Aeronautical Information Services

Aeronautical Chart
User’s Guide

Terminal Procedure Publications

Effective as of 29 March 2018
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<td>V</td>
<td>47</td>
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<td>W</td>
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</tr>
</tbody>
</table>
A new feature to the Chart User’s Guide is this What’s New section which will highlight new charting symbology and other changes to charts.

The following charting items have been added to the Online Chart User’s Guide since the Guide was last published on 1 February 2018:

**VFR CHARTS**

No Changes Applied

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**IFR ENROUTE CHARTS**

No Changes Applied

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**TERMINAL PROCEDURE PUBLICATIONS (TPPS)**

**BRIEFING STRIP INFORMATION**

Procedure Equipment Requirements Notes Box

Addition of equipment requirements notes box to the IAP briefing strip. For more information see TPP Terms > Briefing Strip Information > Middle Briefing Strip > Notes Box section.

<table>
<thead>
<tr>
<th>Equipment Requirements Notes Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Equipment Box</td>
</tr>
<tr>
<td>Two Equipment Boxes</td>
</tr>
</tbody>
</table>

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INTRODUCTION

This Chart User's Guide is an introduction to the Federal Aviation Administration's (FAA) aeronautical charts and publications. It is useful to new pilots as a learning aid, and to experienced pilots as a quick reference guide.

The FAA is the source for all data and information utilized in the publishing of aeronautical charts through authorized publishers for each stage of Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) air navigation including training, planning, and departures, enroute (for low and high altitudes), approaches, and taxiing charts. Digital charts are available online at:

- VFR Charts - https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/vfr/
- IFR Charts - https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/ifr/
- Chart Supplements - https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/

Paper copies of the charts are available through an FAA Approved Print Provider. A complete list of current providers is available at http://www.faa.gov/air_traffic/flight_info/aeronav/print_providers/

The FAA Aeronautical Information Manual (AIM) Pilot/Controller Glossary defines in detail, all terms and abbreviations used throughout this publication. Unless otherwise indicated, miles are nautical miles (NM), altitudes indicate feet above Mean Sea Level (MSL), and times used are Coordinated Universal Time (UTC).

The Notices to Airmen Publication (NOTAM) includes current Flight Data Center (FDC) NOTAMs. NOTAMs alert pilots of new regulatory requirements and reflect changes to Standard Instrument Approach Procedures (SIAPs), flight restrictions, and aeronautical chart revisions. This publication is prepared every 28 days by the FAA, and is available by subscription from the Government Printing Office. For more information on subscribing or to access online PDF copy, http://www.faa.gov/air_traffic/publications/notices/

In addition to NOTAMs, the Chart Supplement and the Safety Alerts/Charting Notices page of the Aeronautical Information Services website are also useful to pilots.

KEEP YOUR CHARTS CURRENT

Aeronautical information changes rapidly, so it is important that pilots check the effective dates on each aeronautical chart and publication. To avoid danger, it is important to always use current editions and discard obsolete charts and publications.

To confirm that a chart or publication is current, refer to the next scheduled edition date printed on the cover. Pilots should also check Aeronautical Chart Bulletins and NOTAMs for important updates between chart and publication cycles that are essential for safe flight.

EFFECTIVE DATE OF CHART USER’S GUIDE AND UPDATES

All information in this guide is effective as of 29 March 2018. All graphics used in this guide are for educational purposes. Chart symbology may not be to scale. Please do not use them for flight navigation.

The Chart User’s Guide is updated as necessary when there is new chart symbology or changes in the depiction of information and/or symbols on the charts. When there are changes, it will be in accordance with the 56-day aeronautical chart product schedule.

COLOR VARIATION

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

REPORTING CHART DISCREPANCIES

Your experience as a pilot is valuable and your feedback is important. We make every effort to display accurate information on all FAA charts and publications, so we appreciate your input. Please notify us concerning any requests for changes, or potential discrepancies you see while using our charts and related products.

FAA, Aeronautical Information Services
Customer Operations Team
1305 East-West Highway
SSMC4 Suite 4400
Silver Spring, MD 20910-3281

Telephone Toll-Free 1-800-638-8972
E-mail: 9-AMC-Aerochart@faa.gov
The U.S. Terminal Procedures Publication (TPPs) includes the Instrument Approach Procedures (IAPs), Departure Procedures (DPs) charts, Standard Terminal Arrival (STAR) charts, Charted Visual Flight Procedure (CVFP) charts, and Airport Diagrams. Also included are Takeoff Minimums, (Obstacle) Departure Procedures, Diverse Vector Area (RADAR Vectors), RADAR and Alternate Minimum textual procedures.

EXPLANATION OF TPP TERMS AND SYMBOLS

The information and examples in this section are based primarily on the IFR (Instrument Flight Rules) Terminal Procedures Publication (TPP). The publication legends list aeronautical symbols with a brief description of what each symbol depicts. This section will provide more detailed information of some of the symbols and how they are used on TPP charts.

FAA Terminal charts are prepared in accordance with specifications of the Interagency Air Committee (IAC) and their supporting technical groups for the purpose of standardization, which are approved by representatives of the Federal Aviation Administration (FAA), and the Department of Defense (DoD).

The Terminal Procedure Publication is made up of the following charts:

- Instrument Approach Procedure (IAP) Charts
- Airport Diagrams
- Departure Procedures (DP)
- Standard Terminal Arrival (STAR) Charts
- Charted Visual Flight Procedure (CVFP) Charts
The IAPs (charts) are divided into various sections:

- Margin Identification Information
- Briefing Strip Information
- Planview
- Missed Approach Information
- Profile View
- Landing Minimums
- Airport Sketch

NOT FOR NAVIGATION

FAA Chart User's Guide - Terminal Procedures Publication (TPP) - Terms
Margin Identification Information

The margin identification at the top, bottom, and sides of the chart provides information about the airport location, procedure identification, and chart currency. The charts are organized by city first, then airport name and state, with the exception of military charts, which are organized by airport name. Going from the top of the chart, reading from left to right, and going down the chart, Margin Identification Information is organized in the following way.

Top Margin Information:

The city and state with which the airport is associated is located on both the top and bottom margins.

At the center of the top margin is the FAA numbering system. This Approach and Landing (AL) number is followed by the organization responsible for the procedure in parentheses, e.g., AL-18 (FAA), AL-227 (USAF).

The procedure title is located on both the top and bottom margins. It is derived from the type of navigational facility that is providing the final approach course guidance. The title is abbreviated, e.g. ILS, RNAV, NDB, etc. For airports with parallel runways and simultaneous approach procedures, “L”, “R” or “C” follows the runway number to distinguish between left, right, and center runways.
The airport name is shown on both the top and bottom margins below the procedure title. The airport identifier is shown in parentheses following the airport name. Airports outside the contiguous United States will be shown with the FAA designated identifier followed by the ICAO location identifier.

The Date of Latest Revision is shown on the top margin above the procedure title. The Date of Latest Revision identifies the Julian date the chart was 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).

