Federal Aviation Administration

## UNITED STATES GOVERNMENT SPECIFICATIONS

# FLIGHT INFORMATION PUBLICATION
# TERMINAL PROCEDURES PUBLICATION

**IAC 17**
**25 July 2025**

**Prepared by the Interagency Air Committee (IAC)**

OK-10-1818

# UNITED STATES GOVERNMENT SPECIFICATIONS FOR THE FLIGHT INFORMATION PUBLICATION TERMINAL PROCEDURES PUBLICATION

**25 July 2025**

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 Terminal Procedures Publication. 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 888 - Guidance for Processing Minima-Related Notes on IAPs

### EDITORIAL CHANGES

**a.** None applied this edition

## CHANGES APPLIED 20 MAY 2025

### REQUIREMENT DOCUMENTS

**a.** None applied this edition

### EDITORIAL CHANGES

**a.** EC 24-14 Charting of Alternate Airport Minimums
**b.** EC 24-16 Alternate Minimums TPP Legend Information

## CHANGES APPLIED 12 MAY 2025

### REQUIREMENT DOCUMENTS

**a.** RD 878 - Removal of Taxiway Data from IAP Airport Sketch
**b.** RD 879 - Removal of Circling Icon from the Terminal Procedures Publication (TPP)
**c.** RD 884 - Removal of 67:1 Slope Obstacles on Instrument Approach Procedures (IAP) and Removal of the Highest Obstacles from IAPs and Airport Diagrams (AD)

### EDITORIAL CHANGES

**a.** None applied this edition

## CHANGES APPLIED 11 MARCH 2025

### REQUIREMENT DOCUMENTS

**a.** RD 880 - Rate of Climb and Rate of Descent Tables

### EDITORIAL CHANGES

**a.** EC 24-17 - TPP Inside Back Cover

## CHANGES APPLIED 13 JANUARY 2025

### REQUIREMENT DOCUMENTS

**a.** RD 885 - Conflicting AutoPilot ILS Notes on Inoperative Components or Visual Aids Table

### EDITORIAL CHANGES

**a.** None applied this edition

## CHANGES APPLIED 28 OCTOBER 2024

### REQUIREMENT DOCUMENTS

**a.** None applied this edition

### EDITORIAL CHANGES

**a.** EC 24-10 – Update Specification References to IAC 9

## CHANGES APPLIED 16 APRIL 2024

### REQUIREMENT DOCUMENTS

**a.** None applied this edition

### EDITORIAL CHANGES

**a.** EC 23-13 – Clarification of TPP Legend Text for Pilot Controlled Lighting
**b.** EC 24-04 – FAA-O Clarification

## CHANGES APPLIED 6 OCTOBER 2023

### REQUIREMENT DOCUMENTS

**a.** RD 844 – Modification of Hot Spot Depiction
**b.** RD 869 – Removal of AL Numbers on Military Charts

### EDITORIAL CHANGES

**a.** None applied in this edition

## CHANGES APPLIED 30 AUGUST 2023

### REQUIREMENT DOCUMENTS

**a.** RD 860 – Pilot Controlled Lighting on IAPs

### EDITORIAL CHANGES

**a.** None applied in this edition

## CHANGES APPLIED 30 AUGUST 2023

### REQUIREMENT DOCUMENTS

**a.** None applied in this edition

### EDITORIAL CHANGES

**a.** EC 23-08 – TPP Index Abbreviations

Page Intentionally Left Blank

# 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. AMENDMENT SYSTEM

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

Page Intentionally Left Blank

# TABLE OF CONTENTS

# CHAPTER 1
# GENERAL

## 1.1 PURPOSE AND SCOPE

The purpose of these specifications is to provide appropriate guidelines to effect uniformity and standardization of content and portrayal techniques in the preparation and production of the U.S. Low Altitude Terminal Publication for use by both civil and military pilots.

## 1.2 REQUIREMENTS

### 1.2.1 General

The Terminal Procedures Publication will be produced on the Aeronautical Information Regulation and Control (AIRAC) cycle at 56 day intervals in perfect bound form and loose-leaf form.

Information shall be presented in textual, tabulated, and graphic form, normally printed to read parallel to the top edge of the publication.

Standard Taxi Route Charts, Charted Visual Flight Procedures (CVFP) and Instrument Approach Procedure (IAP) charts shall be produced in accordance with IAC 4.

Airport Diagrams shall be produced in accordance with IAC 9.

Graphic Instrument Departure Charts, including both Standard Instrument Departures (SIDs) and Graphic Obstacle Departure Procedures (ODPs), shall be produced in accordance with IAC 7.

Standard Terminal Arrival (STAR) charts shall be produced in accordance with IAC 14.

NOTE: Civil IAPs and associated data covering Hawaii and the Pacific Islands are published in the Pacific Chart Supplement.

**Note:** DOD High Altitude Instrument Approach Procedure Charts shall be produced in accordance with DOD product specification PS/1FA/091. The DOD Flight Information Publication, Instrument Approach/Departure Procedures-U.S., Terminal Change Notices (TCN), and Unscheduled Change Notices (UCN) shall be prepared and issued in accordance with the criteria described in the DOD Annex to IAC 4, Product Specification for FLIP Low Altitude IAP Worldwide.

### 1.2.2 Type Style

Type style will be Futura Medium unless otherwise specified.

## 1.3 QUALITY AND ACCURACY

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

Type style, symbols, and line weights as illustrated herein, shall be adhered to. Type size may be varied when absolutely necessary.

## 1.4 APPENDICES

Appendices at the end of these specifications shall be used as a guide in the preparation of the U.S. Terminal Procedures Publications.

## 1.5 REFERENCES

Catalog of Photon Type Faces.

IAC 4, United States Government Specifications, Flight Information Publication - Instrument Approach Procedures.

IAC 7, United States Government Specifications, Flight Information Publication - Graphic Instrument Departure Procedure (DP) Charts.

IAC 9, United States Government Specifications, Flight Information Publication – Airport Diagrams.

IAC 14, United States Government Specifications, Flight Information Publication - Standard Terminal Arrival Charts.

DOD Annex to IAC 4, Product Specification for DOD Flight Information Publication (FLIP), Low Altitude Instrument Approach Procedures Worldwide.

DOD High Altitude Instrument Approach Procedures PS/1FA/091.

# CHAPTER 2
# LAYOUT AND FORMAT

## 2.1 GENERAL

The Terminal Procedures Publication (TPP) shall be published as volumes, by geographical areas, in both bound and loose-leaf formats. The Change Notice (CN) volume shall be published in bound format only.

Each item of information carried has its own basic layout and format as described in the references cited in **Appendix 1**.

Pages shall be printed back to back, head to toe.

The publication shall be printed in black and brown ink.

These specifications address the terminal product for the U.S., Puerto Rico, and Virgin Islands.

## 2.2 SIZE AND DIMENSIONS

The size and dimensions of the publication shall be as indicated in **Appendix 1** for the TPP and **Appendix 17** for the CN.

## 2.3 COVERS (TPP)

### 2.3.1 Outside Front Cover

Font, style, size, shade and position shall be as indicated in **Appendix 1**. The front cover shall contain the following information, positioned as illustrated on **Appendix 1**.

The publishing agency and seal shall be shown in white type on a blue background strip located at the top of the cover.

The title shall be identified according to the volume, e.g.,

**Example:** U.S. Terminal Procedures
Publication
Northeast (NE) Vol 3 of 4

The dates on the cover shall reflect the effective Z (Zulu) time and date, and the expiration Z time and date of the aeronautical data. Dates shown shall consist of the day, month, and year; e.g. 00 JUL 0000. Names of the months shall be abbreviated to the first three letters as appropriate.

The “Consult Change Notice” note shall be shown below the effective dates. This note shall not be included on the cover of the Alaska Terminal Procedures Publication.

The area of coverage applicable to each volume shall be shown in blue, with boundaries and identification text in white.

The “Consult NOTAMs for the latest information” note shall be shown below the State(s) graphic.

The “Consult/Subscribe to FAA Safety Alerts and Charting Notices at (URL to current Safety Alerts and Charting Notices website here)” note shall be shown below the “Consult NOTAMs” note.

The IAC credit note “Published from digital files compiled in accordance with Interagency Air Committee specifications and agreements approved by Department of Defense and the Federal Aviation Administration” shall be shown following the Safety Alerts note.

References:

**Appendix 1** - Outside Front Cover

### 2.3.2 Backbone Identification

The backbone of each bound volume shall show the volume identification, e.g. VOL NE-3, the area of coverage (states or areas abbreviated), the current date and the next issue date (abbreviated). Dates shall be separated by the word “TO”, e.g. 00 JUN 00 to 00 AUG 00.

References:

**Appendix 1** - Outside Front Cover

### 2.3.3 Inside Front Cover

The Inside Front Cover shall contain the “Table of Contents”, the “CORRECTIONS, COMMENTS, AND/OR PROCUREMENT” information.

References:

**Appendix 2** - Inside Front Cover

### 2.3.4 Outside Back Cover

The Outside Back Cover shall provide an “AREA OF COVERAGE” chart showing the boundaries of each volume. State coverage that has been split into more than one volume will be depicted by a degree of latitude and/or longitude. For reference, some city names will be added with reference points.

A QR Code shall be provided.

References:

**Appendix 3** - Outside Back Cover (U.S.)

**Appendix 4** - Outside Back Cover (Alaska)

### 2.3.5 Inside Back Cover

The Inside Back Cover shall contain the words “INSIDE BACK COVER” using 24-point type, positioned on a single line at the top portion of the page. Below this, the text “INTENTIONALLY LEFT BLANK” will be shown using 20-point type. This text shall be shown using three lines and shall be centered in the middle portion of the page so that the word “BLANK” will be at the center of the page.

References:

**Appendix 16** - Inside Back Cover

## 2.4 ARRANGEMENT (TPP)

### 2.4.1 General

The content shall be arranged as specified below.

**Table 2.1 TPP Arrangement**

| | |
|---|---|
| Inside Front Cover | Table of Contents, Contact, & Published by Information |
| A1 | Inoperative Components or Visual Aids Table |
| B1 | Explanation of Terms/Landing Minima Data |
| C1 | General Information |
| D1 | Abbreviations |
| E1 | Legend - IAP Planview |
| F1 | Legend - IAP Profile |
| G1 | Legend - Standard Terminal Arrival Charts |
| G2 | Legend - Departure Procedure Charts |
| H1 | Legend - Airport Diagram/Sketch |
| I1 | Legend - Approach Lighting Systems |
| J1 | Supplemental Tables - Frequency Pairing |
| J2 | Supplemental Tables -Rate of Climb Table |
| J3 | Supplemental Tables - Rate of Descent Table |
| K1 | Index of Terminal Charts and Minimums |
| L1 | IFR Takeoff Minimums, Departure Procedures, and Diverse Vector Area (Radar Vectors) |
| M1 | IFR Alternate Airport Minimums |
| N1 | Radar Minimums |
| O1 | Land and Hold-Short Operations (LAHSO) |
| P1 | Hot Spots |
| Z1 | Standard Terminal Arrival Charts |
| Page 1 | Terminal Charts |
| Inside Back Cover | Rate of Climb/Descent Table |
| Outside Back Cover | Area of Coverage |

References:

**Appendix 2** - Inside Front Cover

### 2.4.2 Page Numbering

All pages shall be numbered at the unpunched or unbound end only, with the page numbers centered at the top or bottom of the chart as appropriate.

The inside front, inside back, and back cover shall not be numbered.

The supplemental pages, including STARs, shall be lettered and numbered, using 9 point Arabic type. Within the volumes the supplemental pages will be subdivided by Section and each Section shall be lettered and numbered, e.g., "TERMS/LANDING MINIMA DATA" will be page B1 through B3. Page numbers shall be centered .20" above or below the neatline of the top or bottom of the page as appropriate.

Chart pages shall be numbered using 7 point type.

### 2.4.3 Blank Pages

Pages left blank shall be labeled "INTENTIONALLY LEFT BLANK" using 18 point type. The words "INTENTIONALLY LEFT BLANK" shall be shown, using three lines, and shall be centered in the upper portion of the page so that the word "BLANK" will be at the center of the page.

The .010" neatline shall be shown.

The "INTENTIONALLY LEFT BLANK" pages shall not be identified in the Table of Contents.

Blank pages required to complete a signature, and included after the last numbered chart page, shall not be numbered or identified.

The first IAP chart will always be a facing page. If there is a blank page preceding the first chart, it will be identified as "Intentionally Left Blank".

References:

**Appendix 16** - Inside Back Cover

### 2.4.4 Supplemental Pages

Supplemental Pages shall be identified at the top and bottom of each page in accordance with the format and point type shown in **Appendix 24**.

### 2.4.5 Takeoff, Alternate, and Radar Minimums

Civil Takeoff, Alternate and Radar Minimums shall be arranged in alphabetical order by city and airport name. Military Takeoff and Radar Minimums shall be arranged in alphabetical order by airport and city 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. In all other cases, the airport name will be extracted verbatim from the authoritative database.

### 2.4.6 Land and Hold Short Operations (LAHSO)

LAHSO entries shall be arranged by city and airport name as extracted verbatim from the authoritative database. Abbreviations will be alphabetized by the abbreviation with the exception of "St", e.g., St Louis as Saint Louis.

### 2.4.7 Hot Spots

Hot Spot entries shall be arranged by city and airport name as extracted verbatim from the authoritative database. Abbreviations will be alphabetized by the abbreviation with the exception of "St", e.g., St Louis as Saint Louis.

### 2.4.8 STAR Charts

Star Charts shall be arranged in alphabetical order by procedure name.

### 2.4.9 Date of Last Revision

The latest revision date (Julian) shall be shown on all pages other than the outside covers, using 7 point type, e.g., 99014, as shown in the Appendices. This date reflects the latest revision of any type made to that page.

