Nav2001
AERONAUTICAL INFORMATION NAVDATA DATABASE AND CHARTS

PROVIDED FOR USERS OF JEPPESEN NAVDATA SERVICES

PREFACE

The purpose in providing the information contained in these pages is to highlight the major differences between Jeppesen's NavData database and Jeppesen's Enroute, Area, SID, DP, STAR, Approach, and Airport Charts.

Airways, departure procedures, arrival procedures, instrument approach procedures, and other aeronautical information is designed and created by more than 220 countries around the world. The information created by them is designed according to ICAO PANS OPS in most countries and according to the United States Standard for Terminal Instrument Procedures (TERPs) for the U.S. and many of the other countries.

The basic design for most aeronautical information contained in instrument procedures has been created for the analog world. The art of entering data into an aeronautical database is one that balances the intent of the original procedure designer and the requirements of FMS and GPS systems that require airborne databases.

All of the illustrations in this paper are from Jeppesen's library and are copyrighted by Jeppesen. The paper will highlight differences that will be found in the charts and databases produced by all the suppliers.

Virtually all the aeronautical databases are loaded according to the specifications in the Aeronautical Radio, Incorporated (ARINC) 424 standard "Navigation Databases." While the ARINC 424 specification covers a large percentage of the aeronautical requirements, it is impossible to write a specification that covers every combination of factors used to design and fly instrument procedures. Many of the differences between charts and databases are because there can be no standard implemented to have the information in both places depicted the same. There are some cases where it is desirable not to have the information the same because of the different type of media where the information is displayed.

Any attempt to detail the many minor differences, which may arise under isolated cases, would unduly complicate this overview. Therefore, the information provided is an overview only, and only major differences are included.

There are many different types of avionics equipment utilizing the Jeppesen NavData database. *The same database information may be presented differently on different types of airborne equipment. In addition, some equipment may be limited to specific types of database information, omitting other database information. Pilots should check their Operating Handbooks for details of operation and information presentation. A major factor in "apparent" differences between database and charts may be due to the avionics equipment utilized. As avionics equipment evolves, the newer systems will be more compatible with charts, however the older systems will still continue with apparent differences.*

Due to the continuing evolution caused by aeronautical information changes affecting both database and charting, items described herein are subject to change on a continual basis. This document may be revised for significant changes to help ensure interested database users are made aware of major changes.

A brief Glossary/Abbreviations of terms used is provided at the end of this document.

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DIFFERENCES BETWEEN JEPPESEN DATABASE AND CHARTS

1. EFFECTIVE DATES

AERONAUTICAL INFORMATION CUT-OFF DATES

Because of the required time it takes to physically get the database updated, extracted, pro-duced, delivered, and loaded into FMS/GPS systems, the database cut-off dates (when aero-nautical information can no longer be included in the next update) are often earlier for databases than for charts. This may cause information on charts to be more current than the information in databases.

The ICAO Aeronautical Information Regulation and Control (AIRAC) governs the 28-day cycle between effective dates of aeronautical information. These are the same effective dates used for aeronautical databases. Because governments may use slightly different cycles, there are differences between charts and databases. Charts typically use 7-day and 14-day cycles for terminal charts and 28-day and 56-day cycles for enroute and area charts.

2. GENERAL DIFFERENCES

GENERAL - CHARTED INFORMATION NOT PROVIDED IN THE JEPPESEN NAVDATA DATABASE

Not all the information that is included on the charts is included in the airborne database. The following is a general listing of some of those items. More specific items are included in indi-vidual entries throughout this document.

    Altimetry:
        QNH/QFE information
        Alternate altimeter setting sources
    Intersection formations (radials, bearings, DME)
    Terrain and Obstacles
    Airport Operating Minimums
        Landing, take-off and alternate minimums
    Airport taxiways and ramps
    Some types of special use airspace and controlled airspace

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2. GENERAL DIFFERENCES (Cont)

MAGNETIC COURSES, DISTANCES
Because of different magnetic models used in airborne systems, a magnetic course read on the airborne system may differ from the charted magnetic course. Avionics computed distances may disagree with charted distances. Differences may appear on airways on Enroute Charts, and on flight procedures included on SID, DP, STAR, Approach, and Airport charts. In addition, when the database requires a specific course to be flown from "A" to "B", the differences in magnetic variation or VOR station declination may result in a "jog" between the two fixes in lieu of a direct track.
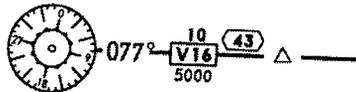
REFERENCE DATUM
Not all States (countries) have complied with the ICAO Annex that specifies the use of the WGS-84 reference datum. Differences in reference datums can cause significant "accuracy bias" in the navigation guidance provided by avionics systems. A listing of the States that have published their coordinates in WGS-84 can be found on Jeppesen's web site at www.jeppesen.com/onlinepubs/wgs-84.phtml.