<table>
<thead>
<tr>
<th>Year</th>
<th>Day of Year</th>
</tr>
</thead>
</table>

**Side Margin Information:**

The side margins show the volume identification, i.e. SW-3, followed by the current issue date and the next issue date, e.g. SW-3, 21 JUL 2016 to 15 SEP 2016.

**Bottom Margin Information:**

The FAA Procedure Amendment Number, located on the left bottom margin below the City, State, 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 and effective date represent procedural/criteria revisions to the charted procedure, e.g., course, fix, altitude, minima, etc.

Example: Original Procedure Date

```
WASHINGTON, DC
Orig 10DEC15
```

Example: Amendment Procedure Date

```
WASHINGTON D.C.
Amdt 18 28MAY15
```

The coordinates for the airport reference point are located at the center of the bottom margin.

**BRIEFING STRIP INFORMATION**

At the top of every TPP is the Briefing Strip which consists of three stacked strips of information immediately above the planview. Information varies depending upon the type of procedure.
Top Briefing Strip

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

1. **Box 1: Primary Procedure Navigation Information**: 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 are shown stacked top to bottom. If the primary navigation type is LAAS, then the following information is shown, stacked top to bottom: LAAS, CH NNNN, RPI XXXX. If there is not a primary Navigation Box required, the first box is removed.

2. **Box 2: Final Approach Course Information**: The inbound Approach Course (APP CRS) is shown.

3. **Box 3: Runway Landing Information**: Stacked top to bottom, the runway landing distance (Rwy Ldg), the Touchdown Zone Elevation (TDZE) or Threshold Elevation (THRE), and the Airport Elevation (Apt Elev) are shown. Rwy Ldg may not reflect full runway length due to displaced thresholds and shorter declared distances.

**Top Briefing Strip Examples:**

- **Ground based NAVAID**: DENVER, COLORADO  
  LOC/DME I-DZG 111.55 Ch 52 [Y]  
  APP CRS 082°  
  Rwy Ldg 12000  
  TDZE 5352  
  Apt Elev 5434

- **RNAV-WAAS**: DENVER, COLORADO  
  WAAS CH 82628 W16B  
  APP CRS 173°  
  Rwy Ldg 16000  
  TDZE 5326  
  Apt Elev 5434

- **LAAS**: NEWARK, NEW JERSEY  
  CH 22727 G04A  
  APP CRS 039°  
  Rwy Ldg 8460  
  TDZE 10  
  Apt Elev 18

- **No Primary NAVAID box**: DENVER, COLORADO  
  APP CRS 173°  
  Rwy Ldg 12000  
  TDZE 5339  
  Apt Elev 5434

- **Circling Approach**: ROANOKE, VIRGINIA  
  VOR ODR 114.0  
  APP CRS 236°  
  Rwy Ldg N/A  
  TDZE N/A  
  Apt Elev 1175
Sidestep Procedure:

**Middle Briefing Strip**

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

- **Box 1: Notes Box:** contains procedure notes, Equipment/Requirements Notes box and Takeoff, Alternate, RADAR, WAAS, and/or Cold Weather indicators (details provided below under Notes Box).

- **Box 2: Approach Lighting System Box (when applicable):** shows the approach lighting system name and charting icon. Multiple approach lighting systems may be shown for approaches that have straight-in minimums for parallel runways.

- **Box 3: Missed Approach Procedure Text Box:** The full textual description of the missed approach procedure is provided here.

**Notes Box**

**Procedure Equipment Requirements Notes Box**

Users will begin to see Performance-Based Navigation (PBN) Requirements and ground-based Equipment Requirements 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. The separate Equipment Requirements Box will list ground-based equipment requirements.

On procedures with both PBN elements and ground-based equipment requirements, the PBN requirements box will be listed first.
Notes Symbols

Several different symbols may appear within the Notes Box:

- **V** Non-Standard Takeoff minimums and/or Departure Procedures exist. Refer to Takeoff Minimum, (Obstacle) Departure Procedures, and Diverse Vector Area (RADAR VECTORS) section of the TPP.

- **A** Non-standard IFR alternate minimums exist. Refer to IFR Alternate Airport Minimums section of the TPP.

- **NA** Alternate minimums are not authorized due to unmonitored facility or absence of weather reporting service.

- **W** WAAS (Wide Area Augmentation System)

- **-12°C** Cold Temperature Restricted Airport

The negative **W** within a black square box shown in the Notes section below any “A” or “T” Symbol indicates that outages of the WAAS (Wide Area Augmentation System) 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.

When **-12°C** appears in the Notes section below all other symbols it indicates a cold temperature altitude correction is required at that airport when the reported temperature is at or below the published restricted temperature. Advise ATC when altitude correction is made in the intermediate and/or missed approach segment. Reporting corrections to ATC in final segment is not required. See Notices to Airmen Publication (NTAP) Graphic Notices General for complete list of published airports, temperature/s, segments and procedure information.

When “ASR”, “PAR” or “ASR/PAR” appear in the Note section immediately below the “T” and “A” symbols it indicates there are published Radar Instrument Approach Minimums. Where radar is approved for approach control service, it is used not only for radar approaches (Airport Surveillance Radar [ASR] and Precision Approach Radar [PAR]) but is also used to provide vectors in conjunction with published non-radar approaches based on radio NAVAIDs (ILS, VOR, NDB, TACAN). Radar vectors can provide course guidance and expedite traffic to the final approach course of any established IAP or to the traffic pattern for a visual approach.

**Bottom Briefing Strip (Communications Information)**

The communications briefing strip contains communication information when available, in separate boxes, listed from left to right in the order that they would be used during arrival with the tower frequency box bolded:

```
<table>
<thead>
<tr>
<th>ATIS</th>
<th>APP CON</th>
<th>TOWER</th>
<th>GND CON</th>
<th>CLNC DEL</th>
<th>UNICOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
</tbody>
</table>
```

- ATIS, AFIS (AK Only) or ASOS/AWOS frequencies (when available, ATIS or AFIS will be the only weather frequency/s published)
- the Approach Control (APP CON) name and frequencies; when the approach service is provided by other than Approach Control, e.g. FSS (Radio), Tower, Center, the appropriate air traffic facility call name is provided.
- the Control Tower (TWR) name and frequencies, to include Precision Radar Monitoring (PRM) and frequency
- Ground Control (GND CON) frequencies
- Clearance Delivery (CLNC DEL) frequencies; where a Control Tower does not exist or is part-time, a remoted CLNC DEL may be listed.
- Controller Pilot Data Link Communication (CPDLC)
- Ground Communications Outlet (GCO) frequency
- Common Traffic Advisory Frequency (CTAF), shown in parentheses when shares a frequency, e.g. UNICOM 122.8 (CTAF)
- UNICOM or AUNICOM frequency

Note: Part-time operations will be annotated with a star. Check Chart Supplement for times of operation.
PLANVIEW

The planview of the IAP charts provides an overhead view of the entire instrument approach procedure.

The data on the planview is shown to scale, unless concentric rings, scale breaks or an inset have been used.

