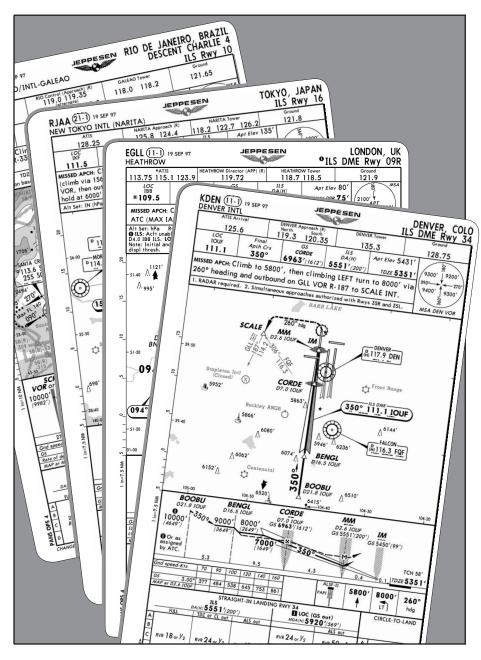


# Orientation Handbook for the

# **NEW APPROACH CHART FORMAT**



# Orientation Handbook for the NEW APPROACH CHART FORMAT

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# INTRODUCTION

This Orientation Handbook is a quick reference training aid designed to assist you in making a smooth transition to the new approach chart format, featuring the "briefing strip" concept. This initiative represents an international effort in response to many requests, and is part of an ongoing effort to improve chart usability and readability. Jeppesen worked closely with many of its airline customers, a wide range of pilots (crewed aircraft and single-pilot operations), various professional aviation organizations, and general aviation pilots to incorporate enhancements into this new format. This included extensive surveys from experienced instrument pilots using briefing strip charts in actual flight operations. The result is a chart designed by pilots and for pilots that presents basic approach information in the order in which they would normally brief the procedure prior to flying it.

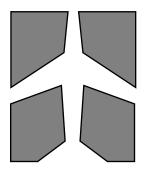
Development of the briefing strip concept began in 1993, and is now a highly refined variation of the original format. The process included testing and evaluation by professionals in the field of human factors concerning how pilots review and use the chart data. Additionally, it includes crew resource management (CRM) techniques, a standard pre-approach briefing sequence of information, a format compatible with advanced aircraft, avionics, and navigation systems, consideration for eventual transition of approach charts to electronic displays, and an emphasis on usability and legibility.

Although the information on the chart is essentially the same as the original format, it is rearranged in a more logical and intuitive sequence. Two new items in this format include the symbolic depiction of the approach lighting system for the straight-in approach runway, and missed approach icons to graphically depict the initial "up and out" missed approach procedure. Other significant features of the new format include a new placement for the minimum safe altitude circle, complete missed approach information in the heading section, common placement of procedural notes in the heading, and use of big and bold type for selected navaid frequencies, fix names, bearings, and altitudes. There is also a new placement for the conversion tables.

The new format will first appear at selected locations. Initially, not every chart in a revision will be converted to the new format. Therefore, you may not see a new format chart in every revision for your service. Eventually, all Jeppesen approach and airport charts worldwide will be converted to the new format within a few years.

The new format is compatible with all other Jeppesen chart formats. Pilots who have used briefing strip charts have commented that they have been able to transition to the new layout without difficulty. During simulator evaluations, the majority of participating pilots were completely satisfied with the existing approach chart format and did not see a compelling need to change it. But after using charts in the new format, their opinions changed completely and they came to prefer the new briefing strip format. See the Summary at the end of this Handbook for survey results.

The contents of this Orientation Handbook provide you with detailed information on the new approach chart format. This includes general layout, usage pattern, an overview and explanation of features, and a new format legend.



