.

All NAVAIDs depicted in the profile shall be identified, directly above the vertical line, by location identifier and facility type (e.g., ABC VORTAC). Facility types shall be shown as follows:

- Fan Marker by "FM".
- Outer markers and middle markers "OM" and "MM"; or, when a compass locator beacon is collocated with a marker beacon and used in an instrument landing system "LOM" or "LMM".
- Marker beacons by "FM" and code.
- VORs, VORTACs, VOR/DMEs, TACANs, and DMEs by "VOR", "VORTAC", "VOR/DME", "TACAN", or "DME" as appropriate.
- Radio beacons by "NDB".

3.4.5.4 Intersections/Fixes

Intersections/fixes formed by radials and bearings shall be indicated by a 2 weight (.006") dashed line extending vertically upward from the underline to a height sufficient to clear the approach track.

Intersections/fixes shall be identified by name, and the mileage figure positioned below the name, all centered above the dashed line. "INT" shall follow the name where it is identified that way in the planview.

Fixes formed by radials and shown along the procedure track shall be identified in abbreviated form, e.g., R-145, and the mileage value positioned below the radial value shall be centered above the dashed line.

Fixes formed by bearings and shown along the procedure track shall be identified and centered above the dashed line. The call letters shall be in capital letters, and the words "bearing to" in lower case letters.

Figure 3.51 Fixes Formed by Bearings

180° bearing to ABC NDB

TACAN fixes shall be identified in nautical miles, e.g., 15, centered above the dashed line. The TACAN final approach fix shall be identified by the Maltese cross symbol.

DME mileage symbols shall be identified in nautical miles using the DME symbol, centered above the dashed line symbol.

Combinations of any of the above intersections/fixes shall be identified as appropriate.

The dashed line symbol may be broken as required and necessary for placement of altitude values and procedural notes.

On RNAV procedures, fixes along the final approach course used for altitude restrictions may be shown by the dashed line symbol only, without identification.

When Computer Navigation Fixes (CNFs) are provided, they will be depicted with the name in parentheses as shown in **Appendix 9** - Legend – IAP Planview.

3.4.5.5 RNAV Waypoints

RNAV waypoints shown shall be positioned relative to the airport profile and intersections/fixes using a vertical solid 2 weight (.006") line, identical to that described for NAVAIDs. Identification above the line symbol shall be the name only.

RNAV waypoints also used as mileage fixes shall have the mileage description added below the name.

Figure 3.52 RNAV Waypoints Used as Mileage Fixes

HELGA TUXTY 3.9 NM to 1.6 NM to FIGED RW02

On RNAV procedures, runway ends used as waypoints will be identified with "RW" followed by the runway number. All single digit runway numbers will have a leading zero.

3.4.5.6 Procedure Track

A profile view of the procedure track shall be shown using an 8 weight (.020") line. The approach track shall begin toward the top of the primary facility line, unless otherwise dictated by the procedure, and shall descend to .10" above the underline, where the final approach ends and the missed approach begins.

On non-precision only approach procedures, the approach track will begin at the point specified on the procedure source document and descend to the MDA or VDP, thence horizontally to the missed approach point. The segment shall typically be 0.2" in length but length may vary due to the layout of the profile components.

3.4.5.6.1 Headings

All headings associated with the procedure shall be shown with directional arrowheads on and breaking the track after each change in direction, using 9 point type. A degree sign shall be shown with all headings.

3.4.5.6.2 Procedure and Teardrop Turns

Procedure and teardrop turns shall be symbolized as indicated in the appendix. Procedure turn headings shall not be shown. When a holding pattern is required in lieu of a procedure turn, a horizontal line shall be shown. The descending line shall begin at the fix when the fix altitude is the same as the minimum holding pattern altitude. When the fix altitude is lower than the minimum holding pattern altitude, the descending line shall begin at the midpoint of the holding pattern symbol.

References:

Appendix 34 - Teardrop Turn

3.4.5.6.2.1 Procedure Turn Notes

Procedure turn notes shall be shown, positioned adjacent to (preferably above) the procedure turn altitude. Wording shall be condensed to indicate length of maneuvering area.

> Figure 3.53 Procedure Turn Notes Remain within 10 NM Holding Pattern Holding Pattern

When included as part of the procedure, the notation "Procedure Turn NA" shall be shown.

The procedure turn altitude shall be shown in lieu of a specific procedure turn symbol.

3.4.5.6.3 Nonprecision Final Approach Fix (FAF)

The nonprecision final approach fix (FAF), when specifically identified on the approved procedure, shall be shown by a Maltese cross symbol positioned on and breaking the procedure track.

3.4.5.6.4 Instrument Approach Procedures that Terminate or Have Missed Approaches Prior to the Airport

Instrument approach procedures, including copter approach procedures, that terminate or have missed approaches prior to the airport, and are authorized to proceed visual, shall depict the visual segment by the dashed line symbol from the missed approach point to the airport. The note "Fly visual" ("Proceed visually" for Copter procedures) along with the bearing and distance shall be shown leadered to the visual flight path.

Copter approach procedures with a VFR segment from the missed approach point will not depict the VFR segment with a line in the profile. The note similar to "Proceed VFR from MAP" will be shown as sourced on procedure document.





RNAV charts sometimes have visual flight for LNAV/VNAV minima which do not start at the missed approach point. An additional note indicating "LNAV/VNAV" will be placed above the note.





Instrument approach procedures (typically RNPs) that change course after the missed approach point shall depict the track following the MAP in shaded line with shaded track value shown above the line. See **Figure 3.56**.

In RNP profile views that include both TF and RF segments, the track line will be broken for the initial bearing if it is a TF segment. On all following TF portions (even consecutive segments), the bearing will be positioned above the track line. Track values will not be shown on RF segments.



Figure 3.56 RNP Profile - Track to Fix (TF) and Radius to Fix (RF) Segments

References:

Appendix 70 - RNAV (RNP) Profile Depiction

3.4.5.6.6 Profile View of Terminal Routes Designated for Final Approach

A profile view of terminal routes designated as a final approach to the airport from the facility or fix indicated without executing a procedure turn shall be shown in addition to the normal profile of the primary procedure.

3.4.5.6.7 Missed Approach Track

The Missed Approach procedure track shall be shown as indicated in the appendix. The track shall begin at the missed approach point specified on the procedure. Where separate missed approach points exist for precision and non-precision approaches on the same chart, e.g., ILS and LOC, the track will be shown from the precision point only.

3.4.5.6.8 Level Flight to be Maintained from Primary Facility or Fix

When level flight is to be maintained from the primary facility or fix, prior to the beginning of the descent, the distance shall be shown by use of a .007" vertical line .10" in length extending downward from the procedure track at the point where the descent begins. The distance shown need not be to scale.

The direction of flight shall be indicated by a .007" horizontal line below the procedure track beginning at the facility or fix and ending with an arrowhead at the vertical line. This arrowed line shall be broken for insertion of the mileage.

3.4.5.6.9 Visual Descent Point (VDP)

The Visual Descent Point (VDP), when specifically identified on the procedure, shall be shown by a bold letter "V" positioned above and tangent to the procedure track and centered on the accompanying dashed line. Identification shall be a DME value on non-RNAV charts and a mileage value on RNAV charts.





3.4.5.7 Altitudes

Minimum, Maximum, Mandatory and Recommended Altitudes shall be shown in 9 pt. type and be clearly identified with the component to which they apply. See **Appendix 10** - Legend – IAP Profile for the correct symbology and preferred placement of altitudes. If the altitude requires a reference mark, the mark will be a superscript placed before or after the altitude, depending on the direction of the profile.





When a maximum holding pattern altitude restriction is requested on the procedure source document, the minimum and maximum holding pattern altitudes will be shown as a block altitude prior to the start of the holding pattern line in profile.

Figure 3.59 Holding Pattern Altitude Restriction in Profile



3.4.5.8 Restrictive Airspeeds Along the Procedure Track

Restrictive airspeeds along the procedure track shall be shown as described in Section 3.4.4.15.

3.4.5.9 ILS Glide Slope and RNAV Glidepath

Precision Approach procedures (e.g., RNAV, ILS) are based on the use of electronic vertical guidance. The appropriate vertical guidance symbols, as illustrated in the appendices, shall be positioned at an angle emanating from the standard position of the glide slope antenna, just inside the approach end of the runway symbol. The angle and size of the glide slope symbol or glidepath may be varied to provide for the placement of inbound bearings, notes, altitudes, etc.

A note providing the glide slope (GS) or glidepath (GP) angle (in degrees and hundredths) and the threshold crossing height (TCH), rounded to a whole number, as provided, shall be positioned in the lower half of the profile box and in the 'white space' between the start of the procedure and the side of the profile box. GS should be indicated on all ILS procedures. GP should be indicated on GLS procedures and RNAV procedures with a published decision altitude (DA/H).

Figure 3.60 Glide Slope/Glidepath Angle Note

 GS 3.00°
 GP 3.50°

 TCH 47
 TCH 50

When the procedure source document indicates a TCH value for both the displaced threshold and for the runway end, the TCH value for the displaced threshold will be indicated with a reference mark and a note indicating the value of the runway end TCH will be placed in the vicinity.

Figure 3.61 Dual TCH Values * at DTHR; 57 at Rwy end. (SS 3.76° *TCH 19

The final approach track shall be centered on the glide slope or glidepath symbol from the point of interception and continuing downward to the missed approach point. The track and vertical guidance symbol shall be cleared to provide for placement of inbound bearings, when shown.

The altitude of the glide slope or glidepath at a fix or the outer marker as designated on the procedure shall be shown, positioned on and breaking the vertical line symbol, above the procedure track. The actual point of interception of the glide slope or glidepath with the procedure track shall be graphically depicted to indicate the interception point and altitude. The interception altitude shall be shown below the procedure track, in 9 point type with a lightning type arrowed line leading to the actual point of glide slope or glidepath interception.

3.4.5.10 Constant Descent Angle and Threshold/Heliport Crossing Heights

When provided in the Additional Flight Data Block of the procedure source document, the Descent Angle and the Threshold Crossing Height (TCH) will be depicted. For Copter approach procedures, a Descent Angle and Heliport Crossing Height (HCH) will be depicted.

The descent angle value (in degrees and hundredths) will be depicted adjacent to an angle symbol above "TCH" (or "HCH" for Copter procedures) with a TCH (or HCH) value to its right. The two values will be separated by a horizontal line, as shown in the appendix.

The values will be positioned either above or below the procedure track and in the 'white space' after the fix or facility designated as the start of constant descent angle point.

Figure 3.62 Descent Angle with TCH and HCH



3.4.5.10.1 34:1 Surface Clear Stipple Symbol

Chart a "stipple symbol" below the DA/MDA only if the procedure source document indicates that the 34:1 Obstacle Clearance Surface (OCS) for the visual segments is clear of obstacles; i.e., 34:1 is clear and the "Visual Segment-Obstacles" note is not indicated for charting. If the visual segment is designated as clear and the note is not indicated, then the stipple symbol depicting the continuation of the downward procedure track, as illustrated in the appendix, shall be positioned at an angle to the approach end of the procedure runway. If the visual segment is designated otherwise; i.e., 34:1 is not clear or the "Visual Segment-Obstacles" note is charted, then do not chart any continuation of the Constant Descent Angle/ Vertical Descent Path below the DA/MDA.

3.4.5.11 Distance Between Components of the Procedure

3.4.5.11.1 Precision Approaches

On precision approaches (ILS, RNAV) and GPS approaches, the distance between the components (waypoints, facilities, fixes, intersections, glide slope antenna distances) of the procedure and the distance from the last component and the approach end of the airport profile shall be shown using a 0 weight (.005") line, with an arrowhead on each end, with the distance centered on and breaking the line. Due to space limitations between the components, the arrowed lines may be waived with the distance centered within the open source. All distances shall be placed between the lower neatline and underline. Type size shall be 5 point. The facility/fix vertical line symbol shall extend below the underline. On all nonprecision approaches, e.g., VOR, NDB, TACAN, VOR/DME, LOC BC, the distance between the components (facilities, fixes, intersections) of the procedure and the missed approach point shall be shown using a 0 weight (.005") line, with an arrowhead on each end, with the distance centered on and breaking the line, positioned between the lower neatline and the underline. Due to space limitations between components, the arrowed lines may be waived with the distance centered within the open space. Type size shall be 5 point. The vertical line symbol shall extend to the underline.

3.4.5.11.3 Components Used for Reference

When a facility is not involved in the final approach but serves a reference purpose the vertical line need not extend to the bottom line of the profile box.



Figure 3.63 Components Used for Reference

3.4.5.12 ILS CAT II, CAT II & III, and Special Authorization (SA) Profile Features

CAT II, CAT II & III, and SA charts are offshoots of standard ILS charts but designed with lower minimums and requiring special authorization or certification to use. The profiles mimic the standard ILS to the glide slope intercept. For examples see Appendices listed below.

References:

Appendix 21 - ILS or LOC – PARENT CHART 1 Appendix 22 - SA ILS Approach – CAT I Appendix 23 - ILS CAT II & III Appendix 24 - ILS or LOC – PARENT CHART 2 Appendix 25 - SA ILS Approach – CAT I & II Appendix 26 - ILS or LOC – PARENT CHART 3 Appendix 27 - ILS CAT II Appendix 28 - ILS or LOC – PARENT CHART 4 Appendix 29 - SA ILS Approach – CAT II

3.4.5.13 Notes

Notes shall be shown when specified as profile notes on the procedure.

When a glidepath angle/vertical descent angle VGSI non-coincident note is specified by procedure source, the following information will be added to supplement the note: (VGSI Angle X.XX/ TCH XX), where the X values represent the currently published VGSI information obtained from the appropriate database. (For example, when the procedure source reads "VGSI and descent angles not coincident.", the charted note will read "VGSI and descent angles not coincident (VGSI Angle 3.00/TCH 52)."

Notes, when shown, shall be positioned in an open area.

3.4.6 <u>Missed Approach Icons</u>

Missed Approach Icons will be depicted in the upper left or upper right of the profile box. Space permitting, all textual missed approach instructions will be graphically depicted in sequence. If space does not permit the depiction of all missed approach icon boxes, only the first four icon boxes shall be shown.

The Missed Approach Icons are intended to provide quick, at a glance intuitive guidance to the pilot, to supplement the textual missed approach instructions in the briefing strip. The icons will depict, but are not limited to, the following:

- Initial heading/altitude/turn
- Direction of turn
- Navigational aids
- Intersections, fixes and waypoints
- Radials, bearings, courses (crs), headings (hdg) and tracks (tr)

These directional abbreviations (crs, hdg, tr) will always be shown in lower case, as opposed to the idents for NAVAIDs and fixes which will always be shown in upper case.

References:

Appendix 11 - Missed Approach Icons (VOLPE)

Appendix 12 - Missed Approach Examples

Appendix 72 - Complex Missed Approach Icons

3.4.7 <u>Airport Sketch</u>

References:

Appendix 13 - Legend – Airport Diagram/Sketch

Appendix 14 - Legend – Airport Diagram/Sketch Lighting Systems

3.4.7.1 General

A sketch of the airport providing a diagram of the runway pattern and related information shall be shown positioned in either the lower left or lower right corner of the chart as necessary to allow for the best use of a 'notched' planview. "White space" at the top and/or bottom of the sketch may be eliminated and the sketch height reduced accordingly, when more planview space is needed. The runway diagram shall be drawn to scale and oriented to true north. The scale of the airport outline shall remain flexible so that the maximum use of the space provided in the format can be utilized.

On Copter procedures where visual flight is required to a single heliport or alighting area and not associated with an airport, the area of coverage of the sketch shall be 2000 feet or greater in radius of the landing point. Copter approach sketches may be reduced in scale to encompass the MAP to landing area when space allows a clear depiction of significant visual landmark features along the path that aid containment within that area (see **3.4.4.33.4**). When the sketch encompasses the MAP to landing area, depiction of the inset (see **3.4.4.33.3**) is not required. Copter procedures that serve multiple heliports or alighting areas and are not associated with an airport do not require a sketch.

Only the airport on which the procedure is based shall be portrayed.

Drag strips or any other form of a strip in the proximity of the airport and falling within the coverage of the airport sketch shall be shown and identified.

3.4.7.2 Airport Elevations and Touchdown Zone Elevation

3.4.7.2.1 Airport Elevation

The airport elevation shall be shown enclosed within a box in the upper left corner of the sketch box. The elevation figure shall be preceded by the letters "ELEV", e.g., ELEV 1005.

3.4.7.2.2 Touchdown Zone Elevation

The touchdown zone elevation (TDZE) shall be shown enclosed within a box in the upper right corner of the sketch box. The elevation figure shall be preceded by the letters "TDZE", e.g., TDZE 1005. When necessary, the TDZE box may be stacked beneath the ELEV box. The TDZE box may also be expanded to accommodate multiple runways.

References:

Appendix 67 - Single Touchdown Zone Elevation Appendix 68 - Multiple Touchdown Zones Elevations

3.4.7.3 Airport Pattern

Only runways that exist in the authoritative source database shall be shown.

References:

Appendix 13 - Legend – Airport Diagram/Sketch

3.4.7.3.1 Runway Surface

Paved or hard surfaced runways consisting of concrete, asphalt, bitumen, or macadam shall be shown in solid color.

Metal surfaced runways shall be shown using solid color, by the cross-hatch pattern at right angles to each other and 45° to the edge of the runway, as indicated in the appendix. A 1 weight (.005") line shall be used to outline the runway.

Ultralight areas, ski landing areas, unpaved or runway other than hard surface, such as sod, clay, gravel, etc., shall be shown by the solid dot pattern indicated in the appendix and outlining the runway with a solid 1 weight (.005") line, "Ultralight Area" or "Ski Landing Area", in close proximity or leadered to the area.

Seaplane landing or waterways shall be shown by 1 weight (.005") outline, .1" dash, separated by a .04" space to outline the waterway boundary. Waterways will be shown in their approximate geographic location when coordinates are not available.

Runways that exist in the authoritative source database as permanently closed shall be indicated by the outline only, using a 1 weight (.005") solid line, and an "X" overprinted on both ends of the runway. Closed runways that are not hard surface shall be removed.

Indefinitely closed, currently existing but temporarily under construction or re-purposed runways that maintain a runway entry in the authoritative source database shall be indicated by the outline, using a .005" solid line and an "X" above the published runway identifier. Runway length and width information shall be shown.