3. NAVAIDS

COMPLETENESS - Because of the duplication of identifiers and other factors, not all charted navaids are included in the database.
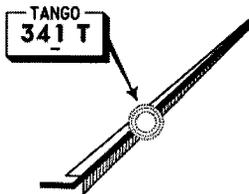
NDB AND LOCATOR IDENTIFIERS
As an example of the differences between the display from one avionics system to another, some avionics systems will display the Foley NDB as "FPY":

Some avionics systems include a suffix "NB" after the NDB identifiers and will display the Foley NDB as "FPYNB". For NDBs and locators with duplicate Morse code identifiers that are located within the same State (country), they may only be available using the airport identifier for access.

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3. NAVAIDS (Cont)

LOCATOR IDENTIFIERS
Most locators in the United States have unique five-letter names, but most international loca-
tors have names that do not have five letters.
  Some systems may display U.S. locators as "CASSE".
  Some systems may display U.S. locators as "AP".

DUPLICATE NAVAID IDENTIFIERS
There are numerous duplicates in the database. Refer to your avionics handbook for the
proper procedure to access navaids when duplicate identifiers are involved.

Not all navaids in the database are accessible by their identifier. Some navaids, for reasons
such as duplication within terminal areas or lack of complete information about the navaid,
are in the waypoint file and are accessible by their name or abbreviated name.

4. WAYPOINTS

WAYPOINT DATABASE IDENTIFIERS
"Database identifiers" refers to identifiers used only in avionics systems utilizing databases.
The identifiers are not for use in flight plans or ATC communications; however, they are also
included in computer flight planning systems. They may be designated by the State (country)
as "Computer Navigation Fixes" (CNFs), or designated by Jeppesen. To facilitate the use of
airborne avionics systems, the identifiers are being added to Jeppesen's charts. Both the
CNFs created by States and the Jeppesen-created database identifiers are enclosed within
square brackets and in italics.

• Jeppesen's ultimate goal is to include all database identifiers for all waypoints/fixes on the
  charts.

• Enroute charts include the five-character identifier for unnamed reporting points, DME
  fixes, mileage breaks, and for any reporting point with a name that has more than five
  characters.

• SID, DP and STAR charts are being modified to include all identifiers.

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4. WAYPOINTS (Cont)
WAYPOINT DATABASE IDENTIFIERS (Cont)

- Approach Charts

VNAV descent angle information derived from the Jeppesen NavData database is being added to approach charts. Identifiers are shown for the Final Approach Fix (FAF), Missed Approach Point (MAP), and the missed approach termination point.

State-named Computer Navigation Fixes (CNFs) are shown on all applicable charts.

GPS (GNSS) type approach charts include all database identifiers.
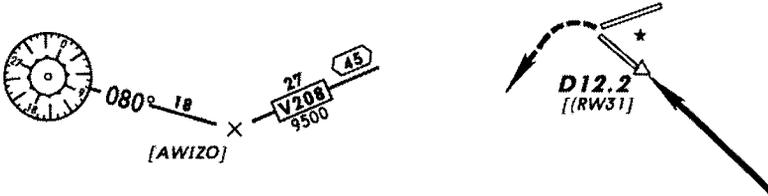
COMMON WAYPOINT NAME FOR A SINGLE LOCATION
Government authorities may give a name to a waypoint at a given location, but not use the name at the same location on other procedures in the same area. The Jeppesen NavData database uses the same name for all multiple procedure applications. Charting is limited to the procedure/s where the name is used by the authorities.

FLY-OVER versus FLY-BY FIXES/WAYPOINTS
In most cases, pilots should anticipate and lead a turn to the next leg. The database indicates when the fix must be crossed (flown-over) before the turn is commenced. The fix is coded as fly-over when the requirement is inferred or is specified by the governing authority. Fixes are charted as fly-over fixes only when specified by the governing authority.

Fly-over fixes have a circle around the fix/waypoint symbol. No special charting is used for fly-by fixes.

ULOGO and ROTGO
  Are fly-by waypoints.