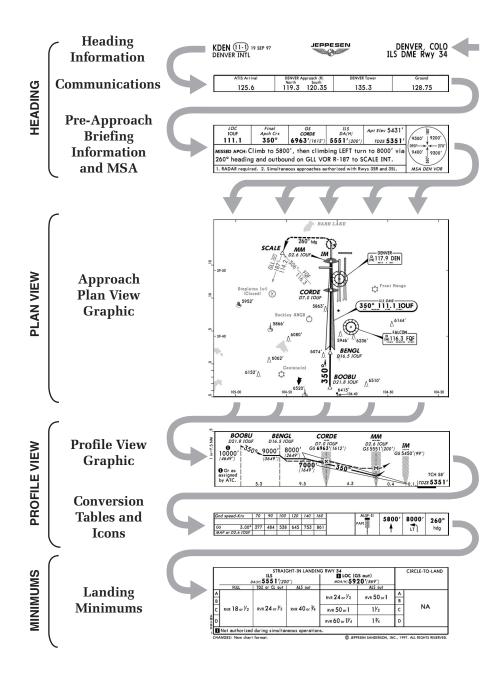
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# **GENERAL LAYOUT**

		_				
		<b>Heading Information</b>				
ING		Communications				
HEADING		Pre-Approach Informat		MSA		
PLAN VIEW		Approach Plan View Graphic		hic		
Profile View Graph		ew Graphic				
<u>P</u>		<b>Conversion Tables</b>	Icons			
Landing Minimum		Minimums				

# TYPICAL USAGE PATTERN



# 6

# **OVERVIEW OF FEATURES**

### Heading

- City/Location and State/Country names.
- Procedure identifier.
- Jeppesen NavData/ICAO airport identifier.
- Airport name.
- Index number, revision and effective dates.
- Heading data arranged to avoid coverage by control column clip.
- Communications frequencies arranged horizontally.
- Primary navigation aid.
- Final approach course bearing.
- Glide Slope altitude at OM position (or equivalent) for Precision approaches or minimum altitude at Final Approach Fix (FAF) for Non-Precision approaches.
- 1 Decision Altitude DA(H) or Minimum Descent Altitude MDA(H) for straight-in landing.
- Airport and touchdown zone/runway end elevation
- P B Complete instructions for missed approach procedure.
- Common placement of notes applicable to the procedure.
- Minimum Safe Altitude (MSA) graphic placed in a consistent location.

## **Plan View**

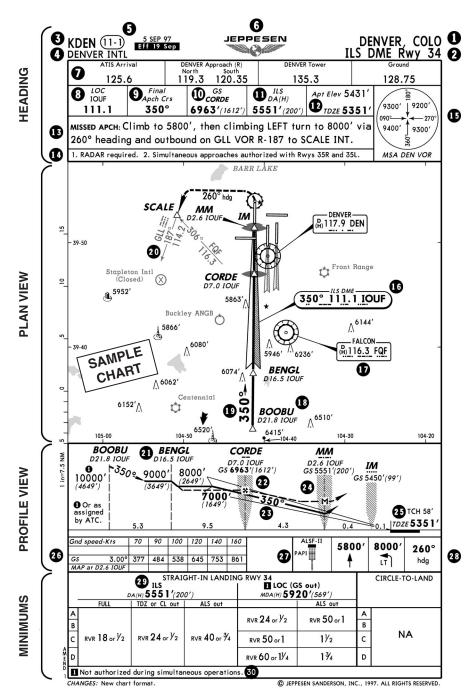
- 16 Primary navaid information enlarged and made bold.
- Ð New style for all navaid box outlines and leader arrows.
- Œ Names and idents of airspace fixes associated with the approach procedure are enlarged and made bold.
- Final approach course bearing is enlarged and made bold.
- **19** Formation radials and secondary airports are screened to reduce visual congestion.