Approach Segments
- NAVAIDs
- Restrictive Airspeeds
- Restrictive Altitudes
- Holding Patterns and Procedure Turns
- Airports
- Relief (Terrain Features)
- Hydrography
- International Boundary
- Obstacles (Man-made, Terrain and Vegetation)
- Special Use Airspace
- Minimum Safe Altitude
- Terminal Arrival Areas

Approach Segments

The planview includes a graphical depiction of procedure entry through missed approach.

Sample IAP Example

Legend
- Feeder Route
- Initial Approach
- Intermediate Approach
- Final Approach Course
- Missed Approach
Complex IAP Example with RF Legs

- **Feeder Routes** (highlighted in blue - See Simple IAP Example on previous page) may be used to provide a transition from the enroute structure to the IAF.

- **Initial Approach** (highlighted in purple in examples above) is the segment between the initial approach fix (IAF) and the intermediate fix (IF) or the point where the aircraft is established on the intermediate course or final approach course.

- **Intermediate Approach** (highlighted in yellow in examples above) is the segment between the intermediate fix or point and the final approach fix.

- **Final Approach Course** (highlighted in red in the examples above) is the segment between the final approach fix or point and the runway, airport, or missed approach point.

- **Missed Approach** (highlighted in green in the example above) begins at the MAP and continues until the designated fix or waypoint. Missed Approach Procedure Track is shown as a hash marked line in the planview. If the missed approach point falls outside of the area of the planview it will be shown in a separate box in the planview.
- DME arcs or Radius-to-Fix legs (RF) are shown as smooth arcs from a designated start point to a designated terminus.

- Visual Approach Track is shown on procedures that are authorized to proceed visually such as on procedures that terminate or have missed approaches to the airport.
NAVAIDS

NAVAIDs used on ground based charts will show the appropriate symbol accompanied by a data box that contains the facility name, frequency, identifier and Morse code. A NAVAID box with a heavy line indicates the primary NAVAID used for the approach.

NAVAIDs used on GPS based charts show the appropriate symbol identified with the name and identifier.

Primary NAVAID - LOC

Localizer Depiction

The localizer is depicted in the Planview using the following symbol. The size of the charted localizer symbol does not serve as an indication of the service volume.

Restrictive Airspeeds Along the Procedure Track

Restrictive airspeeds along the procedure track are shown paired with their respective fix/facility.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended Speed</td>
<td>Recommended speed is depicted with no lines above or below it</td>
<td>180K</td>
</tr>
<tr>
<td>Minimum Speed</td>
<td>Minimum speed is depicted as a number with a line below it</td>
<td>120K</td>
</tr>
<tr>
<td>Maximum Speed</td>
<td>Maximum speed is depicted as a number with a line above it</td>
<td>250K</td>
</tr>
<tr>
<td>Mandatory Speed</td>
<td>Mandatory speed is depicted as a number with a line above and below it</td>
<td>175K</td>
</tr>
</tbody>
</table>
Altitudes

Restrictive altitudes along the procedure track are shown paired with their respective fix/ facility. Minimum, Maximum, Mandatory and Recommended Altitudes are shown.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended Altitude</td>
<td>Recommended altitude is depicted with no lines above or below it</td>
<td>3000</td>
</tr>
<tr>
<td>Minimum Altitude</td>
<td>Minimum altitude is depicted as a number with a line below it</td>
<td>2500</td>
</tr>
<tr>
<td>Maximum Altitude</td>
<td>Maximum altitude is depicted as a number with a line above it</td>
<td>4300</td>
</tr>
<tr>
<td>Mandatory Altitude</td>
<td>Mandatory altitude is depicted as a number with a line above it</td>
<td>5500</td>
</tr>
<tr>
<td>Mandatory Block Altitude</td>
<td>Mandatory block altitude is depicted with a minimum and a maximum altitude.</td>
<td>5000 3000</td>
</tr>
</tbody>
</table>

Holding Patterns and Procedure Turns

Holding Patterns are used for many reasons, including deteriorating weather or high traffic volume. Holding might also be required following a missed approach. Each holding pattern has a fix, a direction to hold from the fix, and an airway, bearing, course, radial, or route on which the aircraft is to hold. These elements, along with the direction of the turns, define the holding pattern.

Missed Approach, In Lieu of Procedure Turn, Hold with Leg Length, Arrival

If a holding pattern has a non-standard speed restriction, it will be depicted by an icon with the limiting air speed shown inside the holding pattern symbol. These elements, along with the direction of the turns, define the holding pattern. If two types of holds are located at the same point, the procedural holding pattern will be shown in lieu of arrival or missed approach holding patterns.

Waypoints designated as a holding fix are shown as fly-by, without the circle around the symbol. However, in the event the holding fix/waypoint is also designated in some other part of the procedure (i.e., IAF) with a fly-over function, then the holding fix/waypoint will be charted as a fly-over point.

A procedure turn is the maneuver prescribed to perform a course reversal to establish the aircraft inbound on an intermediate or final approach course. The procedure turn or hold-in-lieu-of procedure turn is a required maneuver when it is depicted on the approach chart. However, the procedure turn or the hold-in-lieu-of PT is not permitted when the symbol “NoPT” is depicted on the initial segment being flown, when a RADAR VECTOR to the final approach course is provided, or when conducting a timed approach from a holding fix. The procedure turn will be shown in the planview and in the profile of the chart.
Airports

The primary approach airport is shown to scale by a pattern of all the runways. Airports other than the primary approach airport may be shown with an airport pattern and name when in close proximity to the primary airport.

Relief (Terrain Features)

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

If the terrain within the planview exceeds 4,000 feet above the airport elevation, or
If the terrain within a 6.0 nautical mile radius of the Airport Reference Point (ARP) rises to at least 2,000 feet above the airport elevation.

When an airport meets either of the above criteria, terrain will be charted by use of contours, spot elevations, and gradient tints of brown on all IAPs for that airport. Contour layers will be shown in no more than five brown tints, with consecutively darker tints used for consecutively higher elevation contour layers.
Hydrography (Water)

Water Depiction is depicted in grey, in the planview portion of IAPs. See previous example. The following hydrographic
features are shown:

- Oceans
- Significant rivers and streams
- Significant lakes - If only one river or one small lake is involved, not located in the immediate airport vicinity, the
  hydrographic information requirement may be waived.

International Boundary

When the planview includes a boundary of another country the International boundaries are shown by a dashed line.
International boundaries are identified with country name within the country area.

Obstacles (Man-made, Terrain and Vegetation)

Obstacles are shown as a \( \triangle \) when they are man-made or vegetation or as a \( \bullet \) when they are terrain. The highest obsta-
cle, whether man-made or terrain is depicted with a bolder and larger symbol along with larger elevation font size. Any ob-
stacle 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 specifically identified by the approving authority for charting shall be
charted regardless of the 67:1 requirement.

Unverified obstacles shall be indicated by a doubtful accuracy symbol ± following the elevation value.

On non-precision approaches, obstacles should be considered when determining where to begin descent from the MDA.

Special Use Airspace (SUA)

SUAs consists of that airspace wherein activities must be confined because of their nature, or wherein limitations are imposed upon aircraft operations that are not a part of those activi-
ties, or both. These are prohibited areas, restricted areas, warning areas, Military Operations
Areas (MOAs), and alert areas. SUA that falls within the area of coverage of the instrument
approach procedure chart are shown only when designated by the approving authority.