RW03 and LESOV
  Are fly-over waypoints.
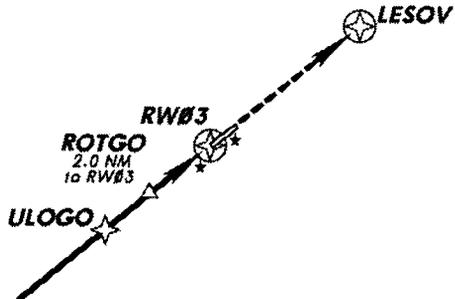
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5. AIRWAYS

ATS ROUTES
Airways identified as ATC routes by States (countries) cannot be uniquely identified. They are not included in the Jeppesen NavData database.

$$\boxed{\underset{\textbf{4000a}}{\overset{\overline{\langle 145 \rangle}}{\boxed{\textbf{ATS}}}}}$$
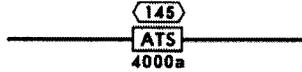
DESIGNATORS
Jeppesen NavData database airway designators are followed by a code indicating ATC services (such as A for Advisory, F for Flight Information) when such a code is specified by the State (country). Not all airborne systems display the ATC services suffix.

$$\overset{174 \quad \langle 420 \rangle}{\boxed{\textbf{UB 521F}}}$$
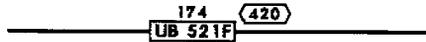
ALTITUDES
Minimum Enroute Altitudes (MEAs), Minimum Obstacle Clearance Altitudes (MOCAs), Off Route Obstacle Clearance Altitudes (OROCAs), Maximum Authorized Altitudes (MAAs), Minimum Crossing Altitudes (MCAs), Minimum Reception Altitudes (MRAs), and Route Minimum Route Off-Route Altitudes (Route MORAs) - - These minimum altitudes for airways are not displayed in most avionics systems.

$$\begin{array}{c} \textbf{MAA FL 381} \\ \textbf{131} \\ \boxed{\textbf{B 143D}} \\ \textbf{FL 315 3800T} \\ \textbf{2200a} \end{array}$$
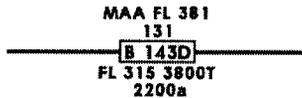
CHANGEOVER POINTS
Changeover points (other than mid-point between navaids) are on charts but are not included in the Jeppesen NavData database.
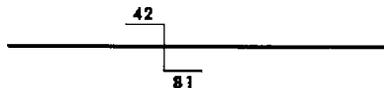
$$\begin{array}{c} \textbf{42} \\ \rule{3cm}{0.4pt}\rule{0.4pt}{0.8cm}\rule{3cm}{0.4pt} \\ \textbf{81} \end{array}$$

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6. ARRIVALS AND DEPARTURES

PROCEDURES NOT IN THE DATABASE

Jeppesen publishes some officially designated departure procedures that include only text on IFR airport charts beneath the take-off minimums. They may be labeled "Departure Procedure", "IFR Departure Procedure", or "Obstacle DP". Most of these are U.S. and Canadian procedures, although there is a scattering of them throughout the world. Any waypoint/fix mentioned in the text is in the Jeppesen NavData database. *However, these text-only departure procedures are not in the database.*

TAKE-OFF & OBSTACLE DEPARTURE PROCEDURE			
	Rwy 17		**Rwy 35**
	Adequate Vis Ref	STD	
1 & 2 Eng	¼	1	NA
3 & 4 Eng		½	

OBSTACLE DP: Rwy 17, Climbing right turn to 2000'
via heading 200° and TTT R-180 to Nahmu D20.0,
before proceeding on course or AS CLEARED BY ATC.

Some States publish narrative descriptions of their arrivals, and depict them on their enroute charts. They are unnamed, not identified as arrival routes, and are not included in the Jeppesen NavData database. Some States publish "DME or GPS Arrivals", and because they are otherwise unnamed, they are not included in the database.

PROCEDURE TITLES

Procedure identifiers for routes such as STARs, DPs and SIDs are in airborne databases but are limited to not more than six alpha/numeric characters. The database generally uses the charted computer code (shown enclosed within parentheses on the chart) for the procedure title, as

CHART:	Cyote Four Departure(CYOTE.CYOTE4) becomes
DATABASE	CYOTE4.

When no computer code is assigned, the name is truncated to not more than six characters. The database procedure identifier is created according to the ARINC 424 specifications.

Database procedure identifiers are charted in most cases. They are the same as the assigned computer code (charted within parentheses) or are being added [*enclosed within square brackets*]. Do not confuse the bracketed database identifier with the official procedure name (which will be used by ATC) or the official computer code (which is used in flight plan filing).

400-FOOT CLIMBS

Virtually all departures in the database include a climb to 400 feet above the airport prior to turning because of requirements in State regulations and recommendations. The 400-foot climb is not depicted on most charts. When States specify a height other than 400 feet, it will be in the Jeppesen NavData database.