### **Profile View**

- 21 Names and idents of airspace fixes associated with the approach procedure are enlarged and made bold.
- 22 Glide Slope altitude at OM position (or equivalent) or minimum altitude at Final Approach Fix (FAF) is enlarged and made bold.
- Final approach course bearing is enlarged and made bold.
- Symbols for navaids and fixes are screened to reduce visual congestion.
- 25 25 25 27 Touchdown zone/runway end elevation is enlarged and made bold.
- Conversion tables positioned below profile view for improved usability.
- Graphic depiction of applicable approach light system (ALS) and/or visual descent lighting aid.
- 28 Initial pilot actions ("up and out") for missed approach are symbolized.

### **Minimums**

- 29 Decision Altitude DA(H) or Minimum Descent Altitude MDA(H) for straight-in landing is enlarged and made bold.
- Notes applicable to landing minimums commonly located below minimum 30 band.



Reduced for Illustration Purposes

# **OVERVIEW OF FEATURES**

## Heading

- City/Location and State/Country names.
- Procedure identifier.
- Jeppesen NavData/ICAO airport identifier.
- Airport name.
- Index number, revision and effective dates.
- Heading data arranged to avoid coverage by control column clip.
- Communications frequencies arranged horizontally.
- Primary navigation aid.
- Final approach course bearing.
- Glide Slope altitude at OM position (or equivalent) for Precision approaches or minimum altitude at Final Approach Fix (FAF) for Non-Precision approaches.
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- Common placement of notes applicable to the procedure.
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### Plan View

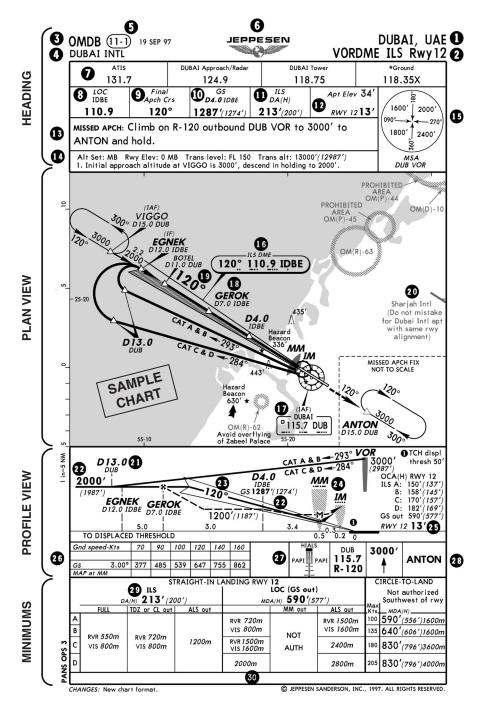
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### **Minimums**

- 29 Decision Altitude DA(H) or Minimum Descent Altitude MDA(H) for straight-in landing is enlarged and made bold.
- 30 Notes applicable to landing minimums commonly located below minimum band.



Reduced for Illustration Purposes

# INTENTIONALLY

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# **EXPLANATION OF FEATURES**

The following paragraphs provide more detailed information on the new approach chart format. Selected paragraphs are keyed to round, numbered ballflags, as depicted on the Overview of Features, and sample charts for both Denver and Dubai on pages 6-9. For example, ballflag means City/Location and State/Country names. Wherever a ballflag is shown, you can refer to your choice of either Denver or Dubai pages if you desire.

# **HEADING**

Rearrangement of information on the new chart format concerns how pilots review and use the chart data. For example, the upper right corner is accessed first by most pilots. The flow is then right to left as pilots first select the chart from the binder by using the location name (See Typical Usage Pattern, page 5). The main feature of the briefing strip arrangement is to place basic information in a common location for more convenient use during the pre-approach briefing. However, it is important to mention that pilots should always review the entire chart for complete information.