Air Defense Identification Zone (ADIZ)

ADIZ is an area of airspace in which the identification, location, and control of aircraft is re-
quired in the interest of national security. When designated by the approving authority, ADIZ
boundaries that fall within the area of coverage of the chart are shown.
Minimum Safe Altitude (MSA)

MSAs are published for emergency use on IAP charts. MSAs appear in the planview of all IAPs except on approaches for which a Terminal Arrival Area (TAA) is used. The MSA is based on the primary NAVAID, waypoint, or airport reference point on which the IAP is predicated. The MSA depiction on the approach chart contains the identifier of the NAVAID/waypoint/airport used to determine the MSA altitudes. MSAs are expressed in feet above mean sea level and normally have a 25 NM radius; however, this radius may be expanded to 30 NM if necessary to encompass the airport landing surfaces. Ideally, a single sector altitude is established and depicted on the planview of approach charts; however, when necessary to obtain relief from obstructions, the area may be further sectored and as many as four MSAs established. When established, sectors may be no less than 90° in spread. MSAs provide 1,000 feet clearance over all obstructions but do not necessarily assure acceptable navigation signal coverage.

Terminal Arrival Areas (TAAs)

The TAA icons will be positioned in the planview relative to their relationship to the procedure. The icon will not have feeder routes, airways, or radar vectors depicted. The TAA provides a transition from the enroute structure to the terminal environment with little required pilot/air traffic control interface for aircraft equipped with Area Navigation (RNAV) systems.

A standard TAA has three areas: straight-in, left base, and right base. The arc boundaries of the three areas of the TAA are published portions of the approach. A TAA provides minimum altitudes with standard obstacle clearance when operating within the TAA boundaries. TAAs are primarily used on RNAV approaches but may be used on an ILS approach when RNAV is the sole means for navigation to the IF; however, they are not normally used in areas of heavy concentration of air traffic.

Example of Standard TAA
Non-standard TAAs may also be published; i.e., one base leg, no base legs.

Example of Non-Standard TAA

**MISSED APPROACH INFORMATION**

Missed approach information is shown in 3 locations on the chart:

- The Middle Briefing Strip - The complete textual missed approach instructions are provided at the top of the approach chart in the middle pilot briefing strip.

- The Planview - The missed approach track is drawn using a thin, hash marked line with a directional arrow. If the missed approach point is off the chart, the missed approach track shall extend to the chart border.

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

<table>
<thead>
<tr>
<th>13000</th>
<th>TEKGU INTR R-19</th>
<th>EKR R-179</th>
<th>WOKPA EKR 44.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIL R-250</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Missed Approach Text**

MISSED APPROACH: Climb to 13000 on RIL VOR/DME R-250 to TEKGU INT/RIL 19 DME and on EKR VOR/DME R-179 to WOKPA/EKR 44.2 DME and hold, continue climb-in-hold to 13000.

<table>
<thead>
<tr>
<th>8000</th>
<th>Reverse Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVC R-128</td>
<td></td>
</tr>
</tbody>
</table>

**Missed Approach Text**

MISSED APPROACH: Climbing left turn to 8000 via SVC R-128, then reverse course to SVC VOR/DME and hold.

<table>
<thead>
<tr>
<th>9000</th>
<th>JETRY 6700</th>
<th>PAKPE 112°</th>
<th>WULKU 289°</th>
<th>JNC</th>
</tr>
</thead>
<tbody>
<tr>
<td>tr 112°</td>
<td>tr 112°</td>
<td>tr 160°</td>
<td>tr 160°</td>
<td></td>
</tr>
</tbody>
</table>

**Missed Approach Text**

MISSED APPROACH: Climb to 9000 on track 112° to JETRY, cross JETRY at or above 6700, and on track 112° to PAKPE, right turn to WULKU, and on track 289° to JNC VOR/DME and hold.

<table>
<thead>
<tr>
<th>14000</th>
<th>HOMDU 174°</th>
<th>DEVEC 160°</th>
<th>FTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>tr 174°</td>
<td>tr 160°</td>
<td>tr 160°</td>
<td></td>
</tr>
</tbody>
</table>

**Missed Approach Text**

MISSED APPROACH: Climb to 14000 via 174° course to HOMDU and via 160° track to DEVEC and 160° track to FTI VORTAC and hold.

<table>
<thead>
<tr>
<th>5800</th>
<th>10000</th>
<th>SVC R-193</th>
<th>KUNRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>hdg 190°</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Missed Approach Text**

MISSED APPROACH: Climb to 5800, then climbing left turn to 10000 via heading 190° and SVC VOR/DME R-193 to KUNRE INT/SVC VOR/DME 24.1 DME and hold.

---

**PROFILE VIEW**

A profile diagram of the instrument approach procedure is shown below the planview. The published descent profile and graphical depiction of the vertical path using those facilities, intersections, fixes, etc. identified in the procedure to the runway are shown. A profile view of the procedure track is shown. The approach track begins toward the top of the primary facility line, unless otherwise dictated by the procedure, and shall descend to where the final approach ends and the missed approach begins.

![Profile View Diagram]

**RNAV and GLS PROCEDURES WITH VERTICAL GUIDANCE**

![RNAV and GLS Diagram]

Visual segment below MDA/DA is clear of obstacles on 34:1 slope. (Absence of shaded area indicates 34:1 is not clear.)
Precision Approaches

On precision approaches, the glideslope (GS) intercept altitude is illustrated by a zigzag line and an altitude. This is the minimum altitude for GS interception after completion of the procedure turn. Precision approach profiles also depict the GS angle of descent, threshold crossing height (TCH) and GS altitude at the outer marker (OM) or designated fix.

Non-Precision Approaches

On nonprecision approaches, the final segment begins at the Final Approach Fix (FAF) which is identified with the Maltese cross symbol ✶. When no FAF is depicted, the final approach point is the point at which the aircraft is established inbound on the final approach course. Stepdown fixes may also be provided between the FAF and the airport for authorizing a lower minimum descent angle (MDA) and are depicted with the fix or facility name and a dashed line. On RNAV procedures without precision minima i.e., DAs, the approach track descends to the MDA or VDP point, thence horizontally to the missed approach point. On non-RNAV procedures without precision minima, the horizontal segment is shown from the VDP, when it exists, or the MDA when there is no VDP, and a vertical glide angle/TCH is provided.

Visual Descent Point (VDP)

The Visual Descent Point (VDP), is shown by a bold letter “V” positioned above the procedure track and centered on the accompanying dashed line. (See example below.) The VDP is a defined point on the final approach course of a nonprecision straight-in approach procedure from which normal descent from the MDA to the runway touchdown point may be commenced.
Visual Descent Angle (VDA) and Threshold Crossing Heights (TCH)

A VDA and TCH may be published on non-precision approaches. The VDA is strictly advisory and provides a means to establish a stabilized descent to the MDA. The presence of a VDA does not guarantee obstacle protection in the visual segment. If there are obstacles in the visual segment that could cause an aircraft to destabilize the approach between MDA and touchdown, the profile will not show a VDA and will instead show a note that states either “Descent Angle NA” or “Descent Angle NA-Obstacles”.