### 2.4.10 Date of Last Procedural Revision

The AIRAC date of the last procedural (upnumber or upletter) revision applied to the chart, shall be shown using 7 point type, e.g., 25JUN15 as shown in the Appendices on Instrument Approach Procedure Charts, Takeoff Minimum and (Obstacle) Departure Procedures, Diverse Vector Area (Radar Vectors), RADAR Minimums, Graphic Instrument Departure Procedures, Standard Terminal Arrival charts, and Charted Visual Flight Procedure charts.

## 2.5 CONTENT (TPP)

### 2.5.1 Table of Contents

The Table of Contents shall be located on the inside front cover.

### 2.5.2 Inoperative Components or Visual Aids Table

The Inoperative Components or Visual Aids Table shall be formatted as indicated in **Appendix 5**

### 2.5.3 Explanation of Terms/Landing Minima Data

These pages shall contain "IFR LANDING MINIMA", "LANDING MINIMA FORMAT", "COPTER MINIMA", "RNAV (GPS) MINIMA", "CIRCLING APPROACH PROTECTED AIRSPACE", "AIRCRAFT APPROACH CATEGORIES", "MANUEVERING TABLE", "COMPARABLE VALUES OF RVR AND VISABILITY", "RADAR MINIMA" information, and other related terms and information as necessary.

References:

**Appendix 6** - Explanation of Terms/Landing Minima Data

### 2.5.4 General Information

The General Information pages shall contain the information positioned as illustrated in **Appendix 7**.

### 2.5.5 Abbreviations

A listing of abbreviations shall appear in accordance with **Appendix 8**.

### 2.5.6 Legends

All terminal procedures symbology shall be depicted and identified in legends arranged in the following sequence (content and arrangement will be in accordance with the indicated IAC specification):

- Instrument Approach Procedures Planview Symbols (IAC 4).
- Instrument Approach Procedures Profile (IAC 4)
- Standard Terminal Arrivals (IAC 14)
- Graphic Instrument Departures (IAC 7)
- Airport Diagram/Airport Sketch (IAC 4 & 9)
- Approach Lighting Systems (IAC 4)

### 2.5.7 Frequency Pairing Table

Content and format shall be as indicated in **Appendix 9**.

### 2.5.8 Rate of Climb Table and Rate of Descent Table

Content and format shall be as indicated in **Appendix 10** and **Appendix 11**.

### 2.5.9 Index of Terminal Charts and Minimums

An index shall be prepared for each geographical area and shall be current with each issue of charts.

References:

**Appendix 12** - Index of Terminal Charts and Minimums

**Appendix 13** - Index of Terminal Charts and Minimums - Complex

#### 2.5.9.1 Index Make-up

The index shall be a columnized listing of charts, takeoffs, alternates, radar minima, LAHSO and Hot Spots arranged in alphabetical order by the associated city followed by the airport name. Military airports are arranged alphabetically by the airport name followed by the associated city.

When there is more than one airport associated with a city, the airports will be arranged under the city name in alphabetical order by the first word in the official airport name. When the first word of an airport name 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. In all other cases, the airport name will be extracted verbatim from the authoritative database.

The airport identifier will be placed in parenthesis after the airport name (FAA designator for civil airports, ICAO designator for military airports). Airports outside the contiguous United States will be shown with the FAA designated identifier in parenthesis followed by the ICAO location indicator in parenthesis.

The index shall be a columnized listing (2 columns per page) of charts and their page numbers contained in the publication arranged in accordance with the Table of Contents.

### 2.5.9.2 Cross References

Cross references within the index will be provided as follows:

- Airport names will be cross-referenced to the city.
- Military airports will be cross-referenced from the city and installation name as appropriate.
- Civil Airports commonly associated with a city listed in another volume shall be cross-referenced; e.g.,

CINCINNATI, OH
GREATER CINCINNATI INTL-SEE COVINGTON, KY
VOL SE-1

Continuation pages will not be listed in the index.

### 2.5.9.3 Format/Index Entries

The basic format is shown in **Appendix 12** and **Appendix 13**. DoD High/Low Altitude procedures shall be included in the appropriate volume. DoD High Altitude procedures shall precede Low Altitude procedures. Each entry in the index will include the following information where applicable in the indicated order:

**Table 2.2 Order of Index Entries**

| | |
|---|---|
| Takeoff Minimums | |
| Diverse Vector Area (Radar Vectors) | |
| Alternate Airport Minimums | |
| Radar Minimums | |
| LAHSO | |
| Hot Spots | |
| STAR Charts | |
| IAPs | |
| | ILS or LOC |
| | ILS |
| | ILS (SA CAT I) |
| | ILS (SA CAT I & II) |
| | ILS (CAT II) |
| | ILS (CAT II & III) |
| | ILS (SA CAT II) |
| | ILS/DME |
| | ILS V (CONVERGING) |
| | GLS |
| | RNAV (RNP) |
| | RNAV (GPS) |
| | GPS |
| | LOC/DME |
| | LOC |
| | LOC/BC |
| | LDA |
| | SDF |
| | VOR/DME |
| | VOR/DME OR TACAN |
| | VOR |
| | VOR or TACAN |
| | TACAN |

**Table 2.2 Order of Index Entries (Continued)**

| | |
|---|---|
| | NDB/DME |
| | NDB |
| | COPTER ILS OR LOC |
| | COPTER ILS |
| | COPTER LOC/DME |
| | COPTER LOC |
| | COPTER LDA |
| | COPTER RNAV |
| | COPTER VOR/DME |
| | COPTER VOR |
| | COPTER TACAN |
| | COPTER NDB |
| | LORAN-C |
| | PRM AAUP |
| | ILS PRM |
| | ILS PRM (SA CAT I) |
| | ILS PRM (SA CAT I & II) |
| | ILS PRM (CAT II) |
| | ILS PRM (CAT II & III) |
| | ILS PRM (SA CAT II) |
| | GLS PRM |
| | RNAV (RNP) PRM |
| | RNAV (GPS) PRM |
| | LDA PRM |
| CVFP | |
| | CHARTED VISUAL |
| AIRPORT DIAGRAM | |
| DPS | |
| | RNAV DEPARTURE AAUP |
| | DEPARTURE (OBSTACLE) |
| | DEPARTURE |
| | DEPARTURE (COPTER) |

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

Refer to IAC 4 for content and format.

### 2.5.11 IFR Alternate Airport Minimums

Refer to IAC 4 for content and format.

### 2.5.12 Radar Minimums

Refer to IAC 4 for content and format.

### 2.5.13 Land and Hold Short Operations (LAHSO)

Content and format shall be as indicated in **Appendix 14**.

### 2.5.14 Hot Spots

Hot Spot content and format shall be as indicated in **Appendix 15**.

### 2.5.15 Standard Terminal Arrival Charts

STARs will be in the front of each volume in alphabetical order by procedure name. Refer to IAC 14 for content and format.

### 2.5.16 Terminal Charts

Refer to IAC 4 for content and format of IAPs and CVFPs.

Refer to IAC 9 for content and format of Airport Diagrams.

Refer to IAC 7 for content and format of Graphic Departures.

## 2.6 AMENDMENTS - TPP (COUNTERMINOUS U.S. ONLY) CHANGE NOTICE (CN)

### 2.6.1 General

A Change Notice (CN) will be produced for issue effective 28 days following the effective date of the volumes.

The CN will be a single-volume publication containing revised, amended, and original charts, and supplemental data changes affecting any volume. These changes will be effective on the CN effective date and will remain in effect for the next 28 days.

Except in extreme circumstances when safety of flight dictates, Airport Diagrams, Standard Terminal Arrivals, Standard Instrument Departures and Graphic Departure Procedures will not be included in the Chart Notice.

In the event it is necessary to promulgate important graphic or textual data that cannot be adequately disseminated through the FAA Notice to Airmen (NOTAM) system, a SPECIAL NOTICE accompanied by charts and/or page(s) of supplemental data may be issued off-cycle.

Canceled charts and supplemental data shall be listed in the index.

### 2.6.2 CN Cover Format

#### 2.6.2.1 Outside Front Cover

Refer to **Appendix 17** for content and format of CN Outside Front Cover.

#### 2.6.2.2 Inside Front Cover

General information and instructions concerning the use of the CN will be printed on the inside of the front cover. Refer to **Appendix 18** for content and format.

#### 2.6.2.3 Inside Back Cover

The inside of the back cover will show the words “INSIDE BACK COVER” and “INTENTIONALLY LEFT BLANK”. Refer to **2.3.5** and **Appendix 16** for content and format.

#### 2.6.2.4 Outside Back Cover

The outside back cover will show the Area of Coverage in accordance with **Appendix 3**.

### 2.6.3 CN Content

Supplemental data and charts will be printed back to back, head to toe.

The first chart will be a facing page. If there is a blank page preceding the first chart, it will be identified as “Intentionally Left Blank”.

Supplemental Data, i.e., Takeoff, Alternate, and Radar minimums will be arranged by volume with the civil entries listed alphabetically by city, and airport name. Military entries will be listed alphabetically by airport name and city. These pages will be lettered and numbered using 7 pt type. 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. In all other cases, the airport name will be extracted verbatim from the authoritative database.

The charts included in the single-volume CN will be arranged as a composite of all volumes, with airports listed alphabetically by city, and airport name. Military entries will be listed alphabetically by airport name and city. 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. In all other cases, the airport name will be extracted verbatim from the authoritative database. If the airport name differs from the city it serves, an appropriate cross reference will be included in the “INDEX OF TERMINAL CHARTS AND MINIMUMS”. See **Appendix 19** for content and format.

Textual information and charts shall be printed in black, using solid and screened color as indicated within these specifications.

IFR Takeoff Minimums and (Obstacle) Departure Procedures. See **Appendix 20** for layout and format.

IFR Alternate Airport Minimums. See **Appendix 21** for layout and format.

Radar Instrument Approach Minimums. See **Appendix 22** for layout and format.

## 2.7 AMENDMENTS - CHANGE NOTICE (CN) (ALASKA)

A CN may be issued at the midpoint of the normal revision cycle of the volume when safety considerations of a hazardous nature require the issuance of an amended and/or an original procedure.

A CN shall consist of a single page (s) issuance of the appropriate and applicable procedure(s).

CNs shall be annotated with the following note (replacing the page number) centered across the top margin of the page, utilizing negative type. e.g. ALASKA TERMINAL CHANGE (See **Appendix 23**).

The page number at the bottom of the page shall be shown also using negative type; e.g.;

REPLACED PAGE 00
or
NEW PAGE 00a

Procedures issued to replace an existing procedure within the volume shall be printed on gum-backed paper.

CNs shall normally be printed on one side only. Procedures shall be printed, backed-up, head-to-toe, only when appropriate to the layout, format, and arrangement of the publication.

Procedures issued as an additional page to the volume shall be printed on plain paper.

The effective date of the CN shall be positioned below the procedure title in the lower left corner.

# APPENDIX 1
# OUTSIDE FRONT COVER

All type on cover must be Arial font - no centering.

Arial Regular 14 pt

Arial Bold 9 pt

NE-3 DC DE MD VA **07 MAY 09 to 02 JUL 09**

Top of Logo must be .5” from top of printed page

.1875” bleed

Federal Aviation Administration

1.875”

## U.S. Terminal Procedures Publication

24 pt Bold

**Northeast (NE) Vol 3 of 4**

2.75”

Effective: 0901Z — 12 pt Regular

**26 MAY 2016** — 18 pt Bold

to: 0901Z — 12 pt Regular

**21 JUL 2016** — 14 pt Bold

Consult the Change Notice (CN) effective 23 JUN 2016 for revised Instrument Procedure Charts for this volume — 8 pt Regular

9”

4.25”

Area designated for graphic


7.125”

Consult NOTAMs for latest information
Consult/Subscribe to FAA Safety Alerts and Charting Notices at:
http://www.faa.gov/air_traffic/flight_info/aeronav/safety_alerts/

Published from digital files compiled in accordance with Interagency Air Committee specifications and agreements approved by:
Department of Defense • Federal Aviation Administration

8 pt Regular

.5 “ Margin

5.38”

# APPENDIX 2
# INSIDE FRONT COVER

25219

## TERMINAL PROCEDURES TABLE OF CONTENTS



CORRECTIONS, COMMENTS AND/OR PROCUREMENT

FOR CHARTING ERRORS, OR FOR CHANGES, ADDITIONS, RECOMMENDATIONS ON PROCEDURAL ASPECTS CONTACT:

Point of Contact Address

For inquiries regarding military charts, please contact Current NGA email address

FOR PROCUREMENT:
For digital products, visit our website at: Current Digital Products URL

For a list of approved FAA Print Providers, visit our website at:
Current List of FAA Approved Print Providers URL

Frequently asked questions (FAQ) are answered on our website at: Current FAQ URL
See the FAQs prior to contact via toll free number or email.