New runways under construction shall be shown by outline only, using a 1 weight (.005") solid dotted outline.

Only hard surfaced overruns shall be shown, as illustrated in the appendices.

3.4.7.3.2 Taxiways, Aprons, and Hardstands

Taxiways, aprons, and hardstands shall be shown as illustrated in the appendices.

Dispersal areas shall not be shown.

Closed taxiways shall be identified by a series of "x"s (see legend for graphic portrayal) overprinting the taxiways using 4 to 7 point lower case type, solid color.

3.4.7.3.3 Runway Dimensions

Runway dimensions (length and width) shall be shown for all runways that maintain a runway entry in the authoritative source database (except those indicated as permanently closed) with the numerals positioned along and parallel to the runway using 5 point type.

Runway length shall be the actual length of the runway (pavement, end to end) including displaced thresholds, but excluding those areas designated as overruns.

Displaced thresholds shall be shown in their true position on the runway by the symbol illustrated in the appendix.

Runway declared distance information when available will be indicated by a negative type D in a box shown immediately to the right the airport elevation.

Figure 3.64 Runway Declared Distance Information Icon

D

3.4.7.3.4 Runway Numbers

Runway numbers as shown on the runway shall be placed as close as practicable to the end of the associated runways. When runway numbers are not shown, magnetic inbound bearings shall be indicated by an arrow and figure near the end of each runway, oriented to the actual direction of the runway bearings. Runway numbers shall not be shown for new runways under constructions or permanently closed runways. Indefinitely closed, currently existing but temporarily under construction or re-purposed runways that maintain a runway entry in the authoritative source database shall show and "X" above the published runway identifier.

3.4.7.3.5 Runway Slope

Runway slope shall be shown as a percentage value of the slope of the runway measured from each threshold (runway end) to midpoint of all runways 8,000 feet or longer, from threshold (runway end) to threshold (runway end) on all runways shorter than 8,000 feet, and portrayed when the unrounded calculated value is greater than or equal to 0.25% (expressed to the nearest 0.1%). (0.249% does not require charting, 0.250% would be charted as 0.3%)

Runway slope values shall be expressed in whole numbers and tenths, e.g., 0.6%, 1.2%, using .05 as the breaking point, e.g., 1.44% shall be shown as 1.4%, 1.45% shall be shown as 1.5%.

Runway slope value shall be positioned parallel to and in close proximity to the runway end. The slope value shall be followed by the corresponding "UP" or "DOWN" designation, both in 5 point type, and supplemented with directional arrows.

3.4.7.3.6 Arresting Gear and Jet Barriers

Arresting Gear and Jet Barriers shall be shown in their true position, using the symbols indicated in the appendix.

The directional arrows for the arresting gear shall point with the direction of roll.

(Note: Arresting systems such as EMAS will not be shown.)

3.4.7.3.7 U.S. Navy Optical Landing System

U.S. Navy Optical Landing System shall be shown by the symbol indicated in the appendix, in its exact position alongside of the runway.

3.4.7.3.8 Helicopter Alighting Areas

The alighting area symbols on the chart shall be representative of the markings painted on the heliport. When unknown, the standard circle H symbol shall be used.

The intended landing point shall be shown by the appropriate alighting area symbol in negative print.

A paved surface with various alighting areas shall be treated the same as a runway surface, with the various alighting areas superimposed thereon, in solid color.

3.4.7.4 Control Tower

The location of the control tower shall be indicated by symbol as indicated in the appendix (.035" square) and shall always be annotated with the text "TWR". Should a rotating beacon be located on the tower, the rotating beacon symbol shall suffice for the tower symbol, supplemented by the letters "TWR". The elevation of the tower shall be shown when available.

3.4.7.5 NAVAIDs

All NAVAIDs located within the geographic parameters of the airport sketch, except components of the ILS, shall be shown. Exception will be when a localizer is offset from its normal position. The LOC or LOC/DME symbol shall be shown in its exact location only on the chart(s) where it appears in the planview.

When more than one NAVAID of the same type is shown, the identifiers shall be shown.

3.4.7.6 Final Approach Course

The final approach course or an extension of the final approach course on all IAPs except ILS CAT II, ILS CAT II & III, ILS SA CAT I, ILS SA CAT II, and ILS SA CAT I & II, shall be shown by a 2 weight (.006") line, with arrowhead. Placement shall be such as to avoid overprinting. The final approach course text shall be shown leadered to the arrowed line, e.g., 168°.

The visual track on Copter point-in-space procedures, when shown in the sketch, shall be supplemented by the track value and distance from the MAP to the landing point.

When there is a VFR segment from the MAP to the landing point, a track will not be shown, and the reference bearing and distance text, when provided on the procedure source document, shall be shown in proximity to the endpoint of the VFR segment or leadered to the landing point.

3.4.7.7 Lighting

3.4.7.7.1 Approach Lighting Systems

Various approach lighting systems shall be shown symbolized in miniature. The circled letters associated with and identifying the various systems shall also be shown.

The approach lighting system symbols and associated letter designation shall be positioned as illustrated in the appendices.

Threshold lights shall be indicated only when an integral part of the approach lighting symbol. They shall not be shown separately.

References:

Appendix 14 - Legend – Airport Diagram/Sketch Lighting Systems

3.4.7.7.2 Airport Beacon

The Airport Beacon (rotating light) shall be symbolized by the five-pointed star with an open center, as shown in **Appendix 13**, (if beacon is Pilot Controlled, the "negative" symbol will be used) positioned as near the proper location as possible.

3.4.7.7.3 Runway End Identifier Lights (REIL)

Runway End Identifier Lights (REIL) shall be indicated by a note, e.g., REIL Rwy 11R. When more than one runway end is involved, reference to all pertinent runway ends shall be included in a common note, e.g., REIL Rwys 4 and 22. At larger airports, when all runway ends are involved and the available sketch area prevents the listing of all runway ends, "All Rwys" may be used, e.g., REIL All Rwys. When the lighting feature is used at all but one or two runway ends, "All Rwys except" may be used with the excepted runway ends, e.g., REIL All Rwys except 4 and 22.

3.4.7.7.4 Runway Lead-in Light Systems (RLLS)

Runway Lead-in Light Systems (RLLS) shall be indicated by a note, e.g., RLLS Rwy 13L. When more than one runway end is involved, reference to all pertinent runway ends shall be included in a common note, e.g., RLLS Rwys 13C, 31C, 4R and 22L. At larger airports, when all runway ends are involved and the available sketch area prevents the listing of all runway ends, "All Rwys" may be used, e.g., RLLS All Rwys. When the lighting feature is used at all but one or two runway ends, "All Rwys except" may be used with the excepted runway ends, e.g., RLLS All Rwys except 13C and 31C.

3.4.7.7.5 Runway Lights

Runway Lights (HIRL) (MIRL) (LIRL) (TDZL) (TDZ/CL) shall be indicated by a note, e.g., HIRL Rwy 9-27. When more than one runway is involved (or runway end, the case of TDZL), all pertinent runways shall be included in a common note, e.g., HIRL Rwys 7L-25R and 7R-25L, TDZL Rwys 8 and 26. Runway centerline lights (CL) will be indicated by a note only when pilot controlled or when paired with TDZL, e.g., TDZ/CL Rwys 6 and 24. At larger airports, when all runways or runway ends are involved and the available sketch area prevents the listing of all runways or runway ends, "All Rwys" may be used, e.g., HIRL All Rwys. When the lighting feature is used at all but one or two runways or runway ends, "All Rwys except" may be used with the excepted runway or runway ends, e.g., HIRL All Rwys except 3-21, TDZL All Rwys except 21.

Runways with centerline lights (CL) will show a negative dot pattern through the middle of the solid runway as illustrated in the Legend.

3.4.7.7.6 Notes on Lighting

Notes on lighting shown within the airport sketch shall generally be positioned together in an open area of the sketch, preferable in the lower left/right corner. Pilot capability to activate airport lighting systems shall be shown using negative symbols, as shown in the appendix, e.g., MIRL Rwy 9-270.

3.4.7.8 Base Information (Copter Approaches Only)

Base Information, as required and necessary to identify the MAP area and in the vicinity of the landing area shall be provided.

Information shall be limited to and depict significant visual landmark features at and surrounding the MAP area and the heliport/pad of intended landing.

Significant visual landmark features will be depicted in accordance with Sectional/TAC specifications in IAC 2. Commercial names, such as Sears Tower, will not be used to identify features, and instead, only generic names will be used, i.e., building, stadium, etc.

References:

Appendix 60 - COPTER – Point-in-Space Appendix 61 - COPTER – Point-in-Space with Inset

3.4.7.8.1 Hydrography

Hydrography shall include such features for which water is a constituent part (120L/15%)

- Lakes The shoreline of perennial lakes shall be that which corresponds to the normal water stage.
- Reservoirs and Pools The shoreline represents the water level at the normal stage.
- Streams Those which maintain a flow of water throughout the year; both double line and single line.
- Aqueducts, Flumes, and Conduits; labeled in 5 point type.
- Canals and Ditches; labeled in 5 point type.

3.4.7.8.2 Railroads, Roads and Related Features (120L/15%)

Multiple Track Railroads on a common roadbed; labeled 5 point type.

Under Construction or Abandoned Railroads; labeled 5 point type.

Railroads in Juxtaposition - Railroads on separate roadbeds which closely parallel each other.

Marshalling and Storage Yards - Outlined to scale with a pattern of tracks shown within.

Dual Lane Highways - Highways which are separated by a median.

Primary Roads - These are classified as hard surface all-weather roads two (2) lanes in width. Exceptions may be made in areas having only secondary roads, one or more of which have exceptional landmark value. Under these circumstances, such roads may be classified as primary.

Highways exceeding two (2) lanes shall be shown by the primary road symbol.

Secondary Roads - These are classified as all roads, except primary, which are maintained for automobile traffic.

Bridges, Tunnels and Viaducts shall be plotted to scale.

3.4.7.8.3 Populated Places

The term "Populated place" as used in these Specifications shall be interpreted also as "developed area" and "urban area". These terms imply a concentration of structures designed and built for human occupancy and/or for occupational activities. Populated places may vary in size from the largest metropolitan area to scattered huts. The visual area of populated places shall reflect the physical pattern or shape of developed areas as viewed from the air. Open areas formed by parks, cemeteries, cultivated areas, etc., within the visual limits shall not be shown.

Note: This symbology applies to Department of Defense Procedures only, as shown below.

Figure 3.65 Depiction of Populated Places



Buildings to be shown shall be those which are associated with the visual flight track or airport, and may be depicted pictorially or as landmarks, as shown below.

Figure 3.66 Depiction of Buildings & Landmarks Along Visual Flight Track



3.4.7.8.4 Miscellaneous Cultural Features Table 3.3 Miscellaneous Cultural Features

Name of Feature	Graphic Depiction	Additional Information
Power Transmission Lines	₹₹	
Dams		Shall be plotted to scale using a .040" line
Racetracks and Stadiums		Shall be plotted to scale using a .020" line. No. 66 Zip-A- Tone placed 45° to track/stadium
Outdoor Theaters	ଟ୍ୱ	Shall be plotted to scale using a .010" line. No. 66 Zip-A- Tone at 45° to base
Towers	Δ	Shall be charted using the obstacle symbol
Tanks and Oil Wells	• water/gas • oil well	Shall be charted using the landmark or obstacle symbol. The landmark symbol shall be labeled, e.g., gas, oil, water,
Smoke Stacks	Ĵ	Shall be charted using a pictorial or an obstacle symbol

3.4.7.8.5 Relief (Differences in Elevation)

Relief consists of the portrayal of differences in elevation of a portion of the earth's surface.

Hachuring shall be used to portray:

- 1. Great differences (not gradual sloped) between airports and surrounding terrain, e.g., peaks, ridges, hills.
- 2. Relief which falls in the category of obstacles. Hachuring will be with a .005" line, NW light source, obstacles and landmarks solid, as below.

Figure 3.67 Relief (Differences in Elevation)



3.4.8 <u>Minima Data</u>

References:

Appendix 5 - IAP Chart Format and Dimensions **Appendix 15** - Landing Minima

3.4.8.1 General

The minima section shall be positioned directly below the profile in either the lower left or lower right corner of the chart as necessary to allow for the best use of a 'notched' planview, as shown in **Appendix 5** - IAP Chart Format and Dimensions. Minima boxes shall be a standard .24" in height. Where space is needed in the planview or profile, the height may be reduced to as low as .12" where no full size boxes are required; e.g., all categories have the same values.

All lines of minima will be titled in a separate box flush left. Titles will be consistent with those provided on the procedure source document.

On CAT II, CAT II & III, and Special Authorization (SA) charts, a space will be created under the minima section to accommodate the 14 point requirement note unique to each of these charts.

3.4.8.2 Minima Data

Landing minima data provided shall consist of the Minimum Descent Altitude (MDA), Decision Altitude (DA) or Decision Height (DH), Runway Visual Range (RVR) or visibility, Height Above Airport (HAA), or Height Above Touchdown (HAT) and ceiling-visibility minimums in statute miles, for the type of approach and approach speed categories.

For CAT II and SA minima, DH will be expressed as RA (Radio Altimeter), e.g., RA 104. On CAT II or III combined charts, minima will be preceded by the appropriate CAT II or CAT III designator. For CAT III minima only the RVR value shall be shown preceded by the category type, e.g., CAT IIIa RVR 07. If there is only a single line of minima, the RVR value shall not be preceded by the category type.

MDA shall be provided as Mean Sea Level (MSL) consisting of the airport weather minimums for the type of approach.

Letter designations for the above shall not be depicted unless provided, the type size, sequence plus type of approach shall indicate the data provided.

- RVR shall be shown by a slash (/) preceding the RVR value and following the MDA/DA/ DH value. RVR shall be expressed in hundreds of feet, e.g., 4000 is 40.
- HAT or HAA shall be shown next.
- Military ceiling and visibility values shall be shown in parentheses. For CAT II and SA minima DA value will be shown in place of military minimums.

3.4.8.3 Circling Approach

Add the negative C circling icon to the circling line of minima as shown in **Figure 3.68** when the procedure source document indicates "Chart Circling Icon".

Figure 3.68 Circling Approach

CIRCLING 540-1 483 (500-1) 540-1½ 640-2 483 (500-1½) 583 (600-2) 583 (600-2)

3.4.8.4 Day/Night

Minima data shown shall be considered as applicable to both day and night, unless otherwise specified on the procedure. Should night minima data be required, an asterisk shall be shown with the qualifying footnote provided in the Notes section.

3.4.8.5 Multiple Approach Speed Categories

When the minimums for one type of approach are the same for two or more approach speed categories, the data shall be shown centered below the appropriate approach speed headings, eliminating the vertical separation line(s) between the approach speed categories.

When minima are unique to one speed category, the data shall be positioned on two lines as shown in **Appendix 15** - Landing Minima.

3.4.8.6 Multiple Straight-Ins

When two straight-in minimums are approved for the same procedure; i.e., one minimum is based on a single facility, and a higher minimum is based on the use of an additional facility or fix, the minimum, as established with the single facility shall be shown as the first entry. The second minimum shall be shown separately, with the appropriate facility/fix name title, e.g., NAME MINI-MA, positioned above and on a separate line, preceding this second minimum data, as shown in **Appendix 20** - ILS with RNAV Elements.

3.4.8.7 Military Minima

When not furnished, the military minimum data, consisting of the ceiling and visibility, will be computed by the producing agency. The ceiling will be computed by subtracting the field elevation from the MDA/DA and, if not in even hundreds (of feet), this value will be rounded off upwards to the next hundred feet. The visibility will be the statute mile equivalent of the RVR visibility value identified with the DA or MDA in accordance with the following table. For RVR values that fall between the listed values, use the next higher RVR value.

RVR (feet)	Visibility (statute miles)
1,600	1/4
1,800	1/2
2,000	1/2
2,200	1/2
2,400	1/2
2,600	1/2

Table 3.4 Comparable Values of RVR and Visibility

RVR (feet)	Visibility (statute miles)
3,000	5/8
3,200	5/8
3,500	5/8
4,000	3/4
4,500	7/8
5,000	1
5,500	1
6,000	1 1/4

Table 3.4 Comparable Values of RVR and Visibility

3.4.9 <u>Time/Distance Table</u>

References:

Appendix 5 - IAP Chart Format and Dimensions

3.4.9.1 General

On procedures when a distance from the final approach facility/fix (FAF) to the missed approach point (MAP) is specified, a time/distance table shall be shown below the Airport Sketch as illustrated in the appendices. On Copter procedures, the time/distance table shall reflect knots 45, 60, 75, 90, and 105 respectively.

3.4.9.2 Multiple Facilities

In the event more than one facility is used in the procedure or secondary facilities fall along or near the procedure path so that confusion might result, the facility shall be identified with the identification letters and type of facility.

3.4.9.3 No Depiction

The time/distance table shall not be depicted:

- When the controlling NAVAID is located on the airport and serves as the MAP.
- On procedures where DME is the sole means of identifying the non-precision MAP. (exception to this will be made when the procedure source document describes the non-precision MAP as a specific distance (X.XX NM) after the FAF and when the "DIST FAF to MAP:" field is populated with this same distance.
- On all vertically guided procedures (MAP is defined by a DA) where there is no associated non-precision minimums, e.g. ILS without LOC minimums, LDA/GS without LDA, etc.
- On all RNAV procedures.

3.4.9.4 Nonprecision Approaches

For nonprecision approaches, where required, the distance to the missed approach point (MAP) shall be shown.

Single Procedure	Multiple Procedures
FAF to MAP 3.7 NM	LOC FAF to MAP 3.7 NM VOR FAF to MAP 4.1 NM

Table 3.5 Nonprecision Approaches - Distance to MAP

3.4.10 Category II/II & III and SA Category I/II/I &II ILS Procedures

Specifications as described herein shall apply, supplemented by Category II, Category II & III, and SA Category I and II notations as illustrated. When lines of minima requiring specific authorization or certification (SPECIAL AIRCREW AND AIRCRAFT CERTIFICATION REQUIRED, AU-THORIZATION REQUIRED or SPECIAL AUTHORIZATION) are included on the source document, a separate procedure plate shall be produced, depicting those attributes unique to CAT II only, CAT II & III combined, SA CAT I, SA CAT II or SA CAT I & II combined requirements. Specifically, these include the procedure source document notation (CAT II), (CAT III), (SA CAT I) or (SA CAT II) contained within the procedure title box and the special certification/authorization note below the minima data. When there is a CAT II and III or SA CAT I and II requested on the procedure source document, both shall be combined on one procedure plate as shown in the appendices.