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6. ARRIVALS AND DEPARTURES (Cont)

TAKE-OFF MINIMUMS AND CLIMB GRADIENTS

The take-off minimums and climb gradients that are depicted on the charts are not included in the database.

This SID requires a ceiling and visibility of 1200-3 and a climb gradient of 410'/NM to 5000'.

Gnd speed-Kts	75	100	150	200	250	300
410' per NM	513	683	1025	1367	1708	2050

"EXPECT" and "CONDITIONAL" INSTRUCTIONS

Altitudes depicted on charts as "Expect" instructions, as "Expect to cross at 11,000'" are not included in the Jeppesen NavData database. When "Conditional" statements such as "Straight ahead to ABC 8 DME or 600', whichever is later", are included on the charts, only one condition can be included in the database.

DECEE
N39 18.7 W085 45.9
Expect to cross
at 11000'
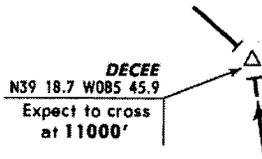
ALTITUDES

Databases include charted crossing altitudes at waypoints/fixes. Charted Minimum Enroute Altitudes (MEAs) and Minimum Obstacle Clearance Altitudes (MOCAs) are not included. The 5,000-foot altitude at RIANO is included in the database. The MEAs between SURVE and the two VORs are not included.
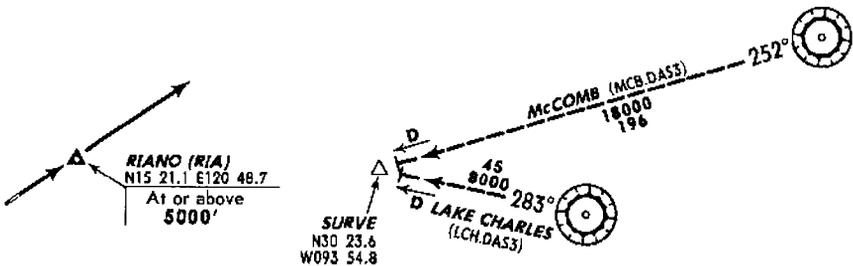
STAR OVERLAPPING SEGMENTS

STARs normally terminate at a fix where the approach begins or at a fix where radar vectoring will begin. When STAR termination points extend beyond the beginning of the approach, some avionics equipment may display a route discontinuity at the end of the STAR and the first approach fix.

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7. APPROACH PROCEDURE (TITLES and OMITTED PROCEDURES)

ICAO PANS OPS approach procedure titles are officially labeled with the navaid(s) used for the approach and are different than approach procedure titles labeled according to the TERPs criteria, which are labeled only with navaids required for the final approach segment. Because of the limited number of characters that are available for the procedure title, the name displayed on the avionics equipment may not be the same as the official name shown on the approach chart.

The Jeppesen NavData database, in accordance with ARINC 424 specifications, codes the approach procedure according to procedure type and runway number. "Similar" type approaches to the same runway may be combined under one procedure title, as ILS Rwy 16 and NDB VOR ILS Rwy 16 may read as ILS Rwy 16. The actual avionics readout for the procedure title varies from manufacturer to manufacturer.

Some avionics systems cannot display VOR and VOR DME (or NDB and NDB DME) approaches to the same runway, and the approach displayed will usually be the one associated with DME.

Currently:

Generally, most Cat I, II, and III ILS approaches to the same runway are the same basic procedure, and the Cat I procedure is in the database. However, in isolated cases, the Cat I and Cat II/III missed approach procedures are different, and only the Cat I missed approach will be in the database.

Additionally, there may be ILS and Converging ILS approaches to the same runway. While the converging ILS approaches are not currently in the database, they may be at some later date.

Some States are using the phonetic alphabet to indicate more than one "same type, same runway" approach, such as ILS Z Rwy 23 and ILS Y Rwy 23. The phonetic alphabet starts are the end of the alphabet to ensure there is no possibility of conflict with circling only approaches, such as VOR A.

In isolated cases, procedures are intentionally omitted from the database. This occurs primarily when navaid/waypoint coordinates provided by the authorities in an undeveloped area are inaccurate, and no resolution can be obtained. Additionally, the ARINC 424 specifications governing navigation databases may occasionally prohibit the inclusion of an approach procedure.

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8. APPROACH PROCEDURES (PLAN VIEW)

INITIAL APPROACH FIX (IAF), INTERMEDIATE FIX (IF), FINAL APPROACH FIX (FAF) DESIGNATIONS

These designations for the type of fix for operational use are included on approach charts within parentheses when specified by the State, but are not displayed on most avionics systems.