Request for the creation or revisions to Airport Diagrams should be in accordance with FAA Order 7910.4

25219

# APPENDIX 2
# INSIDE FRONT COVER (CONTINUED)

00000

## TERMINAL PROCEDURES TABLE OF CONTENTS—PAC



CORRECTIONS, COMMENTS AND/OR PROCUREMENT

FOR CHARTING ERRORS, OR FOR CHANGES, ADDITIONS, RECOMMENDATIONS ON PROCEDURAL ASPECTS CONTACT:

Point of Contact Address

For inquiries regarding military charts, please contact Current NGA email Address

FOR PROCUREMENT:
For digital products, visit our website at: Current Digital Products URL

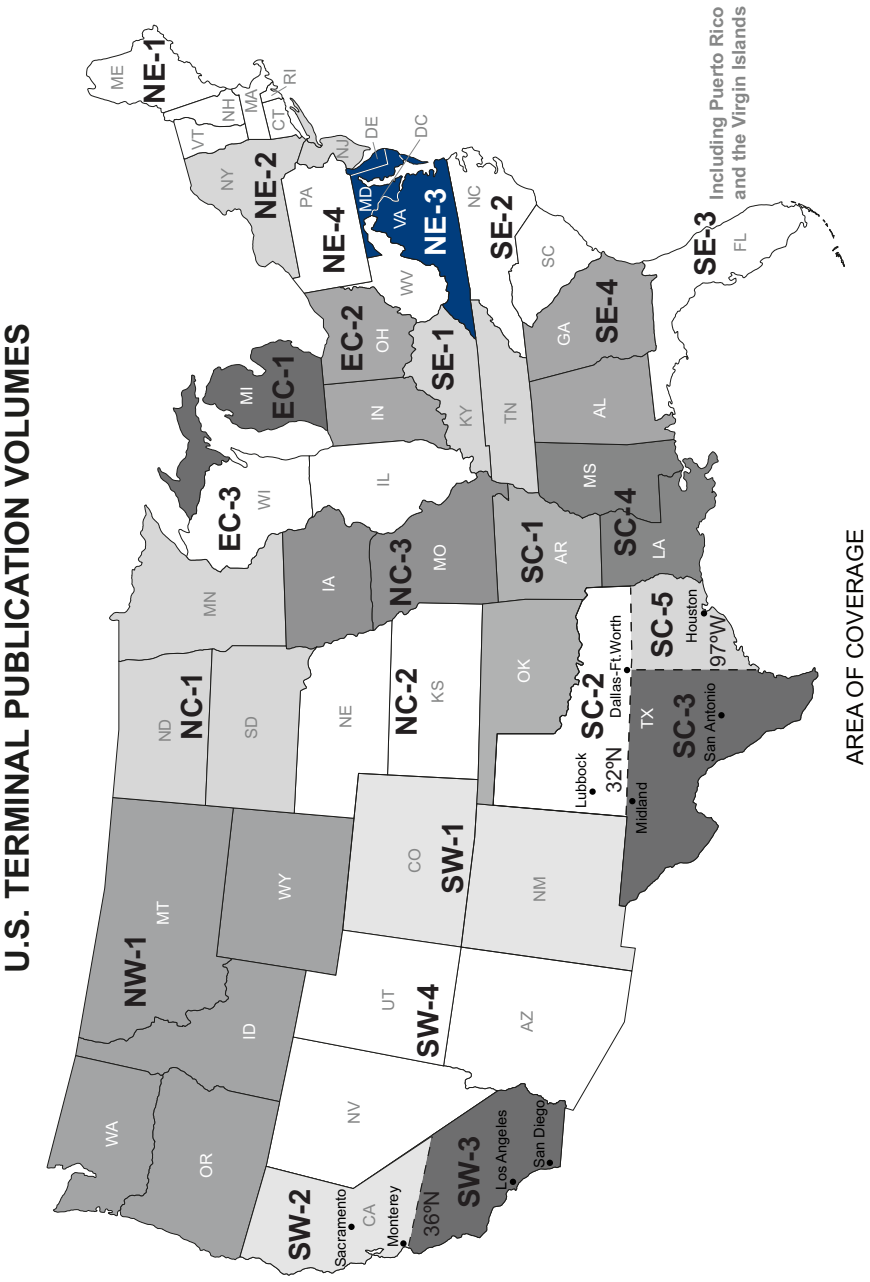
For a list of approved FAA Print Providers, visit our website at:
Current List of FAA Approved Print Providers URL

Frequently asked questions (FAQ) are answered on our website at: Current FAQ URL
See the FAQs prior to contact via toll free number or email.

Request for the creation or revisions to Airport Diagrams should be in accordance with FAA Order 7910.4

00000

# APPENDIX 3
# OUTSIDE BACK COVER (U.S.)




FAA Product ID: BTPPNE3

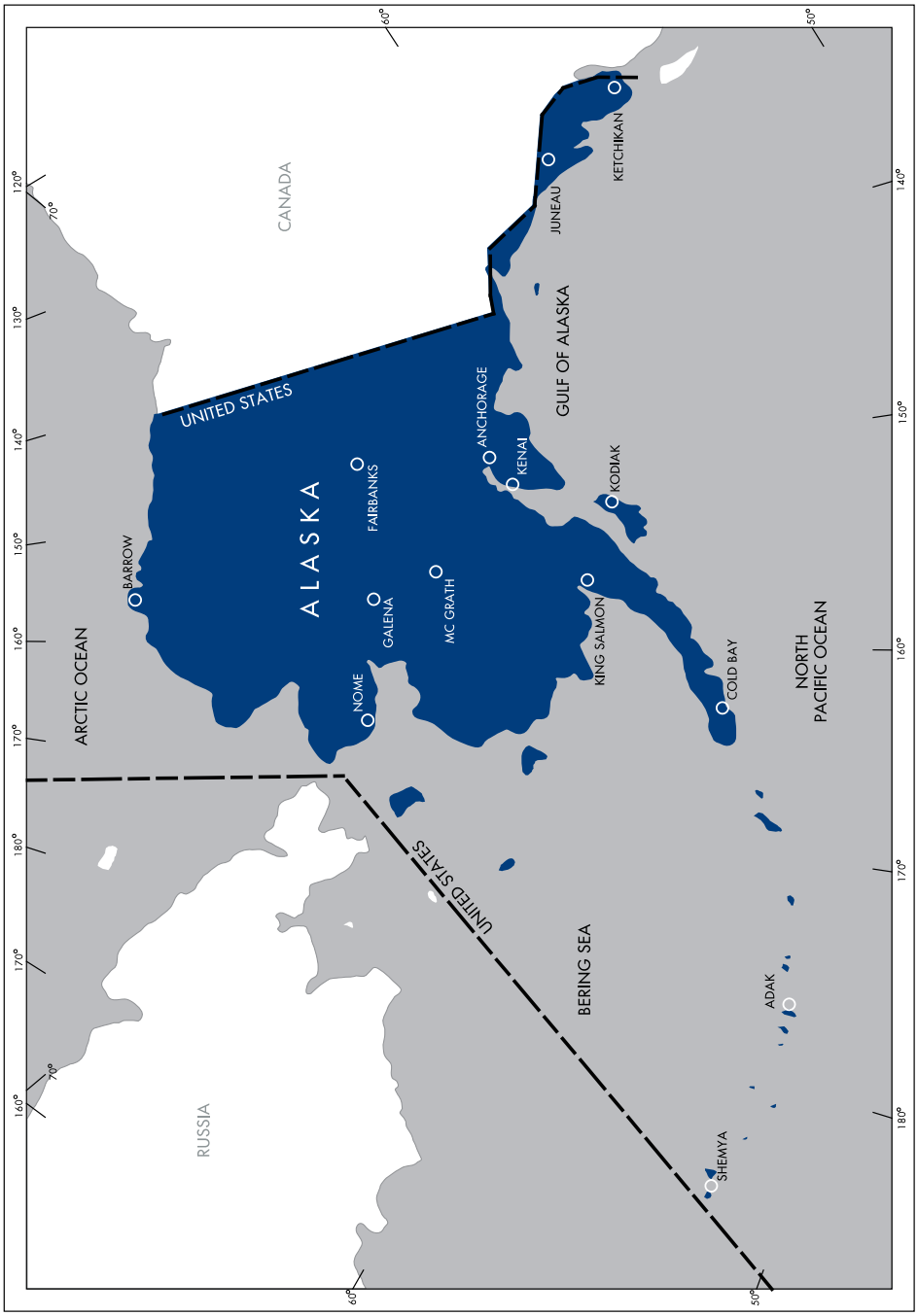
NSN 7641015059584

NGA REF. NO. TERMXFAABTPPNE3

OK-10-2859

EFF. DATE 10266

# APPENDIX 4
# OUTSIDE BACK COVER (ALASKA)




ALASKA COVERAGE

FAA Product ID: ATP

NSN 7641014109675

NGA REF. NO. TERMXAKTPP

EFF. DATE 10266

OK-09-3959

# APPENDIX 5
# INOPERATIVE COMPONENTS OR VISUAL AIDS TABLE

## INOP COMPONENTS 25051

### INOPERATIVE COMPONENTS OR VISUAL AIDS TABLE
### (For Civil Use Only)

Straight-in and Sidestep landing minimums published on instrument approach procedure charts are based on full operation of all components and visual aids (see exception below for ALSF 1 & 2) associated with the particular approach chart being used. Higher minimums are required with inoperative components or visual aids as indicated below. If more than one component is inoperative, each minimum is raised to the highest minimum required by any single component that is inoperative. ILS glideslope inoperative minimums are published on the instrument approach charts as localizer minimums. This table applies to approach categories A thru D and is to be used unless amended by notes on the approach chart. Such notes apply only to the particular approach category(ies) as stated. Category E inoperative notes will be specified when published on civil charts. The inoperative table does not apply to Circling minimums. See legend page for description of components indicated below.

Full Operation Exception: For ALSF 1 & 2 operated as SSALR, or when the sequenced flashing lights are inoperative, there is no effect on visibility for ILS lines of minima.

(1) ILS, PAR, LPV, GLS minima

| Inoperative Component or Visual Aid | Increase Visibility |
|---|---|
| All ALS types (except ODALS) | ¼ mile |

(2) ILS, LPV, GLS with visibility minima of RVR 1800†/2000*/2200*

| Inoperative Component or Visual Aid | Increase Visibility |
|---|---|
| ALSF 1 & 2, MALSR, SSALR | To RVR 4000†<br>To RVR 4500* |
| TDZL or RCLS | To RVR 2400# |
| RVR | To ½ mile |

#For ILS, LPV, GLS procedures with a 200 foot HAT, RVR 1800 authorized with use of FD or AP or HUD to DA. For ILS procedures with a 200 foot HAT with a restriction on autopilot usage, RVR 1800 authorized with use of FD or HUD to DA.

(3) All Approach Types and all lines of minima other than (1) & (2) above

| Inoperative Component or Visual Aid | Increase Visibility |
|---|---|
| ALSF 1 & 2, MALSR, SSALR | ½ mile |
| MALSF, MALS, SSALF, SSALS, SALSF, SALS | ¼ mile |

(4) Sidestep minima (CAT C-D)

| Inoperative Component or Visual Aid to Sidestep Runway | Increase Visibility |
|---|---|
| ALSF 1 & 2, MALSR, SSALR | ½ mile |

(5) All Approach Types, All lines of minima

| Inoperative Component or Visual Aid | Increase Visibility |
|---|---|
| ODALS (CAT A-B) | ¼ mile |
| ODALS (CAT C-D) | ⅛ mile |

INOP COMPONENTS 25051

# APPENDIX 6
# EXPLANATION OF TERMS/LANDING MINIMA DATA

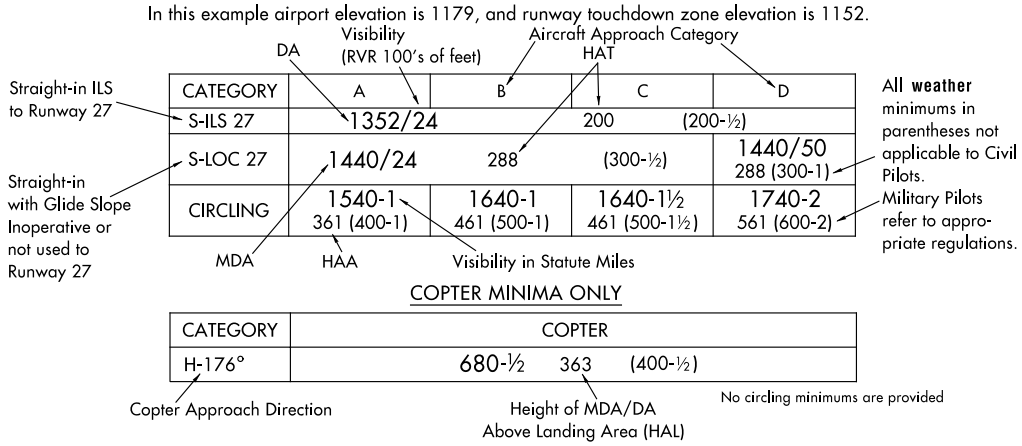
## TERMS/LANDING MINIMA DATA 00000

### IFR LANDING MINIMA

The United States Standard for Terminal Instrument Procedures (TERPS) is the approved criteria for formulating instrument approach procedures. Landing minima are established for six aircraft 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.




### COPTER MINIMA ONLY




NOTE: The W symbol indicates outages of the WAAS vertical guidance may occur daily at this location due to initial system limitations. WAAS NOTAMS for vertical outages are not provided for this approach. Use LNAV minima for flight planning at these locations, whether as a destination or alternate. For flight operations at these locations, when the WAAS avionics indicate that LNAV/VNAV or LPV service is available, then vertical guidance may be used to complete the approach using the displayed level of service. Should an outage occur during the procedure, reversion to LNAV minima may be required. As the WAAS coverage is expanded, the W will be removed.

RNAV minimums are dependent on navigation equipment capability, as stated in the applicable AFM, AFMS, or other FAA approved document. See AIM paragraph 5-4-5, AC 90-105 and AC 90-107 for detailed requirements for each line of minima.