References:

Appendix 16 - ILS Appendix 17 - ILS or LOC Appendix 18 - ILS OR LOC/DME w/Alternate Missed Approach Appendix 19 - ILS/DME Appendix 20 - ILS with RNAV Elements Appendix 21 - ILS or LOC – PARENT CHART 1 Appendix 22 - SA ILS Approach – CAT I Appendix 23 - ILS CAT II & III Appendix 24 - ILS or LOC – PARENT CHART 2 Appendix 25 - SA ILS Approach – CAT I & II Appendix 26 - ILS or LOC – PARENT CHART 3 Appendix 27 - ILS CAT II Appendix 28 - ILS or LOC – PARENT CHART 4 Appendix 28 - ILS or LOC – PARENT CHART 4

3.4.10.1 Profile Depictions

Unique profile depictions may be charted on these plates, utilizing the SAAR decision heights, RA, etc., depending on the procedure. Procedure-specific notes will be depicted.

3.4.10.2 CAT II, CAT III, SA CAT I and SA CAT II Specific Notes

On CAT II & III combined charts and SA CAT I & II combined charts, CAT II, CAT III, SA CAT I and SA CAT II specific notes will be prefaced for the clarity, e.g., CAT II: RVR 1000 authorized with specific OPSPEC, MSPEC or LOA approval and use of autoland or HUD to touchdown.

3.4.10.3 CAT II, CAT III, SA CAT I and SA CAT II Minimums

Information within the lines of minima on the combined charts shall also be identified with a CAT II, CAT III, SA CAT I or SA CAT II notation, e.g., CAT II RA 147/12 100DA 2422, CAT III RVR 07.

3.4.11 <u>RNAV Procedures</u>

For specification purposes, RNAV procedures will include stand-alone GPS procedures.

References:

Appendix 49 - RNAV (RNP) Appendix 50 - RNAV (GPS)

3.4.12 Attention All Users Page (AAUP)

When indicated by the source document, a single AAUP for each airport will be published. The AAUP may be continued onto subsequent pages if necessary.

References:

Appendix 30 - PRM Approach AAUP

3.5 <u>CHARTED VISUAL FLIGHT PROCEDURE (CVFP) CHARTS</u>

References:

Appendix 62 - VISUAL (CVFP)

3.5.1 <u>General</u>

The CVFP charts shall be divided into Planview and Remarks or Notes Sections. The specifications for IAP charts shall apply to CVFP charts, unless otherwise stated below.

3.5.2 <u>Scale</u>

For Charted Visual Flight Procedures, a scale of 1:250,000 shall be used. However, if necessary for a better portrayal of the procedure, the chart may be depicted "not to scale" or at a different scale. Normally, all information between the planview neatlines, including base detail, shall be shown to scale.

3.5.3 <u>Projection</u>

For Charted Visual Flight Procedures, the projection shall be Lambert Conformal, Polyconic or Polar Stereographic.

3.5.4 Margin Information

3.5.4.1 Procedure Title

Each procedure is named for the primary landmark and the specific runway for which the procedure is developed, such as: RIVER VISUAL RWY 18, STADIUM VISUAL RWY 24, etc.

3.5.4.2 Amendment Number

The amendment number of the procedure, as indicated on the procedure source document, shall be shown abbreviated, e.g., Amdt 3. The amendment number will be shown in the bottom margin only, flush left, immediately below the procedure title. Original procedures shall be indicated as "Orig", with the same placement as indicated above for amendment numbers.

The AIRAC date of the latest procedural (upnumber) revision applied to the chart shall be shown adjacent to and two spaces to the right of the amendment number or "Orig" as appropriate, as shown in the appendices.

The latest revision date (Julian), which reflects a chart revision of any type, shall be shown in the upper left hand corner, above the procedure name, preferably on the same line as the geographic name and chart reference number, as shown in the appendices.

3.5.5 <u>Planview</u>

3.5.5.1 General

The planview of the CVFP shall be concerned with the portrayal of visual approach procedures information, such as landmarks, NAVAIDs, visual track, hydrography, special use airspace and cultural features, as applicable.

Depiction of the visual track may be shown not to scale if it will enhance and depict the procedure more clearly. Such a depiction may be necessary due to distances involved in some procedures which would extend beyond the neatline or border of the planview. Those segments of the track not to scale shall be broken by the "not to scale" symbol shown in the Appendices.

All type within the planview shall be 7 point unless otherwise stated.

3.5.5.2 Communications

Communications information, when available, shall be shown in the upper left corner, as indicated on **Appendix 62** - VISUAL (CVFP), in such a manner so as not to interfere with procedure information or items of significant landmark value. When necessary, communications information may be shown in the upper right corner. Type size shall be 7 pt.

The typical format for communications is the name on the line followed by the frequency(ies) underneath it and will follow the sequencing outlined in Section **3.4.3.3** - Bottom Briefing Strip. All data shall be justified left or right as appropriate to the corner placement.

3.5.5.3 Relief

Care should be taken in the selection of relief features to be shown. Terrain in the proximity of the flight path should receive priority consideration.

3.5.5.4 Obstacles

Obstacles shall be depicted pictorially only if specifically identified as such by the approving authority.

3.5.5.5 Visual Track

The visual track shall be indicated by a dashed 8 weight (.020") line with dashes being .15" long and spaces being .05" long. Each fifth dash shall have an arrowhead. The visual track shall be broken for course values. The inbound course and directional arrows shall be positioned on the final approach track to indicate direction of flight.

CVFP originate at or near, and are designed around, prominent visual landmarks and normally should not extend beyond 15 flight path miles from the landing runway. Visual tracks shall be shown beginning at the geographical point or landmark where the procedure must be flown visually to the airport.

Visual tracks may include the track value, distance and minimum or recommended altitudes, as specified.

To distinguish the runway from the visual track, an arrow shall be positioned on the end of the final approach track just short of the end of the runway.

3.5.5.6 Additional Base Information

Information shall be limited to and depict significant visual landmark features which are identified in the procedure.

Significant visual landmark features will be depicted in accordance with Sectional/TAC specifications in IAC 2. Commercial names, such as Sears Tower, will not be used to identify features, and instead, only generic names will be used, i.e., building, stadium, etc.

3.5.5.7 Radio Aids to Navigation

Radio aids to navigation shall be used as supplementary information only. Limit use to one NAVAID, excluding the NAVAID used for final approach vertical guidance.

3.5.5.8 Bar Scale

A nautical mile bar scale shall be shown at the top of the notes section extending from the left to the right neatline in 1 nautical mile increments.

3.5.5.9 Lights

Lead-in and circling lights, when available, shall be shown symbolized by .065" diameter circles and identified by an appropriate descriptive note, as shown below.

Figure 3.69 Lights

Lead-in lights

3.5.6 <u>Notes Section</u>

An area for notes and procedural restrictions in narrative form shall be placed in a space provided below the planview. Type size and style shall be as indicated in the Appendices.

3.6 <u>AIRPORT DIAGRAMS</u>

References:

Appendix 63 - Airport Diagram Chart (TPP) – Format **Appendix 64** - Airport Diagram

3.6.1 <u>General</u>

Data shown must be of sufficient detail to facilitate visual orientation of aircraft while parked or taxiing.

3.6.1.1 Color

The Airport Diagram shall be printed in black color. Screen shall be used to obtain a suitable contrast as illustrated in the appendices

All information, textual and graphic, will be solid color unless otherwise specified.

3.6.1.2 Scale

In general, the scale selected should allow at least one whole minute of latitude and longitude within the graphic presentation. Scale will vary as necessary for the best portrayal of the airport consistent with the graphic presentation to be shown. Larger scale insets may be used to better portray congested areas.

3.6.1.3 Projection

Projection shall be Lambert Conformal Conic or Polyconic, $(0^{\circ} - 80^{\circ} \text{ N-S})$ and Polar Stereographic, $(80^{\circ} - 90^{\circ} \text{ N-S})$. The projection graticule shall be depicted by at least 2 lines of latitude and 2 lines of longitude, annotated with numerical values.

3.6.1.4 Area of Coverage

These specifications apply to all areas of the world for which Airport Diagrams are required by the U.S. Government.

3.6.1.5 Symbolization

Symbolization used in the preparation of the Airport Diagram shall be in accordance with the Aeronautical Information/Chart Symbols herein and in the appendices.

The configuration of the symbols contained herein and within the appendices shall be adhered to. The size and line weights, specified and/or indicated therein, should also be adhered to but varied when absolutely necessary

3.6.1.6 Type

Type shall be Futura Medium or equivalent. Type used to identify taxiways and airport facilities may be reduced in size only when absolutely necessary to reduce congestion for the sake of clarity.

3.6.1.7 References

Catalog of Photon type faces.

The appendices are included for use in layout format and content of Airport Diagrams. These appendices do not necessarily reflect all operational content.

3.6.2 <u>Airport Diagrams</u>

References:

Appendix 64 - Airport Diagram

3.6.2.1 Graphic Information Requirements

- Runways
- Waterways
- Helipads
- Taxiways
- Visual Screen
- Turnarounds, Stopways, Overruns, Blast Pads and Run-up Areas
- Ramps, Parking and Alert Areas
- Non-Movement Areas
- Under-Construction Areas
- Restricted Areas
- Hangars
- Control Towers
- Airport Beacons
- Landing Direction Indicators
- Lighting
- Navigational Aids (NAVAIDs)
- Highest Obstacle within Area
- Hot Spots
- Radar Reflectors
- Large Tanks
- Self-Serve Fuel
- Penalty Boxes
- Projection
- Magnetic Variation Symbology
- Other unique structures or features as identified by the requesting agency as providing a safety benefit

3.6.2.2 Operational Data Requirements

3.6.2.2.1 Active Runways | Waterways | Helipads

3.6.2.2.1.1 Active Runway and/or Waterway Dimensions

Threshold-to-threshold including displaced thresholds.

3.6.2.2.1.2 Runway Surface

Paved or hard surfaced runways consisting of concrete, asphalt, bitumen, or macadam shall be shown in solid color.

Metal surfaced runways shall be shown using solid color, by the cross-hatch pattern at right angles to each other and 45° to the edge of the runway, as indicated in the appendix.

Ultralight areas, ski landing areas, unpaved or runway other than hard surface, such as sod, clay, gravel, etc., shall be shown by the solid dot pattern and outlining the runway with a solid line as indicated in the appendix. "Ultralight Area" or "Ski Landing Area" text shall be placed in close proximity or leadered to those areas.

Seaplane landing or waterways shall be as indicated in the appendix. Waterways will be shown in their approximate geographic location when coordinates are not available.

Only hard surfaced overruns shall be shown, as illustrated in the appendices.

3.6.2.2.1.3 Helipads

Helicopter alighting areas that exist in the authoritative source database with geographic coordinate data will be shown using the standard circle H symbol. The circle H symbol shall not be used for helicopter parking areas.

3.6.2.2.1.4 Runway End or Helipad Identification

Idents shall be in agreement with published values (18R, H1) and shall be positioned, when possible, consistent with actual markings.

3.6.2.2.1.5 Runway Heading

Accuracy of 0.1° Magnetic headings will be shown.

3.6.2.2.1.6 Weight Bearing Capacity

Pavement Classification Numbers (PCN) and Pavement Classification Rating (PCR) designations shall be listed when published.

3.6.2.2.1.7 Runway End Elevations

Runway end elevations shall be expressed in whole numbers.

3.6.2.2.1.8 Dimensions of Turnaround Areas

Dimensions of turnarounds, paved stopways & overuns, and blast pads, when provided.

3.6.2.2.1.9 Runway Slope

Runway slope shall be shown as a percentage value of the slope of the runway measured from each threshold (runway end) to midpoint of all runways 8,000 feet or longer, from threshold (runway end) to threshold (runway end) on all runways shorter than 8,000 feet, and portrayed when the unrounded calculated value is greater than or equal to 0.25% (expressed to the nearest 0.1%). (0.249% does not require charting, 0.250% would be charted as 0.3%)

Runway slope values shall be expressed in whole numbers and tenths; e.g., 0.6%, 1.2%, using .05 as the breaking point, e.g., 1.44% shall be shown as 1.4%, 1.45% shall be shown as 1.5%.

Runway slope value shall be positioned parallel to and in close proximity to the runway end. The slope value shall be followed by the corresponding "UP" or "DOWN" designation and supplemented with directional arrows.

3.6.2.2.1.10 Arresting Systems

Arresting Systems shall be depicted offset from the runway end, symbolized by an open polygon and shown in their approximate position.

Identify type of arresting system (i.e., EMAS).

3.6.2.2.1.11 Arresting Gear and Jet Barriers

Arresting Gear and Jet Barriers shall be shown in their true position, using the symbols indicated in the appendix.

Directional arrows for the arresting gear shall point with the direction of roll.

3.6.2.2.1.12 U.S. Navy Optical Landing System Systems

U.S. Navy Optical Landing System shall be show by the symbol indicated in appendix, in its exact position alongside of the runway.

3.6.2.2.1.13 Displaced Thresholds

3.6.2.2.1.14 Runway Declared Distance Information

Runway declared distance information when available will be indicated by a negative type D in a box shown in the upper left/right corner immediately below the communications information.

Figure 3.70 Runway Declared Distance Information Icon

D

Figure 3.71 Runway Declared Distance Information Icon Example



3.6.2.2.2 Indefinitely Closed, Under Construction or Re-Purposed Runways

References:

Appendix 64 - Airport Diagram

Any runway that maintains a runway entry in the authoritative source database, and is identified as indefinitely closed, under construction, or re-purposed as a taxiway or apron indefinitely will be shown as depicted below.





Figure 3.73 Runway Under Construction



Figure 3.74 Runway Re-Purposed as Taxiway



3.6.2.2.3 Permanently Closed Runways

References:

Appendix 64 - Airport Diagram

Runways that exist in the authoritative source database as permanently closed will be depicted by open runway symbol with an "X" at both ends. Runway designators, runway dimensions and other data normally associated with the active runway will not be shown.

Figure 3.75 Permanently Closed Runway

×××

Hard surface runways that have been removed from the authoritative source database (but continue to exist as closed pavement) will be depicted in screen with X's to indicate closed pavement either along the entire extent of the pavement or as needed to define closed section(s).

3.6.2.2.4 New Runways Under Construction

New runways under construction will be shown using a dotted outline symbol.

Figure 3.76 New Runway Under Construction

3.6.2.2.5 Taxiways

Taxiways (hard surface or other than hard surface) will be shown using 120L/15%. Other than hard surface taxiways, when indicated by appropriate authority, shall be labeled "Soft Surface".

3.6.2.2.5.1 Taxiway Identification

All active taxiways will be labeled with text parallel to the taxiway orientation. Taxiways with two letter/number identifiers will be labeled without spaces or dashes, e.g., A2, B1. Taxiway identification shall not be shown for under construction or closed taxiways. To eliminate confusion between Taxiway M, Taxiway N, Taxiway W, and Taxiway Z (not M1, M2, etc.) will be underlined, e.g., <u>N</u>, <u>WW</u>.



Figure 3.77 Taxiway Identification - Use of M, N, W and Z

Figure 3.78 Taxiway Identification - Use of M, MM and M with a Number



3.6.2.2.5.2 Closed Taxiways

Permanently closed taxiways will be depicted in screen with X's to indicate closed pavement either along the entire extent of the pavement or as needed to define closed section(s). Taxiway designators normally associated with an active taxiway will not be shown.

3.6.2.2.6 Parking Areas

3.6.2.2.7 Holding Position Markings

ILS holding position lines with "ILS HOLD" label.

Non-typical locations of runway holding position markings when requested by appropriate authority. When space permits, markings will be depicted in the same orientation as they are on the ground. Markings may be depicted in conjunction with a Hot Spot established at the same location.

Figure 3.79 Runway Holding Positing Markings



Land and Hold Short Operations (LAHSO) hold lines with "LAHSO" label.

3.6.2.2.8 Penalty Box

3.6.2.2.9 Airport Elevation

The highest point on an airport's usable runway surface, expressed in elevation above mean sea level, shall be shown with a .03 inch diameter dot. The airport elevation value with the text "FIELD ELEV" shall be shown within a box, in close proximity to and with a leader pointing to the dot.

If the highest point on the usable runway surface cannot be determined, the airport elevation value with the text "FIELD ELEV" shall be shown within a box, and shall be positioned in the upper left/right corner of the airport diagram opposite the communication data.

3.6.2.2.10 Identify the following:

3.6.2.2.10.1 Terminal/Administration Building and Base Operations

Buildings (FBO's, Hangars, Terminal, etc.) will be referred to in generic terms; no individual commercial names should appear on the government diagrams. It is permissible to differentiate building features using geographic identifiers, e.g., North FBO, East Terminal.

3.6.2.2.10.2 Fire Station

3.6.2.2.10.3 Control Tower ("TWR")

The control tower will be symbolized as shown in the appendices and labeled "TWR". If Control Tower and Airport Beacon are collocated see Section **3.6.2.2.13**.

3.6.2.2.10.4 Military/Government Hangars (numbered)

Identify the branch of services or agency to which it belongs, when other than airport operator. Acronyms and/or abbreviations may be used; i.e., ANG (Air National Guard), USCG (United States Coast Guard), FAA (Federal Aviation Administration).

3.6.2.2.10.5 Hot cargo ramps

3.6.2.2.10.6 Parking areas and ramps

Parking areas, ramps, and aprons will be referred to in generic terms; no commercial names shall be published. Commonly used identifiers include: North Ramp or Apron, South Ramp or Apron, Army/Air National Guard (ANG), US Navy (USN), Fire Base Apron, Flight School Apron, FBO Ramp, GA Transient Ramp, GA Tenant Ramp, Terminal Apron, GA Transient Parking, GA Tenant Parking.

- **3.6.2.2.10.7** Blast Pads (including dimensions when available)
- 3.6.2.2.10.8 Flight Service Station (FSS), National Weather Service (NWS)
- 3.6.2.2.10.9 U.S. Customs
- 3.6.2.2.10.10 Flight Standards District Office (FSDO)

3.6.2.2.10.11 Hot Spots

Hot Spot symbols and text will be printed in brown color. Hot Spots will be labeled with "HS1", "HS2", etc. as indicated in the Hot Spot tabulation.