### **HEADING INFORMATION**

- 1 City/Location and State/Country names. The location name (city, state, country) is prominently depicted in the upper right corner in the usual location.
- **2** Procedure identifier. The location name and the procedure identifier are grouped together in the upper right corner of the new chart format to help quickly identify and retrieve the approach to be briefed and flown.
- **3** Jeppesen NavData/ICAO airport identifier. Next, to verify the selected chart is correct and current, pilots move to the left to review the grouping of the Jeppesen NavData/ICAO identifier, the airport name, chart index number, and date. The arrangement of heading information is designed to keep it visible even when the chart is clipped to the control column. The NavData/ICAO airport identifier is enlarged for easy recognition.
- **Airport name.** The Jeppesen NavData/ICAO airport identifier and the airport name are located together in the upper left corner, directly across from the associated location name and procedure identifier.
- **5** Index number, revision and effective dates. The chart index number, as well as the revision and effective dates are positioned on the left side of the heading next to the airport identifier. At a location, charts are grouped (indexed) by similar procedure type (ILS, VOR, NDB, etc.). Within a group of procedures, charts are now sequenced according to runway number, lowest to highest (Example: VOR Rwy 18 before VOR Rwy 36).

**6** Heading data arranged to avoid coverage by control column clip. The position on the new format allows all of the heading data to remain visible, even when the chart is clipped to a control column. Arrangement of heading information is based on in-cockpit usage patterns.

### COMMUNICATIONS

12

**Communications frequencies arranged horizontally.** Pilots typically refer to the next rows from top to bottom to set up and brief the approach. The communications section of the new format is arranged horizontally in the top row, just inside the neatline of the heading section. Notice that the frequencies are listed left to right in the normal sequence of use, from arrival to touchdown.

# PRE-APPROACH BRIEFING INFORMATION AND MSA

- 8 Primary navigation aid. The next section of the chart heading contains the pre-approach briefing information, such as the primary navigation aid, final approach course, and appropriate altitudes, including the full text of the missed approach procedure. The minimum safe altitude (MSA) graphic is to the right, and the appropriate procedural or altimetry notes are in the last row in the heading section. The first box of the pre-approach briefing section contains the information on the primary navigation aid used for the approach. It includes the navaid type, identifier, and the associated frequency. For example, on ILS approaches, this will be the localizer.
- **9** Final approach course bearing. The final approach course bearing is located in this box of the pre-approach briefing section. Final approach course information is also found in the plan view and profile view.
- Glide Slope altitude at OM position (or equivalent) for Precision approaches or, minimum altitude at Final Approach Fix (FAF) for Non-Precision approaches. Here pilots will find the glide slope crossing altitude at the outer marker (or equivalent position) for precision approaches. The name or identification of the associated navaid or fix will be included in this box. For non-precision approaches, the depicted altitude is the minimum crossing altitude at the final approach fix (or equivalent position). Step-down fixes may exist between the FAF and MAP. Refer to the profile view for complete information.
- **Decision Altitude DA(H) or Minimum Descent Altitude MDA(H) for straight-in landing.** This box contains the lowest minimum altitude/height for the straight-in landing. For this example, it lists the decision altitude/height, or DA(H), for the ILS. This figure is based on a straight-in landing with all equipment operating. For non-precision straight-in landings, this box contains the lowest minimum descent altitude, or MDA(H). For approaches which have conditional situations, or

do not have a straight-in landing, or apply to more than one runway, this box will contain a note referring you to the minimums section for the appropriate information. For Category II and III ILS approaches, additional boxes may be added, as appropriate. You should always review the minimums section for complete information.

- **Airport and touchdown zone/runway end elevation.** The airport elevation and the touchdown zone or runway end elevation are found in this box. On the original chart format, only the airport elevation is found in the heading.
- **Gomplete instructions for missed approach procedure.** The textual description of the missed approach procedure has been moved into the heading section. It is placed here because the entire missed approach procedure is typically referenced during the pre-approach briefing. Additionally, missed approach information is shown in graphical form in the plan view.
- **Common placement of notes applicable to the procedure.** When applicable, general equipment or procedural notes associated with the approach are found together in this area of the new format. Altimetry information also is found here. If there are no notes associated with the approach, this row may be omitted. On the original format, notes may be found in various locations around the chart.
- Minimum Safe Altitude (MSA) graphic placed in a consistent location. The minimum safe altitude information is placed in its new location for quick and convenient reference. The bearings and radials are oriented "to" the point of origin. A minimum safe or sector altitude (MSA) is applicable to a 25 nautical mile radius unless specified otherwise.