### COLD TEMPERATURE AIRPORTS

NOTE: A ❄-12°C symbol indicates a cold temperature altitude correction is required at this airport when reported temperature is at or below the published temperature. See the following Cold Temperature Error Table to make manual corrections. Advise ATC with altitude correction. Advising ATC with altitude corrections is not required in the final segment. See Aeronautical Information Manual (AIM), Chapter 7, for guidance and additional information. For a complete list, see 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/

### COLD TEMPERATURE ERROR TABLE

HEIGHT ABOVE AIRPORT IN FEET

| REPORTED TEMP °C | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1500 | 2000 | 3000 | 4000 | 5000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +10 | 10 | 10 | 10 | 10 | 20 | 20 | 20 | 20 | 20 | 30 | 40 | 60 | 80 | 90 |
| 0 | 20 | 20 | 30 | 30 | 40 | 40 | 50 | 50 | 60 | 90 | 120 | 170 | 230 | 280 |
| -10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 150 | 200 | 290 | 390 | 490 |
| -20 | 30 | 50 | 60 | 70 | 90 | 100 | 120 | 130 | 140 | 210 | 280 | 420 | 570 | 710 |
| -30 | 40 | 60 | 80 | 100 | 120 | 140 | 150 | 170 | 190 | 280 | 380 | 570 | 760 | 950 |
| -40 | 50 | 80 | 100 | 120 | 150 | 170 | 190 | 220 | 240 | 360 | 480 | 720 | 970 | 1210 |
| -50 | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 450 | 590 | 890 | 1190 | 1500 |

### AIRCRAFT APPROACH CATEGORIES

Aircraft approach category indicates a grouping of aircraft based on a speed of VREF, if specified, or if VREF not specified, 1.3 VSO at the maximum certificated landing weight. VREF, VSO, and the maximum certificated landing weight are those values as established for the aircraft by the certification authority of the country of registry. Helicopters are Category A aircraft. An aircraft shall fit in only one category. When necessary to operate the aircraft at an airspeed in excess of the maximum airspeed of its certified aircraft approach category, pilots should use the applicable higher category minima. For additional options and to ensure the aircraft remains within protected airspace, consult the AIM. See following category limits:

### MANEUVERING TABLE

| Approach Category | A | B | C | D | E |
|---|---|---|---|---|---|
| Speed (Knots) | 0-90 | 91-120 | 121-140 | 141-165 | Abv 165 |

TERMS/LANDING MINIMA DATA 00000

# APPENDIX 6
# EXPLANATION OF TERMS/LANDING MINIMA DATA (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 table below. The resultant arcs are then connected tangentially to define the protected area.

### CIRCLING APPROACH MANEUVERING AIRSPACE RADIUS

Circling MDA protected areas 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.

| Circling MDA in feet MSL | Approach Category and Circling Radius (NM) | | | | |
|---|---|---|---|---|---|
| | 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 | 1.4 | 2.1 | 3.3 | 4.4 | 5.5 |

Users may ignore the presence of C symbols on charts which will be removed on a day-forward basis. All circling areas within this volume have been evaluated for the circling MDA protected area radius shown in the table above.

### Comparable Values of RVR and Visibility

The following table may be used for converting RVR to ground or flight visibility. For 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) | RVR (feet) | Visibility (SM) | RVR (feet) | Visibility (SM) | RVR (feet) | Visibility (SM) |
|---|---|---|---|---|---|---|---|
| 1200 | ¼ | 2200 | ½ | 3200* | ⅝ | 5000* | 1 |
| 1600* | ¼ | 2400* | ½ | 3500 | ⅝ | 5500 | 1 |
| 1800 | ½ | 2600 | ½ | 4000* | ¾ | 6000* | 1¼ |
| 2000 | ½ | 3000 | ⅝ | 4500* | ⅞ | | |

*Values repeated from 14 CFR 91.175 and shall be used for takeoff or landing minima.

If a visibility adjustment is required for a procedure with an RVR value, the RVR value should first be converted to visibility using this table. The visibility should then be increased by the adjustment value, and then may be converted back to the highest RVR value associated with that visibility. For example, if a procedure with 2000 RVR requires a ⅛ mile adjustment, first convert 2000 RVR to ½ SM. Adding ⅛ SM results in ⅝ SM, which may then be converted to 3500 RVR.

### RADAR MINIMA

| | RWY | GP/TCH/RPI | CAT | DA/ MDA-VIS | HAT HAA | CEIL-VIS | CAT | DA/ MDA-VIS | HAT HAA | CEIL-VIS |
|---|---|---|---|---|---|---|---|---|---|---|
| PAR | 10 | 2.5°/42/1000 | ABCDE | **195**/16 | 100 | (100-¼) | | | | |
| | 28 | 2.5°/48/1068 | ABCDE | **187**/16 | 100 | (100-¼) | | | | |
| 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) |

Visibility (RVR 100's of feet)

Visibility in Statute Miles

All minimums in parentheses not applicable to Civil Pilots. Military Pilots refer to appropriate regulations.

Radar Minima:

1. Minima shown are the lowest permitted by established criteria. Pilots should consult applicable directives for their category 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 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 frequencies monitored
(V) VHF emergency frequency (121.5) monitored
(U) UHF emergency frequency (243.0) 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.

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

TERMS/LANDING MINIMA DATA 00000

# APPENDIX 7
# GENERAL INFORMATION

## GENERAL INFO 00000

### GENERAL INFORMATION

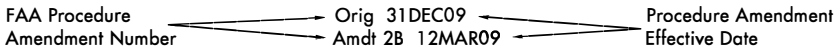
This publication is issued every 56 days and includes Standard Instrument Approach Procedures (SIAPS), Standard Instrument Departures (SIDs), Standard Terminal Arrivals (STARs), IFR Takeoff Minimums and (Obstacle) Departure Procedures (ODPs), IFR Alternate Minimums, and Radar Instrument Approach Minimums for use by civil and military aviation. The organization responsible for SIAPs, Radar Minimums, SIDs, STARs and graphic ODPs is identified in parentheses in the top margin of the procedure; e.g., (FAA), (FAA-O), (USA), (USAF), (USN). SIAPS with the (FAA) and (FAA-O) designation are regulated under 14 CFR, Part 97. SIAPs with the (FAA-O) designation have been developed by an authorized non-FAA service provider. See 14 CFR, Part 91.175 (a) and the AIM for further details. 14 CFR, Part 91.175 (g) and the Special Notices section of the Chart Supplement contain information on civil operations at military airports.

The FAA uses an internal numbering system on all charts in the TPP. This Approach and Landing (AL) number is located on the top center margin of the chart followed by the organization responsible for the procedure in parentheses, e.g., AL-18 (FAA). Military procedures do not show a chart reference number, but do show the appropriate authority for the procedure, e.g., (USN).

#### CHART CURRENCY INFORMATION

Date of Latest Revision 09365

The Date of Latest Revision identifies the Julian date the chart was added or last revised for any reason. The first two digits indicate the year, the last three digits indicate the day of the year (001 to 365/6) in which the latest revision of any kind has been made to the chart.




The FAA Procedure Amendment Number represents the most current amendment of a given procedure. The Procedure Amendment Effective Date represents the AIRAC cycle date on which the procedure amendment was incorporated into the chart. Updates to the amendment number & effective date represent procedural/criteria revisions to the charted procedure, e.g., course, fix, altitude, minima, etc. On Departure Procedures and Standard Terminal Arrivals, procedural revisions to the current chart are indicated by an upnumber to the procedure title with the procedure amendment effective date following. On Radar Minima, Takeoff Minimums and (Obstacle) Departure Procedures and Diverse Vector Areas, the FAA Procedure Amendment Number, Procedure Effective Date, and the Julian Date of Last Revision will be shown on the same line, e.g., AMDT 2 10DEC15 (15344).

#### MISCELLANEOUS

★ Indicates a non-continuously operating facility, see Chart Supplement.

For Civil (FAA) instrument procedures, "RADAR REQUIRED" in the planview of the chart indicates that ATC radar must be available to assist the pilot when transitioning from the en route environment. "Radar required" in the pilot briefing portion of the chart indicates that ATC radar is required on portions of the procedure outside the final approach segment, including the missed approach. Some military procedures also have equipment requirements such as "Radar Required", but do not conform to the same charting application standards used by the FAA.

Distances are in nautical miles (except visibility in statute miles and Runway Visual Range in hundreds of feet). Runway dimensions are in feet. Elevations are in feet, Mean Sea Level (MSL). Ceilings are in feet above airport elevation. Radials/bearings/headings/courses are magnetic. Horizontal Datum: Unless otherwise noted on the chart, all coordinates are referenced to North American Datum 1983 (NAD 83), which for charting purposes is considered equivalent to World Geodetic System 1984 (WGS 84).

Terrain is scaled within the neat lines (planview boundaries) and does not accurately underlie not-to-scale distance depictions or symbols.

GENERAL INFO 00000

# APPENDIX 7
# GENERAL INFORMATION (CONTINUED)

## GENERAL INFO 00000

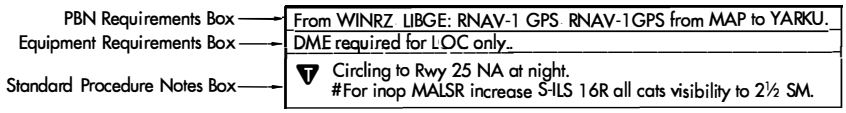
STANDARD TERMINAL ARRIVALS AND DEPARTURE PROCEDURES

The use of the associated codified STAR/DP and transition identifiers are requested of users when filing flight plans online. It must be noted that when filing a STAR/DP with a transition, the first three coded characters of the STAR and the last three coded characters of the DP are replaced by the transition code. Examples: ACTON SIX ARRIVAL, file (AQN.AQN6); ACTON SIX ARRIVAL, EDNAS TRANSITION, file (EDNAS.AQN6). FREEHOLD THREE DEPARTURE, file (FREH3.RBV), FREEHOLD THREE DEPARTURE, ELWOOD CITY TRANSITION, file (FREH3.EWC).

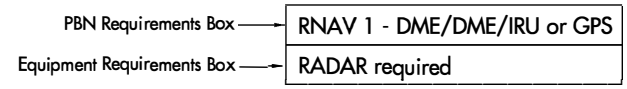
PROCEDURE PBN/EQUIPMENT REQUIREMENTS

Users will begin to see Performance-Based Navigation (PBN) Requirements and Equipment Requirements on Instrument Approach Procedures (IAPs), RNAV STARs and RNAV DPs prominently displayed in separate, standardized notes boxes. For procedures with PBN elements, the PBN box will contain the procedure's navigation specification(s); and, if required: specific sensors or infrastructure needed for the navigation solution; any additional or advanced functional requirements; the minimum Required Navigation Performance (RNP) value and any amplifying remarks. Items listed in this PBN box are REQUIRED for the procedure's PBN elements. The Equipment Requirements Box will list non-PBN requirements. On charts with both PBN elements and equipment requirements, the PBN requirements box will be listed first. The publication of these notes will continue incrementally until all charts have been amended to comply with the new standard.

IAP PBN/Equipment Requirements Notes Box




RNAV STAR and DP PBN/Equipment Requirements Notes Box




PILOT CONTROLLED AIRPORT LIGHTING SYSTEMS

Reference the Chart Supplement for detailed information on pilot controlled lighting (PCL) systems.

Available FAA standard approach lighting systems are shown using the system identification and are symbolized using negative symbology, e.g., (ALSF), (MALSR).

Available airport lighting systems that are charted as notes, e.g. REIL, MIRL, are shown with a negative "(L)" symbol beside the name to indicate pilot controlled lighting.

To activate lights, use frequency indicated in the communication section of the chart with a (L).

| KEY MIKE | FUNCTION |
|---|---|
| 7 times within 5 seconds | Highest intensity available |
| 5 times within 5 seconds | Medium or lower intensity (Lower REIL or REIL-off) |
| 3 times within 5 seconds | Lowest intensity available (Lower REIL or REIL-off) |

GENERAL INFO 00000

# APPENDIX 8
# ABBREVIATIONS

## ABBREVIATIONS 00000

| | |
|---|---|
| AAF | Army Air Field |
| AAUP | Attention All Users Page |
| ADF | Automatic Direction Finder |
| ADIZ | Air Defense Identification Zone |
| AFAUX | Air Force Auxiliary |
| AFB | Air Force Base |
| AFRC | Armed Forces Reserve Center/Air Force Reserve Command |
| AGL | Above Ground Level |
| AFHP | Air Force Heliport |
| AFIS | Automatic Flight Information Service |
| AHP | Army Heliport |
| ALF | Auxiliary Landing Field |
| ALS | Approach Light System |
| ALSF | Approach Light System with Sequenced Flashing Lights |
| ANGB | Air National Guard Base |
| ANGS | Air National Guard Station |
| Ant | Antenna |
| AOB | At or Below |
| AP | Autopilot System |
| APCH | Approach |
| APP CON | Approach Control |
| AR | Authorization Required |
| ARB | Air Reserve Base |
| ARPT | Airport |
| ARR | Arrival |
| AS | Air Station |
| ASOS | Automated Surface Observing System |
| ASR | Airport Surveillance RADAR |
| ASSC | Airport Surface Surveillance Systems |
| ATC | Air Traffic Control |
| ATCT | Airport Traffic Control Tower |
| ATIS | Automatic Terminal Information Service |
| AUNICOM | Automated UNICOM |
| AWOS | Automated Weather Observing System |
| Baro-VNAV | Barometric Vertical Navigation |
| BC | Back Course |
| brg | Bearing |
| CAPT | Captain |
| CAT | Category |
| CCW | Counterclockwise |
| CDI | Course Deviation Indicator |
| CGAS | Coast Guard Air Station |
| Chan | Channel |
| CIR | Circling |
| CL | Centerline Lighting System |
| CLNC DEL | Clearance Delivery |
| CNF | Computer Navigation Fix |
| CPDLC | Controller Pilot Data Link Communications |
| CTAF | Common Traffic Advisory Frequency |
| CW | Clockwise |
| D-ATIS | Digital-Automatic Terminal Information Service |
| DA | Decision Altitude |
| DEP | Departure |
| DEP CON | Departure Control |
| DER | Departure End of Runway |
| DH | Decision Height |
| DME | Distance Measuring Equipment |
| DP | Departure Procedure |
| DTHR | Displaced Runway Threshold |
| DVA | Diverse Vector Area |
| ELEV | Elevation |
| EMAS | Engineered Material Arresting System |
| EXEC | Executive |
| FAF | Final Approach Fix |
| FD | Flight Director System |
| FL | Flight Level |
| FLD | Field |
| FM | Fan Marker |
| FMS | Flight Management System |
| GBAS | Ground Based Augmentation System |
| GCA | Ground Control Approach |
| GCO | Ground Communication Outlet |
| GLS | Ground Based Augmentation System Landing System |
| GP | Glidepath |
| GPS | Global Positioning System |
| GS | Glide Slope |
| HAA | Height Above Airport |
| HAL | Height Above Landing |
| HAT | Height Above Touchdown |
| HATh | Height Above Threshold |
| HCH | Heliport Crossing Height |
| hdg | Heading |
| HIRL | High Intensity Runway Lights |
| HUD | Head-up Display |
| IAF | Initial Approach Fix |
| IAP | Instrument Approach Procedure |
| ICAO | International Civil Aviation Organization |
| IF | Intermediate Fix |
| IFR | Instrument Flight Rules |
| ILS | Instrument Landing System |
| IM | Inner Marker |
| INC | Incorporated |
| Inop | Inoperative |
| INT | Intersection |
| INTCNTL | Intercontinental |
| INTL | International |
| JNGB | Joint National Guard Base |
| JRB | Joint Reserve Base |
| K | Knots |
| KIAS | Knots Indicated Airspeed |
| LAAS | Local Area Augmentation System |