3.6.2.2.10.11.1 Hot Spots

Hot Spots will be indicated with a circle or ellipse symbol.



3.6.2.2.10.12 Run-up Areas

Run-up areas will be identified when requested by the appropriate authority as providing a safety benefit.

3.6.2.2.10.13 Arm/Dearm Areas

Arm/Dearm Areas will be identified when specifically requested by airport authority.

3.6.2.2.10.14 Compass Rose

Compass rose will be identified when specifically requested by airport authority.

3.6.2.2.11 Radar Reflectors

Show radar reflectors in proper location; if the exact position is unknown add a note, e.g., NOTE: RADAR REFLECTORS ON RWY 18-36.

When ASDE-X or ASSC is published in an airport remark for a given airport, the note "ASDE-X in use. Operate transponders with altitude reporting mode and ADS-B (if equipped) enabled on all airport surfaces." or "ASSC in use. Operate transponders with altitude reporting mode and ADS-B (if equipped) enabled on all airport surfaces.", as appropriate, shall be depicted on the diagram.

3.6.2.2.13 Airport Beacon and Airport Beacon Collocated with Control Tower

The Airport Beacon (rotating light) shall be symbolized by the five-pointed star with an open center, as shown in **Appendix 13** - Legend – Airport Diagram/Sketch, (if beacon is pilot controlled, the negative symbol will be used) positioned as near the proper location as possible.

If control tower and airport beacon are collocated, the beacon symbol will be used and identified "TWR".

When control tower or airport beacon is located on a charted building, its position will be indicated with an arrow and labeled appropriately, i.e., "TWR" or "TWR/BCN". When airport beacon is pilot controlled, the text will be appended with the negative L symbol, see **Appendix 64** - Airport Diagram.

3.6.2.2.14 Landing Direction Indicator

Wind cone, landing tee, and/or tetrahedron shall be shown in proper location.

3.6.2.2.15 Self-Service Fuel

Self-service fuel facilities not collocated with an FBO will be depicted by a fuel pump symbol. When the self-serve fuel facilities are located at a large building or hangar, the symbol will not be shown. The fuel pump position will be indicated with a leader line/arrow and label "Fuel".

Figure 3.81 Self Service Fuel

3.6.2.2.16 Visual Screen

Show visual screen in proper location.

Figure 3.82 Visual Screen

```
Visual
Screen
```

3.6.2.2.17 Runway Status Lights in Operation

If Runway Status Lights are operational and are published in an airport remark for a given airport, the note "Runway Status Lights in operation." should be depicted on the diagram.

3.6.2.2.18 Magnetic Variation

Magnetic variation shall be provided as follows:

Figure 3.83 Magnetic Variation



3.6.2.2.19 Operational Notes

Operational notes on Airport Diagrams are to be held to an absolute minimum and may only be shown when requested by appropriate authority and deemed necessary to safe movement in the airport environment.

3.6.2.2.20 Communications Information

Communications information when available, shall be shown in the upper left/right corner as indicated in the appendices, in such a manner so as not to interfere with significant items of the Airport Diagram. Only the primary VHF and UHF frequencies shall be shown.

3.6.2.2.20.1 Terminal Communication Information

Terminal communication information, when available in the authoritative source database, shall be shown, in the sequence listed below. The communications facility (e.g., Ground Control) shall be abbreviated. Part-time operations for ATIS or AFIS, TOWER, and Ramp Control will be annotated with a star after the communication title. Hours of operation shall not be shown.

3.6.2.2.20.1.1 Automatic Terminal Information Service (ATIS)

Automatic Terminal Information Services (ATIS) shall be shown by the letters "ATIS" followed by the specific frequency/s. If the service is digital and listed as D-ATIS in the authoritative source database, "D-ATIS" shall be shown followed by the specific frequency/s.

When the service is provided on one frequency for both arrival and departure information, it shall be shown.

Table 3.6 ATIS - One Frequency for Arrival and Departure

A	T	1	S	
1	1	1	.8	

When the service is provided on more than one frequency for both arrival and departure information, both (or all) frequencies shall be shown.

Table 3.7 ATIS - Multiple Frequencies for Arrival and Departure

ATIS 113.9 124.1 When the service provided is either arrival and/or departure on different frequencies, both frequencies shall be shown.

Table 3.8 ATIS - Separate Frequencies for Arrival and Departure

ATIC	ARR 112.7
AHS	DEP 121.85

3.6.2.2.20.1.2 Automatic Flight Information Service (AFIS)(AK Only)

Automatic Flight Information Service (AFIS) shall be shown by the letters "AFIS" followed by the specific frequency/s.

- 3.6.2.2.20.1.3 Tower (TOWER)
- 3.6.2.2.20.1.4 Ground Control (GND CON)
- 3.6.2.2.20.1.5 Clearance Delivery (CLNC DEL)

3.6.2.2.20.1.6 Controller Pilot Data Link Communications (CPDLC)

When CPDLC service is provided, "CPDLC" shall be shown.

3.6.2.2.20.1.7 Pre-Departure Clearance (PDC)

When PDC service is provided, "PDC" will be shown.

3.6.2.2.20.1.8 Ground Metering (GND METERING)

Metering frequencies shall be shown on airport diagram when maintained in the authoritative source database.

3.6.2.2.20.1.9 Ramp Control Frequencies

Ramp control frequencies shall be shown on airport diagrams when requested by appropriate authority and shall be positioned adjacent to or in the vicinity (when possible) of the ramps to which they apply.

3.6.2.2.20.1.10 Pilot Activated Airport Lighting

Pilot capability to activate airport lighting systems shall be shown using negative symbols or type following the applicable frequency, e.g., 122.70. Pilot capability to activate airport lighting by nonstandard methods shall be indicated by use of a "star" following the frequency, and negative symbol if used, e.g., $122.70 \star$.

Hours of operation shall not be shown.

3.6.2.2.20.2 Airports with a Control Tower

For airports with a Control Tower, the following note shall be shown, lower left corner preferred (Civil Only):

CAUTION: BE ALERT TO RUNWAY CROSSING CLEARANCES. <u>READ</u> <u>BACK OF ALL RUNWAY HOLDING INSTRUCTIONS IS RE-</u> <u>QUIRED</u>.

3.6.2.2.20.3 Airports without a Control Tower

Additional communications information, when available, will be depicted at non-towered airports in the following sequence:

ASOS/AWOS, CTAF/UNICOM/AUNICOM2, CLNC DEL (to include contact facility), CPDLC, GCO.

3.6.2.2.21 NAVAIDs

All NAVAIDs within the geographic parameters of the airport diagram, with the exception of LOC, LOC/DME, Offset Localizer and components of the ILS, shall be shown.

When more than one NAVAID of the same type is shown, the identifiers shall be shown.

3.6.2.2.22 Lighting

3.6.2.2.22.1 Approach Lighting Systems

Various approach lighting systems shall be shown symbolized in miniature. The circled letters associated with and identifying the various systems shall also be shown.

The approach lighting system symbols and associated letter designation shall be positioned as illustrated in the appendices.

Threshold lights shall be indicated only when an integral part of the approach lighting symbol. They shall not be shown separately.

References:

Appendix 14 - Legend – Airport Diagram/Sketch Lighting Systems **Appendix 64** - Airport Diagram

3.6.2.2.22.2 Visual Glide Slope Indicator (VGSI) Lighting Systems

The VGSI lighting symbols referenced in the Appendix shall be charted on the side of the runway where they are actually located. In cases where the VGSI system lights are located on both sides of the runway (such as Vl2 and V16 systems), a single symbol shall be placed on the left side of the runway.

References:

Appendix 14 - Legend – Airport Diagram/Sketch Lighting Systems **Appendix 64** - Airport Diagram

3.6.2.2.22.3 Runway End Identifier Lights (REIL)

Runway End Identifier Lights (REIL) shall be indicated by a boxed note, e.g., REIL Rwy 11R. When more than one runway end is involved, reference to all pertinent runway ends shall be included in a common note, e.g., REIL Rwys 4 and 22. At larger airports, when all runway ends are involved and the available diagram area prevents the listing of all runway ends, "All Rwys" may be used, e.g., REIL All Rwys. When the lighting feature is used at all but one or two runway ends, "All Rwys except" may be used with the excepted runway ends, e.g., REIL All Rwys except 4 and 22.
3.6.2.2.22.4 Runway Lead-in Light Systems (RLLS)

Runway Lead-in Light Systems (RLLS) shall be indicated by a boxed note, e.g., RLLS Rwy 13L. When more than one runway end is involved, reference to all pertinent runway ends shall be included in a common note, e.g., RLLS Rwys 13C, 31C, 4R and 22L. At larger airports, when all runway ends are involved and the available diagram area prevents the listing of all runway ends, "All Rwys" may be used, e.g., RLLS All Rwys. When the lighting feature is used at all but one or two runway ends, "All Rwys except" may be used with the excepted runway ends, e.g., RLLS All Rwys except 13C and 31C.

3.6.2.2.22.5 Runway Lights

Runway Lights (HIRL) (MIRL) (LIRL) (TDZL) (TDZ/CL) shall be indicated by a boxed note, e.g., HIRL Rwy 9-27. When more than one runway is involved (or runway end, in the case of TDZL), all pertinent runways shall be included in a common note, e.g., HIRL Rwys 7L-25R and 7R-25L, TDZL Rwys 8 and 26. Runway centerline lights (CL) will be indicated by a note only when paired with TDZL, e.g., TDZ/CL Rwys 6 and 24. At larger airports, when all runways or runway ends are involved and the available diagram area prevents the listing of all runways or runway ends, "All Rwys" may be used, e.g., HIRL All Rwys except" may be used with the excepted runway or runway ends, e.g., HIRL All Rwys except 3-21, TDZL All Rwys except 21.

Runways with centerline lights (CL) will show a negative dot pattern through the middle of the solid runway as illustrated in the Legend.

3.6.2.2.22.6 Notes on Lighting

Boxed notes on lighting shown within the airport diagram shall generally be positioned together in an open area of the diagram. Pilot capability to activate airport lighting systems shall be shown using negative symbols or type, as shown in the appendix. Pilot capability to activate airport lighting by nonstandard methods shall be indicated by a star symbol following the applicable note, as shown in the appendix.

3.6.3 <u>Portrayal</u>

3.6.3.1 Line Weights

3.6.3.1.1 Projection .005"

30 second ticks - .10" long centered

6 second ticks - .04"

3.6.3.1.2 Runway Delimiting Line

.1 weight (.005"), or Dashed Delimiting Line - 1 weight (.005"), 0.1" dash, separated by a .04" space.

3.6.3.1.3 Border

.010", 4.9" x 7.0" (Military and Alaska). 9.0" x 9.0" (Civil) will be shown on all pages.

3.6.3.1.4 Runways Under Construction

Runways under construction shall be shown by a .010" dotted outline.

3.6.3.2 Symbols

The highest point on the usable landing surface (field elevation) will be shown by a negative dot .03" in diameter on hard surface runways and a black dot .03" in diameter on other than hard surface runways.

Other symbols used shall be in compliance with current Flight Information Publication Specifications. In addition, true/magnetic variation arrows will be shown .01" line weight.

3.6.4 <u>Type Size</u>

Type size and styles as specified or their equivalent are the only authorized type.

3.6.4.1 Border Data

3.6.4.1.1 Chart Title - "AIRPORT DIAGRAM" - 14 point, caps

3.6.4.1.2 Airport Name

Military - 9 point, caps

Civil - 9 point, caps

3.6.4.1.3	Location Identifier	9 point or 8	point Century	Expanded
-----------	---------------------	--------------	---------------	----------

- 3.6.4.1.4 City, State or Country 8 point
- 3.6.4.1.5 Chart Reference number, e.g., AL-166 (FAA) 7 point

3.6.4.2 Diagram Data

True/Magnetic variation value - 5 point.

All other data and notes within the planview - 7 point or as specified by the using agency.

APPENDIX 1 IFR TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)



IAC 4

APPENDIX 2

DIVERSE VECTOR AREA (RADAR VECTORS) EXAMPLE

L4

TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND 17 **DIVERSE VECTOR AREA (RADAR VECTORS)** 00000

AUBURN, WA

IAC 4

AUBURN MUNI (S50) TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES AMDT 1 31MAR16 (16091) (FAA) TAKEOFF MINIMUMS: Use BLAKO (RNAV) DEPARTURE

DIVERSE VECTOR AREA (RADAR VECTORS) AMDT 1 10NOV16 (16315) (FAA) Rwy 16, heading as assigned by ATC; requires min. climb of 270' per NM to 1000. Rwy 34, heading as assigned by ATC; requires min. climb of 390' per NM to 800.

AURORA, OR

AURORA STATE (UAO) TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES AMDT 3 15DEC11 (11349) (FAA) TAKEOFF MINIMUMS:

Rwy 17, std. w/min. climb of 292' per NM to 2100 or 1500-21/2 for climb in visual conditions.

- Rwy 35, std. w/min. climb of 312' per NM to 2100 or 1500-2½ for climb in visual conditions. DEPARTURE PROCEDURE:

Rwy 17, climbing right turn, thence ... Or for climb in visual conditions cross Aurora State airport at or above 1500

Rwy 35, climbing left turn, thence ... Or for climb in visual conditions cross Aurora State airport at or above 1500 thence

Aircraft departing on V23 intercept BTG R-175 and climb on course. All others proceed direct UBG VOR/DME and Hold (hold South, left turns, 003° Inbound) continue climb in hold to cross UBG VOR/DME at or above MEA for direction of flight before proceeding on course.

TAKEOFF OBSTACLE NOTES:

Rwy 17, trees beginning 31' from DER, 246' right of centerline, up to 87' AGL/316' MSL. Tree 2270' from DER, 836' left of centerline, 87' AGL/303' MSL. Vehicle on road 254' from DER, 349' left of centerline, 16' AGL/209' MSL. Rwy 35, trees beginning 30' from DER, 163' left of centerline, up to 65' AGL/329' MSL. Vehicle on road 212' from DER, 390' left of centerline, 16' AGL/212' MSL.

Trees 973' from DER, 281' right of centerline, up to 65' AGL/253' MSL.

DIVERSE VECTOR AREA (RADAR VECTORS)

ORIG 05MAR15 (15064) (FAA)

Rwy 17, heading as assigned by ATC; requires min. climb of 375' per NM to 2000. Rwy 35, heading as assigned by ATC; requires min. climb of 350' per NM to 2000.

BAKER, MT

BAKER MUNI (BHK) TAKEOFF MINIMUMŚ AND (OBSTACLE) DEPARTURE PROCEDURES AMDT 1 13NOV14 (14317) (FAA) TAKEOFF MINIMUMS: Rwy 13, NA-Environmental. DEPARTURE PROCEDURE: Rwy 31, climbing right turn heading 010° to 9000 on 343° bearing from BKU NDB to UMWEL INT and hold, continue Climb in hold (hold north, right turns, 163° inbound) to 9000. Expect further instructions from ATC. TAKEOFF OBSTACLE NOTES: **Rwy 31**, fence 168' from DER, 498' left of centerline, 6' AGL/2967' MSL. Structure 173' from DER, 499' left of centerline, 10' AGL/2974' MSL. Windsock on building 1015' from DER, 727' left of centerline, 37' AGL/2998' MSL. Rod on antenna 3832' from DER, 136' left of centerline, 112' AGL/3073' MSL.

BAKER CITY, OR

BAKER CITY MUNI (BKE)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES AMDT 2 18NOV10 (10322) (FAA)

TAKEOFF MINIMUMS:

Rwy 8, std. w/min climb of 460' per NM to 6900, or 3700-3 for climb in visual conditions.

Rwy 13, std. w/min climb of 470' per NM to 6900, or 3700-3 for climb in visual conditions.

Rwy 17, N/A-Environmental.

Rwy 26, std. w/min climb of 400' per NM to 7200, or 3700-3 for climb in visual conditions.

Rwys 31, 35, std. w/min climb of 400' per NM to 6900, or 3700-3 for climb in visual conditions. DEPARTURE PROCEDURE:

Rwy 8, climb heading 081° to 6900, then climbing left turn to BKE VOR/DME R-066 to BKE VOR/DME and hold, continue climb in BKE VOR/DME holding pattern (hold S, right turns, 338° inbound) to cross BKE VOR/DME at or above MEA/MCA for route of flight, or for climb in visual conditions, cross BKE VOR/DME at or above 6900, then climb-in-hold to at or above MEA/MCA for route of flight. CON'T

TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND V **DIVERSE VECTOR AREA (RADAR VECTORS)** 00000 **NW-1**



APPENDIX 3 IFR ALTERNATE AIRPORT MINIMUMS



APPENDIX 3 IFR ALTERNATE AIRPORT MINIMUMS (CONTINUED)

ALTERNATE MINS

21056

M4

SHO

TON

ALTERNATE MINIMUMS NAME RENO, NV RENO/TAHOE INTL (RNO).....ILS or LOC/DME Rwy 34L ILS X or LOC X Rwy 16R² ILS Y Rwy 16R³ ILS Z or LOC Z Rwy 16R² LOC Y Rwy 16R⁴ RNAV (GPS) X Rwy 34L⁵ RNAV (GPS) X Rwy 34R6 RNAV (GPS) X Rwy 16L7 RNAV (GPS) X Rwy 16R⁸ RNAV (RNP) Y Rwy 16L⁹ RNAV (RNP) Y Rwy 16R⁹ RNAV (RNP) Z Rwy 16L^a RNAV (RNP) Z Rwy 16R^a TACAN-F^b VOR-D^c ¹ILS, LOC, Categories A, B, 1000-2; Categories A, B, 1100-2; Categories C, D, 2100-3. ²Categories A, B, 1100-2; Categories C, D, 2100-3. ³Categories A, B, C, D, E, 1500-6. ⁴Categories A, B, 1600-2; Categories A, B, 1000-2; Category E, 2300-3. ⁵Categories A, D, 2100-3; Category E, 2300-3. ⁵Categories A, B, 1000-2; Category C, 1000-2³/₄; Category D, 1000-3. ⁶Categories A, B, 1200-4; Categories C, D, 2100-4. ⁷Categories A, B, 1000-2; Categories C, D, 2100-3. ⁸Categories A, B, 1800-2; Categories C, D, 1800-3. ⁹Categories A, B, C, D, 800-2¹/₂. ^aCategories A, B, C, 800-21⁄2. ^bCategories A, B, 1600-2;

Categories C, D, 2000-3; Category E, 2100-3. ^cCategories A, B, 1600-2; Categories C, D, 1600-3.