ARINC 424 and TSO C-129 specifications require the inclusion of GPS approach transitions originating from IAFs. Authorities do not always standardize the assignment of IAFs, resulting in some cases of approach transitions being included in the database that do not originate from officially designed IAFs
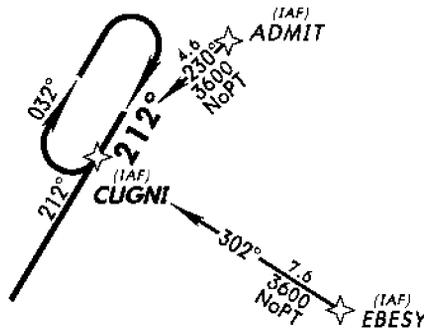
BASE TURN (TEARDROP) APPROACHES

Depending upon the divergence between outbound and inbound tracks on the base turn (teardrop turn), the turn rate of the aircraft, the intercept angle in the database, and the wind may cause an aircraft to undershoot the inbound track when rolling out of the turn, thus affecting the intercept angle to the final approach. This may result in intercepting the final approach course either before or after the Final Approach Fix (FAF).

ROUTES BY AIRCRAFT CATEGORIES

Some procedures are designed with a set of flight tracks for Category A & B aircraft, and with a different set of flight tracks for Category C & D. In such cases, the database generally includes only the flight tracks for Category C & D.
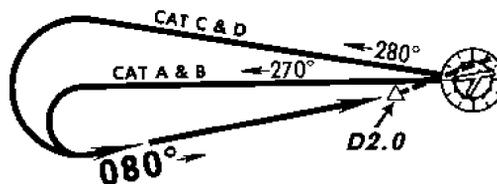
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8. APPROACH PROCEDURES (PLAN VIEW) (Cont)

DME and ALONG TRACK DISTANCES

Database identifiers are assigned to many unnamed DME fixes. The Jeppesen identifier is charted on GPS/GNSS type approaches and charted on any type approach when specified as a computer navigation fix (CNF). Unnamed Along Track Distances (ATDs) are charted as accumulative distances to the MAP.
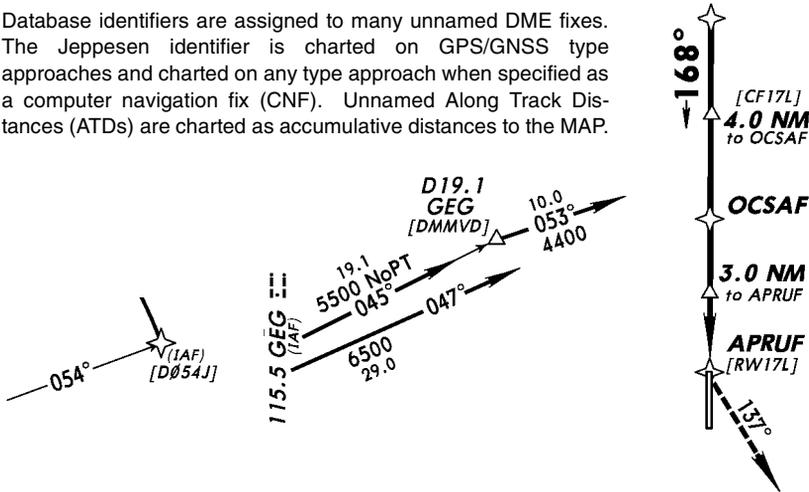
APPROACH TRANSITION TO LOCALIZER

For DME arc approach transitions with lead-in radials, the fix at the transition "termination point" beyond the lead in radial is dropped by many avionics systems.

West bound on the 22 DME arc, the leg after the 171° lead-in radial may not be displayed in all avionics equipment.
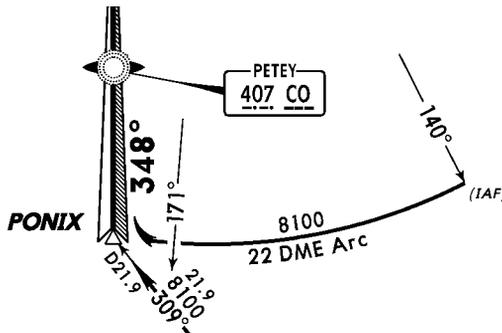
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9. APPROACH PROCEDURES (PROFILE)

VERTICAL DESCENT ANGLES

Vertical descent angles for most *straight-in non-precision landings are included in the database and published on charts with the following exceptions:

1) When precision and non-precision approaches are combined on the same chart, or

2) Some procedures based on PANS OPS criteria with descent gradients published in percentage or in feet per NM/meters per kilometer. However, these values are being converted into angles and are being charted.