# **PLAN VIEW**

The plan view section of the new format is essentially the same as the original chart format, with the exception of a few subtle changes in appearance.

## APPROACH PLAN VIEW GRAPHIC

- **Primary navaid information enlarged and made bold.** The primary navigation aid information is shown using big and bold type and a shadow box for easy recognition.
- New style for all navaid box outlines and leader arrows. Slight style changes in navaid boxes and arrows have been made to improve visual appearance. The leader arrows are thinner than the original chart format and contain no arrowhead.

- Names and idents of airspace fixes associated with the approach procedure are enlarged and made bold. Big and bold text used in the plan view helps with recognition and visual identification of airspace fix names and idents.
- **19** Final approach course bearing is enlarged and made bold. Depiction of the final approach course is unchanged, except the course text is enlarged and made bold for easy recognition.
- Formation radials and secondary airports are screened to reduce visual congestion. A "layered look" intended to improve visual contrast and reduce visual congestion is provided by shading formation radials and secondary airports.

## **PROFILE VIEW**

The profile view includes style changes with shading, along with some noticeable changes such as the relocation of the conversion tables, a graphic representation of the approach lighting system, and the symbolic depiction of the initial up and out maneuvers for the missed approach procedure. This new arrangement of information improves the connection between the profile view graphic and the initiation of a missed approach procedure. It provides the time to the missed approach point, information about lighting systems in the landing environment, and initial actions for missed approach if you don't see the runway environment. The approach lighting and up and out icons are entirely new to the approach chart format.

### PROFILE VIEW GRAPHIC

- Names and idents of airspace fixes associated with the approach procedure are enlarged and made bold. Big and bold text is used to enhance appearance and usability for airspace fix names and idents.
- Glide Slope altitude at OM position (or equivalent) or minimum altitude at Final Approach Fix (FAF) is enlarged and made bold. Altitude information is contained in the profile view graphic. For purposes of visual reference, the glide slope altitude/minimum altitude at the OM or FAF equivalent position is made bold. (This altitude corresponds to the one shown in the briefing strip.) The profile view graphic also shows the existence of any step-down fixes and altitudes between the FAF and MAP.
- Final approach course bearing is enlarged and made bold. The final approach course is made bold for visual recognition.
- Symbols for navaids and fixes are screened to reduce visual congestion. Chart clarity and recognition of surrounding chart data is enhanced through the use of screens, or shading.

Touchdown zone/runway end elevation is enlarged and made bold. The touchdown zone or runway end information is shown in the same location in the profile view. Big and bold type is used.

## **CONVERSION TABLES AND ICONS**

- Conversion tables positioned below profile view for improved usability. These conversion tables are unchanged. The only change is the location. The new format places these tables under the profile view graphic. The new position reinforces the relationship between the profile graphic and the conversion table information.
- Graphic depiction of applicable approach light system (ALS) and/or visual descent lighting aid. A major addition to the new approach chart format is the type and visual representation of the lighting system for the straight-in approach runway. When REIL, VASI, or PAPI is available, these also are shown on the appropriate side of the runway. An explanation of the symbols used for approach lights is found in the Approach Chart Legend.
- Another new feature is the addition of what are referred to as missed approach "icons." Located below the profile view graphic is a series of symbols which represent initial pilot actions in the event of a missed approach. They provide symbolic information about the initial "up and out" maneuvers only. Always refer to the missed approach instructions in the heading section and the plan view graphic for complete information about the missed approach procedure.

# **MINIMUMS**

The presentation of landing minimums is unchanged.