SAFFORD, AZ

SAFFORD RGNL (SAD) RNAV (GPS) Rwy 12 RNAV (GPS) Rwy 30 NA when local weather not available.

ST GEORGE. UT

ST GEORGE RGNL (SGU).....RNAV (GPS) Rwy 1 RNAV (GPS) Rwy 192 ¹Categories A, B, 900-2; Categories C, 900-2³/₄ ²Categories A, B, 1100-2, Categories C, D, 1100-3.

ST JOHNS, AZ

ST JOHNS INDUSTRIAL AIR PARK (SJN).....RNAV (GPS) Rwy 14 NA when local weather not available.

SCOTTSDALE, AZ

SCOTTSDALE (SDL).....RNAV (GPS)-D

RNAV (GPS)-E VOR/DME-A1

NA when local weather not available. ¹Categories A, B, 900-2, Category C, 900-2½, Category D, 900-23/4.

21056

NAME	ALTERNATE MINIMUMS
SHOW LOW, AZ SHOW LOW RGNL (SOW) NA when local weather Category C, 800-2 ¹ / ₄ ,	
TONOPAH, NV TONOPAH (TPH) Category D, 800-2¼.	VOR or GPS-A

TOOELE. UT

BOLINDER FIELD-TOOELE

VALLEY (TVY).....ILS or LOC Rwy 17¹ RNAV (GPS) Rwy 17² ¹ILS, Category C, 800-2; Category D, 1100-3; LOC, Category D, 1100-3. ²Category D, 1100-3.

TUCSON, AZ

RYAN FLD (RYN)..... RNAV (GPS) Rwy 6R Category D, 1000-3.

TUCSON

INTL (TUS).....ILS or LOC Rwy 11L¹ LOC BC Rwy 29R² RNAV (GPS) Rwy 29L3 RNAV (GPS) Z Rwy 11L⁴ RNAV (GPS) Z Rwy 29R² VOR or TACAN Rwy 29R² VOR or TACAN Rwy 11L² ¹LOC, Categories A, B, 900-2;

Category C, 900-2½; Category D, 900-2¾; Category E, 1200-3.

- ²Category E, 1200-3. ³Category D, 800-2¹⁄₄.
- ⁴Category D, 800-21/4; Category E, 1200-3.

VERNAL, UT

- VERNAL RGNL (VEL).....RNAV (GPS) Y Rwy 35¹²
 - RNAV (GPS) Z Rwy 35 VOR Rwy 35¹⁴

¹NA when local weather not available. ²Categories A, B, 1100-2; Category C, 1100-3; Category D, 120-3. ³Categories A, B, C, D, 900-3. ⁴Categories A, B, 900-2; Category C, 900-2³/₄;

Category D, 1200-3.

>	ASHEVILLE	, NC	Am	dt 5A, 18NC	DV98 (14009	9) (FA4	A)	ELEV 2165
	ASHEVILLE F RADAR-1 124.65	269.575	VL) ⊽ &					
	ASR 34	<u>GP/TCH/RF</u>	PI CAT DA/ AB 2800/ D 2800-	HAT/ VIS HAA 24 660 1½ 660	CEIL-VIS (700-1½) (700-1½)	CAT	DA/ HA ⁻ MDA-VIS HA/ 2800/60 660	T/ A <u>CEIL-VIS</u> (700-11/4)
			A 3000// C 3000-	50 835 2½ 835	(900-1) (900-2½)	D :	3000/60 835 3000-2¾ 835	(900-1¼) (900-2¾)
		WY	A 3000- 3000-	1 835 2½ 835	(900-1) (900-2½)	B :	3000 -1¼ 835 3000 -2¾ 835	(900-1¼) (900-2¾)
	Circling not author	rized west c	of Rwy 16-34. N	light circling	not authori	zed.		
	SIMMONS A RADAR ¹ - (E) 120	AF (KF 0.8 124.2 2	BG), NC (Fo	ort Bragg) (1 5 👽	-Amdt 12, 2	-Orig 1	1097 USA)	ELEV 244
		<u>RWY</u>	<u>GP/TCH/RPI</u>	CAT	DH/ MDA-VIS	HAT. HAA	CEIL-VIS	
	RADAR-1 PAR	27	3.0°/36/628	ABC	428-¾	200	(200-¾)	
	PAR W/O GS	27		AB C	640-1 640-1¼	412 412	(500-1) (500-1½)	
	CIR			D AB	NA 780-1	NA 536	NA (600-1)	
	RADAR-2			D	780-1½ NA	536 NA	(600-1½) NA	
	PAR	9	3.9°/33/487	COPTER	491- ½	250	(300-1/2)	
All	¹ Opr 1200-0400Z-	++ Mon-Fri,	clsd hol. No-N	OTAM preve	entive maint	1800-	1900Z++ Fri.	
lf r	not labelled	d, text	is 7pt (he	eader a	and foc	oter	text size	are same).
RA	DAR MINS	, jdate	and volu	ume in	the he	ade	r/footer	are bold.
FA IC/	A city, stat AO/ident a	e, airpo re bolo	ort, ICAO d.)/ident	are bo	ld. N	Military ir	nstallation,
Ele	evation is b	old. R	ADAR - h	eader	is bold	. Co	lumn hea	aders are bold.

APPENDIX 5 IAP CHART FORMAT AND DIMENSIONS

IAP CHART FORMAT AND DIMENSIONS

APPENDIX 6 MARGIN DATA

GEOGRAPHIC LOCATION NAME (7 PT) CHART REFERENCE NUMBER (7 Pt)
PALM SPRINGS, CALIFORNIA AL-5848 (FAA) JDATE (7 Pt)>12096
PROCEDURE TITLE (14 Pt) -> RNAV (GPS) RWY 28
BERMUDA DUNES (UDD)
AIRPORT NAME (8 Pt)
AIRPORT LOCATION
IDENTIFIER (9.5 Pt)
CENTORT EXPANDED
ALL TYPE IS FUTURA MEDIUM EXCEPT AS NOTED. THE SECONDARY PROCEDURE TITLE: i.e. (SIMULTANEOUS CLOSE PARALLEL) IS 12 Pt
• SUPPLEMENTAL TITLE INFORMATION; i.e., (CAT II), (SA CAT I), IS CENTURY
EXPANDED, 9.5 Pt.
GEOGRAPHIC COORDINATES (7 Pt)
Orig-C 30/UN11 33°45′N-116°16′W BERMUDA DUNES (UDD)
AMENDMENT NUMBER AND AIRAC DATE (7 Pt)

APPENDIX 7 BRIEFING STRIPS

CARLSBAD, C	ALIFORNIA			AL-53	10 (FAA)						00000		
WAAS CH 65603 W24A	APP CRS 245°	Rwy Idg 4 TDZE Apt Elev	897 326 331				RÌ	NAV MC CLI	(GP	PALOMA	VY 24 AR (CRQ)		
DME/D For und below -	OME RNP-0.3 compensated 15°C (5°F) c	3 NA. Baro-VNAV sy or above 54°C	rstems, LNA (130°F).	V/VNAV NA	A MAL	SR -	MISSE IBUGE	D APPROA WP and I	ACH: C nold.	limb to 200	0 direct		
ATI 120 .	s . 15	SOCAL A 127.3	APP CON PALOMAR TOWER* GND CON 3 323.0 118.6 (CTAF) (276.4 121.8								CLNC DEL 134.85		
SACRAMENT), califori			AL-54	490 (FAA)						00000		
WAAS CH 86602 W35A	APP CRS . 348°	Rwy Idg 85 TDZE Apt Elev	98 24 27				RNA	V (G	PS) .cram	Y RV	/Y 35L		
RNP APCH-C Circling LNAV/ all Cats *RVR 18	PS. NA east of VNAV NA b visibility to I 00 authorize	Rwy 17R-35L. Pelow -2°C or c RVR 4500 and ed with use of F	For uncomp bove 54°C. increase LN D or AP or	pensated Bar For inop Al IAV Cat C/D HUD to DA.	o-VNAV sy LS, increase visibility to	stems, LNA RVR :	, V/VNAV 5500.	MALSR	MISSEI 800 th 2000 d	D APPROA en climbing direct GRIM	CH: Climb to left turn to E and hold.		
D-ATIS 126.75	125.4 25	NORCAL 9.1 (W-NE) 1 127.4 317	APP CON 25.25 2 25 (E-SE)	5 7.9 (SW)	CAPITOL T 125.7 2	OWE 256.7	R GN 121.	d con 7 256.7	CLN 121.	NC DEL 1 256.7	CPDLC		
NEWARK, NEW JERSEY AL-285 (FAA) 000 GBAS CH 21905 G11A APP CRS 108° Rwy Idg TDZE 6726 17 Apt Elev 17 17 Other Misses Misses Other Misses RNP APCH - GPS. Rwy 11 helicopter visibility reduction below RVR 4000 NA. MISSED APPROACH: Climb to 3000 direct FOVEX and on track 193° to COGSU and right turn on track 193° to COGSU and right turn on										00000 WY 11 TL (EWR) ect FOVEX turn on			
D-AT	s 34.825	NEW YORK A 128.55	PP CON 8 79.9	NEWA	RK TOWER 3 257.6		GND 12	CON 1.8	CLN 118	C DEL 3.85	CPDLC		
CAMBRIDGE, APP CRS 154 °	MARYLAND wy Idg M DZE M pt Elev	V/A V/A 20		AL-55	571 (FAA)	(CAMBRI	DGE-DC	RN DRCHE	AV (C STER RGI	00000 GPS)-A NL (CGE)		
RNP APCH.	Circling Rwy wy 16 helico	16 NA at night opter visibility re	eduction bel	ow 1 SM NA	۹.			MISSED A direct PRC	PPROA()FS and	CH: Climb t hold.	o 2000		
A 12	WOS-3 2 0.675	PA	TUXENT AF 121.0 2	PP CON ★ 250.3		UN 122.	NCOM 7 (CTAF)			121.9	0		
DETROIT, MIC WAAS CH 73039 W04A RNP APCH. T Rwy 4L c Baro-VN approac Dual VHI	HIGAN APP CRS 038° ind 4R separ AV systems, n authorized F comm requ	Rwy Idg 10 TDZE Apt Elev cated by 3000 INAV/VNAV . Use of FD or, irred. See add	000 645 645 NA below - AP required itional requi	AL-119 ne to centerli 19°C or abc during simu irements on A METRO TOV	(FAA) R ne. For unc ove 54°C. S ltaneous op AAUP. WER	D compe Simult	ETROIT / ensated aneous ons.	GPS) (METRO V ALS (ALS (ALS (ALS) (ALS) (ALS) (ALS) (ALS)		AYR SEPA IE COUN ISSED APP Iimb to 110 Iimbing left irrect DOHN	00000 WY 4L RALLEL TY (DTW) ROACH: 00 then 10 trn to 4000 11 and hold.		
133.675	124.0	05 284.0	1	35.0 317 PRM 127	.725	12 132	1.8 (NW 725 (SV	′) 119.4 ∕\) 119.3	15 (NE) 25 (SE)	120.65	CPDLC		

APPENDIX 7 BRIEFING STRIPS (CONTINUED)