*Descent angles for circle-to-land only approaches are currently not in the database and are not charted.

In the United States, many non-precision approaches have descent angles provided by the FAA and are depicted on the approach charts. For many of the U.S. procedures, and in other countries, the descent angles are calculated based on the altitudes and distances provided by the State authorities. These descent angles are being added to Jeppesen's charts.

Gnd speed·Kts	70	90	100	120	140	160
Descent angle [3.23°]	400	514	571	686	800	914
SHOER to MAP 5.0	4:17	3:20	3:00	2:30	2:08	1:52

Gnd speed·Kts	70	90	100	120	140	160
Descent angle 3.02°	379	487	542	650	758	867
MAP at RWØ9R						
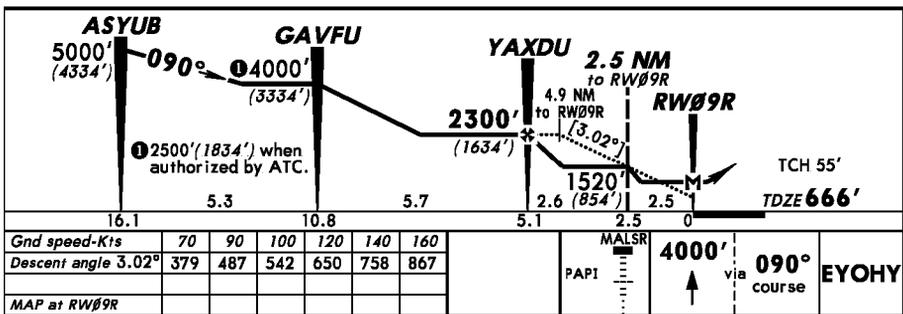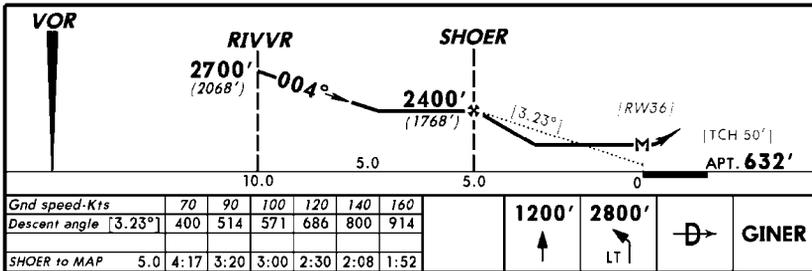
The descent angle accuracy may be affected by temperature. When the outside air temperature is lower than standard, the actual descent angle will be lower. Check your avionics equipment manuals since some compensate for nonstandard temperatures.

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9. APPROACH PROCEDURES (PROFILE) (Cont)

DATABASE IDENTIFIERS
For approach charts where the descent angle is published, all database identifiers from the Final Approach Fix (FAF) to the missed approach termination point are charted in both the plan and profile views. When an FAF is not specified, the NavData database Sensor Final Approach Fix (FAF) is included in the database and is charted.

FINAL APPROACH CAPTURE FIX (FACF)
Databases include (when no suitable fix is specified in source) a FACF for localizer based approaches and those based on VOR DME, VORTAC, or NDB and DME. In most cases, it is the fix identified as the intermediate fix. The FACF is charted only when specified by the State.

GPS/GNSS SENSOR FAF
The Jeppesen NavData database includes a sensor final approach fix when the approach was not originally designed with an FAF, and they are charted on "GPS/GNSS type" approaches.
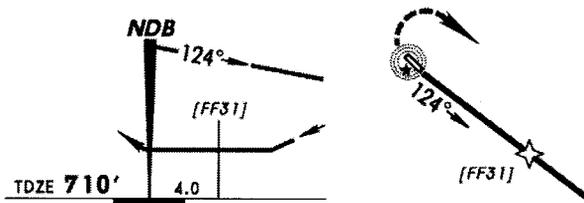
FINAL APPROACH FIX (FAF), ILS and LOCALIZER APPROACHES
There may be several types of fixes charted at the same FAF location - locator, waypoint, intersection, DME fix, OM, or perhaps an NDB instead of a locator. Since many airborne navigation systems with databases don't store locators and NDBs as navaids, a four- or five-character identifier will be used for the FAF on ILS and localizer approaches. The four- or five-character identifier assigned to the FAF location is contained in the waypoint file of the Jeppesen NavData database.

If there is a named intersection or waypoint on the centerline of the localizer at the FAF, the name of the fix will be used for the FAF location.