Visual Flight Path

Instrument approach procedures that terminate or have missed approaches prior to the airport, and are authorized to proceed visual, shall be shown by the dashed line symbol from the missed approach point to the airport. The note “Fly visual” along with the bearing and distance shall be shown leadered to the visual flight path.

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.

Chart Examples

<table>
<thead>
<tr>
<th>Traditional (NAVAID) Approach</th>
<th>RNAV Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chart.png" alt="Chart Example" /></td>
<td><img src="chart.png" alt="Chart Example" /></td>
</tr>
</tbody>
</table>

ILS Glide Slope and RNAV Glidepath

A note providing the glide slope (GS) or glidepath (GP) angle and the threshold crossing height (TCH), are positioned in the lower half of the profile box

- GS will be shown on all ILS procedures.
- GP will be shown GLS procedures and all RNAV procedures with a published decision altitude

Threshold Crossing Height (TCH) has been traditionally used in “precision” approaches as the height of the glide slope above threshold. With publication of LNAV/VNAV minimums and RNAV descent angles, including graphically depicted descent profiles, TCH also applies to the height of the “descent angle,” or glidepath, at the threshold.

34:1 Surface Clear Stipple Symbol

On RNAV approach charts, a small shaded arrowhead shaped symbol from the end of the VDA to the runway indicates that the 34:1 Obstacle Clearance Surface (OCS) for the visual segments is clear of obstacles. (See example in VDP Section.)
### LANDING MINIMUMS

The landing minimums section is positioned directly below the profile. This section gives the pilot the lowest altitude and visibility requirements for the approach. There are two types of landing minimums: Straight-in landing or Circling. Straight-in landing minimums are the MDA and visibility, or DH and visibility, required for a straight-in landing on a specified runway. Circling minimums are the MDA and visibility required for the circle-to-land maneuver.

The minimums for straight-in and circling are located under each aircraft category. When there is not a division line between minimums for each category, the minimums apply to two or more categories.

#### LANDING MINIMA FORMAT

In this example airport elevation is 1179, and runway touchdown zone elevation is 1152.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-ILS 27</td>
<td>1352/24</td>
<td>200</td>
<td>200 (200-½)</td>
<td></td>
</tr>
<tr>
<td>S-LOC 27</td>
<td>1440/24</td>
<td>288</td>
<td>(300-½)</td>
<td>1440/50</td>
</tr>
<tr>
<td>CIRCLING</td>
<td>1540-1</td>
<td>1640-1</td>
<td>1640-½</td>
<td>1740-2</td>
</tr>
<tr>
<td></td>
<td>361 (400-1)</td>
<td>461 (500-1)</td>
<td>461 (500-½)</td>
<td>561 (600-2)</td>
</tr>
</tbody>
</table>

#### COPTER MINIMA ONLY

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-176°</td>
<td>680-½</td>
<td>363</td>
<td>(400-½)</td>
<td></td>
</tr>
</tbody>
</table>

A second category of straight-in minimums called "sidestep" may be depicted where parallel runways exist.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-ILS 24R</td>
<td>320/18</td>
<td>200</td>
<td>200 (200-½)</td>
<td></td>
</tr>
<tr>
<td>S-LOC 24R</td>
<td>460/24</td>
<td>340 (400-½)</td>
<td>460/40</td>
<td>340 (400-½)</td>
</tr>
<tr>
<td>SIDESTEP RWY 24L</td>
<td>580/50</td>
<td>459 (500-1)</td>
<td>580-½</td>
<td>459 (500-½)</td>
</tr>
</tbody>
</table>

The terms used to describe the minimum approach altitudes differ between precision and nonprecision approaches. Precision approaches use DH, which is referenced to the height above threshold elevation (HAT). Nonprecision approaches use MDA, referenced to “feet MSL.” The MDA is also referenced to HAT for straight-in approaches, or height above airport (HAA) for circling approaches. The figures listed parenthetically are for military operations and are not used in civil aviation.

The visibility values are shown after the DA/DH or MDA. They are provided in statute miles or runway visual range (RVR). RVR is reported in hundreds of feet. If the visibility is in statute miles, there is an altitude number, hyphen, whole or fractional number, e.g. 530-1. This indicates 530 feet MSL and 1 statute mile of visibility. The RVR value is separated from the minimum altitude with a slash, e.g., 1540/24. This indicates 1540 feet MSL and RVR of 2400 feet.
When a reference mark (*, **, #, etc.) is shown on a line of minimums, the qualifying footnote is provided in the notes section.

**Circling Minimums**

There was a change to the TERPS criteria in 2012 that affects circling area dimension by expanding the areas to provide improved obstacle protection. To indicate that the new criteria had been applied to a given procedure, a * is placed on the circling line of minimums. The new circling tables and explanatory information is located in the Legend of the TPP.

The approaches using standard circling approach areas can be identified by the absence of the * on the circling line of minima.
AIRPORT SKETCH

The airport sketch is a depiction of the airport with emphasis on runway pattern and related information, positioned in either the lower left or lower right corner of the chart to aid pilot recognition of the airport from the air and to provide some information to aid on ground navigation of the airport. The runways are drawn to scale and oriented to true north. Runway dimensions (length and width) are shown for all active runways.

Runway(s) are depicted based on what type and construction of the runway.

<table>
<thead>
<tr>
<th>Hard Surface</th>
<th>Other Than Hard Surface</th>
<th>Metal Surface</th>
<th>Closed Runway</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Hard Surface" /></td>
<td><img src="image" alt="Other Than Hard Surface" /></td>
<td><img src="image" alt="Metal Surface" /></td>
<td><img src="image" alt="Closed Runway" /></td>
</tr>
</tbody>
</table>

Taxiways and aprons are shaded grey. Other runway features that may be shown are runway numbers, runway dimensions, runway slope, arresting gear, and displaced threshold.

Other information concerning lighting, final approach bearings, airport beacon, obstacles, control tower, NAVAIDs, heli-pads may also be shown.

**Airport Elevation and Touchdown Zone/Threshold Elevation**

The airport elevation is shown enclosed within a box in the upper left corner of the sketch box and the touchdown zone (TDZE) or threshold elevation (THRE) is shown in the upper right corner of the sketch box. The airport elevation is the highest point of an airport’s usable runways measured in feet from mean sea level. The touchdown zone is the highest elevation in the first 3,000 feet of the landing surface while the threshold elevation is the elevation of the runway threshold. The chart will show either the TDZE or THRE, except for circling only approaches which will show neither.

**Runway Declared Distance Information**

Runway declared distance information when available will be indicated by ![Distance](image) and is shown to the right of the airport elevation in the sketch box. Declared distances for a runway represent the maximum distances available and suitable for meeting takeoff and landing distance performance requirements.

**Runway Lights**

Notes regarding approach lighting systems are shown at the bottom of the sketch box. Runway lights (HIRL) (MIRL) (LIRL) (TDZL) (TDZ/CL) shall be indicated by a note, e.g. HIRL Rwy 9-27.