00000

# APPENDIX 8
# ABBREVIATIONS (CONTINUED)

## ABBREVIATIONS 00000

| | |
|---|---|
| LDA | Localizer Type Directional Aid |
| Ldg | Landing |
| LIRL | Low Intensity Runway Lights |
| LNAV | Lateral Navigation |
| LOA | Letter of Agreement/ Authorization |
| LOC | Localizer |
| LOM | Locator Outer Marker |
| LP | Localizer Performance |
| LPV | Localizer Performance with Vertical Guidance |
| LR | Lead Radial |
| LRRS | Long Range RADAR Station |
| MAA | Maximum Authorized Altitude |
| MALS | Medium Intensity Approach Lighting System |
| MALSF | Medium Approach Lighting System with Sequenced Flashers |
| MALSR | Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights |
| MAP | Missed Approach Point |
| MCAF | Marine Corps Air Facility |
| MCALF | Marine Corps Auxiliary Landing Filed |
| MCAS | Marine Corps Air Station |
| MCB | Marine Corps Base |
| MCOLF | Marine Corps Outlying Field |
| MDA | Minimum Descent Altitude |
| MEA | Minimum Enroute Altitude |
| MEML | Memorial |
| METRO | Metropolitan |
| MIRL | Medium Intensity Runway Lights |
| MM | Middle Marker |
| MOCA | Minimum Obstruction Clearance Altitude |
| MRA | Minimum Reception Altitude |
| MSL | Mean Sea Level |
| MSPEC | Management Specification |
| MUNI | Municipal |
| N/A | Not Applicable |
| NA | Not Authorized |
| NAAS | Naval Auxiliary Air Station |
| NAF | Naval Air Facility |
| NALF | Naval Auxiliary Landing Field |
| NAS | Naval Air Station |
| NDB | Nondirectional Radio Beacon |
| NM | Nautical Mile |
| NOLF | Naval Outlying Field |
| NoPT | No Procedure Turn |
| NOTAM | Notice to Airmen |
| NS | Naval Station |
| NTL | National |
| ODALS | Omnidirectional Approach Lighting System |
| ODP | Obstacle Departure Procedure |
| OM | Outer Marker |
| OPSPEC | Operations Specification |
| PAR | Precision Approach Radar |
| PDC | Pre-Departure Clearance |
| PRM | Precision Runway Monitor |
| Pvt | Private |
| R | Radial |
| RA | Radio Altimeter setting height |
| RAIL | Runway Alignment Indicator Lights |
| RCLS | Runway Centerline Light System |
| REIL | Runway End Identifier Lights |
| RF | Radius to Fix |
| RGNL | Regional |
| RLLS | Runway Lead-in Light System |
| RNAV | Area Navigation |
| RNP | Required Navigation Performance |
| RPI | Runway Point of Interception) |
| RVR | Runway Visual Range |
| RWY | Runway |
| S | Straight-in |
| SALS | Simplified Short Approach Light System |
| SALSF | Short Approach Lighting System with Sequenced Flashing Lights |
| SDF | Simplified Directional Facility |
| SFB | Space Force Base |
| SID | Standard Instrument Departure |
| SM | Statute Mile |
| SR-SS | Sunrise-Sunset |
| SSALF | Short Approach Lighting System with Sequenced Flashing Lights |
| SSALR | Simplified Short Approach Light System with Runway Alignment Indicator Lights |
| SSALS | Simplified Short Approach Lighting System |
| ST | Saint |
| STE | Sainte |
| STAR | Standard Terminal Arrival |
| TAA | Terminal Arrival Area |
| TACAN | Tactical Air Navigation |
| TCH | Threshold Crossing Height |
| TDZ | Touchdown Zone |
| TDZE | Touchdown Zone Elevation |
| TDZ/CL | Touchdown Zone and Runway Centerline Lighting |
| TDZL | Touchdown Zone Lights |
| THR | Threshold |
| TODA | Takeoff Distance Available |
| TORA | Takeoff Run Available |
| tr | Track |
| TRML | Terminal |
| TWR | Tower |
| UNICOM | Universal Communications Station |
| USA | United States Army |
| USAF | United States Air Force |

00000

# APPENDIX 8
# ABBREVIATIONS (CONTINUED)

## ABBREVIATIONS 00000

| | |
|---|---|
| USCG……. | United States Coast Guard |
| USMC……. | United States Marine Corps |
| USN…… | United States Navy |
| USSF…….. | United States Space Force |
| VASI…… | Visual Approach Slope Indicator |
| VCOA…… | Visual Climb Over Airport |
| VDA…… | Vertical Descent Angle |
| VDP…… | Visual Descent Point |
| VFR……... | Visual Flight Rules |
| VGSI…….. | Visual Glide Slope Indicator |
| VNAV……. | Vertical Navigation |
| VOR……... | Very High Frequency Omni-Directional Range |
| VORTAC……... | Very High Frequency Omni-Directional Range/Tactical Air Navigation |
| WAAS…… | Wide Area Augmentation System |
| WP/WPT……... | Waypoint |

00000

# APPENDIX 9
# FREQUENCY PAIRING

## SUPPLEMENTAL TABLES 00000

### FREQUENCY PAIRING TABLE

| TACAN CHANNEL | VHF FREQUENCY | TACAN CHANNEL | VHF FREQUENCY | TACAN CHANNEL | VHF FREQUENCY |
|---|---|---|---|---|---|
| 17Y | 108.05 | 40X | 110.30 | 88Y | 114.15 |
| 18X | 108.10 | 40Y | 110.35 | 89Y | 114.25 |
| 18Y | 108.15 | 41Y | 110.45 | 90Y | 114.35 |
| 19Y | 108.25 | 42X | 110.50 | 91Y | 114.45 |
| 20X | 108.30 | 42Y | 110.55 | 92Y | 114.55 |
| 20Y | 108.35 | 43Y | 110.65 | 93Y | 114.65 |
| 21Y | 108.45 | 44X | 110.70 | 94Y | 114.75 |
| 22X | 108.50 | 44Y | 110.75 | 95Y | 114.85 |
| 22Y | 108.55 | 45Y | 110.85 | 96Y | 114.95 |
| 23Y | 108.65 | 46X | 110.90 | 97Y | 115.05 |
| 24X | 108.70 | 46Y | 110.95 | 98Y | 115.15 |
| 24Y | 108.75 | 47Y | 111.05 | 99Y | 115.25 |
| 25Y | 108.85 | 48X | 111.10 | 100Y | 115.35 |
| 26X | 108.90 | 48Y | 111.15 | 101Y | 115.45 |
| 26Y | 108.95 | 49Y | 111.25 | 102Y | 115.55 |
| 27Y | 109.05 | 50X | 111.30 | 103Y | 115.65 |
| 28X | 109.10 | 50Y | 111.35 | 104Y | 115.75 |
| 28Y | 109.15 | 51Y | 111.45 | 105Y | 115.85 |
| 29Y | 109.25 | 52X | 111.50 | 106Y | 115.95 |
| 30X | 109.30 | 52Y | 111.55 | 107Y | 116.05 |
| 30Y | 109.35 | 53Y | 111.65 | 108Y | 116.15 |
| 31Y | 109.45 | 54X | 111.70 | 109Y | 116.25 |
| 32X | 109.50 | 54Y | 111.75 | 110Y | 116.35 |
| 32Y | 109.55 | 55Y | 111.85 | 111Y | 116.45 |
| 33Y | 109.65 | 56X | 111.90 | 112Y | 116.55 |
| 34X | 109.70 | 56Y | 111.95 | 113Y | 116.65 |
| 34Y | 109.75 | 80Y | 113.35 | 114Y | 116.75 |
| 35Y | 109.85 | 81Y | 113.45 | 115Y | 116.85 |
| 36X | 109.90 | 82Y | 113.55 | 116Y | 116.95 |
| 36Y | 109.95 | 83Y | 113.65 | 117Y | 117.05 |
| 37Y | 110.05 | 84Y | 113.75 | 118Y | 117.15 |
| 38X | 110.10 | 85Y | 113.85 | 119Y | 117.25 |
| 38Y | 110.15 | 86Y | 113.95 | | |
| 39Y | 110.25 | 87Y | 114.05 | | |

See the Chart Supplement for a complete listing.

SUPPLEMENTAL TABLES 00000

# APPENDIX 10
# RATE OF CLIMB TABLE

SUPPLEMENTAL TABLES 00000

INSTRUMENT TAKEOFF AND APPROACH PROCEDURE CHARTS
RATE OF CLIMB TABLE
(ft per min)

The rate of climb table is provided for use in planning and executing climbs with a known or approximate ground speed. Rates of climb in ft per min are monitored with a vertical speed indicator (VSI). The use of a climb rate should not be used if it will exceed the aircraft's operational limitations.

| ft/NM | % | GROUND SPEED (knots) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 | 360 |
| 152 | 2.50 | 152 | 228 | 304 | 380 | 456 | 532 | 608 | 684 | 760 | 836 | 912 |
| 200 | 3.29 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
| 210 | 3.46 | 210 | 315 | 420 | 525 | 630 | 735 | 840 | 945 | 1050 | 1155 | 1260 |
| 220 | 3.62 | 220 | 330 | 440 | 550 | 660 | 770 | 880 | 990 | 1100 | 1210 | 1320 |
| 230 | 3.79 | 230 | 345 | 460 | 575 | 690 | 805 | 920 | 1035 | 1150 | 1265 | 1380 |
| 240 | 3.95 | 240 | 360 | 480 | 600 | 720 | 840 | 960 | 1080 | 1200 | 1320 | 1440 |
| 250 | 4.11 | 250 | 375 | 500 | 625 | 750 | 875 | 1000 | 1125 | 1250 | 1375 | 1500 |
| 260 | 4.28 | 260 | 390 | 520 | 650 | 780 | 910 | 1040 | 1170 | 1300 | 1430 | 1560 |
| 270 | 4.44 | 270 | 405 | 540 | 675 | 810 | 945 | 1080 | 1215 | 1350 | 1485 | 1620 |
| 280 | 4.61 | 280 | 420 | 560 | 700 | 840 | 980 | 1120 | 1260 | 1400 | 1540 | 1680 |
| 290 | 4.77 | 290 | 435 | 580 | 725 | 870 | 1015 | 1160 | 1305 | 1450 | 1595 | 1740 |
| 300 | 4.94 | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 |
| 310 | 5.10 | 310 | 465 | 620 | 775 | 930 | 1085 | 1240 | 1395 | 1550 | 1705 | 1860 |
| 320 | 5.27 | 320 | 480 | 640 | 800 | 960 | 1120 | 1280 | 1440 | 1600 | 1760 | 1920 |
| 330 | 5.43 | 330 | 495 | 660 | 825 | 990 | 1155 | 1320 | 1485 | 1650 | 1815 | 1980 |
| 340 | 5.60 | 340 | 510 | 680 | 850 | 1020 | 1190 | 1360 | 1530 | 1700 | 1870 | 2040 |
| 350 | 5.76 | 350 | 525 | 700 | 875 | 1050 | 1225 | 1400 | 1575 | 1750 | 1925 | 2100 |
| 360 | 5.92 | 360 | 540 | 720 | 900 | 1080 | 1260 | 1440 | 1620 | 1800 | 1980 | 2160 |
| 370 | 6.09 | 370 | 555 | 740 | 925 | 1110 | 1295 | 1480 | 1665 | 1850 | 2035 | 2220 |
| 380 | 6.25 | 380 | 570 | 760 | 950 | 1140 | 1330 | 1520 | 1710 | 1900 | 2090 | 2280 |
| 390 | 6.42 | 390 | 585 | 780 | 975 | 1170 | 1365 | 1560 | 1755 | 1950 | 2145 | 2340 |
| 400 | 6.58 | 400 | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 | 2200 | 2400 |
| 450 | 7.41 | 450 | 675 | 900 | 1125 | 1350 | 1575 | 1800 | 2025 | 2250 | 2475 | 2700 |
| 500 | 8.23 | 500 | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 |
| 550 | 9.05 | 550 | 825 | 1100 | 1375 | 1650 | 1925 | 2200 | 2475 | 2750 | 3025 | 3300 |