## LANDING MINIMUMS

- Decision Altitude DA(H) or Minimum Descent Altitude MDA(H) for straight-in landing are enlarged and made bold. The DA(H) and MDA(H) are located in the landing minimums section in big and bold type. All authorized minimums and applicable conditions for each approach procedure are provided within the chart minimum table.
- Notes applicable to landing minimums commonly located below minimum band. The only minor change is the location of landing minimum notes. These notes are located below the landing minimums section.

# **IMPORTANT NOTE!**

Always review the entire chart and all its components prior to use.

16 Airport Chart

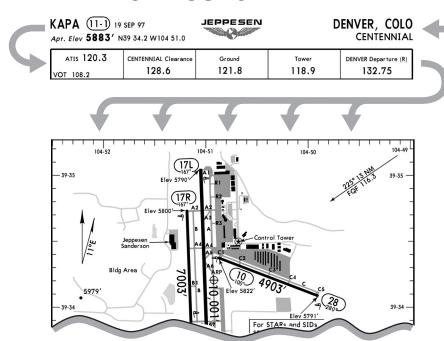
# **GENERAL LAYOUT**

# Heading

Communications	
Airport Plan View	
Additional Runway Information	
Take-Off and Alternate Minimums	

Airport Chart 17

# TYPICAL USAGE PATTERN



Minimal changes have been made to airport charts. The headings have been slightly rearranged to conform with the new approach chart format, as shown above with the usage pattern in the heading section. Like the new approach chart format, communication frequencies are arranged horizontally in normal sequence of use. The airport plan view graphic includes a new magnetic variation symbol (shown on the left side of the excerpt above). Additionally, the airport bearing and distance from a nearby VORTAC is depicted (shown above in the upper right corner of the plan view). This information was previously located in the heading of the airport chart.

### ADDITIONAL REFERENCE INFORMATION

Now that you have completed your review of the new approach chart format, refer to the Approach Chart Legend New Format for even more specific details about approach and airport charts. Note that accompanying legend pages titled Approach Chart Legend New Format contain information which is specific to charts reformatted in the new briefing strip concept. These legend pages only include the items that are unique to the New Format. For information not covered in the New Format legend, refer to the regular Approach Chart Legend pages in the Jeppesen Airway Manual.

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APPROACH CHART FORMAT

# APPROACH CHART LEGEND NEW FORMAT (BRIEFING STRIP CONCEPT) Effective 19 September 1997

Approach charts are graphic representations of instrument approach procedures prescribed by the governing authority. The following pages briefly explain the symbols used on these charts. Not all items apply to all charts.

### **GENERAL FORMAT**

AIRPORT CHART FORMAT

# **HEADING** HEADING COMMUNICATIONS COMMUNICATIONS PRE-APPROACH BRIEFING MSA INFORMATION AIRPORT PLAN VIEW APPROACH PLAN VIEW PROFILE VIEW ADDITIONAL RUNWAY INFORMATION CONVERSION **ICONS** TABLES LANDING MINIMUMS TAKE-OFF AND ALTERNATE MINIMUMS

### IMPORTANT NOTE \_

Legend pages titled "NEW FORMAT" contain information specific to charts formatted in the briefing strip concept. These legend pages include only the items that are unique to the New Format. For information not covered in the "NEW FORMAT" legend, refer to the regular "APPROACH CHART LEGEND" pages in the Airway Manual.

### APPROACH CHART HEADING



Approach chart heading information consists of the following:

- Jeppesen NavData (ICAO) identifier.
- O Location name.
- Index number. Charts are sequenced by runway number within a similar type.
- 3 Procedure identification.

3 Airport name.

#### COMMUNICATIONS

Communications for arrival use are listed in the order of normal use.

ATIS Arrival	ANYTOWN Approach (R)	ANYTOWN Tower	Ground
125.6	119.3	118.1	121.9

#### PRE-APPROACH BRIEFING INFORMATION LOC Final GS ILS Apt Elev 1575' MSA DA(H) IANT Apch Crs AN LOM 111.1 270° 2500'(931') 1769'(200') TDZE 1569' MISSED APCH: Climb to 2500', then climbing LEFT turn to 4500' 5200 direct AN LOM and hold. ← 1. RADAR required. 2. Simultaneous approaches authorized on Rwy 34L or 34R.