Other approach lighting is shown on the airport sketch as a symbol on the side of the runway where they are actually located. Symbols that are shown in negative indicate pilot-controlled lighting.

Runway centerline lights (CL) are installed on some precision approach runways to facilitate landing under adverse visibility conditions. They are located along the runway centerline and are spaced at 50 foot intervals. Runways with CL are shown in a negative dot pattern through the middle of the solid runway as illustrated in the airport sketch to right.

Runway centerline lights will be indicated by a note only when paired with TDZL, e.g., TDZ/CL Rwys 6 and 24.
Time/Distance Table

When applicable, a Time/Distance Table is provided below the airport sketch. The table provides the distance and time that is required from the final approach fix to the missed approach point for select groundspeeds.

AIRPORT DIAGRAMS

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. An airport diagram assists pilots in identifying their location on the airport, thus reducing requests for “progressive taxi instructions” from controllers.

Airport Diagram Features:

1. Runways
   a. Complete with magnetic headings (including magnetic variation and epoch year) and identifiers.
   b. Runways under construction shall also be shown.
   c. Runway dimensions, displaced thresholds, runway end elevations.
   d. Runway surface composition
   e. Weight bearing capacity (landing gear configuration or Pavement Classification Number)
   f. Land and Hold Short (LAHSO) lines, ILS hold lines, Localizer/Glide Slope Critical Areas.
   g. Arresting Gear. To include Engineered Materials Arresting System (EMAS).

2. Taxiways, with identifiers. Taxiways under construction shall also be shown.

3. Hot Spot locations.

4. Parking areas, run-up pads, alert areas, landing pads, “Non-Movement” areas (where pilot is NOT under air traffic control), ramps, aprons and hold pads.

5. Turnarounds, blast pads, stopways, overruns, and clearways (include dimensions when known)

6. Large tanks, including fueling area.

7. Control towers (include tower height).

8. Airport beacon.


11. Highest obstruction within diagram boundary.

12. Any building that pilot can taxi to. Other buildings to include terminal/administration and Base operations, fire station, NWS, AFSS, FAA, FSDO, ANG, USCG, FBO.

13. Comm Frequencies.

   Note: Star when used in the Comm Frequencies indicates part-time status. Check Chart Supplement for times of operation.
Runway Construction

Runway construction is depicted as follows:

<table>
<thead>
<tr>
<th>Hard Surface</th>
<th>Other Than Hard Surface</th>
<th>Metal Surface</th>
<th>Closed Runway</th>
<th>Closed Pavement</th>
<th>Under Construction</th>
<th>Stopways, Taxiways, Parking Areas, Water Runways</th>
<th>Displaced Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>■</td>
<td>■</td>
<td>■</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
</tbody>
</table>
**Hot Spots**

Hot Spots are a runway safety related problem area or intersection on an airport. Typically it is a complex or confusing taxiway/taxiway or taxiway/runway intersection. A confusing condition may be compounded by a miscommunication between a controller and a pilot, and may cause an aircraft separation standard to be compromised. The area may have a history of surface incidents or the potential for surface incidents.

Hot Spots are indicated on the Airport Diagram with a brown open circle or polygon leadered to a Hot Spot number, e.g., HS 1. The number corresponds to a listing and description on the Hot Spot page in the front the TPP. More information and location of Hot Spots can be found at [http://www.faa.gov/airports/runway_safety/hotspots/hotspots_list/](http://www.faa.gov/airports/runway_safety/hotspots/hotspots_list/).

**DEPARTURE PROCEDURES (DPs)**

Departure Procedures (DPs) are 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. There are two types of DPs: Obstacle Departure Procedures (ODPs), printed either textually or graphically and Standard Instrument Departures (SIDs), always printed graphically. SIDs are primarily designed for system enhancement and to reduce pilot/controller workload, and require ATC clearance. ODPs provide obstruction clearance via the least onerous route from the terminal area and may be flown without ATC clearance. All DPs provide the pilot with a safe departure from the airport and transition to the enroute structure.

Generally, DP charts are depicted “not to scale” due to the great distances involved on some procedures or route segments. A “to scale” portrayal may be used if readability is assured.

The DP will show the departure routing, including transitions to the appropriate enroute structure. All routes, turns, altitudes, NAVAIDs, facilities forming intersections and fixes, and those facilities terminating the departure route are shown. A textual description of the departure procedure is also provided. For RNAV DPs, the transition text consists of the transition name and associated computer code. On non-RNAV DPs, the transition text will also include the description of all turns, altitudes, radials, bearings and facilities/fixes needed to guide the user from the common departure point to the terminating facility fix.

**STANDARD TERMINAL ARRIVAL (STARs) CHARTS**

STARs are pre-planned Instrument Flight Rule (IFR) air traffic control arrival procedures for pilot use in graphic and/or textual form. STARs depict prescribed routes to transition the aircraft from the enroute structure to a fix in the terminal area from which an instrument approach can be conducted. STARs reduce pilot/controller workload and air-ground communications, minimizing error potential in delivery and receipt of clearances.

STAR charts generally shall be depicted ‘not to scale’ due to the great distances involved on many procedures and route segments. A ‘to scale’ depiction may be used only if readability is assured.

The STAR will show the arrival routing, including transitions from the appropriate enroute structure. All routes, turns, altitudes, NAVAIDs, facilities forming intersections and fixes, and those facilities/fixes terminating or beginning the arrival route shall be shown in the graphic depiction. A textual description of the arrival procedure is also provided. For RNAV STARs, transition text will consist of the transition name and associated computer code. For non-RNAV STARs, the transition text will also include a description of all turns, altitudes, radials, bearings and facilities/fixes needed to guide the user from the entry point to the common facility/fix.
CHARTED VISUAL FLIGHT PROCEDURE (CVFP) CHARTS

CVFPs are charted visual approaches established for environmental/noise considerations, and/or when necessary for the safety and efficiency of air traffic operations. The approach charts depict prominent landmarks, courses, and recommended altitudes to specific runways. CVFPs are designed to be used primarily for turbojet aircraft. CVFPs are not instrument approaches and do not have missed approach segments.

CVFPs are 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. The CVFP charts are divided into planview and notes sections separated by a bar scale in 1 NM increments. The planview of the CVFP includes the portrayal of visual approach procedures information, such as landmarks, NAVAIDs, visual track, hydrography, special use airspace and cultural features, as applicable.

CVFPs originate at or near, and are designed around, prominent visual landmarks and typically do not extend beyond 15 flight path miles from the landing runway. Visual tracks start at a geographical point or landmark where the procedure must be flown visually to the airport. The visual track is indicated by a dashed line. Visual tracks may include the track value, distance and minimum or recommended altitudes.
Symbols shown are for the Terminal Procedures Publication (TPP) which includes Standard Terminal Arrival (STARs) Charts, Departure Procedures (DPs), Instrument Approach Procedures (IAP) and Airport Diagrams.