EASION, MARTLAN	D			AL-5596	5 (FAA)				00000		
LOC/DME I-FGH <u>109.35</u> Chan 30 (Y)	LOC/DME I-FGH 109.35 Chan 30(Y) Rwy Idg 4775 TDZE 58 Apt Elev 72 ILS or LOC/DME RWY 4 NEWNAM FLD (ESN)										
 If local altimeter Marshall altimet VDP NA when u 	If local altimeter setting not received, use Baltimore-Washington Intl Thurgood MISSED APPROACH: Climb to 2000 via Marshall altimeter setting and increase DA to 358 feet and all MDAs 100 feet. MISSED APPROACH: Climb to 2000 via VDP NA when using Baltimore-Washington Intl Thurgood Marshall altimeter setting. to ORETE INT/ATR 31.6 DME and hold.										
ATIS POT 124.475 12	TOMAC APF 24.55 317	P CON 7 .425	EAST 118.	ON TOWER★ 525 (CTAF) ❶	GND CC 119.07	0N 75	CLNC DEL 119.075 (W	CLNC DEL 126.9 hen twr closed	UNICOM 1) 122.95		
				AL-443	(FAA)				00000		
108.5 Chan 22	APP CRS 1470	Rwy Idg (TDZE Apt Elev	5869 13 14		RON	ald r	L EAGAN WA	.DA Z I	VWY 19 NTL (DCA)		
Inop table do Rwy 15-33. 1 SM NA. D	es not apply Rwy 19 heli ME required	v. Circling copter visil d.	NA north bility redu	neast of viction below	MALSF MI	SSED A CA VOF 9 DME	APPROACH: Cli R/DME R-185 to and hold, contir	imbing right tu b BADDN/DC/ nue climb-in-ho	rrn to 3000 on A VOR/DME old to 3000.		
D-ATIS 119.85 132.65 124.2	OTOMAC A 239.25 360.8	APP CON (WEST/ (EAST)	'SOUTH)	WASHING1 119.1	ON TOWER 257.6	1:	GND CON 21.7 257.6	CLNC DEL 128.25	CPDLC		
SOUTH BOSTON, VIR	GINIA		_	AL-5112	? (FAA)				00000		
VOR SBV 110.4 Chan 41	CRS TDZE	Idg N/ E N/ Elev 42	/A /A 20				WI	LLIAM M. TI	VOR-A		
Use Danville ANA Lynchburg F increase all	e Rgnl altime Rgnl/Preston MDA 100 fe	eter setting Glenn Fie eet, and in	, when no eld altimet norease all	ot received, use er setting and I Cat C visibility	∙¼ mile.	/ t	MISSED APPRO o 3000 direct S	ACH: Climbing BV VORTAC a	g left turn Ind hold.		
WA	ASHINGTON 124.05	N CENTER 307.0					UNICO/ 122.8 (C	И ГАF) ()			
ROANOKE, VIRGINIA	4			AL-349	(FAA)						
ROANOKE, VIRGINIA VOR ODR APP 114.9 23	CRS Rwy IGO TDZE Apt	Idg N/ E N/ Elev 117	Ά Ά 75	AL-349	(FAA)	OAN) DKE RGNL/V		00000 DME-A FLD (ROA)		
ROANOKE, VIRGINIA VOR ODR APP <u>114.9</u> 23 Circling NA NA. Circlin reception o	CRS 60 A NW of Rw 1021 Apt A NW of Rw 10 10 10 10 10 10 10 10 10 10	Idg N/ E N/ Elev 117 ry 6-24. Vi 6 NA. DME and I-SZK	A A 75 isibility red from I-S2 DME red	AL-349 duction by helic ZK LDA. Simul i a vired.	(FAA) Ri copters aneous	OANC MISS 4000 R-25	DKE RGNL/V ED APPROACH) on ODR VOR 8 to MONAT/L'	VOODRUM Climbing lef R-164 and LYF rH 19.8 DME	00000 DME-A FLD (ROA) t turn to t VORTAC and hold.		
ROANOKE, VIRGINIA VOR ODR APP 114.9 23 Circling NA NA. Circlin reception o ATIS 132.375	CRS Rwy 160 TDZI A NW of Rw 19 to Rwy 16 f ODR VOR ROAN 126	Idg N/ E N/ Elev 117 7y 6-24. Vi 5 NA. DME and I-SZK IOKE APP (5.9 339	A A 5 5 5 6 7 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7	AL-349 duction by helic ZK LDA. Simulta uired. ROAN 118.	(FAA) Records anneous OKE TOWER 3 257.8	OANC MISS 4000 R-25	DKE RGNL/V ED APPROACH) on ODR VOR 1 8 to MONAT/L' GND CC 121.9 24	VOR/ VOODRUM : Climbing lef R-164 and LYH rH 19.8 DME NN 57.8	00000 DME-A FLD (ROA) t turn to t VORTAC and hold. CLNC DEL 119.7		
ROANOKE, VIRGINIA VOR ODR APP 114.9 23 ▼ Circling NA NA. Circlin reception o ATIS 132.375 GAMBELL, ALASKA	A CRS 60 A NW of Rw 10 Rw 16 f ODR VOR ROAN 126	Idg N / E N / Elev 117 7y 6-24. Vi 6 NA. DME and I-SZK IOKE APP (3.9 339	AA75 sibility rec from I-S, DME req CON .8	AL-349 duction by helic ZK LDA. Simulta uired. ROAN 118. AL-6687	(FAA) ropters aneous OKE TOWER 3 257.8 7 (FAA)	OAN(MISS 4000 R-25	DKE RGNL/V ED APPROACH o on ODR VOR 8 to MONAT/L' GND CC 121.9 24	VOR/ VOODRUM : Climbing lef -164 and LYH rH 19.8 DME JN 57.8	00000 CDME-A FLD (ROA) t turn to t VORTAC and hold. CLNC DEL 119.7 000000		
ROANOKE, VIRGINIA VOR ODR APP 114.9 23 ▼ Circling NA NA. Circlin reception o ATIS 132.375 GAMBELL, ALASKA NDB/DME GAM <u>369</u> Chan 92 (114.5)	A CRS Rwy TDZf Apt A A NW of Rw g to Rwy 16 f ODR VOR ROAN 126 3410 A	Idg N/ E N/ Elev 117 7y 6-24. Vis 6 NA. DME and I-SZE IOKE APP 6 5.9 339 wy Idg 4 DZE pt Elev	A A 75 isibility rec From I-S; DME req CON 0.8 500 26 27	AL-349 duction by helic ZK LDA. Simult uired. ROAN 118 , AL-6687	(FAA) ropters aneous OKE TOWER 3 257.8 7 (FAA)	OANC MISS 4000 R-25	DKE RGNL/V ED APPROACH I on ODR VOR I 8 to MONAT/L' GND CC 121.9 24 NDB/ GAI	VOR/ VOODRUM : Climbing lef R-164 and LYH H 19.8 DME 57.8 'DME F MBELL(GA.)	00000 YDME-A FLD (ROA) t turn to t VORTAC and hold. CLNC DEL 119.7 00000C CLNC DEL 119.7 00000C CLNC DEL 119.7 00000C CLNC DEL 119.7		
ROANOKE, VIRGINIA VOR ODR APP <u>114.9</u> 23 Circling NA NA. Circlin reception o ATIS 132.375 GAMBELL, ALASKA NDB/DME GAM <u>369</u> Chan 92 (114.5) Circling N	A CRS Rwy TDZI Apt ANW of Rw 10 of Rwy 16 oDR VOR ROAN 126 341° IA northeast	Idg N/ E N/ Elev 117 y 6-24. Vi b NA. DME and I-SZK IOKE APP (5.9 339 wy Idg 4 DZE pt Elev of Rwy 16	(A /A /75 isibility rec from I-S; DME req CON -8 500 26 27 27 -34.	AL-349 duction by helic ZK LDA. Simulic uired. ROAN 118. AL-6687 ODA	(FAA) R(copters concerns conc	APPRC	DKE RGNL/V ED APPROACH o on ODR VOR I 8 to MONAT/L' GND CC 121.9 2: NDB/ GAU MACH: Climb to DB/DME holdin	VOR/ VOORUM Climbing lef R-164 and LYH rH 19.8 DME S7.8 COME F MBELL (GA) 3000 direct C g pattern.	00000 FLD (ROA) t turn to t VORTAC and hold. CLNC DEL 119.7 00000 CWY 34 M)(PAGM) GAM NDB/DME		
ROANOKE, VIRGINIA VOR ODR APP <u>114.9</u> 23 Circling NA NA. Circlin reception o ATIS 132.375 GAMBELL, ALASKA NDB/DME GAM ABP/DME GAM Circling N Circling N Circling N	A CRS B ⁰ JDZf Apt A A NW of Rw g to Rwy 16 f ODR VOR ROAN 126 APP CRS 3410 A NA northeast	Idg N/ E N/ Elev 117 79 6-24. Vis 6 NA. DME and I-SZK IOKE APP (5.9 339 5.9 339 5.9 339 6.9 339 6.9 339 6.9 339 6.9 339 7.0 12 7.0 10 7.0 12 7.0 12	(A (A (A (A (A (A (A (A))))))))))))))))	AL-349 duction by helic ZK LDA. Simult Urred. ROAN 118, AL-6687 ODA ODA CENTER 81.4	(FAA) Records a content of the second	APPRCC	DKE RGNL/V ED APPROACH I on ODR VOR I 8 to MONAT/L' GND CC 121.9 2: NDBB/ GAU VACH: Climb to DB/DME holdin	VOR/ VOODRUM : Climbing lef R-164 and LYH H 19.8 DME 57.8 DME S7.8 DME F MBELL (GA 3000 direct C g pattern. CT. 122.7	00000 YDME-A FLD (ROA) t turn to t VORTAC and hold. CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 119.7 000000 CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 00000 CLINC DEL 119.7 00000 00000 00000 00000 00000 000000		
ROANOKE, VIRGINIA VOR ODR APP <u>114.9</u> 23 Circling NA NA. Circlin reception o ATIS 132.375 GAMBELL, ALASKA NDB/DME GAM AMB/DME GAM Chan 92 (114.5) Circling N AWOS-3 125.9	A CRS Rwy TDZf Apt Apt A NW of Rw g to Rwy 16 f ODR VOR ROAN 126 APP CRS 3410 A NA northeast	Idg N/ E N/ Elev 117 79 6-24. Vis 6 NA. DMB and I-SZK IOKE APP (5.9 339 5.9 339 wy Idg 4 DZE pt Elev of Rwy 16 ANCt 13	(A (A (A (A (A (A (A (A (A (A (A (A (A (AL-349 duction by helic ZK LDA. Simult Uired. ROAN 118, AL-6687 ODA CENTER 31.4 AL-880	(FAA) Record and a content of the second se	OANC MISS 4000 R-25 APPRC APPRC GAM NI ME RAD	DKE RGNL/V ED APPROACH I on ODR VOR I 8 to MONAT/L' GND CC 121.9 2: NDBB/ GAJ VACH: Climb to DB/DME holdin	VOR/ VOODRUM : Climbing lef R-164 and LYH H 19.8 DME 57.8 DME DME S7.8 DME G pattern. CT. 122.7	00000 YDME-A FLD (ROA) t turn to t VORTAC and hold. CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 19.7 00000 CLINC DEL 19.7 00000		
ROANOKE, VIRGINIA VOR ODR APP 114.9 23 ▼ Circling NA NA. Circlin reception o ATIS 132.375 GAMBELL, ALASKA NDB/DME GAM (A 369 Chan 92 (114.5) ▼ Circling N Circling N Circling N AWOS-3 125.9 DUNKIRK, NEW YORK APP CRS RW 236° RW	A CRS Rwy TDZI Apt Apt ANW of Rw f ODR VOR ROAN 126 341° IA northeast IA northeast	Idg N/ E N/ Elev 117 ry 6-24. Vi of NA. DME and I-SZK IOKE APP 6 3.9 339 wy Idg 4 52E pt Elev of Rwy 16 ANCC 13 5000 676 693	(A A 75 isibility rec E from I-S; DME req CON 9-8 500 26 27 6-34. HORAGE 32.2 28	AL-349 duction by helic ZK LDA. Simulit uired. ROAN 118. AL-6687 ODA & CENTER 81.4	(FAA) R r r r r r r r r r r r r r r r r r r	APPRC	DKE RGNL/V ED APPROACH) on ODR VOR I 8 to MONAT/L' GND CC 121.9 24 NDB/ GAU DACH: Climb to DB/DME holdin	VOR/ VOODRUM : Climbing lef 2-164 and LYF rH 19.8 DME 57.8 DME F MBELL (GA: 3000 direct C g pattern. CT/ 122.7 CT/ CT/ CT/	00000 DME-A FLD (ROA) t turn to t VORTAC and hold. CLNC DEL 119.7 000000 CWY 34 M)(PAGM) GAM NDB/DME AF 0 00000 CWY 24 CIKK (DKK)		
ROANOKE, VIRGINIA VOR ODR APP <u>114.9</u> 23 Circling NA NA. Circlin reception o ATIS 132.375 GAMBELL, ALASKA NDB/DME GAM A <u>369</u> Chan 92 (114.5) Circling N AWOS-3 125.9 DUNKIRK, NEW YORK APP CRS 236° Rw TD App CRS 236°	A CRS R wy 10 A NW of Rw 10 A NW of Rwy 10 A NW of Rwy 10 A NW of Rwy 10 ROAN 126 A 126 A 126 A	Idg N/ E N/ Elev 117 y 6-24. Vi 5 NA. DME and I-SZK IOKE APP 0 5.9 339 wy Idg 4: DZE pt Elev of Rwy 16 ANCt 1: 5000 676 693 ACH MOD	A A A S S S DME req CON A 8 S S O 26 27 G-34. HORAGE 32.2 28 HORAGE 32.2 28 E PRIOR 1	AL-349 duction by helic ZK LDA. Simult Uired. ROAN 118, AL-6687 ODA CENTER 31.4 AL-880 CENTER 31.4	(FAA) Records a constrained of the second o	APPRCC	DKE RGNL/V ED APPROACH I on ODR VOR I B to MONAT/L' GND CC 121.9 24 NDB/ GAU VACH: Climb to DB/DME holdin MO	VOR/ VOODRUM : Climbing lef R-164 and LYH H 19.8 DME 57.8 DME EL (GA 3000 direct C g pattern. CT, 122.7 CR SPS R NTY/DUNK 0, then climbir 1.	00000 YDME-A FLD (ROA) t turn to t VORTAC and hold. CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 119.7 00000 CLINC DEL 19.7 00000 CLINC DEL 19.7 00000 CLINC DEL 19.7 00000 CLINC DEL 19.7 00000 CLINC DEL 19.7 00000 CLINC DEL 19.7 00000 CLINC DEL 19.7 00000 CLINC DEL 19.7 000000 CLINC DEL 19.7 19		

APPENDIX 7 BRIEFING STRIPS (CONTINUED)

BATTLE CREEK, M	NCHIGAN			_		AL-41	(FAA)					00000
LOC I-BTL APP <u>110.5</u> 22	CRS TD2	y Idg ZE † Elev	10004 929 952					BATTL	ILS C E CREEK EX	ec at ke	C RW LLOGG F	Y 23R LD (BTL)
ADF required. R Cir ASR * RVI (N/	Sr required. KADAR required for procedure entry. RNP APCH - GPS. MISSED APPROACH: Climb to 1400 then dimbing left turn to 3000 direct VVTEN and hold, continue climb-in-hold to 3000. SR * RVR 1800 authorized with use of FD or AP or HUD to DA (NA when using Grand Rapids altimeter setting). MLSR MISSED APPROACH: Climb to 1400 then dimbing left turn to 3000 direct VVTEN and hold, continue climb-in-hold to 3000.											
ATIS 128.325	ATIS GREAT LAKES APP CON* BATTLE CREEK TOWER* GND CON UNICOM 128.325 119.2 239.25 126.825 (CTAF) 121.7 122.95											
LOC I-CYS <u>110.1</u>	LOC I-CYS APP CRS 265° TDZE 6121 Apt Elev 6121 Apt Elev 6122 Apt Elev 612 Apt A										VY 2/ d (CYS)	
ASR/PAR *RV of F	D visibility R 1800 au D or AP or	to RVR thorized HUD to	5000. d with th o DA.	ie use			MISSED / 8000 dir via CYS	APPROAC ect CYS V R-016 to	CH: Climb to /ORTAC and h MARKL/10 DA	5700, then c old. (TACA AE and hold	limbing rigl N aircraft o N, RT, 196	nt turn to continue o° inbound.)
ATIS 134.425	278.3	CHE 124	YENNE 1.552	APP CC 63.07	ON C 5 11	CHEYENN 1 8.7 (CT/	IE TOWE AF) () 25	R* 7.8	GND CO 121.9 254.	275	UNICO 122.	ЭМ 95
MILWAUKEE, V APP CRS 256° RF required. RI	AL-262 (FAA) 00000 APP CRS Rwy Idg 7867 256° Apt Elev 729 RF required. RNP AR APCH.											
For uncor or above	npensated 54°C. ILWAUKE	Baro-\ E APP (VNAV s	ystems	, procec	dure NA	below -:	20°C GN	3700 route	on the RNA to PROOT (CLNC	AV missed and hold. DEL	approach
WAAS CH 97508 W36A ▼ ▲ NA ₩ ₩ •38°C	APP CRS 002° Baro-VNA Use Bethel Night land	V NA. I altimete	dg 3 lev DME/Di er setting ry 36 Co	25 25 ME RNI g; wher	P-0.3 NA n not rece d D NA.	A. eived, pro	ocedure N	VA.	MISSED APPR FONUS and r and via 197°	V (GP /ETHLUK (OACH: Clin ight turn via track to WC	(KWT) (KWT) 115° track DDIL and ho	VY 36 (PFKW) direct to ZALOS Id.
AWOS 120.	5-3Р . О		BET	/PABE 119.	ASOS 8		A	NCHOR/ 125.2	AGE CENTER 2 372.0		CT/ 122.	∿F 9 ()
WINTER HAVE VORTAC LAL 116.0 Chan 107	BET/PABE ASOS WINTER HAVEN, FLORIDA AL-5953 (FAA) 00000 VORTAC LAL 116.0 Chan 107 071° APP CRS TDZE N/A Apt Elev 145 WINTER HAVEN RGNL (GIF									00000 OR-A NL (GIF)		
DME required. MISSED APPROACH: Climbing left turn to 2000 direct LAL VORTAC and hold. Missed Approach: Missed Approach: Climbing left turn to 2000 direct LAL VORTAC and hold.												
AS 133	OS .675		T	AMPA 1 20.6	APP CC 5 290	ол • .3		CLNC DE 121.	EL (GCO) 725	12	UNICOM 3.05 (CTA	∧ ∧F) ()
EAGLE PASS, TE WAAS CH 63207	XAS APP CRS 309°	Rwy TDZE	Idg 5	506 382		AL-12	26 (FAA)				PS) R'	0000 WY 3
NA Bard A NA altin	o-VNAV N. neter setting ng.	A. DME g; when	E/DME In not rec	RNP-0. eived,	3 NA. U: use Del R	se Laugh Rio Intl alt	lin AFB timeter	MI an	SSED APPROA d via 056° tra	ACH: Climb ck to NEYIR	to 4000 dir and hold.	rect CEXEV
AWC 119.1	AWOS-3 KDLF ATIS* DEL RЮ APP CON * UNICOM 119.175 114.4 127.75 326.2 122.8 (CTAF) ()									;) ()		

APPENDIX 7 BRIEFING STRIPS (CONTINUED)

SEATTLE, WA	SHINGTON				AL-58	2 (FAA)					00000
LOC/DME <u>110.</u>	-SNQ APF	CRS RV	wy Idg 1 DZE pt Elev	1901 432 432				I	LS or	LOC RV	VY 16L
DME or RAD	AR required. taneous appr	RNP APC	CH-GPS, fr	om GRI	FY.	ALSF-2	MIS ther DM SEA and	SED APP on SEA E/RADAF VORTAG hold, co	ROACH: Cli VORTAC R-1 R at or below C R-161 to M ntinue climb-	mb to 900 on he 61 to cross TEBt 2000 then climb ILLT/SEA 11 DN n-hold to 5000.	ading 165° NE/SEA 2.4 to 5000 on NE/RADAR
D-ATIS 118.0	SEATTLE AF 133.65 2	P CON 73.45	119.9 120.95	SE 239. 5 239.	ATTLE TOW 3 (Rwys 16 3 (Rwys 16	'ER L, 16C, 3 R, 34L)	4C, 34	4R) G	ND CON 121.7	CLNC DEL 128.0	CPDLC
CARLSBAD, C	ALIFORNIA				AL-53	10 (FAA)					00000
WAAS CH 45831 W24B	APP CRS 245°	Rwy Ide TDZE Apt Ele	g 4897 326 ∞ 331					RN	AV (C MC CLI	GPS) X R	WY 24 MAR (CRQ)
RNP APCH - 0 For unc above 3 RVR 50 Inoperc	GPS required ompensated 54°C (130°F 00. Helicopt tive table do	l, RF requ Baro-VN/ I. For inop er visibilit; es not app	ired. AV systems perative M y reduction ply to LPV.	s, LNAV ALSR, in 1 below	/VNAV NA acrease LNA RVR 4000 n	below -4 √ Cats A/ ot authori	°C (25 'B visil zed.	5°F) or pility to	− MALSR	MISSED AF Climb to 20 IBUGE and	PROACH: 000 direct hold.
AT 120	IS . 15	soc 12	AL APP CO 7.3 323	ИС 0.	PALOMA 118.6 (CT.	r tower Af) () 27	* 6.4	G	IND CON	CL 1:	NC DEL 34.85
DETROIT, MICH	HGAN				AL-11	9 (FAA)					00000
LOC/DME <u>110.7</u> Chan 4	-DWC API 4	CRS 15°	wy Idg DZE pt Elev	12003 637 645			DE		LS or METRO W	LOC RV AYNE COUN	VY 22L TY (DTW)
RADAR requir V Simul # RVF	ed for procee taneous appr R 1800 autho	dure entry oach auth rized with	r. norized wit n use of FD	h Rwy 2 9 or AP o	21L. or HUD to D,	۹.	MAL	SR IIII	MISSED APF on heading CRL VORTA	ROACH: Climb 215° and CRL R C and hold.	to 3000 -025 to
atis 133.675	DETRO 124.05 125.15	IT APP CC 363.2(363.2(ON WEST) (EAST)	135. 118.	METRO TOV 0 317.72 4 317.72	ver 5 (west) 5 (east)		121 132.7	GND CO 8 (NW) 1 2 (SW) 1	N 19.45 (NE) 19.25 (SE)	CLNC DEL 120.65
DETROIT, MIC LOC/DME I- 111.5	HIGAN ^{EJR} APP C	RS Rwy	/Idg 10(01	AL-11	9 (FAA)			ILS or	LOC RV	∞∞∞ •¥¥ 21L
Chan 52	216	Apt	Elev 6	45			DE	TROIT	METRO W	AYNE COUN	NTY (DTW)
From RYEDR of not DME/DM Simultane ** RVR 1	and CPBBO: E/IRU or GP eous approad 800 authoriz	RNAV-1- S equippe h authori: red with u	DME/DME ed - RADAI zed. DME	/IRU or R require or RAD r AP or	GPS require ed for proce AR required HUD to DA	ed. Aircro dure entry	ift / /. (MALSR	MISSED APP then climbin R-122 to GA	PROACH: Climb g left turn to 400 AGE/DXO 16	to 1100 00 on DXO DME and ho l d.
D-ATIS 133.675	DETRO 124.05 125.15	DIT APP C 363.2 363.2	ON (WEST) (EAST)	ME 118	ETRO TOWE	R 25	121 132.	GND .8 (NW) 72 (SW)	CON 119.45 119.25	(NE) CLNC DE (SE) 120.65	L CPDLC
BRAWLEY, CA	LIFORNIA				AL-693	32 (FAA)					00000
APP CRS	wy Idg 40 DZE -1 pt Elev -1	006 35 29						R	NAV	(GPS) R	WY 26 JNI (BWC)
♥ GP ▲NA Use Cir	S or RNP- 0. e Imperial Co cling Rwy 8	3 required ounty altim NA at nig	d. DME/D neter setting ht.	DME RNI 3.	P- 0.3 NA.	N IP	ISSED L VOR	APPROA TAC and	ACH: Climbi hold.	ng left turn to 36	00 direct
	IPL ASC 132.17	os '5			LOS ANG 128.6	ELES CEN 5 291.7	ITER			CTAF 122.9 ()	
TOK, ALASKA APP CRS 070°	A Rwy Idg 2 DZE 1 Apt Elev 1	509 643 643			AL-100	59 (FAA)			RNAV TOK JUN	(GPS)	00000 RWY 7 8) (PFTO)
	DME/D Use No	ME RNP- orthway al	0.3 NA. timeter sett	ing.		MISSED track to (appro Cimgo	DACH: C D and ho	limb to 8000 Id, continue c) direct NUNIC c limb-in-hold to 8	ind via 119° 3000.
ORT/F	PAOR ASOS 1 35.4		ANCH 120	IORAGE 6.55	E CENTER 323.0		NOR	THWAY I 122.4	RADIO	UNIC 122.8 (0	OM CTAF) ()