SUPPLEMENTAL TABLES 00000

# APPENDIX 11
# RATE OF DESCENT TABLE

SUPPLEMENTAL TABLES 00000

INSTRUMENT TAKEOFF AND APPROACH PROCEDURE CHARTS
RATE OF DESCENT TABLE
(ft per min)

The rate of descent table is provided for use in planning and executingdescents with a known or approximate ground speed. The descent chart may also be used to calculate a constant rate of descent in the final segment on a non-precision approach. This rate of descent is advisory only. Rates of descent in ft per min are monitored with a vertical speed indicator (VSI). The use of a descent rate should not be used if it will exceed the aircraft's operational limitations.

| ANGLE | ft/NM | GROUND SPEED (knots) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 | 360 |
| 2.0 | 212 | 212 | 318 | 424 | 530 | 637 | 743 | 849 | 955 | 1061 | 1167 | 1273 |
| 2.5 | 265 | 265 | 398 | 531 | 663 | 796 | 929 | 1061 | 1194 | 1326 | 1459 | 1592 |
| 2.6 | 276 | 276 | 414 | 552 | 690 | 828 | 966 | 1104 | 1242 | 1380 | 1518 | 1655 |
| 2.7 | 287 | 287 | 430 | 573 | 716 | 860 | 1003 | 1146 | 1289 | 1433 | 1576 | 1719 |
| 2.8 | 297 | 297 | 446 | 594 | 743 | 892 | 1040 | 1189 | 1337 | 1486 | 1634 | 1783 |
| 2.9 | 308 | 308 | 462 | 616 | 770 | 923 | 1077 | 1231 | 1385 | 1539 | 1693 | 1847 |
| 3.0 | 318 | 318 | 478 | 637 | 796 | 955 | 1115 | 1274 | 1433 | 1592 | 1751 | 1911 |
| 3.1 | 329 | 329 | 494 | 658 | 823 | 987 | 1152 | 1316 | 1481 | 1645 | 1810 | 1974 |
| 3.2 | 340 | 340 | 510 | 679 | 849 | 1019 | 1189 | 1359 | 1529 | 1699 | 1868 | 2038 |
| 3.3 | 350 | 350 | 526 | 701 | 876 | 1051 | 1226 | 1401 | 1577 | 1752 | 1927 | 2102 |
| 3.4 | 361 | 361 | 541 | 722 | 902 | 1083 | 1263 | 1444 | 1624 | 1805 | 1985 | 2166 |
| 3.5 | 372 | 372 | 557 | 743 | 929 | 1115 | 1301 | 1487 | 1672 | 1858 | 2044 | 2230 |
| 3.6 | 382 | 382 | 573 | 765 | 956 | 1147 | 1338 | 1529 | 1720 | 1911 | 2103 | 2294 |
| 3.7 | 393 | 393 | 589 | 786 | 982 | 1179 | 1375 | 1572 | 1768 | 1965 | 2161 | 2358 |
| 3.8 | 404 | 404 | 605 | 807 | 1009 | 1211 | 1413 | 1614 | 1816 | 2018 | 2220 | 2421 |
| 3.9 | 414 | 414 | 621 | 828 | 1036 | 1243 | 1450 | 1657 | 1864 | 2071 | 2278 | 2485 |
| 4.0 | 425 | 425 | 637 | 850 | 1062 | 1275 | 1487 | 1700 | 1912 | 2124 | 2337 | 2549 |
| 4.5 | 478 | 478 | 717 | 956 | 1196 | 1435 | 1674 | 1913 | 2152 | 2391 | 2630 | 2869 |
| 5.0 | 532 | 532 | 797 | 1063 | 1329 | 1595 | 1861 | 2126 | 2392 | 2658 | 2924 | 3190 |
| 5.5 | 585 | 585 | 878 | 1170 | 1463 | 1755 | 2048 | 2340 | 2633 | 2925 | 3218 | 3510 |
| 6.0 | 639 | 639 | 958 | 1277 | 1597 | 1916 | 2235 | 2555 | 2874 | 3193 | 3512 | 3832 |
| 6.5 | 692 | 692 | 1038 | 1385 | 1731 | 2077 | 2423 | 2769 | 3115 | 3461 | 3808 | 4154 |
| 7.0 | 746 | 746 | 1119 | 1492 | 1865 | 2238 | 2611 | 2984 | 3357 | 3730 | 4103 | 4476 |
| 7.5 | 800 | 800 | 1200 | 1600 | 2000 | 2400 | 2800 | 3200 | 3600 | 4000 | 4400 | 4800 |
| 8.0 | 854 | 854 | 1281 | 1708 | 2135 | 2562 | 2989 | 3416 | 3843 | 4270 | 4697 | 5124 |
| 8.5 | 908 | 908 | 1362 | 1816 | 2270 | 2724 | 3178 | 3632 | 4086 | 4540 | 4994 | 5448 |
| 9.0 | 962 | 962 | 1444 | 1925 | 2406 | 2887 | 3368 | 3849 | 4331 | 4812 | 5293 | 5774 |
| 9.5 | 1017 | 1017 | 1525 | 2034 | 2542 | 3050 | 3559 | 4067 | 4576 | 5084 | 5592 | 6101 |
| 10.0 | 1071 | 1071 | 1607 | 2143 | 2678 | 3214 | 3750 | 4286 | 4821 | 5357 | 5893 | 6428 |

SUPPLEMENTAL TABLES 00000

# APPENDIX 12
# INDEX OF TERMINAL CHARTS AND MINIMUMS

K1

## INDEX
13066

### INDEX OF TERMINAL CHARTS AND MINIMUMS




## INDEX
13066

# APPENDIX 13
# INDEX OF TERMINAL CHARTS AND MINIMUMS - COMPLEX

B3

## INDEX
**13066**

### INDEX OF TERMINAL CHARTS AND MINIMUMS



## INDEX
**13066**

# APPENDIX 14
# LAND AND HOLD SHORT OPERATIONS (LAHSO)

12264

LAND AND HOLD-SHORT OPERATIONS (LAHSO)

LAHSO is an acronym for "Land and Hold-Short Operations." These operations include landing and holding short of an intersection runway, an intersecting taxiway, or other predetermined points on the runway other than a runway or taxiway. Measured distance represents the available landing distance on the landing runway, in feet.

Specific questions regarding these distances should be referred to the air traffic manager of the facility concerned. The Aeronautical Information Manual contains specific details on hold-short operations and markings.

| CITY/AIRPORT | LDG RWY | HOLD-SHORT POINT | AVBL LDG DIST |
|---|---|---|---|
| BATTLE CREEK, MI | | | |
| W.K. KELLOGG (BTL) | 05L | 13-31 | 7,000 feet |
| DETROIT, MI | | | |
| COLEMAN A. YOUNG MUNI (DET) | 15 | 07-25 | 4,900 feet |
| FLINT, MI | | | |
| BISHOP INTL (FNT) | 09 | 18-36 | 4,100 feet |
| | 36 | 09-27 | 6,300 feet |
| TRAVERSE CITY, MI | | | |
| CHERRY CAPITAL (TVC) | 18 | 10-28 | 2,850 feet |
| | 28 | 18-36 | 5,500 feet |

12264

# APPENDIX 15
# HOT SPOTS

12152

HOT SPOTS

An "airport surface hot spot" is a location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

A "hot spot" is a runway safety related problem area on an airport that presents increased risk during surface operations. Typically it is a complex or confusing taxiway/taxiway or taxiway/runway intersection. The area of increased risk has either a history of or potential for runway incursions or surface incidents, due to a variety of causes, such as but not limited to: airport layout, traffic flow, airport marking, signage and lighting, situational awareness, and training. Hot spots are depicted on airport diagrams as open circles or ellipses designated as "HS 1", "HS 2", etc. and tabulated in the list below with a brief description of each hot spot. Hot spots will remain charted on airport diagrams until such time the increased risk has been reduced or eliminated.

| CITY/AIRPORT | HOT SPOT | DESCRIPTION* |
|---|---|---|
| ATWATER, CA | | |
| CASTLE (MER) | HS 1 | Twy A, Twy A1, Twy B, and Twy G complex int. |
| | HS 2 | Twy A and southeast ramp, traffic congestion. |
| CONCORD, CA | | |
| BUCHANAN FLD (CCR) | HS 1 | Rwy 01L-19R, Twy E and Twy J. |
| | HS 2 | Rwy 32L and run-up area, Twy J. |
| | HS 3 | Complex int at Rwy 01R-19L, Twy J, Twy A, Twy C, and Twy K. |
| | HS 4 | Rwy 32L apch, Twy A. |
| HAYWARD, CA | | |
| HAYWARD EXECUTIVE (HWD) | HS 1 | Rwy 10L-28R, Twy E and Twy A. |
| | HS 2 | Area not visible from ATCT. |
| | HS 3 | Area not visible from ATCT. |
| LIVERMORE, CA | | |
| LIVERMORE MUNI (LVK) | HS 1 | Rwy 25R, Twy B. |
| | HS 2 | Rwy 25L, Twy C. |
| | HS 3 | Rwy 07L, Twy H. |
| | HS 4 | Rwy 07R, Twy G. |
| | HS 5 | Rwy 25R, Twy G. |
| | HS 6 | Ints of Twy J, Twy A, and Twy G. |
| NAPA, CA | | |
| NAPA COUNTY (APC) | HS 1 | Twy A, Twy C, Twy E and the ramp. |
| | HS 2 | Rwy 24, Twy A. |
| | HS 3 | Rwy 24 and Rwy 36L. |
| OAKLAND, CA | | |
| METROPOLITAN OAKLAND INTL (OAK) | HS 1 | Rwy 27R, Twy A and Twy B. |
| | HS 2 | Rwy 09L-27R, Twy H, Twy G, Twy C and Twy D. |
| | HS 3 | Rwy 09L and Rwy 33, Twy J, Twy P, and Twy C, complex int. |
| | HS 4 | Area not visible from the South Twr. |
| SACRAMENTO, CA | | |
| SACRAMENTO EXECUTIVE (SAC) | HS 1 | Rwy 16-34 and Rwy 12-30 at Twy M. |
| | HS 2 | Inbound Twy A and outbound Twy B. |
| | HS 3 | Portion of Twy E not visible from twr. |
| SACRAMENTO, CA | | |
| SACRAMENTO INTL (SMF) | HS 1 | Rwy 16R-34L and Twy A10 |
| SALINAS, CA | | |
| SALINAS MUNI (SNS) | HS 1 | Twy A and Twy C int in close proximity of Rwy 08-26. |

(SEE CONTINUATION PAGE FOR MORE LISTINGS)

12152

**APPENDIX 16**
**INSIDE BACK COVER**

INSIDE BACK COVER

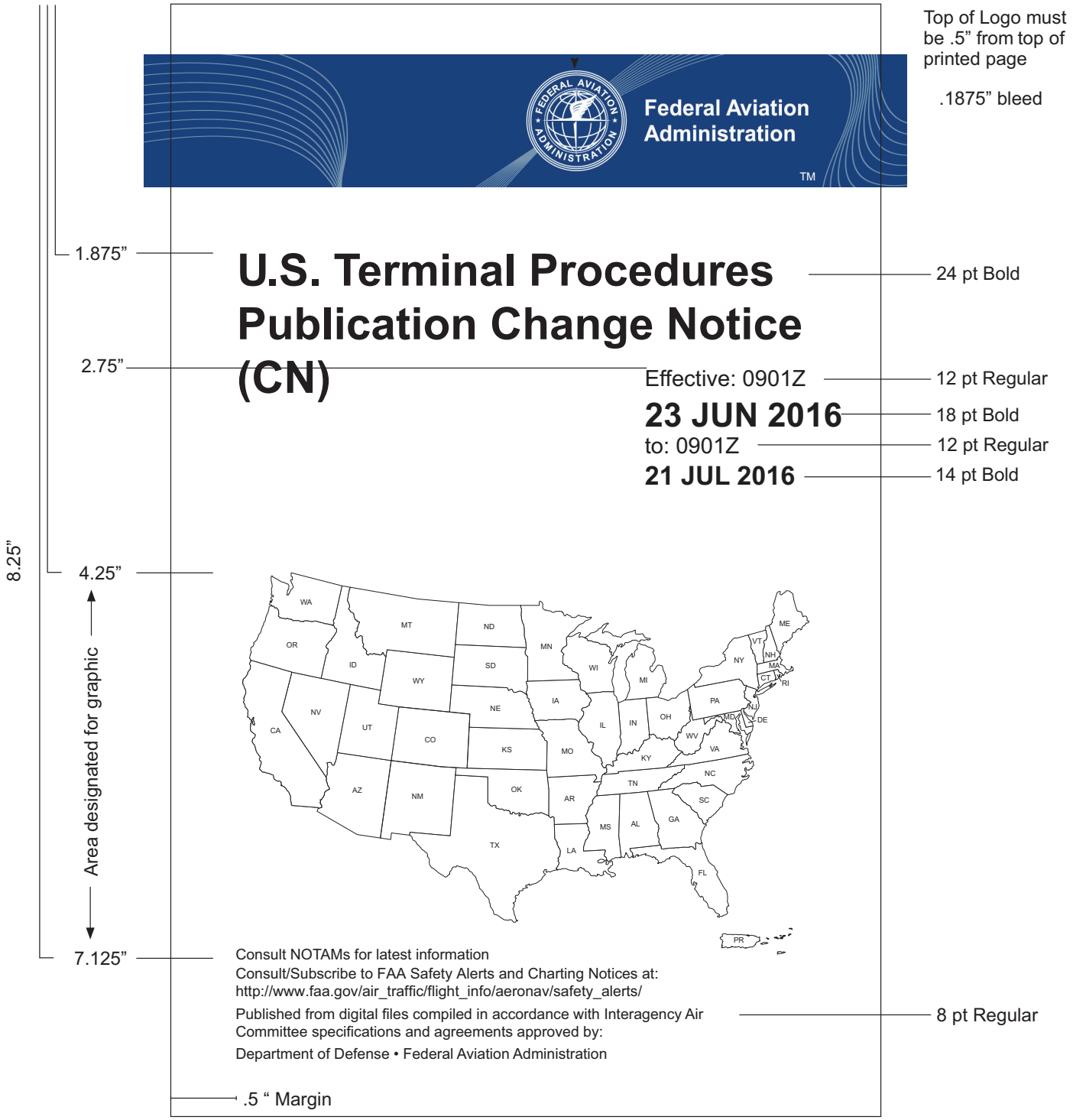
INTENTIONALLY

LEFT

BLANK

# APPENDIX 17
# CN FRONT COVER

All type on cover must be Arial font - no centering.