The FAF must be on the localizer centerline or the avionics system will fly a course that is not straight. Frequently, OMs and LOMs are not positioned exactly on the localizer centerline, and a database fix is created to put the aircraft on a straight course.

When the LOM is on the centerline and there also is a named intersection or waypoint on the centerline, the name of the intersection or waypoint will be used for the FAF. For CHUPP LOM/Intersection, the database identifier is "CHUPP" because there is an intersection or waypoint on the centerline of the localizer at the FAF.

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9. APPROACH PROCEDURES (PROFILE) (Cont)
FINAL APPROACH FIX (FAF), ILS and LOCALIZER APPROACHES (Cont)

When the ILS or localizer proce-
dure is being flown from the data-
base, the four- or five-character
name or identifier such as
CHUPP, FF04, or FF04R, etc. will
be displayed as the FAF.

If the LOM is not on the localizer
centerline, an identifier such as
FF04L may be the identifier for
the computed "on centerline" final
approach fix for runway 04L. If
there is only an outer marker at
the FAF, the FAF identifier may
be OM04L.

When there is no intersection or waypoint at the FAF such as at the MONRY LOM, the data-
base identifier will be

    "OM09" if the LOM is on the centerline, and
    "FF09" if the LOM is not on the centerline.

In some systems, to access the locator on most ILS and localizer approaches, the Morse
code identifier can be used.

In the United States, virtually all locators have a five-letter unique name/identifier so the loca-
tion can usually be accessed in some systems by the navaid Morse code identifier or the five-
letter name. In some systems, the locator is accessed by the name or by adding the letters
"NB" to the Morse code identifier.

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9. APPROACH PROCEDURES (PROFILE) (Cont)

NAMED and UN-NAMED STEPDOWN FIXES, FINAL APPROACH FIX (FAF) to MISSED APPROACH POINT (MAP)

Named and un-named stepdown fixes between the FAF and MAP are currently not included in the databases, but will be added in the future. They are often DME fixes, and in those cases, can be identified by DME. The distance to go to the MAP may be labeled on some GPS/GNSS type charts and VOR DME RNAV charts. Proper identification of these displayed fixes is necessary to clear all stepdown fix crossing altitudes.
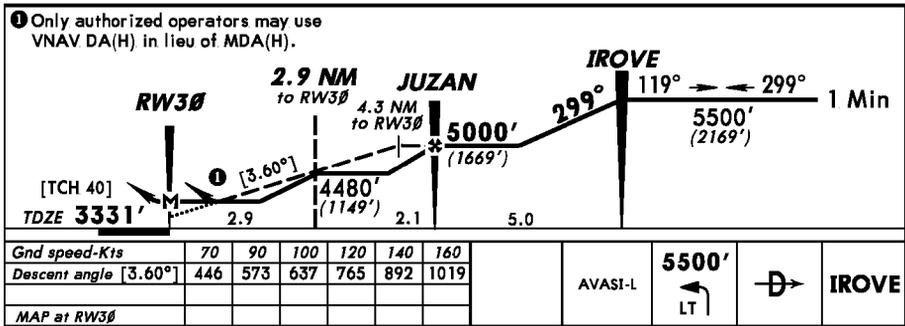
ILS AND RUNWAY ALIGNMENT

Differences in government specified values for localizer and airport variation may cause apparent non-alignment of the localizer and the runway. These differences are gradually being resolved, and whenever possible the airport variation is used for the localizer variation.

10. APPROACH PROCEDURES (MISSED APPROACH)

MISSED APPROACH POINT (MAP)

For non-precision approaches, when the MAP is other than a navaid, there will be a database MAP waypoint with a unique identifier. If the MAP is a waypoint and is at or within 0.14 NM of the threshold the MAP identifier will be the runway number, as "RW04" for Rwy 4 threshold. If the MAP is not at the runway, there will either be an official name for the MAP, or an identifier is provided. GPS/GNSS type approaches, and charts with descent angles, include the database identifier of the MAP.
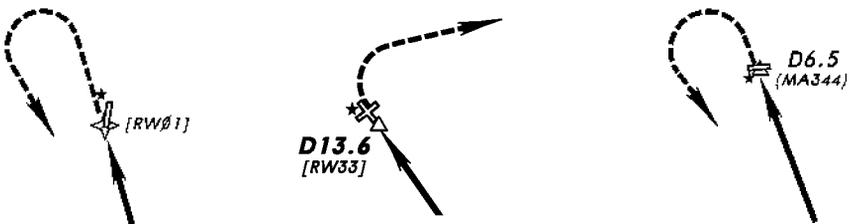
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10. APPROACH PROCEDURES (MISSED APPROACH) (Cont)

400-FOOT CLIMBS
The database includes a climb to 400 feet above the airport prior to turning on a missed approach. This climb is not part of the official procedure, but does comply with State regulations and policies. This specific climb to 400 feet is not included on charts. The missed approach text supplied by the State authority is charted.

