

Approach Charts and Procedures

- Key Features
- Heading, Briefing, and Communications Information
- Plan View and Minimum Safe Altitude
- Profile and Missed Approach Icons
- Time and Speed Table
- Landing Minimums
- Airport Sketch and Airport Diagram
- Alternate Airports

Instrument Approach Procedures (IAPs)

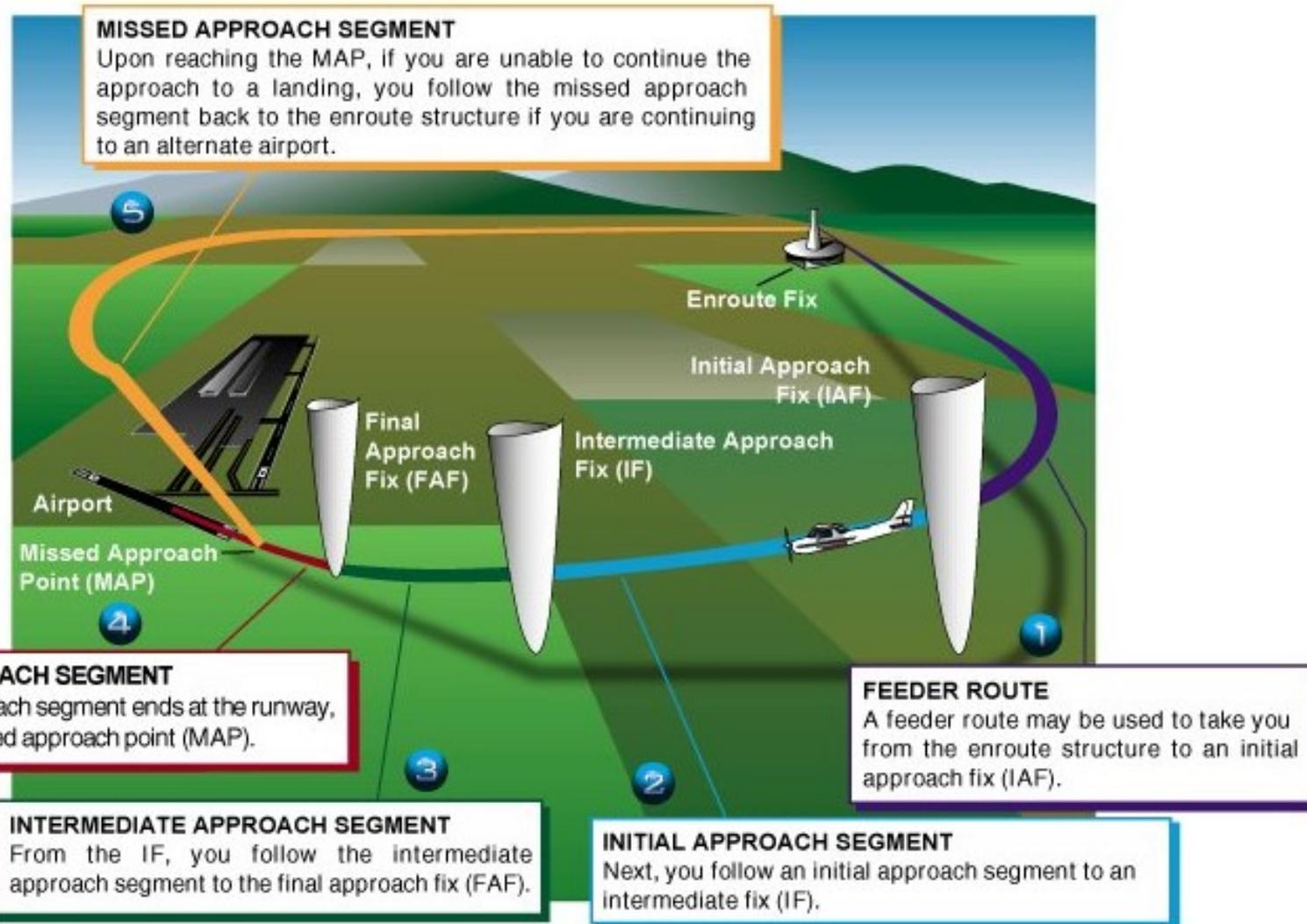
An instrument approach procedure...

- allows you to descend safely
- by reference to instruments
- from the en route structure
- to a point where a safe landing can be made

There are 2 general types of IAPs

- Precision approaches, e.g., ILS, PAR
 - provide vertical, as well as course, guidance
- Nonprecision approaches, e.g, VOR, NDB, ASR
 - provide only course guidance

Segments of an IAP



Segments of an IAP

The Initial Approach segment(s)

- provide a method of aligning your aircraft with the final approach course
- begin at the Initial Approach Fix (IAF)

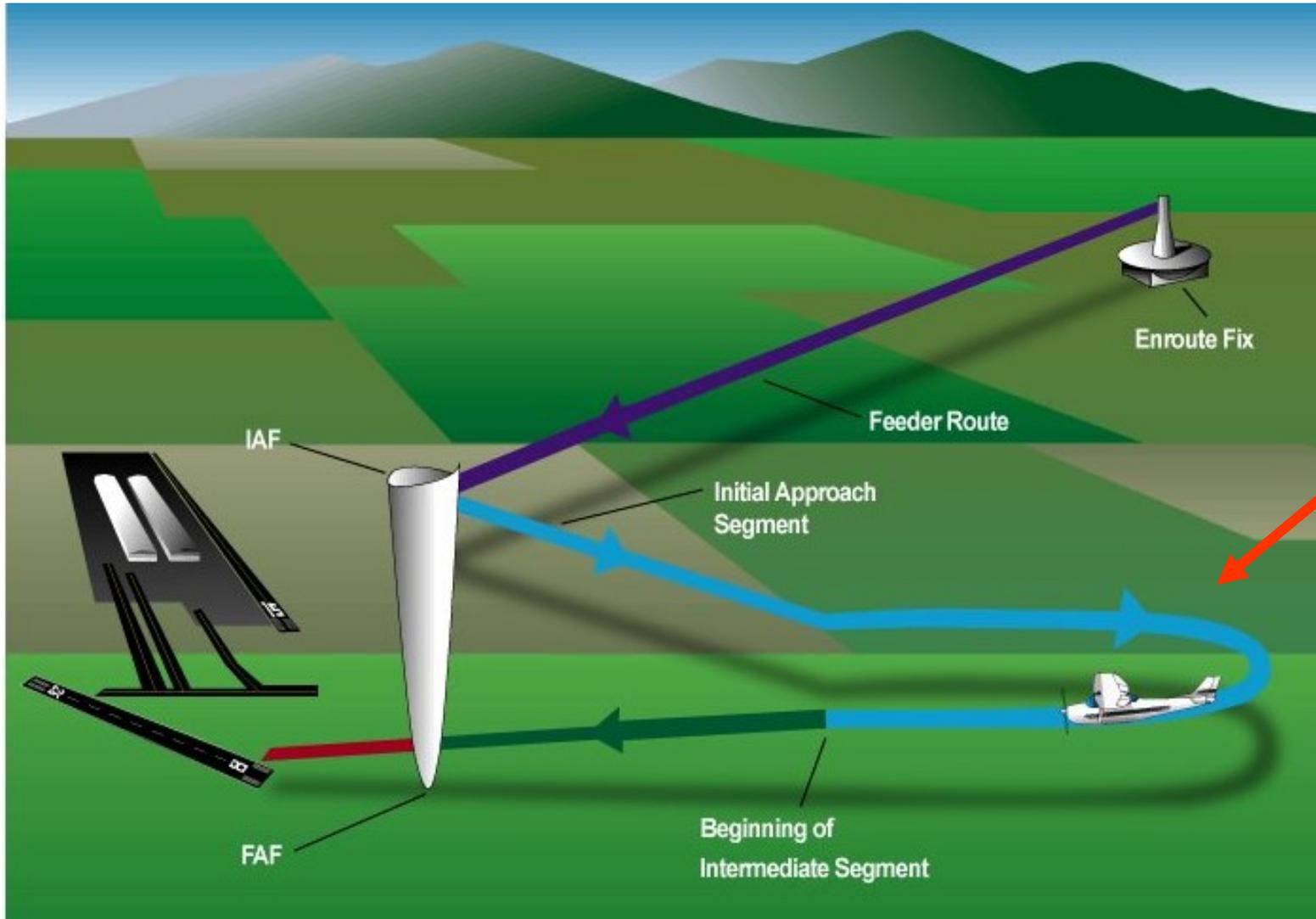
The Intermediate Approach segment

- allows you to position and configure your aircraft for final approach
- begins at the intermediate fix (IF) if it exists, or
- at the point you are proceeding inbound to the Final Approach Fix (FAF) and are aligned with the final approach course