# APPENDIX 18
# CN INSIDE FRONT COVER

## GENERAL INFORMATION/INSTRUCTIONS

## CHANGE NOTICE (CN) FOR UNITED STATES GOVERNMENT

## TERMINAL PROCEDURES PUBLICATION

GENERAL : The United States Terminal Procedures are published in 25 Bound Volumes on a 56-day cycle. This CN is published at the mid 28-day point and contains revisions, additions and deletions to the last complete issue of the 24 volumes covering the conterminous U.S. There is no CN published for airports in the states of Alaska, Hawaii, or Pacific Islands.

OPERATIONAL USE OF THE CHANGE NOTICE : During flight planning or in the case of an in-flight diversion, it is imperative that the pilot first consult this CN before making any decision as to which procedures are current at the airport of intended landing. If the airport of intended landing is not listed in the supplementary information or Index of Charts then the airport information in the basic 24 volumes has not changed.

INDEX OF TERMINAL PROCEDURES : All civil airports which have revised, added or deleted procedures are listed alphabetically by city in the Index. In addition to the airport name, the Index includes the CN page number, the current procedure designation, the affected page and volume number in the last issue of the 24 conterminous US volumes and an indicaton whether the procedure is new, has been deleted, or replaces an existing procedure.

EFFECTIVE DATES: All procedures in this CN are effective on the dates shown on the front cover unless indicated otherwise in the Index, i.e., if the procedure revision is effective on a date other than the CN publication date, this will be noted in the Index instructions by "Effective (date)". This will also be shown on the planview of the affected Chart(s)

CONSULT CURRENT NOTAMS.

# APPENDIX 19
# CN INDEX OF TERMINAL CHARTS AND MINIMUMS

A1

**INDEX**

**TABLE OF CONTENTS**

**15036**



## INDEX OF TERMINAL CHARTS AND MINIMUMS

| NAME | PROC | SECT PG | ACTION |
|---|---|---|---|
| **ALBUQUERQUE, NM** | | | |
| **ALBUQUERQUE INTL SUNPORT** | | | |
| IAPS | RNAV (RNP) Y RWY 21 | 1 | REPLACE PG. 16 VOL SW-1 |
| | RNAV (RNP) Y RWY 26 | 2 | REPLACE PG. 17 VOL SW-1 |
| | RNAV (RNP) Z RWY 21 | 3 | REPLACE PG. 20 VOL SW-1 |
| | RNAV (RNP) Z RWY 26 | 4 | REPLACE PG. 21 VOL SW-1 |
| | RNAV (GPS) Y RWY 08 | 5 | REPLACE PG. 23 VOL SW-1 |
| **ALFRED C BUBBA THOMAS** | | | |
| ---**SEE SINTON, TX** | | | |
| **ASTORIA, OR** | | | |
| **ASTORIA RGNL** | | | |
| IAPS | ILS RWY 26 | 6 | REPLACE PG. 13 VOL NW-1 |
| **ATKINSON, NE** | | | |
| **STUART-ATKINSON MUNI** | | | |
| IAPS | RNAV (GPS) RWY 29 | 7 | REPLACE PG. 26 VOL NC-2 |
| | VOR/DME RWY 29 | 8 | REPLACE PG. 27 VOL NC-2 |
| **ATKINSON MUNI** | | | |
| ---**SEE PITTSBURG, KS** | | | |
| **ATLANTA, GA** | | | |
| **ATLANTA RGNL FALCON FLD** | | | |
| IAPS | ILS OR LOC RWY 31 | 9 | REPLACE PG. 46 VOL SE-4 |
| | RNAV (GPS) RWY 13 | 10 | REPLACE PG. 47 VOL SE-4 |
| | RNAV (GPS) RWY 31 | 11 | REPLACE PG. 48 VOL SE-4 |
| | NDB RWY 31 | 12 | REPLACE PG. 49 VOL SE-4 |
| **HARTSFIELD-JACKSON ATLANTA INTL** | | | |
| IAPS | RNAV (GPS) PRM RWY 09L | 13 | REPLACE PG. 100 VOL SE-4 |
| | RNAV (GPS) RWY 09L | 14 | REPLACE PG. 102 VOL SE-4 |
| | RNAV (GPS) PRM RWY 09R | 15 | REPLACE PG. 134 VOL SE-4 |
| **AURORA, MO** | | | |
| **JERRY SUMNERS SR AURORA MUNI** | | | |
| IAPS | RNAV (GPS) RWY 18 | 16 | REPLACE PG. 21 VOL NC-3 |
| **BATAVIA, OH** | | | |
| **CLERMONT COUNTY** | | | |
| IAPS | RNAV (GPS) RWY 22 | 17 | REPLACE PG. 44 VOL EC-2 |
| **BEATRICE, NE** | | | |
| **BEATRICE MUNI** | | | |
| IAPS | RNAV (GPS) RWY 14 | 18 | REPLACE PG. 36 VOL NC-2 |
| | VOR RWY 36 | 19 | REPLACE PG. 42 VOL NC-2 |
| **BELLEVILLE, KS** | | | |
| **BELLEVILLE MUNI** | | | |
| IAPS | RNAV (GPS) RWY 36 | 20 | REPLACE PG. 44 VOL NC-2 |

**INDEX**

A1

# APPENDIX 20
# CN IFR TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)

B1

## TAKEOFF MINIMUMS (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)

00000

INSTRUMENT APPROACH PROCEDURE CHARTS

## IFR TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

Civil Airports and Selected Military Airports

ALL USERS: Airports that have Departure Procedures (DPs) designed specifically to assist pilots in avoiding obstacles during the climb to the minimum enroute altitude, and/or airports that have civil IFR takeoff minimums other than standard, are listed below. Takeoff Minimums and Departure Procedures apply to all runways unless otherwise specified. An entry may also be listed that contains only Takeoff Obstacle Notes. Altitudes, unless otherwise indicated, are minimum altitudes in MSL.

DPs specifically designed for obstacle avoidance are referred to as Obstacle Departure Procedures (ODPs) and are textually described below, or published separately as a graphic procedure. If the ODP is published as a graphic procedure, its name will be listed below, and it can be found in either this volume (civil), or the applicable military volume, as appropriate. Users will recognize graphic obstacle DPs by the term "(OBSTACLE)" included in the procedure title; e.g., TETON TWO (OBSTACLE). If not specifically assigned an ODP, SID, or radar vector as part of an IFR clearance, an ODP may be required to be flown for obstacle clearance, even though not specifically stated in the IFR clearance. When doing so in this manner, ATC should be informed when the ODP being used contains a specified route to be flown, restrictions before turning, and/or altitude restrictions.

Some ODPs, which are established solely for obstacle avoidance, require a climb in visual conditions to cross the airport, a fix, or a NAVAID in a specified direction, at or above a specified altitude. These procedures are called Visual Climb Over Airport (VCOA). To ensure safe and efficient operations, the pilot must verbally request approval from ATC to fly the VCOA when requesting their IFR clearance.

At some locations where an ODP has been established, a diverse vector area (DVA) may be created to allow radar vectors to be used in lieu of an ODP. DVA information will state that headings will be as assigned by ATC and climb gradients, when applicable, will be published immediately following the specified departure procedure.

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

CIVIL USERS NOTE: Title 14 Code of Federal Regulations Part 91 prescribes standard takeoff rules and establishes takeoff minimums for certain operators as follows: (1) For aircraft, other than helicopters, having two engines or less – one statute mile visibility. (2) For aircraft having more than two engines – one-half statute mile visibility. (3) For helicopters – one-half statute mile visibility. These standard minima apply in the absence of any different minima listed below.

MILITARY USERS NOTE: Civil (nonstandard) takeoff minima are published below. For military takeoff minima, refer to appropriate service directives.

## EAST CENTRAL VOL. 2

**FINDLAY, OH**

FINDLAY (FDY)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

AMDT 1 06DEC18 (18340) (FAA)

TAKEOFF MINIMUMS:

**Rwy 25,** 300-1¾ or std. w/min. climb of 210' per NM to 1100, or alternatively with std. takeoff minimums and a normal 200' per NM climb gradient, takeoff must occur no later than 1400' prior to DER.

TAKEOFF OBSTACLE NOTES:

**Rwy 7,** road with vehicles beginning 55' from DER, 308' right of centerline, up to 15' AGL/821' MSL.
Wall, pole beginning 121' from DER, 48' left of centerline, up to 10' AGL/816' MSL.
Tree, road with vehicles, pole beginning 154' from DER, 69' right of centerline, up to 32' AGL/838' MSL.
Road with vehicles beginning 210' from DER, 1' left of centerline, up to 15' AGL/821' MSL.
Trees beginning 279' from DER, 45' right of centerline, up to 33' AGL/839' MSL.
Tree, pole, building beginning 338' from DER, 33' left of centerline, up to 26' AGL/832' MSL.
Tree 1715' from DER, 959' right of centerline, 54' AGL/860' MSL.
Trees beginning 1846' from DER, 407' right of centerline, up to 64' AGL/870' MSL.
Building 2374' from DER, 1054' right of centerline, 110' AGL/916' MSL.
Building, tree, wind indicator beginning 2417' from DER, 109' right of centerline, up to 121' AGL/927' MSL.
**Rwy 18,** tree 2786' from DER, 150' left of centerline, 876' MSL.
**Rwy 25,** fence, vegetation beginning 26' from DER, 141' left of centerline, up to 6' AGL/799' MSL.
Road with vehicles beginning 133' from DER, 108' right of centerline, up to 15' AGL/803' MSL.
Sign, tree, pole beginning 473' from DER, 421' right of centerline, up to 64' AGL/852' MSL.
Tree, pole, road with vehicles beginning 785' from DER, 397' right of centerline, up to 15' AGL/802' MSL.
Elevator, tree beginning 1824' from DER, 295' right of centerline, up to 78' AGL/869' MSL.
Trees beginning 2207' from DER, 454' right of centerline, up to 88' AGL/876' MSL.
Elevator 1.2 NM from DER, 1040' right of centerline, 206' AGL/999' MSL.
Elevator 1.3 NM from DER, 1114' right of centerline, 207' AGL/1000' MSL.
**Rwy 36,** pole 1191' from DER, 742' right of centerline, 39' AGL/835' MSL.
Tree 1559' from DER, 498' left of centerline, 51' AGL/847' MSL.

# APPENDIX 21
# CN IFR ALTERNATE AIRPORT MINIMUMS

C1

**A ALTERNATE MINS** A

00000

INSTRUMENT APPROACH PROCEDURE CHARTS

## A IFR ALTERNATE AIRPORT MINIMUMS

Pilots must review the IFR Alternate Minimums Notes to determine alternate airport suitability. ANA designation on the approach chart means that pilots may not use that approach as an alternate due to unmonitored facility, absence of weather reporting service, or lack of adequate navigation coverage. Approaches with the ANA designation are not listed in this section. A designation on the approach chart indicates that the approach procedure has non-standard minimums (for aircraft other than helicopters) or restrictions (for all users) for its use as an alternate. A procedure is not authorized for alternate flight planning purposes when local weather is not available.

MILITARY USERS NOTE: For IFR alternate airport and minima planning, refer to appropriate service directives.

**Alternate Minima (ref: 14 CFR 91.169)**

| | Precision Approach | Non-Precision Approach |
|---|---|---|
| Standard | **600-2** | **800-2** |
| ANon-Standard or restrictions | As indicated below | As indicated below |
| Helicopters | For the selected approach:<br>Ceiling: 200' above published ceiling<br>Visibility: the greater of 1 SM visibility or the published visibility | |

***Note:*** For alternate airport flight planning purposes, precision approach operations include: ILS, PAR, and GLS, and Non-Precision approach operations include: NDB, VOR, LOC, TACAN, LDA, SDF, ASR, RNAV (GPS) and RNAV (RNP).

NAME ALTERNATE MINIMUMS

### EAST CENTRAL VOL 2

**MARION, OH**
MARION MUNI (MNN)……...**RNAV (GPS) Rwy 7**
**RNAV (GPS) Rwy 13**
**RNAV (GPS) Rwy 25**
**VOR-A**
NA when local weather not available.
Cat D 900-2¾.

### NORTH CENTRAL VOL 1

**MILBANK, SD**
MILBANK MUNI (1D1)…….**RNAV (GPS) Rwy 31**
NA when local weather not available.

### NORTHEAST VOL 1

**BOSTON, MA**
GENERAL EDWARD LAWRENCE LOGAN INTL (BOS)……..**ILS or LOC Rwy 4R[1]**
**RNAV (GPS) Rwy 32[2]**
[1]LOC, NA when local weather not available.
[2]Cat A, B 900-2, Cat C, D 900-2½.

NAME ALTERNATE MINIMUMS

### SOUTH CENTRAL VOL 4

**OPELOUSAS, LA**
ST LANDRY PARISH (OPL)……..**VOR Rwy 36**
NA when local weather not available.
Cat D 900-2¾.

### SOUTHWEST VOL 1

**ARTESIA, NM**
ARTESIA MUNI (ATS)…….**RNAV (GPS) Rwy 13**
**RNAV (GPS) Rwy 22**
**RNAV (GPS) Rwy 31**
NA when local weather not available.
Cat D 800-2¼.