**LEGEND - STANDARD TERMINAL ARRIVAL (STAR) CHARTS - DEPARTURE PROCEDURE (DP) CHARTS**

**RADIO AIDS TO NAVIGATION**

Compulsory:
- VOR
- VORTAC
- DME
- NDB/DME

Non-Compulsory:
- VOR
- VORTAC
- DME
- NDB/DME

- LAM, IOM ( Compass locator )
- Marker Beacon
- LOC/DME
  (shown when installation is offset from its normal position off the end of the runway.) (DP)

**LOCALIZER COURSE**

SDF Course

**FIXES/ATC REPORTING REQUIREMENTS**

Reporting Points
- DME Fix
- WAYPOINT
- WAYPOINT
- FLYOVER POINT
- Computer Navigation Fix (CNF)

**ALTITUDES**

<table>
<thead>
<tr>
<th>Minimum Altitude</th>
<th>Maximum Altitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>3500</td>
<td>4800</td>
</tr>
<tr>
<td>2200</td>
<td>2500</td>
</tr>
</tbody>
</table>

**INDICATED AIRSPEED**

<table>
<thead>
<tr>
<th>Minimum Airspeed</th>
<th>Maximum Airspeed</th>
</tr>
</thead>
<tbody>
<tr>
<td>175K</td>
<td>230K</td>
</tr>
</tbody>
</table>

**AIRPORTS**

- Civil
- Military
- Joint
- Civil-Military

**MISCELLANEOUS**

- Changeover Point
- International Boundary (DP)
- Air Defense Identification Zone
- Takeoff Minimums and (Obstacle) Departure Procedures entry published (DP)
APPROACH LIGHTING SYSTEM (Continued)

LEGEND

Approach lighting and visual glide slope symbols are indicated on the airport sketch by an identifier, ⚪, ⚫, 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).

PRECISION APPROACH PATH INDICATOR

PAPI

Too low
Slightly low

On correct approach path

Slightly high
Too high

Legend: ⚪ White, ⚫ Red

PULSATING VISUAL APPROACH SLOPE INDICATOR

PVASI

Pulsating White
Pulsating Red

Threshold

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

"T"-VISUAL APPROACH SLOPE INDICATOR

"T"-VASI

"T" on both sides of Rwy all lights variable white correct approach slope, only crossbar visible, upright "T", fly up, inverted "T", fly down. Red "T", cross underhoot.

TRI-COLOR VISUAL APPROACH SLOPE INDICATOR

TRCV

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

ALIGNMENT OF ELEMENTS SYSTEMS

APAP

Painted panels which may be lit: at night, to use the system the pilot positions the aircraft so the elements are in alignment.
**PLANVIEW SYMBOLS**

### TERMINAL ROUTES

- **Procedure Track**
- **Missed Approach**
- **Visual Flight Path**

### RADIO AIDS TO NAVIGATION

110.1 Underline indicates No Voice transmitted on this frequency

#### Compulsory:
- VOR
- VORTAC
- DME
- NDB/DME

#### Non-Compulsory:
- VOR
- VORTAC
- DME
- NDB/DME

- **LOM/LMM** (Compass indicator of Outer Marker/Middle Marker)

- **Marker Beacon**

- **Localizer (LOC/LDA) Course**
  - Right Side: Left-side: Back Course

- **SDF Course**

- **LOC/DME**

- **LOC/LDA/SDF Transmitter**
  - Shown when installation is offset from its normal position off the end of the runway.

### FIXES/ATC REPORTING REQUIREMENTS

- **Reporting Point**
- **Waypoint**
- **Flyover Point**
- **MAP WP** (Flyover)

### ALTITUDES

- **Mandatory Altitude**
- **Recommended Altitude**
- **Minimum Altitude**
- **Maximum Altitude**

### INDICATED AIRSPEED

- **Mandatory**
- **Maximum**
- **Recommended**

### LEGEND
PLANVIEW SYMBOLS (Continued)

**LEGEND** 15232

**INSTRUMENT APPROACH PROCEDURES (CHARTS)**

**PLANVIEW SYMBOLS**

**MINIMUM SAFE ALTITUDE (MSA)**

- Facility Identifier
- Airport Identifier
- Arrows on distance circle identify sectors

**TERMINAL ARRIVAL AREA (TAA)**

**MISCELLANEOUS**

- VOR Changeover Point
- RWY 15° S12° 00.52° W77° 06.91° End of RWY Coordinates

**SPECIAL USE AIRSPACE**

- R-1522 R-Restricted
- P-Prohibited
- W-Warning
- A-Alert

- Distance not to scale
- International Boundary
- Air Defense Identification Zone

**AIRPORTS**

- Primary and Secondary (named in planview)
- Civil

**OBSTACLES**

- Spot Elevation
- Obstacle
- Highest Obstacle
- Highest Spot Elevation
- Group of Obstacles
- Doubtful accuracy
PROFILE VIEW

Three different methods are used to depict either electronic or vertical guidance: "GS", "GP", or "VDA".

1. "GS" indicates that an Instrument Landing System (ILS) electronic glide slope (a ground antenna) provides vertical guidance. The profile section of ILS procedures depict a GS angle and TCH in the following format: GS 3.0°/TCH 50.

2. "GP" on GLS and RNAV procedures indicates that either electronic vertical guidance (via Wide Area Augmentation System - WAAS or Ground Based Augmentation System - GBAS) or barometric vertical guidance is provided. GLS and RNAV procedures with a published decision altitude (DA/VA) depict a GP angle and TCH in the following format: GP 3.0°/TCH 50.

3. An advisory vertical descent angle (VDA) is provided on non-vertically guided conventional procedures and RNAV procedures with only a minimum descent altitude (MDA) to assist in preventing controlled flight into terrain. On Civil (FAA) procedures, this information is placed above or below the procedure track following the fix it is based on. Absence of a VDA or a note that the VDA is not authorized indicates that the prescribed obstacle clearance surface is not clear and the VDA must not be used below MDA. VDA is depicted in the following format: VDA 3.0°.

***FAA Chart User's Guide - Terminal Procedures Publication (TPP) - Symbols***

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**NOTES:**

- Visual Descent Path (VDP): Visual segment below MDA/DA is clear of obstacles on 34:1 slope. (Absence of shaded area indicates 34:1 is not clear.)

- In the VDP, the visual minimum is the altitude at which the pilot must be able to see the runway environment.

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**LEGEND:**

- **5000** - Mandatory Altitude
- **5000** - Recommended Altitude
- **2500** - Maximum Altitude
- **3000** - Minimum Altitude
- **3000** - Altitude

**PROFILE SYMBOLS:**

- **Gs Slope/Glidepath Intersect**: Glidepath intersects with a solid vertical line at the altitude indicated.
COLD TEMPERATURE AIRPORTS

COLD TEMPERATURE RESTRICTED AIRPORTS

NOTE: A ♂ symbol indicates a cold temperature altitude correction is required at this airport when reported temperature is at or below the published restricted temperature. Pilots unfamiliar with cold temperature procedure in the Notice to Airman Publication (NTAP) and correcting all altitudes from the IAF to the MA final holding altitude do not have to reference the NTAP. Pilots wanting to correct on individual segments must reference the NTAP airport list for affected segments. See Notice to Airman Publication (NTAP) Graphic Notices General for complete list of published airports, temperature, segments, and procedure information. www.faa.gov/air_traffic/publications/notices. Pilots will advise ATC with the required altitude correction when making a correction to any segment other than the final segment. See following Cold Temperature Error Table to make manual corrections.