Segments of an IAP

- **Final Approach Segment**
 - allows you to navigate safely to a point where, if required conditions exist, you can land
 - The FA segment begins...
 - For a precision approach, at glide slope intercept at the minimum intercept altitude
 - For a nonprecision approach, at the FAF
- **Missed Approach Segment**
 - provides a safe alternative in the event a safe landing cannot be made
 - begins at the Missed Approach Point (MAP)
 - Decision Height for a precision approach
 - a fix or elapsed time for a nonprecision approach

Segments of an IAP

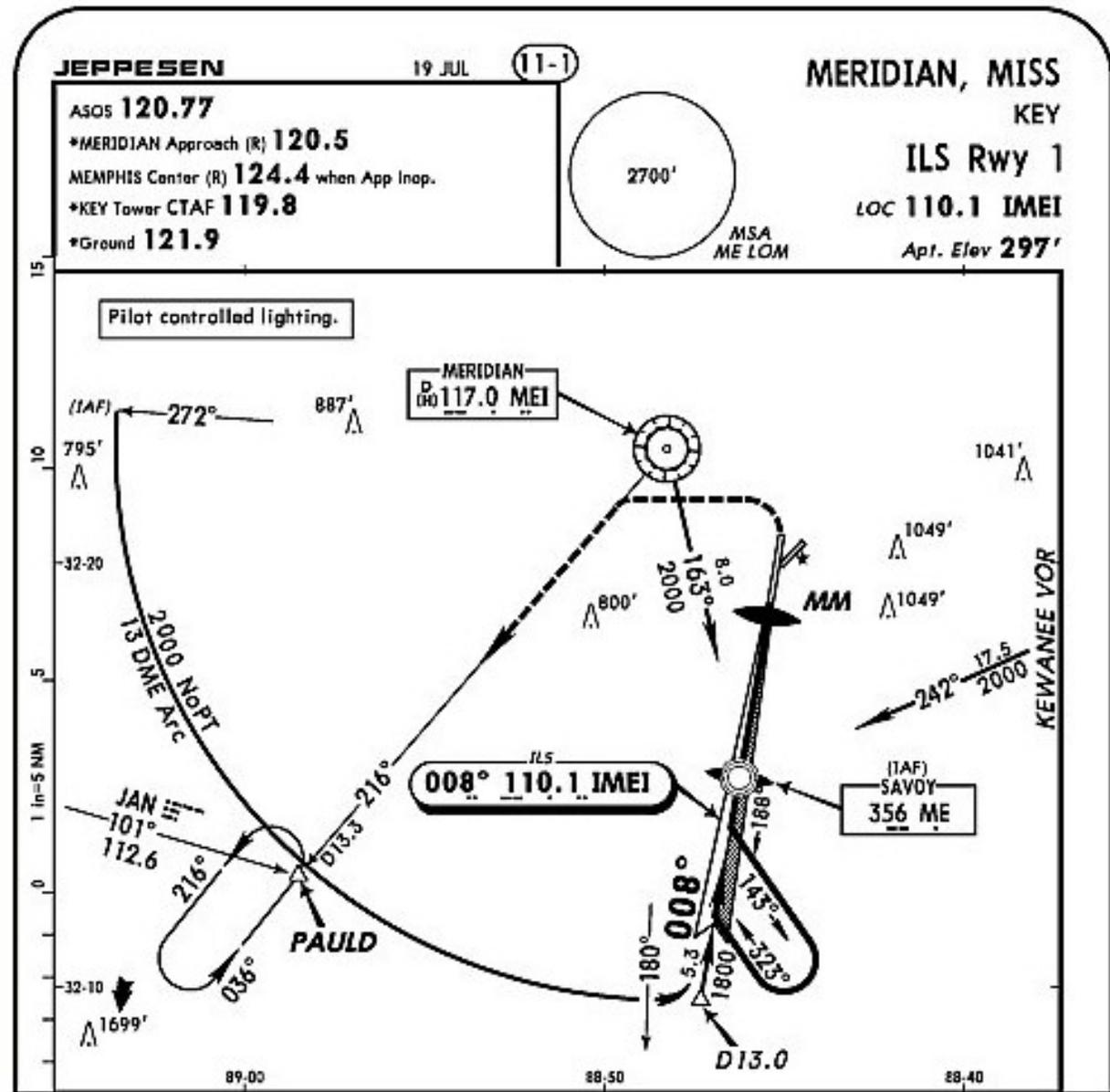


Basic Chart Layout

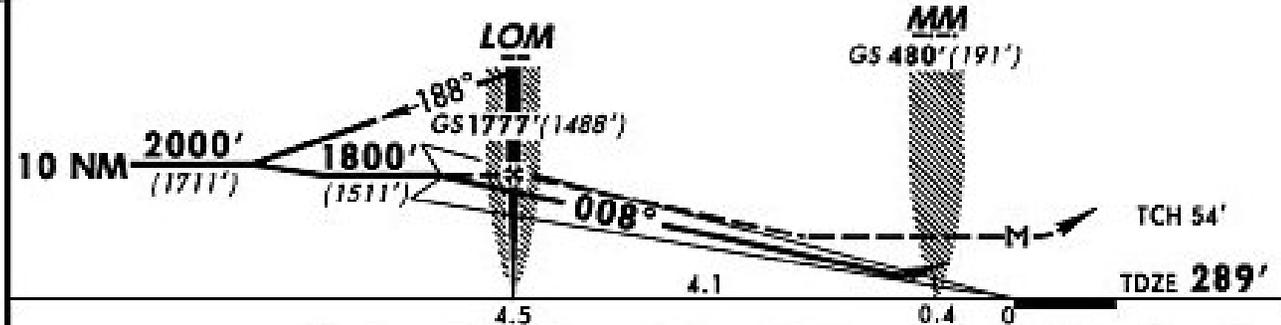
HEADER

(Identification, Communication, Pre-Approach Briefing)

PLAN VIEW



Profile View



Missed Approach

MISSED APPROACH: Climb to **700'** then climbing **LEFT** turn to **3000'** outbound via **MEI VOR R-216** to **PAULD INT** and hold.

Landing Minimums

		STRAIGHT-IN LANDING RWY 1			CIRCLE-TO-LAND				
		ILS		LOC (GS out)		Not Authorized East of Rwy 1-19			
		DA(H) 489' (200')		MDA(H) 780' (491')					
		FULL	RAIL or ALS out	RAIL out	ALS out	Max Kts			
A				RVR 24 or 1/2	RVR 40 or 3/4	90			
B				RVR 40 or 3/4	RVR 50 or 1	120			
C	RVR 24 or 1/2		RVR 40 or 3/4	RVR 60 or 1/4		140			
D				RVR 50 or 1	1 1/2	165			
A M E N D		Gnd speed-Kts	70	90	100	120	140	160	
		GS	3:00°	377	484	538	646	754	861
23		LOM to MAP	4.5	3:51	3:00	2:42	2:15	1:56	1:41

CHANGES: See other side.

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GULFPORT, MISSISSIPPI

AL-576 (FAA)

VOR RWY 14
GULFPORT-BILOXI INTL (GPT)

PILOT BRIEFING AND PROCEDURE NOTES

VORTAC GPT	APP CRS	Rwy Idg	9002
109.0	136°	TDZE	27
Chan 27		Apt Elev	28



MISSED APPROACH: Climbing right turn to 2000 via GPT R-245 to MUDDA Int/12 DME and hold.

ASR

ATIS	GULFPORT APP CON *	GULFPORT TOWER*	GND CON	UNICOM
119.45	124.6 254.25	123.7 (CTAF) 0 339.8	120.4 348.6	122.95

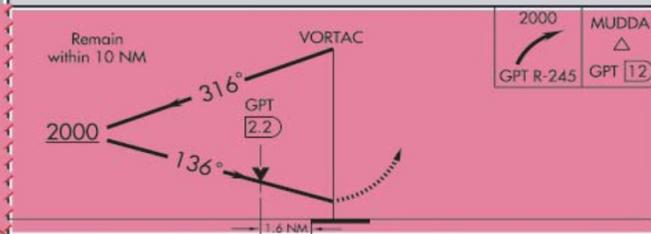
PLAN VIEW

SC-4, 06 JUL 2006 to 03 AUG 2006



SC-4, 06 JUL 2006 to 03 AUG 2006

PROFILE



MINI-MUMS

CATEGORY	A	B	C	D
S-14	580/24 553 (600-½)		580/50 553 (600-1)	580/60 553 (600-1¼)
CIRCLING	580-1 552 (600-1)	660-1 632 (700-1)	660-1¾ 632 (700-1¾)	660-2 632 (700-2)