MISSED APPROACH: Turn RIGHT track 080° to intercept CS VOR R-040 (040° bearing from CS NDB). Climb to 5000' and track to D15 CS or GPS or as directed by ATC.

LIMITATION: Max 185 Kt IAS until established on CS VOR R-040 (040° bearing from CS NDB).

CAUTION: Do NOT delay turn onto 080° due to high terrain West of Missed Approach Area.

MISSED APPROACH PROCEDURE
The routes/paths that comprise a missed approach are not always displayed in some avionics systems that use databases. Additionally, some avionics systems that include missed approach procedures don't always implement a full set of path terminators so many legs will not be included in the airborne database. ***Refer to the charted missed approach procedure when executing a missed approach.***

MISSED APPROACH: Climb to 1500' then climbing LEFT turn to 2400' via heading 280° and outbound TUL VOR R-238 to KEVIL INT and hold.

11. ROUTES ON CHARTS BUT NOT IN DATABASES

The routes in approach procedures, SIDs (DPs), and STARs are coded into the database using computer codes called path terminators which are defined in the ARINC 424 Navigation Database Specification. A path terminator 1) Defines the path through the air, and 2) Defines the way the leg (or route) is terminated. Not all avionics systems have implemented the full set of path terminators specified in the ARINC 424 document.

Because of the incomplete set of path terminators in some avionics systems, pilots need to ensure their avionics systems will take them on the routes depicted on the charts. If the avionics systems don't have all the routes, or don't have the means to display them, it is the pilot's responsibility to fly the routes depicted on the charts.

FINAL COCKPIT AUTHORITY, CHARTS OR DATABASE

There are differences between information displayed on your airborne avionics navigation system and the information shown on Jeppesen charts. *The charts, supplemented by NOTAMs, are the final authority.*

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GLOSSARY/ABBREVIATIONS

AIRAC - Aeronautical Information Regulation and Control. Designates the revision cycle specified by ICAO, normally 28 days.

ARINC - Aeronautical Radio, Inc

ATD - Along Track Distance, as "3 NM to RW24".

ATS Route - Officially designated route. No designator assigned.

CNF - Computer Navigation Fix

DATABASE IDENTIFIER - Avionics system use only, not for flight plans or ATC communications. Identifies a waypoint or fix.

DP - Departure Procedure

FAA - Federal Aviation Administration

FACF - Final Approach Capture Fix. Database includes (usually as an intermediate fix) when no suitable fix is specified in source.

FAF - Final Approach Fix

FLY-BY FIX - Waypoint allows use of turn anticipation to avoid overshoot of the next flight segment.

FLY-OVER FIX - Waypoint precludes any turn until the fix is over flown and is followed by an intercept maneuver of the next flight segment.

FMS - Flight Management System

GNSS - Global Navigation Satellite System

GPS - Global Positioning System

GPS/GNSS SENSOR FAF - Database fix that changes sensitivity of the Course Deviation Indicator (CDI) on final approach.

GPS/GNSS TYPE APPROACHES - Any approach that can be flown with GPS/GNSS as the only source of navigation.

ICAO - International Civil Aviation Organization

IAF - Initial Approach Fix

IF - Intermediate Approach Fix

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GLOSSARY/ABBREVIATIONS (Cont)

LOM - Locator Outer Marker

MAP - Missed Approach Point

MAA - Maximum Authorized Altitude

MCA - Minimum Crossing Altitude

MOCA - Minimum Obstacle Crossing Altitude

MORA - Minimum Off-Route Altitude

MRA - Minimum Reception Altitude

NavData - Jeppesen Navigation Data

OBSTACLE DEPARTURE - An instrument departure procedure established to avoid obstacles.

PANS OPS - Procedures for Air Navigation Services - Aircraft Operations (ICAO)

QFE - Height above airport or runway, local station pressure.

QNH - Altitude above MSL, local station pressure

SENSOR FINAL APPROACH FIX (FF) - Included in database and on charts when no FAF is specified for the approach.

SID - Standard Instrument Departure

STAR - Standard Terminal Arrival Procedure

TERPs - United States Standard for Terminal Instrument Procedures

VNAV - Vertical Navigation

VERTICAL DESCENT ANGLE - May be established by Jeppesen or specified by the State (country). Charted on Jeppesen approach charts along with database identifiers and rates of descent

WGS-84 - World Geodetic System of 1984

END