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COLD TEMPERATURE ERROR TABLE

HEIGHT ABOVE AIRPORT IN FEET

| 0  | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1500 | 2000 | 2500 | 2900 | 3400 | 3900 | 4400 | 4900 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|
| 200| 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000| 1500| 2000 | 2500 | 2900 | 3400 | 3900 | 4400 | 4900 | 5400 | 5900 | 6400 |
| 300| 400 | 500 | 600 | 700 | 800 | 900 | 1000| 1500| 2000 | 2500 | 2900 | 3400 | 3900 | 4400 | 4900 | 5400 | 5900 | 6400 | 6900 |
| 400| 500 | 600 | 700 | 800 | 900 | 1000| 1500| 2000| 2500 | 2900 | 3400 | 3900 | 4400 | 4900 | 5400 | 5900 | 6400 | 6900 | 7400 |
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| 600| 700 | 800 | 900 | 1000| 1500| 2000| 2500| 2900| 3400 | 3900 | 4400 | 4900 | 5400 | 5900 | 6400 | 6900 | 7400 | 7900 | 8400 |
| 700| 800 | 900 | 1000| 1500| 2000| 2500| 2900| 3400| 3900 | 4400 | 4900 | 5400 | 5900 | 6400 | 6900 | 7400 | 7900 | 8400 | 8900 |
| 800| 900 | 1000| 1500| 2000| 2500| 2900| 3400| 3900| 4400 | 4900 | 5400 | 5900 | 6400 | 6900 | 7400 | 7900 | 8400 | 8900 | 9400 |
| 900| 1000| 1500| 2000| 2500| 2900| 3400| 3900| 4400| 4900 | 5400 | 5900 | 6400 | 6900 | 7400 | 7900 | 8400 | 8900 | 9400 | 9900 |
REFERENCES

There are several references available from the FAA to aid pilots and other interest parties to learn more about FAA Charts and other aspects of aviation.

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# Abbreviations

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<td>ADS</td>
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<td>ASDA</td>
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INS - Inertial Navigation System
IR - Instrument Route
IRU - Inertial Reference Unit

K

KIAS - Knots

L

LAAS - Local Area Augmentation System
LAHSO - Land and Hold Short
LAA - Local Airport Advisory
LAAS - Local Area Augmentation System
LDA - Localizer-type Directional Aid
LDA - Landing Distance Available
Ldg - Landing
LF - Low Frequency
LNAV - Lateral Navigation
LOC - Localizer
LOM - Locator Outer Marker
LPV - Localizer Performance with Vertical Guidance
LRRS - Long Range Radar Station
LTP - Landing Threshold Point

M

MAA - Maximum Authorized Altitude
MAP - Missed Approach Point
MCA - Minimum Crossing Altitude
MDA - Minimum Descent Altitude
MDH - Minimum Descent Height
MEA - Minimum Enroute Altitude
MEF - Maximum Elevation Figure
MF - Medium Frequency
MIA - Minimum IFR Altitude
MOA - Military Operations Areas
MOCA - Minimum Obstruction Clearance Altitude
MORA - Minimum Off-Route Altitude
MRA - Minimum Reception Altitude
MSA - Minimum Safe Altitude
MSL - Mean Sea Level
MTA - Minimum Turning Altitude
MTR - Military Traffic Route
MVA - Minimum Vector Altitude

N

N - North
N/A - Not Applicable
NA - Not Authorized
NAS - National Airspace System
NAVAID - Navigational Aid (Ground based)
NDB - Non-Directional Radio beacon
NextGen - Next Generation Air Transportation System
NFDC - National Flight Data Center
NFPO - National Flight Procedures Office
NM - Nautical Mile
NOAA - National Oceanic and Atmospheric Administration

NO A/G - No Air-to-Ground Communication
NOTAM - Notice to Airman
NoPT - No Procedure Turn
NPA - Non-Precision Approach
NTAP - Notices to Airman Publication
NWS - National Weather Service

O

OAT - Outside Air Temperature
OBS - Omni Bearing Selector
OCA - Ocean Control Area
OCS - Obstacle Clearance Surface
ODP - Obstacle Departure Procedure
OROCA - Off Route Obstruction Clearance Altitude

P

PA - Precision Approach
PAR - Precision Approach Radar
PRM - Precision Runway Monitor
PT - Procedure Turn
PTP - Point-to-Point
Pvt - Private

R

R - Radial
R - Receive
R - Restricted Area (Special Use Airspace)
RCO - Remote Communications Outlet
RF - Radius-to-Fix
RNAV - Area Navigation
RNP - Required Navigation Performance
RNP AR - Required Navigation Performance Authorization
ROC - Required Obstacle Clearance
RVR - Runway Visual Range
RVSM - Reduced Vertical Separation Minimum
Rwy - Runway

S

S - South
SAAR - Special Aircraft and Aircrew Authorization Required
SAAR - Special Aircraft and Aircrew Requirements
SATNAV - Satellite Navigation
SDF - Simplified Directional Facility
SER - Start End of Runway
SFAR - Special Flight Rules Area
SFRA - Special Flight Rules Area
SFC - Surface
SIAPS - Standard Instrument Approach Procedures
SID - Standard Instrument Departure
SM - Statute Mile
SMAR - Special Military Activity Routes
SMGCS - Surface Movement Guidance and Control System
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<tr>
<th>Abbreviation</th>
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<tr>
<td>SOIA</td>
<td>Simultaneous Offset Instrument Approaches</td>
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<tr>
<td>SSV</td>
<td>Standard Service Volume</td>
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<tr>
<td>STAR</td>
<td>Standard Terminal Arrival Procedure</td>
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<td>SVFR</td>
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<td>TACAN</td>
<td>Tactical Air Navigation</td>
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<td>TAS</td>
<td>True Air Speed</td>
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<td>TCH</td>
<td>Threshold Crossing Height</td>
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<td>TDZ</td>
<td>Touchdown Zone</td>
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<tr>
<td>TDZE</td>
<td>Touchdown Zone Elevation</td>
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<tr>
<td>TERPS</td>
<td>U.S. Standard for Terminal Instrument Procedures</td>
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<tr>
<td>TFR</td>
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<td>THRE</td>
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<td>TIBS</td>
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<td>TOC</td>
<td>Top of Climb</td>
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<td>TOD</td>
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<td>TODA</td>
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<td>TOGA</td>
<td>Takeoff/Go Around</td>
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<td>TWEB</td>
<td>Transcribed Weather Broadcast</td>
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<tr>
<td>UHF</td>
<td>Ultra High Frequency</td>
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<td>UIR</td>
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<td>UNICOM</td>
<td>Universal Communications</td>
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<td>USAF</td>
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<td>UTA</td>
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<td>V</td>
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<td>VORTAC</td>
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<td>Weather Camera (Alaska)</td>
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