AIRPORT DIAGRAM

GULFPORT, MISSISSIPPI
Amdt 22 06159

30°24'N-89°04'W

GULFPORT-BILOXI INTL (GPT)
VOR RWY 14

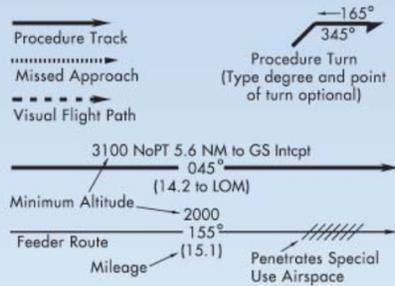
Knots	60	90	120	150	180
Min:Sec					

LEGEND

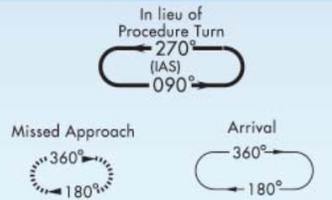
INSTRUMENT APPROACH PROCEDURES (CHARTS)

PLANVIEW SYMBOLS

TERMINAL ROUTES



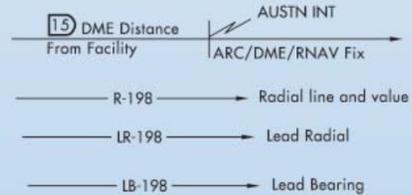
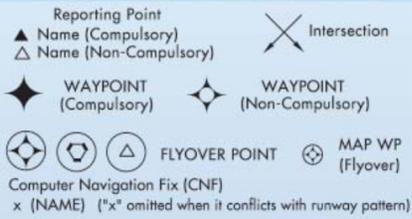
HOLDING PATTERNS



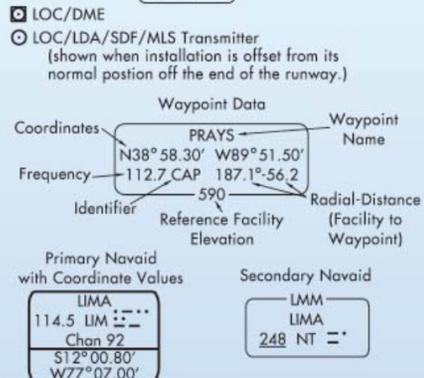
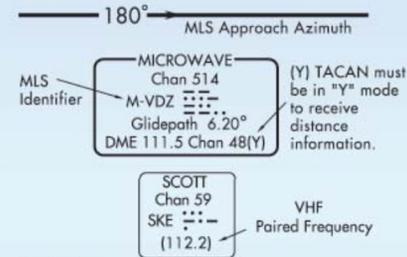
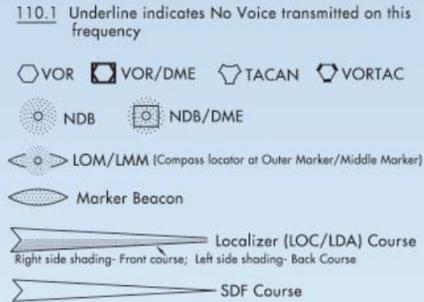
Holding pattern with max. restricted airspeed: (175K) applies to all altitudes. (210K) applies to altitudes above 6000' to and including 14000'.

Limits will only be specified when they deviate from the standard. DME fixes may be shown.

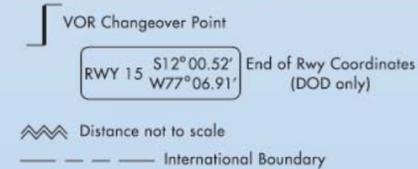
FIXES/ATC REPORTING REQUIREMENTS



RADIO AIDS TO NAVIGATION



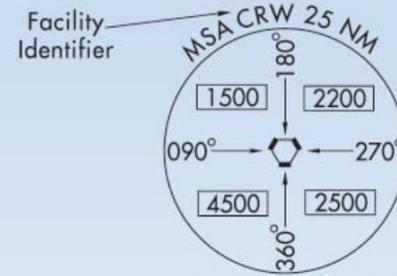
MISCELLANEOUS



INSTRUMENT APPROACH PROCEDURES (CHARTS)

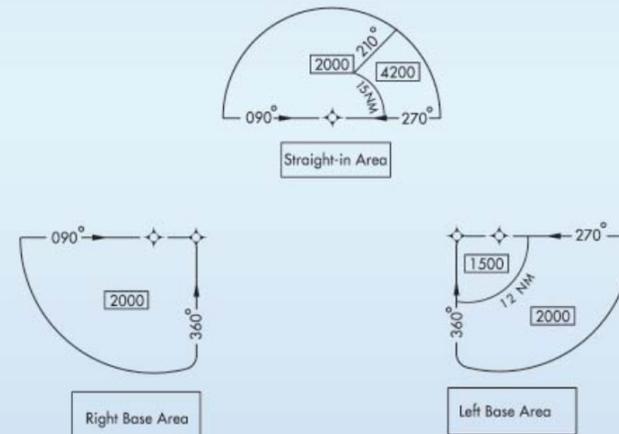
PLANVIEW SYMBOLS

MINIMUM SAFE ALTITUDE (MSA)

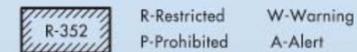


(arrows on distance circle identify sectors)

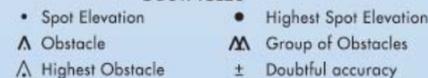
TERMINAL ARRIVAL AREA (TAA)



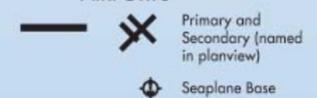
SPECIAL USE AIRSPACE



OBSTACLES



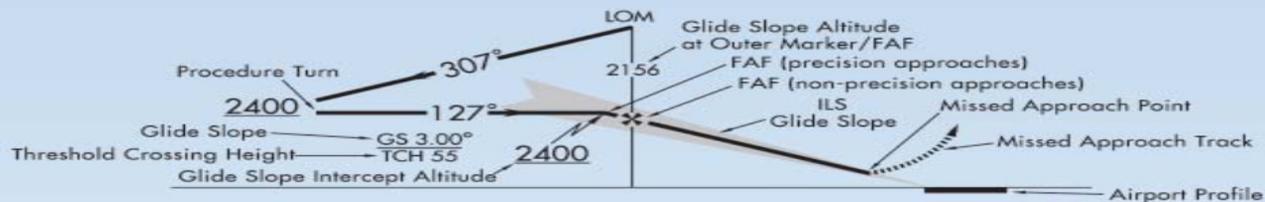
AIRPORTS



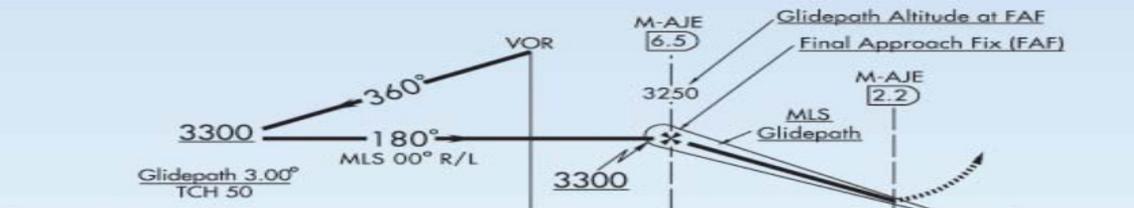
INSTRUMENT APPROACH PROCEDURES (CHARTS)