Information for the pre-approach briefing is listed in the following sequence:

- Primary Navaid frequency and identifier.
- 2 Final Approach Course.
- Glide slope altitude at OM for precision approaches, Minimum altitude at the Final Approach Fix (or equivalent) for non-precision approaches.
- 4 Lowest DA(H) or MDA(H).
- Airport Elevation and TouchDown Zone/Threshold Elevation.
- Missed Approach instructions.

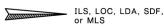
- Notes applicable to the approach procedure. Notes may include:
  - Altimeter setting information.
  - Transition Altitude and Level.
  - Barometric Pressure Equivalent for QFE altimeter setting.
  - Equipment/crew requirements for the approach.
  - Informational or descriptive notes applicable to the procedure.

The Note box may be omitted when there are no applicable notes.

Minimum Safe or Sector altitude (MSA). Altitudes are protected to a 25 nautical mile radius unless specified otherwise.

#### APPROACH PLAN VIEW





LOC Back Course



Offset Localizer

Marker

Marker with Locator or NDB

Marker with co-located intersection or DME fix

### **NAVAID INFORMATION BOXES**

Navaid information boxes contain the Navaid name, identifier, frequency and Morse code.

117.9 ANY

Shadowed box indicates the primary Navaid for the approach.

P117.9 ANY

"D" indicates DME capability.

#### **BEARINGS**

090° Magnetic course
090°T True course

VOR Radials forming a position or fix. VOR Radials are bearing from the Navaid, NDB bearing are to the Navaid.

#### **AIRPORTS**

Civil or Joint use Airport

Airport with rotating beacon

Military Airport

🗓 🗓 Heliport

🗯 🐧 Seaplane Base

Closed Airport

#### SPECIAL USE AIRSPACE

Restricted Area

Prohibited Area

### **PROFILE VIEW**

### PROFILE SYMBOLS

VOR, NDB, or Waypoint.

<del>--</del>

BUM

Fan Marker with name/code.

Fan Marker and NDB co-located.

ANNIE D10.0

Fix with name or DME distance.

### **PROFILE ALTITUDES**

All altitudes in the profile view are minimum altitudes above mean sea level, unless otherwise specified.

5200' Minimum Altitude (MIM).

MANDATORY 5200'

Mandatory altitude at specified position or fix.

MAXIMUM 5200'

Maximum altitude (MAX) at specified position or fix.

RECOMMENDED 5200'

Recommended altitude.

(4169')

Height above airport, runway end, or touchdown zone.

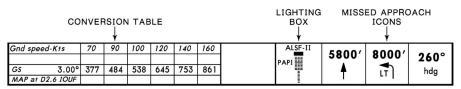
Altitudes in the profile will be in **Bold** type when the altitude is at the:

- FAF on non-precision approaches
- ILS Glide Slope Intercept altitude
- ILS Glide Slope altitude at the outer marker

# CONVERSION TABLES LIGHTING BOX AND MISSED APPROACH ICONS

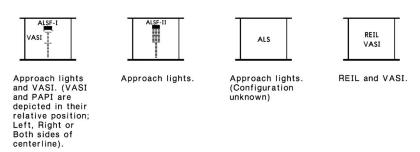
### **CONVERSION TABLE**

Conversion tables, Lighting Box and Missed Approach Icons are located below the profile view.



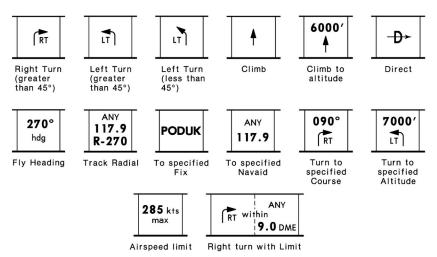
#### LIGHTING BOX

The lighting box displays the approach lights (ALS), visual approach slope lighting (VASI or PAPI), and runway end lights (REIL) for the straight-in landing runway. The lighting box is omitted when ALS, VASI, PAPI or REIL not installed.