### SOUTHWEST VOL 3

**BLYTHE, CA**
BLYTHE (BLH)……**RNAV (GPS) Rwy 26[1]**
**VOR/DME Rwy 26[2]**
**VOR/DME-A[2]**
[1]Cat A, B 1700-2, Cat C, D 1700-3.
[2]Cat D 900-2¾.

**A ALTERNATE MINS** A

00000 C1

# APPENDIX 22
# CN RADAR INSTRUMENT APPROACH MINIMUMS

D1

## RADAR MINS

**15036**

**RADAR INSTRUMENT APPROACH MINIMUMS**

## EAST CENTRAL VOL 1

### BATTLE CREEK, MI

Amdt 2, 13DEC90 (15036) (FAA) ELEV **952**

**W. K. KELLOGG (BTL)**

**RADAR-1** 119.2 239.25

| | RWY | GP/TCH/RPI | CAT | DA/ MDA-VIS | HAT/ HAA | CEIL-VIS | CAT | DA/ MDA-VIS | HAT/ HAA | CEIL-VIS |
|---|---|---|---|---|---|---|---|---|---|---|
| CIRCLING | | | A | **1420**-1 | 468 | (500-1) | B | **1440**-1 | 488 | (500-1) |
| | | | C | **1480**-1½ | 528 | (600-1½) | D | **1520**-2 | 568 | (600-2) |
| | | | E | **1740**-2¾ | 788 | (800-2¾) | | | | |

When Kalamazoo control tower closed, procedure not authorized.
When Battle Creek control tower closed, use Kalamazoo altimeter setting and increase all MDA's 60 feet and Category E visibility ¼ mile.

## EAST CENTRAL VOL 3

### GREEN BAY, WI

Amdt 9C, 06JUL06 (15036) (FAA) ELEV **695**

**AUSTIN STRAUBEL INTL (GRB)**

**RADAR-1** 119.4 338.2

| | RWY | GP/TCH/RPI | CAT | DA/ MDA-VIS | HAT/ HAA | CEIL-VIS | CAT | DA/ MDA-VIS | HAT/ HAA | CEIL-VIS |
|---|---|---|---|---|---|---|---|---|---|---|
| ASR | 36 | | AB | **1100**/24 | 418 | (500-½) | C | **1100**/40 | 418 | (500-¾) |
| | | | D | **1100**/50 | 418 | (500-1) | | | | |
| | 24 | | AB | **1120**-1 | 438 | (500-1) | C | **1120**-1¼ | 438 | (500-1¼) |
| | | | D | **1120**-1½ | 438 | (500-1½) | | | | |
| | 6 | | AB | **1220**/24 | 528 | (600-½) | C | **1220**/50 | 528 | (600-1) |
| | | | D | **1220**/60 | 528 | (600-1¼) | | | | |
| | 18 | | AB | **1220**-1 | 525 | (600-1) | C | **1220**-1½ | 525 | (600-1½) |
| | | | D | **1220**-1¾ | 525 | (600-1¾) | | | | |
| CIRCLING | ALL RWY | | AB | **1220**-1 | 525 | (600-1) | C | **1220**-1½ | 525 | (600-1½) |
| | | | D | **1260**-2 | 565 | (600-2) | | | | |

For inoperative MALSR, increase ASR S-36 Category D visibility to RVR 6000.
When control tower closed, ASR not authorized.

**RADAR INSTRUMENT APPROACH MINIMUMS**

## RADAR MINS

**15036**

D1

# APPENDIX 23
# CN ALASKA

## ALASKA TERMINAL CHANGE

GULKANA, ALASKA AL-1220 (FAA) 25107

| WAAS | APP CRS | Rwy Ldg | 5001 |
|---|---|---|---|
| CH 40343 | 334° | TDZE | 1573 |
| W33A | | Apt Elev | 1586 |

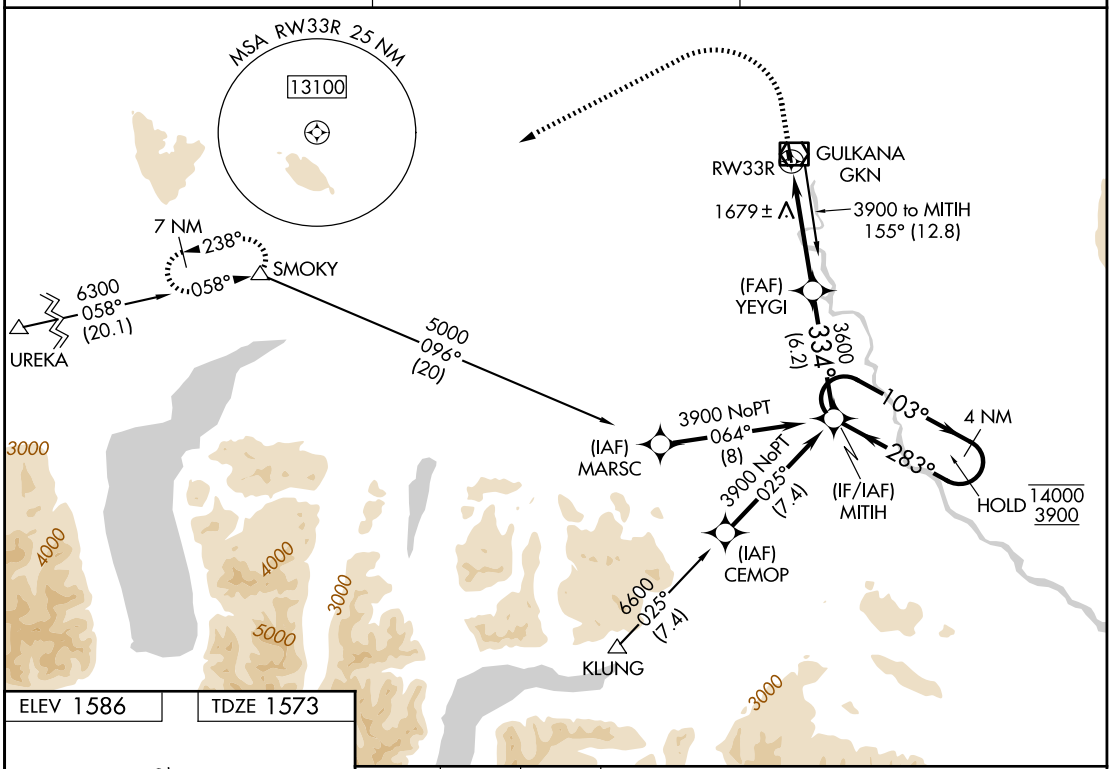
# RNAV (GPS) RWY 33R
GULKANA (GKN) (PAGK)

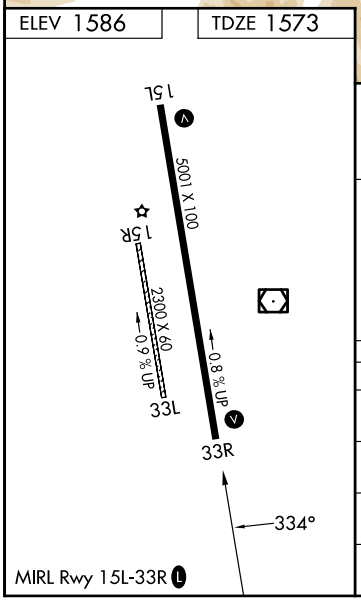
RNP APCH-GPS.

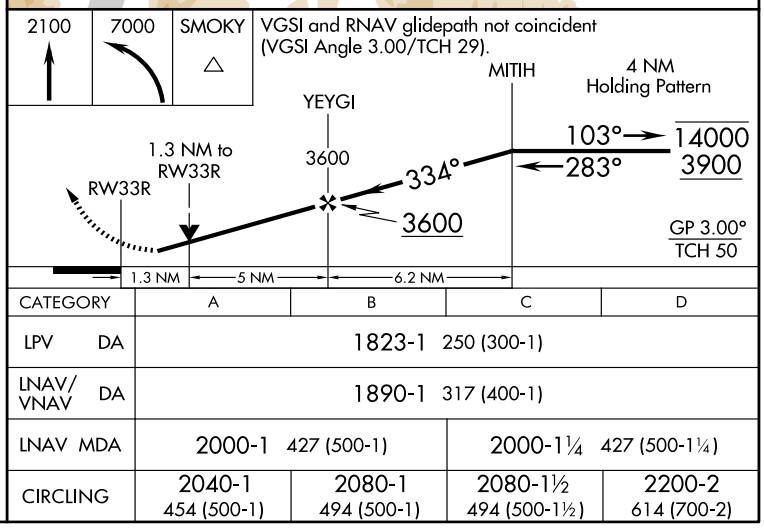
Circling Rwy 15R, 33L NA at night. Rwy 33R helicopter visibility reduction below ¾ SM NA. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -25°C or above 54°C.

MISSED APPROACH: Climb to 2100 then climbing left turn to 7000 direct SMOKY and hold, continue climb-in-hold to 7000.

| ASOS | ANCHORAGE CENTER | CTAF |
|---|---|---|
| 134.85 | 119.5 317.5 | 122.9 L |




| CATEGORY | A | B | C | D |
|---|---|---|---|---|
| LPV DA | 1823-1 250 (300-1) | | | |
| LNAV/VNAV DA | 1890-1 317 (400-1) | | | |
| LNAV MDA | 2000-1 427 (500-1) | | 2000-1¼ 427 (500-1¼) | |
| CIRCLING | 2040-1 454 (500-1) | 2080-1 494 (500-1) | 2080-1½ 494 (500-1½) | 2200-2 614 (700-2) |

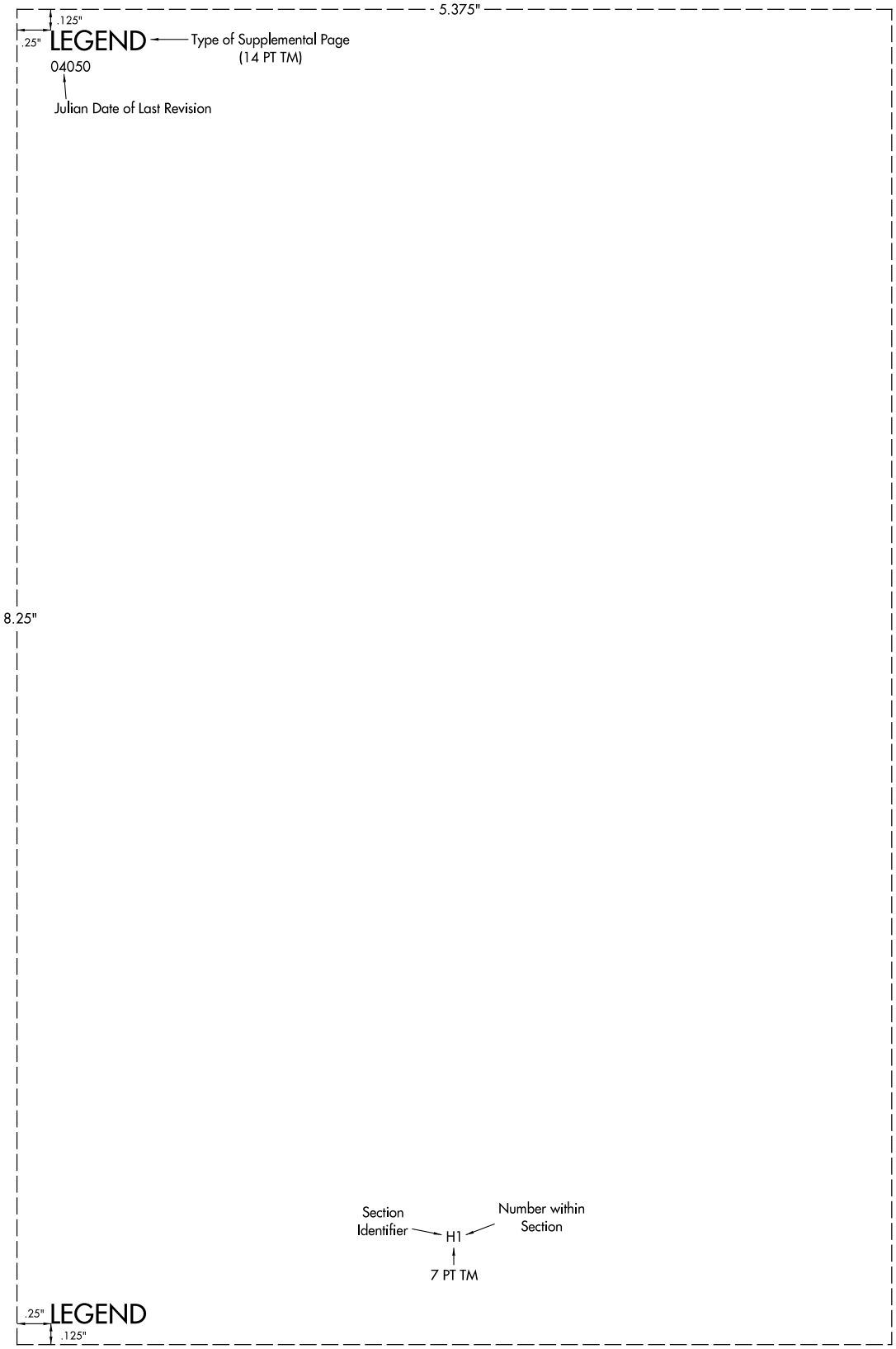
GULKANA, ALASKA
Orig-A 08SEP22

GULKANA (GKN) (PAGK)
RNAV (GPS) RWY 33R

62°09′N-145°27′W

REPLACES PAGE 76

# APPENDIX 24
# SUPPLEMENTAL PAGE FORMAT



Page Intentionally Left Blank