PROFILE VIEW

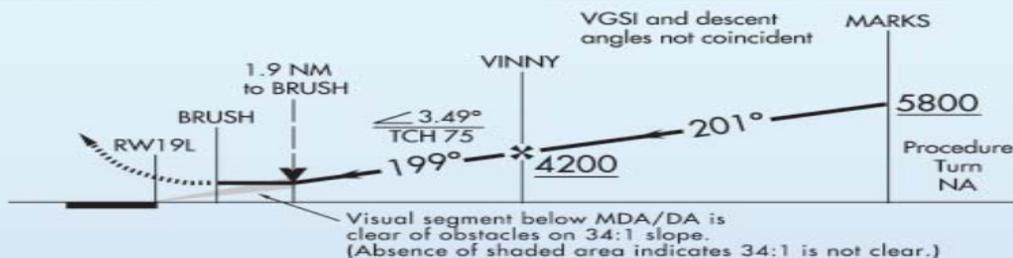
ILS or LOC APPROACH



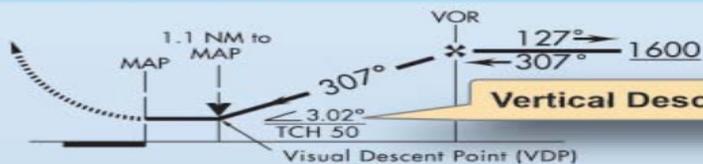
MLS APPROACH



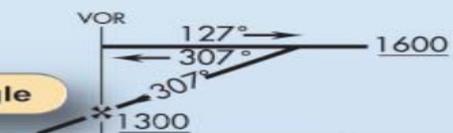
RNAV APPROACH



NON PRECISION



DESCENT FROM HOLDING PATTERN

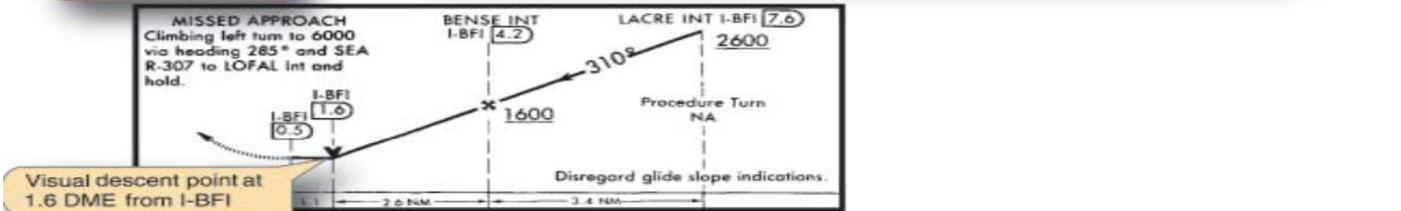
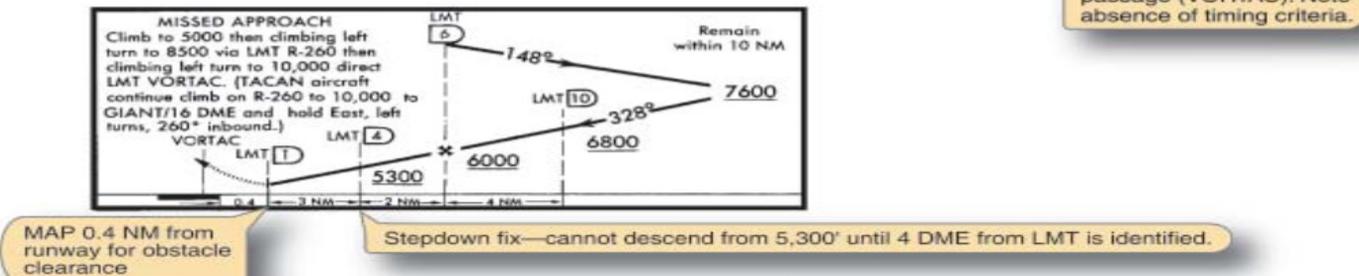
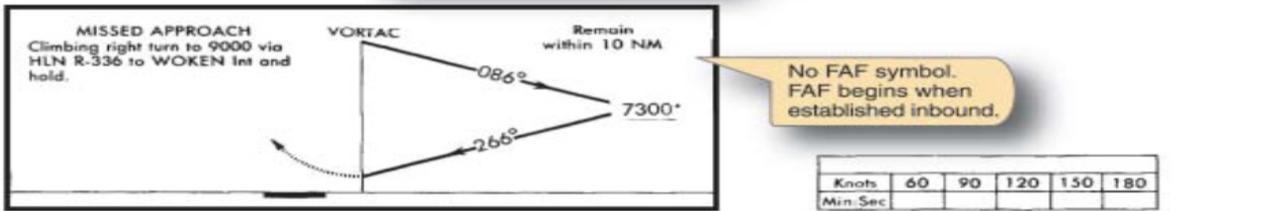
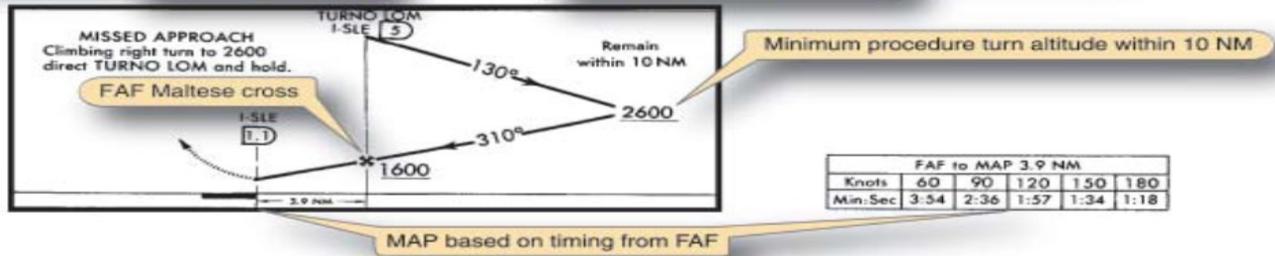
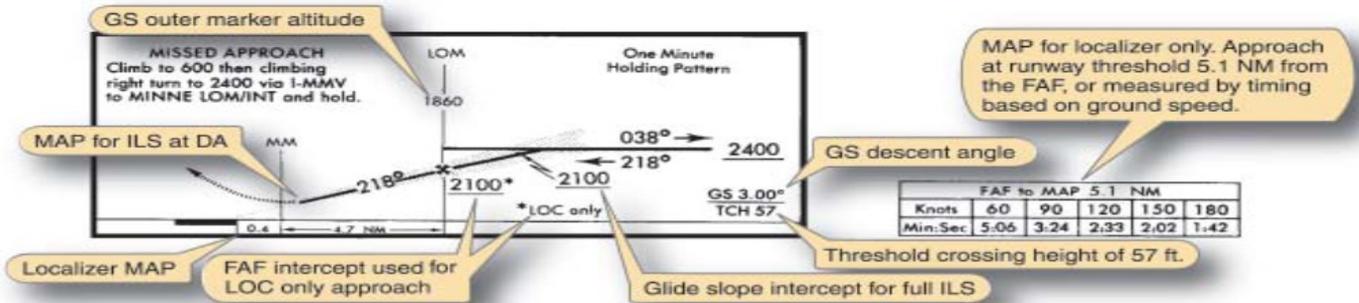


ALTITUDES

- 5500 Mandatory Altitude
- 2500 Minimum Altitude
- 4300 Maximum Altitude
- 3000 Recommended Altitude
- 5000 Mandatory Block
- 3000 Altitude

PROFILE SYMBOLS

- 2400
Glide Slope/Glide Path Intercept Altitude and final approach fix for vertically guided approach procedures.
- Visual Descent Point (VDP)
- Visual Flight Path
- Note: Facilities and waypoints are depicted as a solid vertical line while fixes and intersections are depicted as a dashed vertical line.



Minimums Section - This section displays the various minimums for the approach. This is the lowest the pilot is allowed to fly before being required to have the runway/airport environment in sight.

	DA	Visibility (RVR 100s of feet)		HAT	Aircraft Approach Category	
CATEGORY		A	B		C	D
Straight-in ILS to Runway 27 S-ILS 27		1352/24		200	(200-½)	
Straight-in with Glide Slope Inoperative or not used to Runway 27 S-LOC 27		1440/24	288		(300-½)	
CIRCLING	MDA	1540-1 361 (400-1)	1640-1 461 (500-1)		1640-1½ 461 (500-1½)	1740-2 561 (600-2)
		HAA	Visibility in Statute Miles			

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

AIRCRAFT APPROACH CATEGORIES

Aircraft approach category indicates a grouping of aircraft based on a speed of VREF, if specified, or if VREF not specified, 1.3 VSO at the maximum certificated landing weight. VREF, VSO, and the maximum certificated landing weight are those values as established for the aircraft by the certification authority of the country of registry. Helicopters are Category A aircraft. An aircraft shall fit in only one category. However, if it is necessary to operate at a speed in excess of the upper limit of the speed range for an aircraft's category, the minimums for the category for that speed shall be used. For example, an airplane which fits into Category B, but is circling to land at a speed of 145 knots, shall use the approach Category D minimums. As an additional example, a Category A airplane (or helicopter) which is operating at 130 knots on a straight-in approach shall use the approach Category C minimums. See following category limits:

MANEUVERING TABLE

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

Aircraft category	V _{AT}	Range of speeds for initial approach (and reversal and racetrack procedures)	Range of final approach speeds	Maximum speeds for circling	Maximum speeds for intermediate missed approach	Maximum speeds for final missed approach	Typical Aircraft in this Category
A	<91	90 - 150 (110*)	70 - 110	100	100	110	small single engine
B	91 - 120	120 - 180 (140*)	85 - 130	135	130	150	small multi engine
C	121 - 140	160 - 240	115 - 160	180	160	240	airline jet
D	141 - 165	185 - 250	130 - 185	205	185	265	large jet/military jet
E	166 - 210	185 - 250	155 - 230	240	230	275	special military

V_{AT} — Speed at threshold based on 1.3 times stall speed in the landing configuration at maximum certificated landing mass.