APPENDIX 8 BRIEFING STRIPS – COPTER

INDIANAP	OLIS, INDIAN	JA	AL-6835 (FAA)		00000						
APP CRS 291°	Rwy Idg TDZE Apt Elev	N/A N/A 732	COPTER RNAV (GPS) 29 Indianapolis downtown (8A								
A NA V	When local c Itimeter setti approach air ACTIVATE Hi	ltimeter ing and speed to gh Inten	setting not received, use Indianapolis Intl increase MDA 40 feet. Limit final and missed 9 70 KIAS. DME/DME RNP-0.3 NA. sity Pad Lights-CTAF.	M cl Vi	ISSED APPROACH: Climb to 1500 then imbing right turn to 3000 direct VHP ORTAC and hold.						
	AWOS-3 118.250		INDIANAPOLIS APP CON 125.275 317.8		UNICOM 123.05 (CTAF) ()						

WASHINGT	ON, DC			AL-443 (FAA)			00000
LOC/DME <u>109.9</u> Chan 3	-DCA APP CRS 006°	Rwy Idg (TDZE Apt Elev	5869 14 15	COPTER ILS	S or LOC/I	DME R	WY 1 L (DCA)
	·		•	ALSF-2 ALSF-2	H: C l imb to 420 then R/DME R-325 to GTN	climbing left NDB/INT/DO	turn to CA 5.9
D-ATIS 132.65	POTC 119.85 23 124.2 36	DMAC APP 39.25 (\ 60.8 (E	CON WEST/SOUTH) EAST)	WASHINGTON TOWER 119.1 257.6	GND CON 121.7 257.6	CLNC DEL 128.25	CPDLC

NEW YORK, N	ew york				4	AL-28	39 (FAA)		00000
LOC I-URD <u>110.5</u>	APP CRS 224°	Rwy Idg TDZE Apt Elev	7001 12 21	COPTER ILS or LOC/DME RWY 22 LA GUARDIA (LGA					E RWY 22
V					ALSE	-1 	MISSED APPROACH: 0 to PROUD INT/LGA 1	Climb to 2700 via LGA 1 DME and hold.	VOR/DME R-225
ATIS ARR ATIS DEP	125.95 127.05	NEV 12	v york A 2 0.8 2	APP CO 2 63.0	N	V	a guardia tower 118.7 263.0	GND CON 121.7 263.0	CLNC DEL 135.2

APPENDIX 9 LEGEND – IAP PLANVIEW

PURVIEW SYMBOLS Procedure Tark Procedure Tark <	LEGEND 00000	INSTRUMENT APPROACH	I PROCEDURES (CHARTS)					
Procedure Track Freder Route Courtes		PLANVIEW	N SYMBOLS					
Missed Approach (1ype degree and point of two optional) INDICATED AIRSPEED Missed Flight Path Minimum Route $3100 NePT to LOM$ $3200 NePT to LOM$ Missed Approach Minimum Route $3100 NePT to LOM$ $Arrival Hold Strength Airspeed Airspe$	ROL Procedure Track Feeder Route	JTES 	ALTITUDES5500Mandatory Altitude3000Recommended Altitude2500Minimum Altitude5000Mandatory Block4300Maximum Altitude3000Altitude					
Altitude 3100 NoPT to LOM Mileage (14.2) HOLDING PATTERNS Hold-in-lieu of Procedure Turn 000^{0} 015^{0} 015^{0} 015^{0} 015^{0} 000^{0} 015^{0} 015^{0} 000^{0} 015^{0} 015^{0} 000^{0} 015^{0} 000^{0} <td< td=""><td>Missed Approach Visual Flight Path Minimum Route</td><td>(Type degree and point of turn optional)</td><td>INDICATED AIRSPEED <u>175K</u> <u>120K</u> 250K 180K Mandatory Minimum Maximum Recommended Airspeed Airspeed Airspeed</td></td<>	Missed Approach Visual Flight Path Minimum Route	(Type degree and point of turn optional)	INDICATED AIRSPEED <u>175K</u> <u>120K</u> 250K 180K Mandatory Minimum Maximum Recommended Airspeed Airspeed Airspeed					
$\begin{array}{c} \text{HOLD} \hline 00000\\ \text{HOLD} \hline 0000\\ \text{HOLD} \hline 0000\\ \text{HOLD} \hline 0000\\ $	Altitude	0 NoPT to LOM - 045°	RADIO AIDS TO NAVIGATION 110.1 Underline indicates No Voice transmitted on this frequency					
 Missed Approach Arrival HOLD 8000		$ \begin{array}{c} 1000 \\ 000 \\ 1000 \\ 1000 \\ 1000 \\ 270^{\circ} \end{array} $	∨OR ♥ VORTAC TACAN ✓ VOR/DME □ DME ○ NDB ○ NDB/DME					
Holding pattern with max. restricted airspeed: (175K) applies to all altitudes. (210K) applies to allitudes. (210K) applies to altitudes. (210K) attributes. (210K) applies to altitudes. (210K) applies to altitudes. (210C/DME (210C/	Missed Approach	Arrival HOLD <u>8000</u>	 LOM (Compass locator at Outer Marker) Marker Beacon Marker beacons that are not specifically part of the procedure 					
FIXES/ATC REPORTING REQUIREMENTS Image: Constraint of the section of the sectin of the section of the sectin of the secting	Holding pattern with max (175K) applies to all altitu (210K) applies to altitude including 14000'. Arrival Holding Pattern al indicated when they device Timing or distance limits f Procedure Turn Holding P DME fixes may be shown.	. restricted airspeed: udes. s above 6000' to and litude restrictions will be ate from the adjacent leg. for Hold-in-lieu of atterns will be shown.	Localizer Front Course (LOC/LDA) Right side shading- Front course Localizer Back Course Left side shading- Back Course SDF Course					
$\begin{array}{c} & \underset{(Flyby)}{{\otimes}} & \underset{(Flyover)}{{\otimes}} & \underset{(Flyover)}{$	FIXES/ATC REPOR	TING REQUIREMENTS	 LOC/DME LOC/LDA/SDF Transmitter (shown when installation is offset from its normal postion off the end of the runway.) 					
Computer Navigation Fix (CNF) - No ATC Function x (NAME) ("x" omitted when it is a MAP) R-198 Radial line and value UD 100 Local Padial	 ↔ MAP WP (Flyby) ↔ MAP WP (Flyover) ↔ (Flyover) 	MYLES (Distance I-LVF 14.9) From Facility) DME	Primary NAVAID Secondary NAVAID LIMA 114.5 LIM : Chan 92 LOM AKRON <u>362</u> AK :					
R-198 — Radial line and value (112.2) Paired Frequency	Computer Navigation Fix (x (NAME) ("x" omitted wh	CNF) - No ATC Function nen it is a MAP)	TACAN or DME NAVAID					
LK-198 Lead Rearing	R-198 LR-198 LB-198	← Radial line and value ← Lead Radial ← Lead Bearing	(112.2) Paired Frequency					

LEGEND 00000

APPENDIX 9 LEGEND – IAP PLANVIEW (CONTINUED)

APPENDIX 10 LEGEND – IAP PROFILE

LEGEND 00000

APPENDIX 11 MISSED APPROACH ICONS (VOLPE)

EXAMPLES										
MISSED APPROACH: Climb to 3000 then right turn direct MADDS LOM and hold. EX from: 00119_IL4R	DE MISSED APPROACH: Climb to 2500 direct LAN VORTAC and hold. EX from: 00224_VG24									
MISSED APPROACH: Climb to 500 then climbing left turn to 4600 via 201° bearing from GCR NDB to EGGER INT/I-CDV 11.1 DME and hold. EX from: 01195_ILD27	500 4600 EGGER									
MISSED APPROACH: Climb to 4000 via 005° bearing from VYI NDB then climb to 7000 direct VYI NDB and hold. EX from: 00762_ND2	4000 7000 VYI ↑ ↑ 005°									
MISSED APPROACH: Climbing right turn to 4000 via heading 275° and TAL VOR/DME R-258 to OCULA 12 DME and hold, continue dimb-in-hold to 4000. EX from: 01227_VD7	4000 hdg 275° TAL R-258 CCULA TAL 12									
MISSED APPROACH: Climb to 700 then climbing left turn to 3000 via heading 190° and PDN NDB bearing 232° to CEDZU/4.5 DME and hold, continue climb-in-hold to 3000. EX from: 01240_ND5	700 3000 PDN CEDZU hdg 190° 232° PDN (4.5)									
MISSED APPROACH: Climb to 3000 direct PARNE and via track 304° to GICEY and via track 353° to SVM VORTAC and hold. EX from: 00119_R22R	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$									
MISSED APPROACH: Climb heading 158° and SEA VORTAC R-161 to cross TEBNE/SEA 2.4 DME/RADAR at or below 2000, then dimb to 5000 via SEA VORTAC R-161 to MILLT INT/SEA 11 DME/RADAR and hold, continue dimb-in-hold to 5000. EX from: 00582_L16R	$ \begin{array}{ c c c c c } \hline & & & & \\ \hline hdg & & R-161 \\ 158^{\circ} & & & \\ \hline \\ 158^{\circ} & & & \\ \hline \\ 158^{\circ} & & & \\ \hline \\ 158^{\circ} & & $									
MISSED APPROACH: Immediate climbing right turn via heading 280° and I-JDL west course (251°) to cross BARLO INT/I-JDL 8 DME at or above 3000. Continue climb to 5400 direct SSR VORTAC or EEF NDB and hold. EX from: 01191_LX8	$ \begin{array}{ c c c c c c c } \hline hdg & I-JDL & BARLO & 5400 & SSR & EEF \\ \hline W & crs & \triangle & & & & & & \\ (251^{\circ}) & \underline{3000} & & & & & & & & & \\ \hline \end{array} & \begin{array}{ c c c c c c c c c c c c c c c c c c c$									
* MISSED APPROACH: Climb to 3700 on the RNAV missed approach route to PROOT and hold. EX from: 00262_RRY25L	$\begin{array}{ c c c c c c c c }\hline 3700 & IRONY & & & HUVED & tr & PROOT \\ \hline tr & 254^{\circ} & & & & & & & & & & \\ \hline tr & 254^{\circ} & & & & & & & & & & & \\ \hline \end{array}$									
* For RNPs that do not have the entire missed approach writte must still be shown in the icon boxes. Use the points as depi	an out in the textual description, the entire missed approach track icted on the procedure source document.									
-After the words "then", "direct", "and" are stated, the follow -If space is an issue, you only have to show the first 4 missed -Do not put "RADAR" in the missed approach icon boxes unl -Do not chart frequencies. -Never show the word "bearing" or the abbreviation "BRG" -Keep all the boxes the same height. Width can vary. -DME boats belong with a DME fix only. Do not put DME bo	NOTES ving instuctions belong in a new box. approach icon boxes. (per specs) ess the fix is a RADAR fix only. or "brg". Only show the navaid ident with the bearing value. pats with enroute fixes, or IAP only INTs.									

APPENDIX 13 LEGEND – AIRPORT DIAGRAM/SKETCH

LEGEND INSTRUMENT APPROACH	PROCEDURES (CHARTS)						
Hard Other Than Stopways, Taxiways, Metal Surface Hard Surface Parking Areas Surface X X X ZZZ :	Helicopter Alighting Areas (#) (H) (A) (H) (H) (H) (H) (H) (H) (H) (H) (H) (H						
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.	Runway TDZ elevationTDZE 123 Runway Slope ← 0.3% Down0.8% UP → (shown when rounded runway slope is ≥ 0.3%) NOTE:						
ARRESTING SYSTEM (EMAS)	Runway Slope measured to midpoint on runways 8000 feet or longer.						
REFERENCE FEATURES Displaced Threshold	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.						
Buildings	Approach light symbols are shown in the Flight Information Handbook.						
Tanks	Airport diagram scales are variable.						
Obstructions	True/magnetic North orientation may vary from diagram to diagram						
Bridges Control Tower #	Coordinate values are shown in 1 or ½ minute increments. They are further broken down into 6 second ticks, within each 1 minute increments.						
Wind Cone ► → Landing Tee ► ⇒	Positional accuracy within ± 600 feet unless otherwise noted on the chart.						
# When Control Tower and Rotating Beacon are co-located, Beacon symbol will be used and	Runway length depicted is the physical length of the runway (end-to-end, including displaced thresholds if any) but excluding areas designated as stopways.						
further identified as TWR. ## See appropriate Chart Supplement for information.	A D symbol is shown to indicate runway declared distance information available, see appropriate Chart Supplement for distance information.						
Runway Weight Bearing Capacity or Pavement Classification Number (PCN)/Pavement Classification Roting (PCR) is shown as a codified expression. Refer to the appropriate Supplement/Directory for applicable codes e.g., RWY 14-32 PCR 560 R/B/W/T; S-75, D-185, 2D-325, 2D/2D2-1120	NOTE: All new and revised airport diagrams are shown refer- enced to the World Geodetic System (WGS) (noted on appropriate diagram), and may not be compatible with local coordinates published in DoD FLIP. (Foreign Only)						
HS 1 AS 	The airport sketch box includes the final approach course or final approach course extended. Displaced Threshold Runway Visual Court Screen						
Runway End ELEV t Elevation 164 Runway Dimensions (in feet) R							
SCOI Airport diagrams are specifically designed to assist in the m runway/taxiway configurations. Airport diagrams are not in operations. For revisions to Airport Diagrams: Consult FAA	Movement Area Dimensions (in teet) PE ovement of ground traffic at locations with complex itended to be used for approach and landing or departure Order 7910.4.						
LEGEND							

APPENDIX 14 LEGEND – AIRPORT DIAGRAM/SKETCH LIGHTING SYSTEMS

INSTRUMENT APPROACH PROCEDURES (CHARTS) LEGEND 00000 APPROACH LIGHTING SYSTEM - UNITED STATES Approach lighting and visual glide slope systems are indicated on the airport sketch by an identifier, e.g., (🕲, 🕑, etc. A dot " • " portrayed with approach lighting letter identifier indicates sequenced flashing lights (F) installed with the approach lighting system e.g., 🚓 Negative symbology, e.g., 🖄 , 🛛 indicates Pilot Controlled Lighting (PCL). **MEDIUM INTENSITY** CATEGORY I SHORT APPROACH APPROACH LIGHTING SYSTEM APPROACH LIGHTING SYSTEM LIGHTING SYSTEM with Runway Alignment Indicator Lights (A2) (A2) SALS/SALSF (Āì) (Ā5) ALSF-1 MALSR GREEN RED ••••• RED GREEN 1000 ••••• GREEN 1500' RFD RED T ••••• 000 1000 ••••• ••••• ÷ SEQUENCED FLASHING WHITE LIGHTS FOR SALSF ONLY 2400 Ŧ (High Intensity) 2400'/300C WHITE WHITE LENGTH 1500 FEET SIMPLIFIED SHORT SEQUENCED -----APPROACH LIGHTING SYSTEM FLASHING SEQUENCED LIGHTS with Runway Alignment Indicator Lights FLASHING RAI LIGHTS (Ā3) SSALR GREEN LENGTH 2400 FEET ••••• (High Intensity) 000 OMNIDIRECTIONAL LENGTH 2400/3000 FEET APPROACH LIGHTING SYSTEM 2400'/3000 ٢ **ODALS** CATEGORY II WHITE APPROACH LIGHTING SYSTEM (Ā) WHITE SEQUENCED OMNI-ALSF-2 500 FLASHING DIRECTIONAL RAIL LIGHTS FLASHING LIGHTS GREEN ••• ••• -500 ••• -WHITE 1000 (High Intensity) ••• ••••• LENGTH 1500 FEET ••• ••• LENGTH 2400/3000 FEET ••••• ••• ••••• ••• RED ŘFD ••• ••• MEDIUM INTENSITY (MALS and RUNWAY TOUCHDOWN ZONE 2400'/3000 Ī MALSF) OR SIMPLIFIED SHORT AND CENTERLINE (SSALS and SSALF) LIGHTING SYSTEMS WHITE APPROACH LIGHTING SYSTEMS NOTE: CIVIL ALSF-2 MAY BE OPERATED (A) (A) TDZ/CL SEQUENCED AS SSALR DURING RUNWAY FLASHING -----FAVORABLE CENTERLINE LIGHTS WEATHER GREEN LIGHTS CONDITIONS •••• 1000 ••••• TDZL-400 TDZL (High Intensity) SEQUENCED LENGTH 2400/3000 FEET FLASHING LIGHTS FOR -400 WHITE MALSF/SSALF AVAILABILITY of TDZ/CL will be shown by ONLY NOTE in SKETCH e.g. "TDZ/CL Rwy 15" •••• LENGTH 1400 FEET

LEGEND 00000

APPENDIX 14

LEGEND – AIRPORT DIAGRAM/SKETCH LIGHTING SYSTEMS (CONTINUED)