### MISSED APPROACH ICONS

Missed Approach Icons include a wide variety of initial action instructions. A representative sample of Icons are shown below;



NOTE: Missed Approach Icons provide for initial actions only. Always refer to the Missed Approach instructions in the PRE-APPROACH BRIEFING section and the plan view for complete instructions.

### AIRPORT CHART FORMAT

The airport chart is normally printed on the back of the first approach chart. At larger airports the airport chart will preceed the first approach chart and contain an enlarged diagram. Airport charts contain information pertaining to the airport including communications, take-off and alternate minimums, and IFR departure procedures. Separate airport charts may be included to display detailed ramp and parking positions or low visibility taxiway routes.

#### HEADING

#### Airport, Ramp and Taxiway charts

The Airport chart contains the location name, the airport name, airport elevation, latitude and longitude, Jeppesen NavData (ICAO) identifier, and date.



Airport elevation.

- 6 Airport name.
- 2 Jeppesen NavData (ICAO) identifier.
- 6 Location name.

- 1 Index number.
- 4 Airport reference point Latitude and Longitude.

### Low Visibility Taxiway Charts

Low Visibility Taxiway Charts and Surface Movement Guidance and Control System (SMGCS) charts have special labels in the heading to indicate specific useage.

ATWN 10-9A1 19 SEP 97 ANYTOWN INTL LESS THAN RVR 1200



ANYTOWN, WORLD
LOW VISIBILITY TAXI ROUTES

#### COMMUNICATIONS

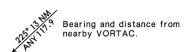
Communications for departure are listed in order of normal use.

ATIS	ANYTOWN Clearance 120.3	Ground	Tower	ANYTOWN Departure (R)
125.6		121.9	118.1	118.9

### AIRPORT DIAGRAM

### AIRPORT DIAGRAM SYMBOLS

New symbols used on the airport charts are illustrated below.





Magnetic variation.

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# **SUMMARY**

In order to determine the level of acceptance that pilots would have toward the new briefing strip chart format, Jeppesen conducted a customer survey program comprised of three phases, directed toward different pilot groups. The groups solicited were: airline pilots (passenger and cargo operations), corporate and general aviation pilots, and internationally experienced airline pilots. The survey program was intended to gather opinions from a range of pilots with various backgrounds, aircraft types, professional experience, and those who operate in all parts of the world.

Over a two-year period, approximately 60,000 pilots were given an opportunity to participate in the survey and to share their individual opinions. The level of interest was evident by the combined number of 5,300 surveys which were returned and tabulated. This represented a response rate of nearly 9%, which is considered to be a high response.

The new format was enthusiastically received. For example, when asked to rate the new chart format for its overall usability (on a scale of 1 to 6, with 6 being excellent), 86% of all responding pilots rated the new format in the category of excellent or nearly excellent. The briefing strip arrangement in the heading averaged a favorable rating of 85%. The introduction and use of missed approach icons got a favorable rating of 80%. When asked to rate the mixture of formats and the ability to transition from one format to another, 78% of all pilots rated the situation as acceptable. The overwhelmingly positive response from pilots supported the company in its decision to begin the process of converting its worldwide library of approach charts.

The introduction of the new format and the favorable response it has received represents the culmination of a thorough and dedicated effort by a number of airlines, professional aviation organizations, as well as the input and cooperation of thousands of individual pilots from around the world. Jeppesen extends its gratitude to everyone who contributed to the development effort.

For additional information about this and other training products, contact the Jeppesen office nearest you. Additional information is also available via Jeppesen's home page at http://www.jeppesen.com.

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Telephone: 49 69 96 12 48 51

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Notes	27

28	Notes