^{1*} Maximum speed for reversal and racetrack procedures.

Category E contains only certain Military Aircraft and is usually not included on commercial aeronautical charts.

Comparison Jeppesen and NACO



Pre-Approach Briefing

Heading

Communications

Pilot Briefing Information

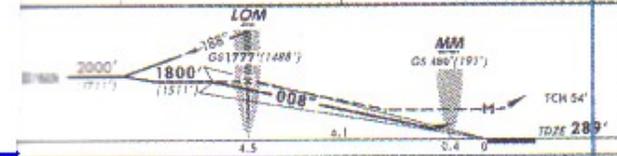
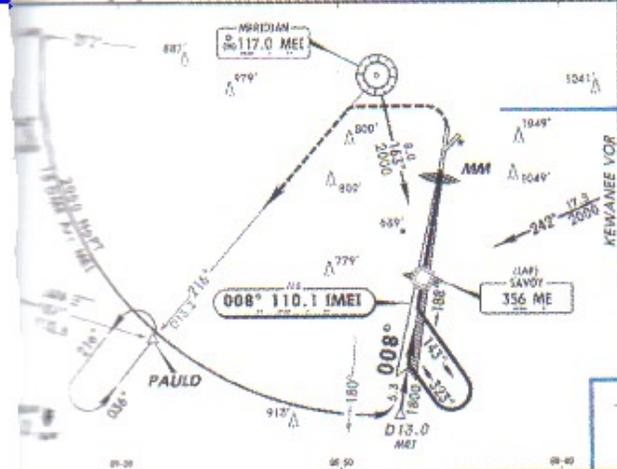
Heading

JEPPESEN MERIDIAN, MISS ILS Rwy 1

4 JAN (11-1)

Final App Crs 008°	GS (OM) 1777' (1488')	IS (DAH) 489' (200')	CI AF 119.8	TDZE 289'
------------------------------	---------------------------------	--------------------------------	-----------------------	---------------------

MSA ME LOM



700'	3000'	117.0 PAULD R-216
700'	3000'	117.0 PAULD R-216

STRAIGHT-IN LANDING RWY 1

LOC (GS out)	LOC (GS out)	LOC (GS out)	LOC (GS out)
860' (560')-1	880' (580')-1	880' (580')-1 1/2	940' (640')-2

Conversion Table

MSA Circle

Plan View

Missed Approach Icons

Profile View

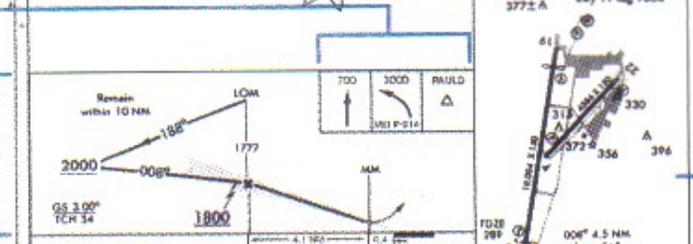
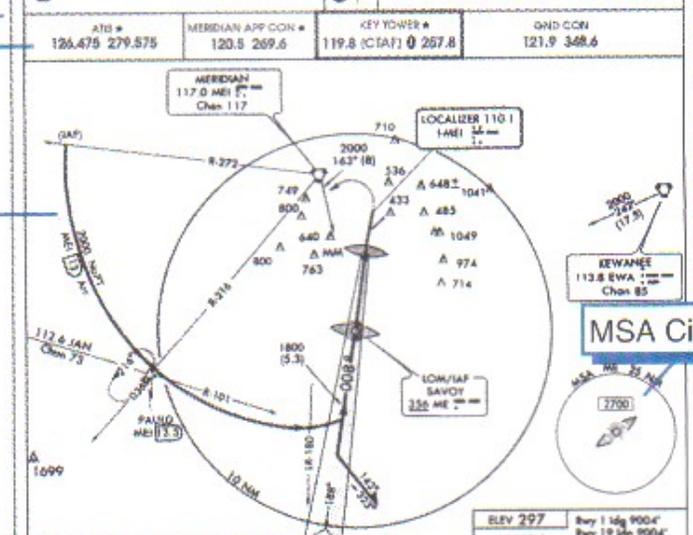
Landing Minimums

MERIDIAN, MISSISSIPPI ILS RWY 1 MERIDIAN/KEY FIELD (MEI)

AL 254 (95A)

LOC 1 MEI 110.1	APP CRZ 008°	Rwy Idg 9004	TDZE 289	Appt Elev 297
---------------------------	------------------------	------------------------	--------------------	-------------------------

MSA ME LOM



CATEGORY	A	B	C	D
S-LOC 1	780/24	491 (500-1)	780/40	491 (500-1)
CHIRLING	860-1	880-1	880-1 1/2	940-2

MERIDIAN, MISSISSIPPI

32° 20' N - 88° 45' W

ILS RWY 1

MSA Circle

Time and Speed Table

Airport Sketch



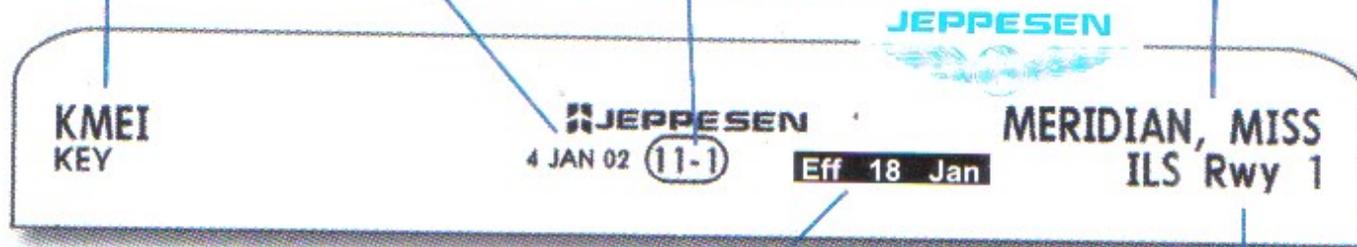
Header - Jeppesen

Jeppesen lists the ICAO airport identifier above the airport name.

Chart Date

Chart Index Number

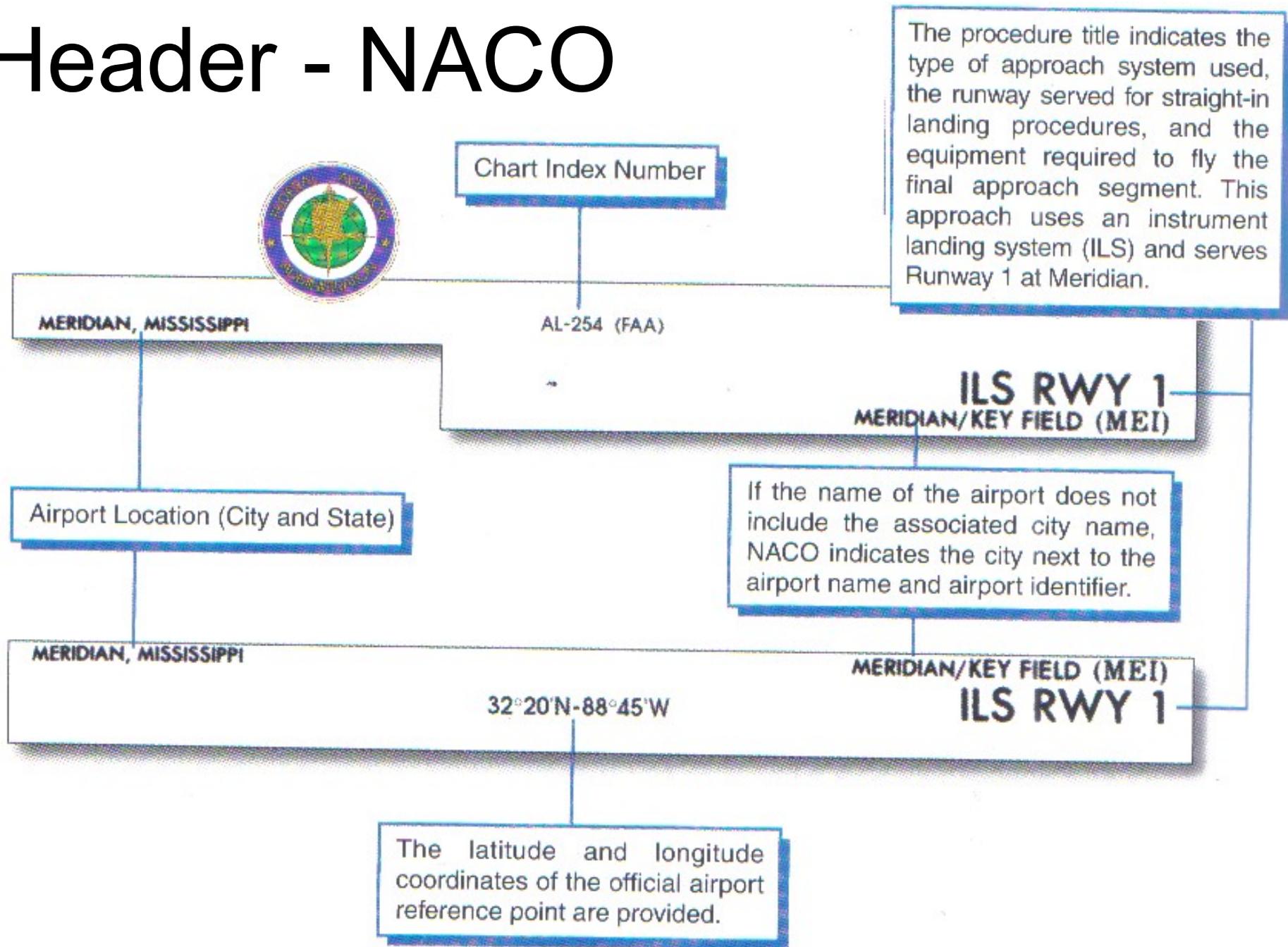
Airport Location (City and State)