LEGEND 00000

APPENDIX 15 LANDING MINIMA

IERMS/LANDING MINIMA DATA 00000												
	IFR LANDING MINIMA											
The United States S	andard for Te	rminal I	nstrumer	t Proced	ures (TEI	RPS) is th	e approv	ed criter	ia for fo	rmulatin	g instrun	nent
approach procedures. Landing minima are established for six aircraft approach categories (ABCDE and COPTER). In the absence of COPTER MINIMA, helicopters may use the CAT A minimums of other procedures.												
LANDING MINIMA FORMAT												
In this example airport elevation is 1179, and runway touchdown zone elevation is 1152. Visibility Aircraft Approach Category												
		<u> </u>		's of feet		-1			<u> </u>		ملا معند ال	
Straight-in ILS	CATEGORY	\mid	A		B	XI	С		`D	'	ninimums	ier sin
	► S-ILS 27		1352/	24	/	/ 200		(200-1/2)	110/50	F	parenthes	es not
Straight-in	- S-LOC 27	1	440/24	4	288	(3	800-1⁄2)	28	440750 88 (300-1		applicable Pilots.	e to Civil
with Glide Slope Inoperative or	CIRCLING	1. 361	540-1、 (400-1)	46	640-1 1 (500-1)	1 d 461	540-1½ (500-1½	2) 50	1 740-2 61 (600-:	2) '	Military P efer to a _l	ilots ppro -
not used to	MDA	НА	ÀA	Visi	ihility in S	Statute Mi	es			F	oriate reg	julations.
Runway 27	merit	11/-	~~	COPTER			(
	CATEGORY				(COPTER	-					
	H-176°				30-1/2	363	(400-)/	5)				
								No c	irclina min	imums are	provided	
Copt	er Approach D	irect i on			Heig Above Lo	ht of MDA anding Ai	\/DA rea (HAL)					
NOTE: The 💹 sym	bol indicates	outages	of the W	/AAS ver	rtical gui	dance m	ay occur	daily at	this locc	ition due	to initia	system
these locations, whe	NOTAMS for ther as a dest	vertical ination	outages or altern	are not p ate. For :	provided flight op	tor this c erations (approach at these	 Use LN ocations 	IAV mini . when t	ma tor t he WAA	light plaı S avioni	nning at cs
indicate that LNAV,	VNAV or LPV	' service	is availa	able, the	n vertica	guidana	e may b	e used to	comple	te the ap	proach	using
the displayed level As the WAAS cover	ot service. Sha raae is expan	ould an o ded, the	outage o will	ccur duri be remo	ing the p ved.	rocedure	, reversi	on to LN	AV mini	ma may	be requi	red.
RNAV minimums are	e dependent or	naviga	tion equip	oment ca	pability,	as stated	in the ap	plicable .	AFM, AF	MS, or o	ther FAA	
approved document.	See AIM par	agraph :	5-4-5, AG	2 90-105	and ÁC	90-107	for detail	ed requir	ements f	or each l i	ine of mi	nima.
			<u></u>	LD TEMP	ERATUR	E AIRPC	RTS					
NOTE: A 👪-12°C	symbol indice	ates a co blished	old temperat	erature a ure. See	the follo	orrection wing Co	is requir Id Tempe	ed at thi rature E	s airpor rror Tab	t when re	eported	al
corrections. Advise	ATC with altit	ude cori	rection. A	Advising	ATC with	n altitude	correcti	ons is no	t require	ed in the	final sec	gment.
See Aeronautical Information Manual (AIM), Chapter 7, for guidance and additional information. For a complete list, see												
http://www.faa.go	the "Cold Temperature Airports" link under the Additional Resources heading at the bottom of the following page: http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dtpp/search/											
			COL) TEMPE	RATURF	FRROR	TABLE					
			HEI	GHT ABC	OVE AIR	PORT IN	FEET					
200 3	0 400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
e^{+10} 10 10 1	0 10	30	20 40	20 	20	50	60	30 90	40	60 170	230	280
≝ -10 20 3	0 40	50	60	70	80	90	100	150	200	290	390	490
-20 30 5	60	70	90	100	120	130	140	210	280	420	570	710
<u>-30 40 6</u> <u>-40 50 8</u>	0 80	120	120	140	150	220	240	360	380 480	570 720	970	950
· · · · · · · · · · · · · · · · · · ·	0 120	150	180	210	240	270	300	450	590	890	1190	1500
			٨IP	°PAFT A		ан сате	GORIES					
Aircraft approach	ateaory indic	ates a a	rouping	of aircra	ift based		ed of VF	 REF. if so	ecified.	or if VRE	F not sp	ecified.
1.3 VSO at the ma	ximum certific	ated lan	iding we	ight. VRE	F, VSO,	and the	maximu	n certific	ated lan	ding we	ight are	those
values as establishe	ed tor the airc t shall fit in on	ratt by t Iv one c	he certiti	cation au When n	uthority o	of the cou	untry of r	egistry. I ircraft at	Helicopto an airsr	ers are C beed in e	ategory	A the
maximum airspeed	of its certified	aircraf	t approa	ch categ	ory, pilo	ts should	use the	applicab	le highe	r catego	ry minim	ia.
For additional optic	ons and to ens	ure the	aircraft ı	remains	within pr	otected c	airspace,	consult	the AIM.	See fol	owing	
calegory limits:				MAN	IEUVERI	NG TABI	LE					
Approach	Category	Α				C	_	D		F		
Speed (K	nots)	0-9	0	91-1	20	121-1	40	141-1	65	Abv	165	

TERMS/LANDING MINIMA DATA 00000

A-21

APPENDIX 15 LANDING MINIMA (CONTINUED)

TERMS/LANDING MINIMA DATA 00000

CIRCLING APPROACH OBSTACLE PROTECTED AIRSPACE

The circling MDA provides vertical obstacle clearance during a circle-to-land maneuver. The circling MDA protected area extends from the threshold of each runway authorized for landing following a circle-to-land maneuver for a distance as shown in the tables below. The resultant arcs are then connected tangentially to define the protected area.

STANDARD CIRCLING APPROACH MANEUVERING RADIUS

Circling approach protected areas developed prior to late 2012 used the radius distances shown in the following table, expressed in nautical miles (NM), dependent on aircraft approach category. The approaches using standard circling approach areas can be identified by the absence of the result symbol on the circling line of minima.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)						
	CAT A	CAT B	CAT C	CAT D	CAT E		
All Altitudes	1.3	1.5	1.7	2.3	4.5		

EXPANDED CIRCLING APPROACH MANEUVERING AIRSPACE RADIUS

Circling approach protected areas developed after late 2012 use the radius distance shown in the following table, expressed in nautical miles (NM), dependent on aircraft approach category, and the altitude of the circling MDA, which accounts for true airspeed increase with altitude. The approaches using expanded circling approach areas can be identified by the presence of the C symbol on the circling line of minima.

Circling MDA in fact MSI	Approach Category and Circling Radius (NM)							
Circling MDA in leer MSL	CAT A	CAT B	CAT C	CAT D	CAT E			
1000 or less	1.3	1.7	2.7	3.6	4.5			
1001-3000	1.3	1.8	2.8	3.7	4.6			
3001-5000	1.3	1.8	2.9	3.8	4.8			
5001-7000	1.3	1.9	3.0	4.0	5.0			
7001-9000	1.4	2.0	3.2	4.2	5.3			
9001 and above	14	21	3.3	4 4	5.5			

Comparable Values of RVR and Visibility

The following table shall be used for converting RVR to ground or flight visibility. For converting RVR values that fall between listed values, use the next higher RVR value; do not interpolate. For example, when converting 4800 RVR, use 5000 RVR with the resultant visibility of 1 mile.

RVR (feet)	Visibility (SM)						
1600	1⁄4	2400	1⁄2	3500	5/8	5500	1
1800	1/2	2600	1/2	4000	3⁄4	6000	11/4
2000	1/2	3000	5/8	4500	7⁄8		
2200	1/2	3200	5/8	5000	1		

RADAR MINIMA

	RWY GP/TCH/RP	САТ	DA/ MDA-VIS	HAT/ HAA	CEIL-VIS	САТ	DA/ MDA-VIS	HAT/ HAA	CEIL-VIS	
PAR	10 2.5°/42/1000) ABCDE	195 /16	100	(100-1/4)			Visibi	lity	
	28 2.5°/48/1068	B ABCDE	187 /16	100	(100-¼)			/ (RVR	100's of feet)	
ASR	10	ABC	560 /40	463	(500-¾)	DE	560 /50	463	(500-1)	
	28	AB	600 /50	513	(600-1)	CDE	600 /60	513	(600-1¼)	
CIR	10	AB	560- 1¼	463	(500-1¼)	CDE	560- 1½	463	(500-1½)	
	28	AB	600- 1¼	503	(600-1¼)	CDE	600- 1½	503	(600-1½)	
Radar Mii	Visibility nima:	in Statute I	Miles /		All r Pilot	minimums ts. Milita	s in parenthes ry Pilots refer	ses not c to appr	applicable to Cir opriate regulat	vil ions
1. Minim	a shown are the lowest	permitted b	oy established	d criteria.	Pilots should	consult c	ipplicable dir	ectives	for their catego	ry

of aircraft.

2. The circling MDA and weather minima to be used are those for the runway to which the final approach is flown- not the

The circling MDA and weather minima to be used are those for the runway to which the final approach is flown- not the landing runway. In the above RADAR MINIMA example, a category C aircraft flying a radar approach to runway 10, circling to land on runway 28, must use an MDA of 560 feet with weather minima of 500-1½.
 NOTE: Military RADAR MINIMA may be shown with communications symbology that indicates emergency frequency monitoring capability by the radar facility as follows: (E) VHF and UHF emergency frequency (121.5) monitored (V) VHF emergency frequency (124.30) monitored
 Additionally, unmonitored frequencies which are available on request from the controlling agency may be annotated with an "x".

A Alternate Minimums not standard. Civil users refer to tabulation. USA/USN/USAF pilots refer to appropriate regulations.

A NA Alternate minimums are Not Authorized due to unmonitored facility or absence of weather reporting service.

Airport is published in the Takeoff Minimums, (Obstacle) Departure Procedures, and Diverse Vector Area (Radar Vectors) tabulation.

TERMS/LANDING MINIMA DATA 00000

APPENDIX 16 ILS

APPENDIX 17 ILS OR LOC

APPENDIX 18 ILS OR LOC/DME W/ALTERNATE MISSED APPROACH

APPENDIX 19 ILS/DME

APPENDIX 20 ILS WITH RNAV ELEMENTS

APPENDIX 21 ILS OR LOC – PARENT CHART 1

APPENDIX 22 SA ILS APPROACH – CAT I

APPENDIX 23 ILS CAT II & III

APPENDIX 24 ILS OR LOC – PARENT CHART 2

APPENDIX 25 SA ILS APPROACH – CAT I & II

APPENDIX 26 ILS OR LOC – PARENT CHART 3

APPENDIX 27 ILS CAT II

APPENDIX 28 ILS OR LOC – PARENT CHART 4



IAC 4

APPENDIX 29 SA ILS APPROACH – CAT II



APPENDIX 30 PRM APPROACH AAUP

	AL-375 (FAA) SAN FRANCISCO INTL (SFO) SAN FRANCISCO, CALIFORNIA			
	ATTENTION ALL USERS PAGE (AAUP)			
	Pilots who are unable to participate will be afforded appropriate arrival services as operational conditions permit and must notify the controlling ATC facility as soon as practical, but at least 100 miles from destination.			
	Simultaneous PRM approaches will only be offered/conducted when the weather is at least 1600 feet (ceiling) and 4 miles (visibility).			
	ILS PRM Rwy 28L RNAV (GPS) PRM Rwy 28L LDA PRM Rwy 28R RNAV (GPS) PRM X Rwy 28R			
	General			
	Review procedure for executing a climbing and descending PRM breakout			
	Breakout phraseology: "TRAFFIC ALERT (call sign) TURN (left/right) IMMEDIATELY HEADING (degrees) CLIMB/DESCEND AND MAINTAIN (altitude)."			
SI	All breakouts: Hand flown, initiate immediately.	8		
N-2, 01 F	Descending on the glideslope/glidepath ensures compliance with any charted crossing restrictions.	MAR 20		
EB 2018 to 01 MAR 2	Dual VHF Comm.: When assigned or planning a specific PRM approach, tune a second receiver to the PRM monitor frequency or, if silent, another active frequency (i.e. ATIS), set the volume, retune the PRM frequency if necessary, then deselect the audio. When directed by ATC, switch to the appropriate approach control frequency and select the second receiver audio to ON. Runway 28R: NORCAL approach 120.35 Runway 28L: NORCAL approach 135.65	2, 01 FEB 2018 to 01		
018	If later assigned the same runway, non-PRM approach, consider it briefed provided the same minimums are utilized. PRM related chart notes and PRM frequency no longer apply.	SW-		
	TCAS during breakout: Follow TCAS climb/descend if it differs from ATC, while executing the breakout turn.			
	Runway Specific			
	 ILS PRM Rwy 28L: Straight-in Approach Briefing Points: (Note: Identify NEPIC WP as 3.3 NM from Rwy 28L WP if not in the FMC approach coding.) Inside NEPIC, descending on (not above) the glidepath benefits the trailing 28R aircraft to avoid wake turbulence. Other aircraft may be conducting the PRM approach to runway 28R. These aircraft will approach from the right-rear and will re-align with runway 28R after making visual contact with the runway 28L landing traffic. Expect to be switched to SFO tower at NEPIC. PRM monitor frequency may be de-selected after determining that the aircraft is on the tower frequency. 			
	CONTINUED ON FOLLOWING PAGE			
	PRM APPROACH AAUP 17341 37°37′N-122°23′W SAN FRANCISCO, CALIFORNIA SAN FRANCISCO INTL (SFO)			

APPENDIX 30 PRM APPROACH AAUP (CONTINUED)

PRM APPROACH AAUP	AL-375 (FAA)	SAN FRANCISCO INTL (SFO) San francisco, california			
CONT	INUED FROM PREVIOUS	S PAGE			
LDA PRM Bwy 288: Offset Approa					
Briefing Points: (Note: Identify DARNE • If required, develop a wake mitige operating visually in close proxim and collision avoidance.	as I-FNP LOC/DME 4 NM i ation strategy as soon as pro ity to the 28L aircraft and wi	ot in the FMC approach coding.) cal. Inside DARNE pilots will be pe responsible for wake turbulence			
Descending on the glideslope ensu Continuing past DARNE requires	ures compliance with any ch reporting the 28L traffic in si	arted crossing restrictions. ight (ATC need not respond), and			
 Remain on the LDA until passing I Expect to be switched to SFO towards 	DARNE so as not to penetrat er at DARNE.	te the NTZ.			
PRM monitor frequency may be defrequency.	e-selected after determining	that the aircraft is on the tower			
 After passing DARNE, DO NOT F Glideslope valid to the runway thr If executing a go-around between right turn heading 030° unless off OAK VOR/DME, if depicted on a approach procedure unless otherw 	7455. reshold. DARNE and runway 28R th nerwise instructed by ATC. N map display, is for reference vise instructed by ATC.	nreshold, initially establish a climbing Aissed approach leg from airport to ce only. Follow IAP published missed			
RNAV (GPS) PRM Rwy 28L: Straight-	in Approach				
Briefing Points: (Note: Identify NEPIC WP Monitor descent path to ensure that VDA is 2.85° between all waypoints Inside NEPIC, descending on (not ab	as 3.3 NM from Rwy 28L Wf fix crossing requirements are a on the final approach course pove) the vertical path benefits	P it not in the FMC approach coding.)			
 Other aircraft may be conducting the the right-rear and will re-align with r Expect to be switched to SFO tower PRM monitor frequency may be de-s 	e PRM approach to runway 28 runway 28R after making visu at NEPIC. elected after determining that	BR. These aircraft will approach from al contact with the runway 28L traffic. the aircraft is on the tower frequency.			
RNAV (GPS) PBM X Bwy 28B: Offset	Approach				
Briefing Points: (Notes: Non-standard RN Identify DARNE V • If required, develop a wake mitigatic be operating visually in close proxim collision avoidance	IAV Missed Approach coding VP as 3.4 NM from CFFKC W on strategy as soon as practice ity to the 28L aircraft and will	initially requires use of heading mode. IP if not in the FMC approach coding.) al. After passing DARNE WP, pilots will be responsible for wake turbulence and			
VDA is 3° between all waypoints on Continuing past DARNE requires rep	the final approach course. porting the 28L traffic in sight ((ATC need not respond), and seeing			
Remain on the RNAV track until pass Expect to be switched to SFO tower	sing DARNE WP so as not to p at DARNE WP.	penetrate the NTZ.			
 After passing DARNE, DO NOT PAS The VNAV path is valid to the runwa PRM monitor frequency may be dess If executing a missed approach or gir CAUTION: Missed approach leg fro reference only. Follow IAP published 	SS. ay threshold. elected after determining that o-around, initially establish a (m airport to OAK VOR/DME, missed approach procedure)	the aircraft is on the tower frequency. climbing right turn heading 030°. if depicted on a map display, is for unless otherwise instructed by ATC.			
		SAN FRANCISCO, CALIFORNIA			
17341	37°37′N-122°23′W	SAN FRANCISCO INTL (SFO)			

APPENDIX 31 ILS PRM (CLOSE PARALLEL)



APPENDIX 32 ILS V (CONVERGING)



APPENDIX 33 ILS WITH TERRAIN ELEVATIONS DEPICTED



APPENDIX 34 TEARDROP TURN



APPENDIX 35 GLS



APPENDIX 36 LOC



APPENDIX 37 LOC – BACK COURSE



APPENDIX 38 LOC/DME – BACK COURSE



APPENDIX 39

LOC/DME – BACK COURSE USED OTHER THAN AS PROCEDURE FACILITY (PRIMARY)



APPENDIX 40 LDA/DME



APPENDIX 41 SDF



APPENDIX 42 VOR/DME



APPENDIX 43 VOR/DME ARC



APPENDIX 44 CONCENTRIC RING DEPICTION





APPENDIX 46 TACAN





APPENDIX 48 NDB WITH DME





APPENDIX 50 RNAV (GPS)



APPENDIX 51 RNAV (GPS) WITH MULTIPLE SCALE BREAKS



APPENDIX 52 RNAV (RNP) WITH INSET





APPENDIX 54 GPS WITH ARMED APPROACH





APPENDIX 56 COPTER – ILS CAT II



APPENDIX 57 COPTER – NDB



APPENDIX 58 COPTER – RNAV (GPS)



APPENDIX 59 COPTER - RNAV (GPS) – MULTI HELIPORTS WITHOUT AIRPORT DIAGRAM



APPENDIX 60 COPTER – POINT-IN-SPACE



APPENDIX 61 COPTER – POINT-IN-SPACE WITH INSET



APPENDIX 62 VISUAL (CVFP)




APPENDIX 63 AIRPORT DIAGRAM CHART (TPP) – FORMAT





APPENDIX 65 AIRPORT DIAGRAM WITH INSET





APPENDIX 67 SINGLE TOUCHDOWN ZONE ELEVATION



APPENDIX 68 MULTIPLE TOUCHDOWN ZONES ELEVATIONS



APPENDIX 69 NON-COINCIDENT PROFILE NOTE



APPENDIX 70 RNAV (RNP) PROFILE DEPICTION



APPENDIX 71 APPROACH WITH HOLDING PATTERN WITH ALTITUDE



APPENDIX 72 COMPLEX MISSED APPROACH ICONS



APPENDIX 73 SEAPLANE BASE – RNAV APPROACH PLATE





APPENDIX 75 SEAPLANE BASE – NDB APPROACH PLATE



APPENDIX 76 SEAPLANE BASE – NDB LANDING PLATE



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