Jeppesen charts use an effective date if a chart is issued before it can be used. In this situation, you should continue to use the previous chart until the effective date. If there is no effective date, you may use the chart upon receipt.

The procedure title indicates the type of approach system used, the runway served for straight-in landing procedures, and the equipment required to fly the final approach segment. This approach uses an instrument landing system (ILS) and serves Runway 1 at Meridian.

Header - NACO



Communications: Jeppesen

The first communication box contains the frequency for obtaining non-control airport and/or weather information from facilities such as ATIS, ASOS, and AWOS. The asterisk indicates that Key Field's ATIS only operates part-time. Other times (O/T) you can listen on the same frequency to ASOS for information.

Jeppesen provides an alternate contact for part-time facilities (indicated by the asterisk). For example, when Meridian Approach Control is not operating, Memphis Center clears you for the approach. When the tower is closed, use the common traffic advisory frequency (CTAF) of 119.8 MHz.



*ATIS (ASOS O/T)	*MERIDIAN Approach (R)	MEMPHIS Center (R)	*KEY Tower	*Ground
126.47	120.5	124.4 when App inop.	CTAF 119.8	121.9

The capital letter R in parentheses indicates the facility is equipped with radar. In this case, both Meridian Approach and Memphis Center can provide radar vectoring.

Communications: NACO

The first communication box shows the frequency for obtaining control airport and/or weather information from facilities such as ASOS, and AWOS. The asterisk indicates that Key Field's tower only operates part-time.

NACO uses a heavy-lined box to help you quickly locate the tower frequency. Meridian Approach and Key Tower are part-time facilities, as indicated by the asterisk. An asterisk is not shown next to Ground Control, since that facility is associated with the tower. When the tower is closed, use the common traffic advisory frequency (CTAF) of 119.8 MHz.

NACO Communications Section — It is recommended that you refer to the Airport Facility Directory (AFD) or other flight supplement to determine the hours of operation for the part-time facilities, which are indicated by the asterisk.

<p>ATIS *</p> <p>126.475 279.575</p>	<p>MERIDIAN APP CON *</p> <p>120.5 269.6</p>	<p>KEY TOWER *</p> <p>119.8 (CTAF) 0 257.8</p>	<p>GND CON</p> <p>121.9 348.6</p>
--------------------------------------	----------------------------------------------	------------------------------------------------	-----------------------------------

UHF communication frequencies used by the military are shown where available.

The L symbol indicates that when the tower is closed, pilot-controlled lighting is activated on the CTAF frequency.

Jeppesen Pre-Approach Briefing

1

The first box of the pre-approach briefing section contains information on the primary navigation aid used for the approach. It includes the navaid type, identifier, and the associated frequency.

2

Final approach course information is shown here, as well as in the plan view and profile view.

3

For precision approaches such as this ILS, this box contains the glide slope altitude (height) at the OM position (or equivalent). For nonprecision approaches, the minimum altitude at the final approach fix (FAF) is shown. Refer to the profile view for complete information since stepdown fixes may exist between the FAF and MAP on nonprecision approaches.

4

For a precision approach, as in this case, this box contains the lowest decision altitude (height) DA(H), based on a straight-in landing with all equipment operating. For the nonprecision approach, it contains the lowest minimum descent altitude (height) MDA(H) for the straight-in landing. For approaches that do not have a straight-in landing, or those that apply to more than one runway, this box contains a note that refers 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.

5

The airport elevation and the touchdown zone elevation (TDZE) or runway end elevation are found in this box.

<i>LOC</i> IMEI 110.1	<i>Final</i> <i>Apch Crs</i> 008°	<i>GS</i> <i>LOM</i> 1777' (1488')	<i>ILS</i> <i>DA(H)</i> 489' (200')	<i>Apt Elev 297'</i> <i>TDZE 289'</i>
MISSED APCH: Climb to 700' then climbing LEFT turn to 3000' outbound via MEI VOR R-216 to PAULD INT and hold.				
Pilot controlled lighting 119.8.				

6

The full textual description of the missed approach procedure is placed here since the entire missed approach procedure is typically referenced during the pre-approach briefing.

7

When applicable, general equipment or procedural notes associated with the approach are found together in this common area. The note on this chart indicates that you can activate pilot controlled lighting on 119.8 when the tower is not operating. Altimetry information also is found here. If there are no notes associated with the approach, this row may be omitted.

Jeppesen Pre-Approach Briefing Information — Jeppesen worked closely with a wide range of general aviation, corporate, and airline pilots, as well as aviation organizations to develop a logical briefing format. The result is a chart that presents basic approach information in the sequence which pilots would normally brief or review the procedure prior to flying it. Bold type draws your attention to key elements of the approach procedure.

NACO PILOT BRIEFING SECTION

The first box of NACO's pilot briefing information contains the primary procedure navigation information. The navaid type, identifier, and frequency are included. The underline indicates that voice is transmitted on this frequency.

Final approach course information is shown here, as well as in the plan view and profile view.

This box contains the available landing distance, touchdown zone elevation (TDZE), and airport elevation.

LOC I-MEI <u>110.1</u>	APP CRS 008°	Rwy ldg 9004
		TDZE 289
		Apt Elev 297



 Circling not authorized east of Rwy 1-19.

 MISSED APPROACH: Climb to 700 then climbing left turn to 3000 via MEI R-216 to PAULD Int and hold.

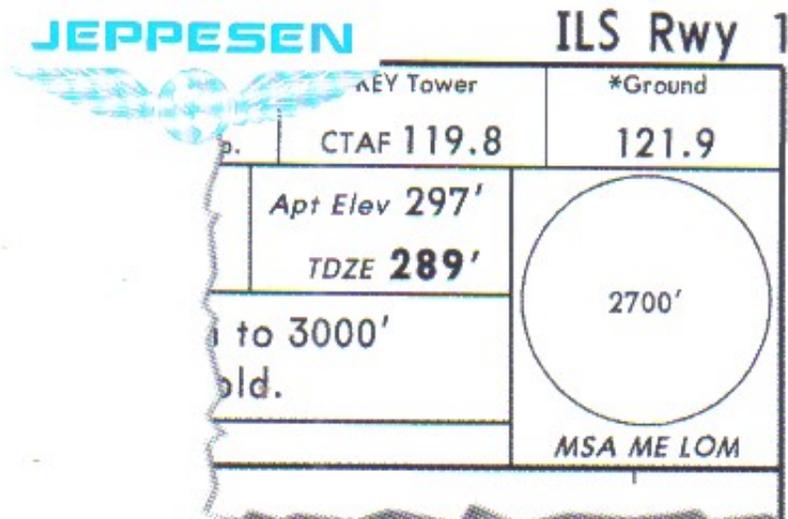
These icons indicate that nonstandard alternate and takeoff minimums apply.

The full textual description of the missed approach procedure is placed here.

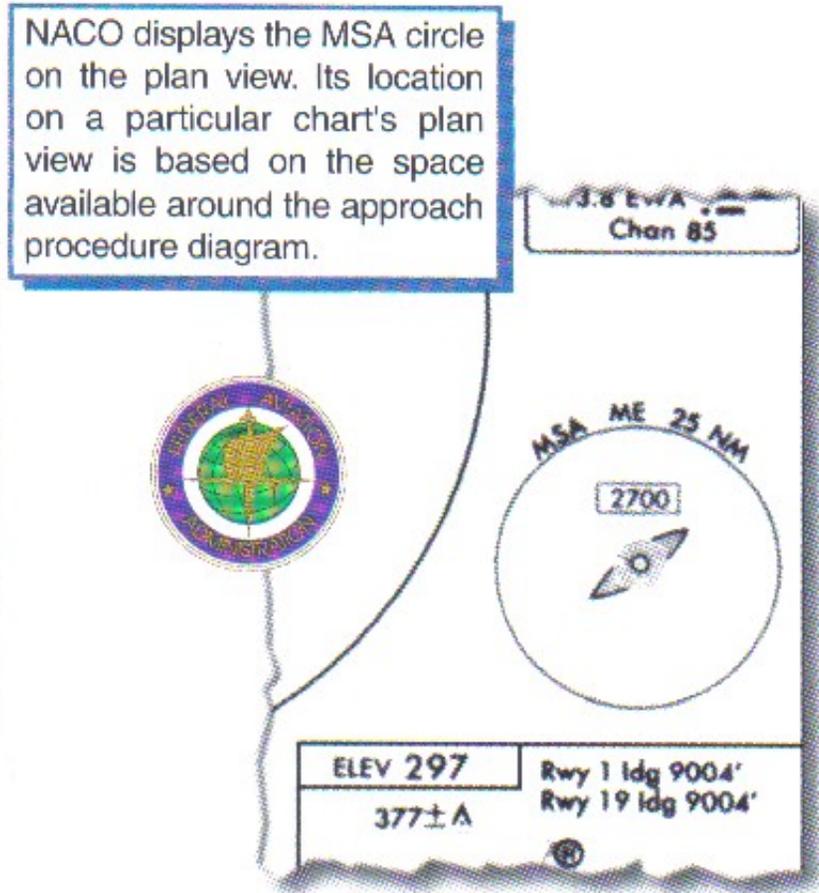
You must comply with the procedure notes and/or limitations shown in this box. For example, at Key Field, it is not permissible to circle to the east of the Runway 1/19 centerline.

Approach lighting symbology is shown in this box. Runway 1 at Key Field has a medium intensity approach lighting system with runway alignment indicator lights (MALSR). This lighting symbol appears in the airport sketch as well. An illustration of each approach lighting system is included in the legend pages of each *Terminal Procedures Publication*.

MINIMUM SAFE ALTITUDE (Circle identifies MSA)



On Jeppesen charts, the MSA circle is always shown to the right of the pre-approach briefing information.



Jeppesen Plan View

An oval shape is used to depict an ILS, LOC, LDA, or SDF facility. The shadow indicates the primary facility upon which the approach is based. In this case, the ILS localizer is aligned on a magnetic course of 008° and its frequency is 110.1 MHz. The letter I precedes the identifier to indicate an ILS or LDA localizer. The Morse code identification also is provided.

A rectangular navaid facility box identifies a VOR, NDB, or LOM facility. The VOR, VORTAC, or VOR/DME class is identified. For example, the letter H in parentheses indicates it is a high altitude class of VORTAC. The letter D indicates DME capability.

Marker beacons are shown as lens-shaped symbols. The middle marker beacon is indicated by the letters MM adjacent to the symbol. If an NDB is collocated with a middle marker, it is a locator middle marker (LMM).

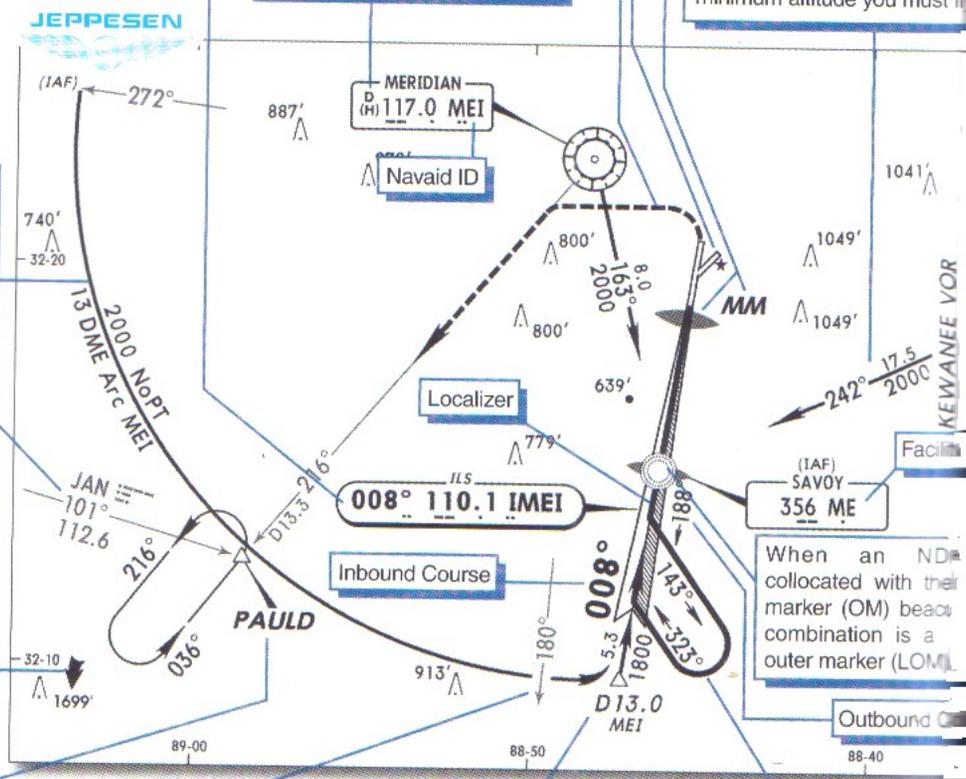
Feeder routes and approach transitions are indicated by heavy line arrows, with the radial or bearing, distance, and minimum altitude you must fly.

If your initial approach segment is the DME arc transition, the procedure turn is not authorized (NoPT).

You can identify PAULD by its position at the intersection of the Meridian 216° radial and the 101° radial of the Jackson (JAN) VORTAC. Although the JAN VORTAC is not depicted on the chart, the information required to identify and use the VORTAC is shown.

The highest portrayed terrain high point or man-made obstruction (1,699 feet MSL) is indicated by an arrow on Jeppesen charts.

The missed approach holding pattern at PAULD Intersection is shown. If your airplane is DME-equipped, you can identify PAULD by its position on the Meridian 216° radial at a distance of 13.3 DME.

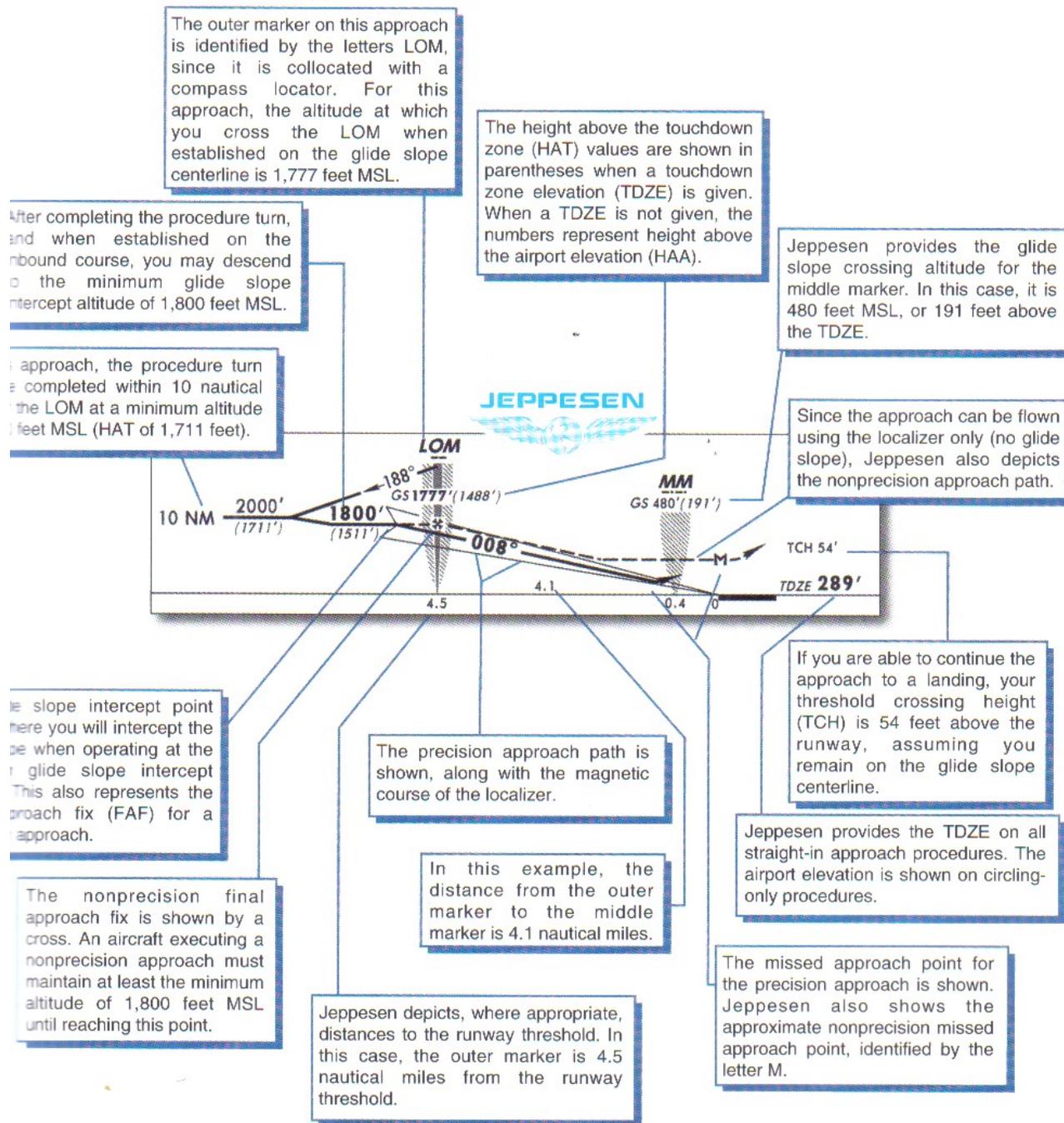


To help you distinguish a nonflyable lead radial from a flyable route, the radial is depicted by a thin line, and no minimum altitude is shown.

The transition from the point where the 13-DME arc intercepts the localizer to the LOM is 5.3 miles. This segment has a minimum altitude of 1,800 feet MSL.

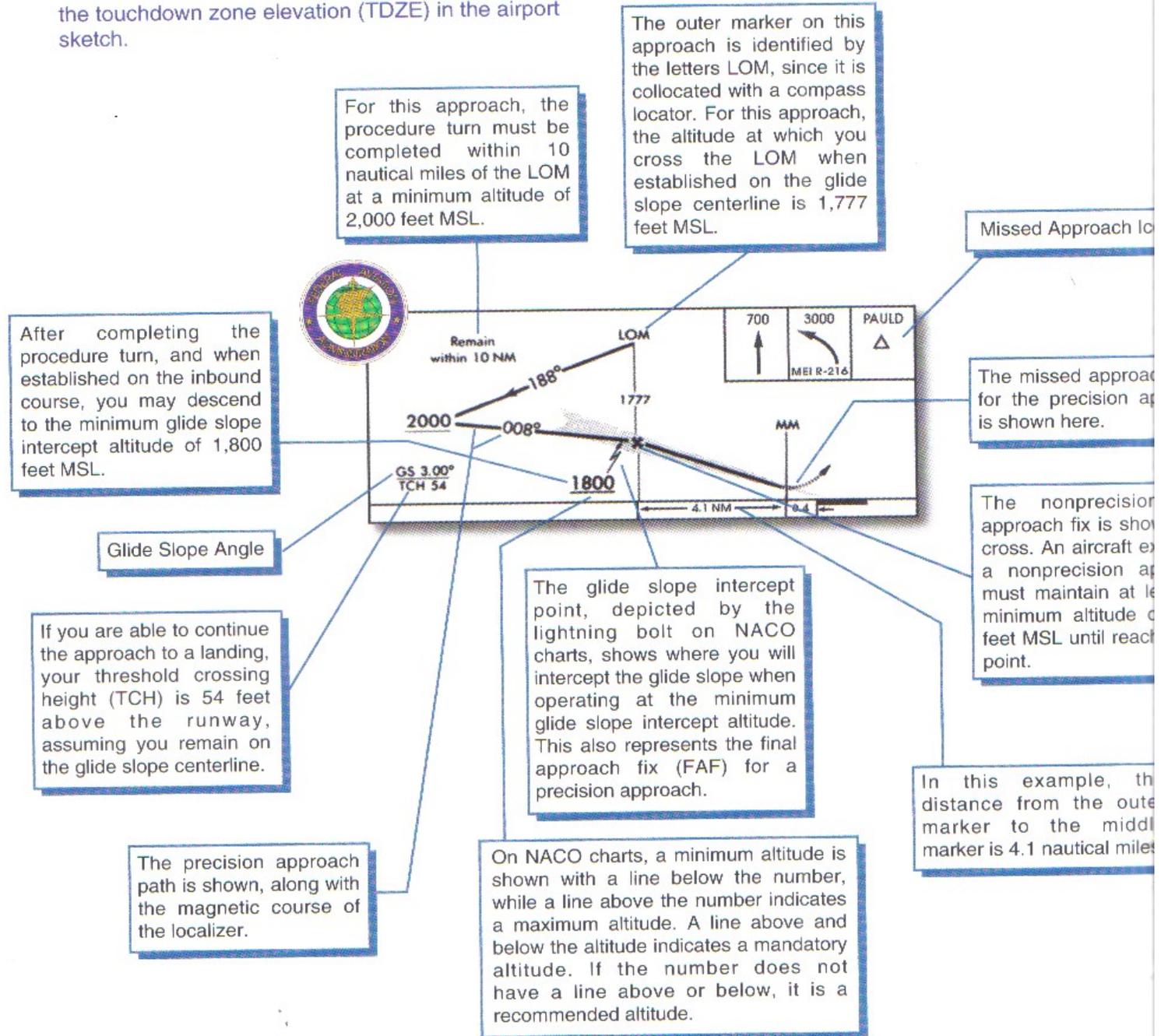
This procedure turn is an outbound heading of 323°. After the appropriate time, a right turn is made to intercept the localizer inbound.

Jeppesen Profile



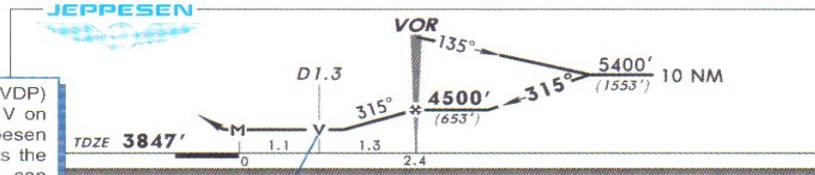
NACO Profile

NACO Profile View — NACO provides the touchdown zone elevation (TDZE) in the airport sketch.

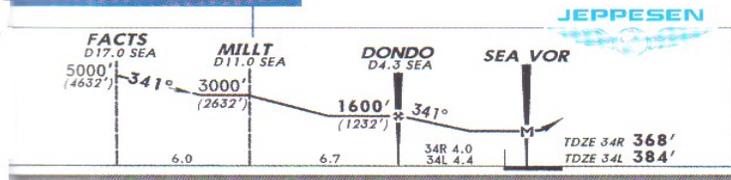


STEPDOWNS

Visual descent point (VDP) is depicted by the letter V on both NACO and Jeppesen charts. A VDP represents the point from which you can make a normal descent to a landing, assuming you have the runway in sight and you are starting from the MDA. A descent from the MDA should not be started prior to reaching the VDP.



When you pass MILLT, which is the 11.0 DME stepdown fix, you may descend to 1,600 feet MSL.

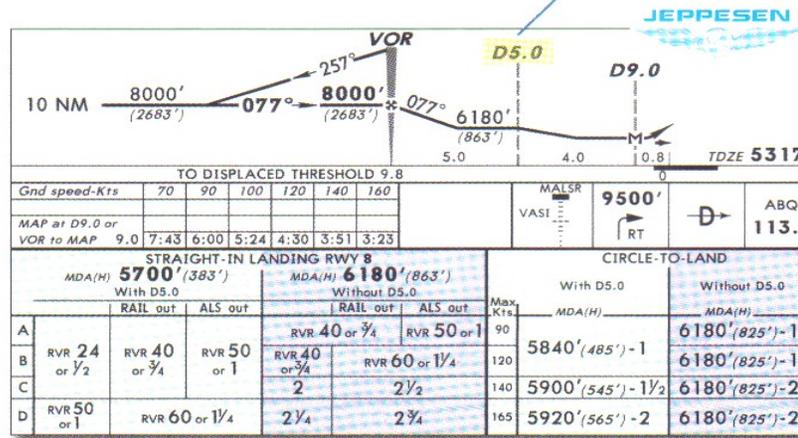


Only DME fix formation values are shown in the profile view. Refer to the plan view for allowable substitutions, such as a VOR radial or ND bearing, which can be used to identify a fix.

When you can identify the 5.0 DME stepdown fix, you can descend to the MDA of 5,700 feet MSL and use the visibility minimums shown here. The landing minimums section is discussed in greater detail later in this section.

When you cannot identify the 5.0 DME stepdown fix, your MDA is 6,180 feet MSL and the visibility minimums listed here apply. The landing minimums section is discussed in greater detail later in this section.

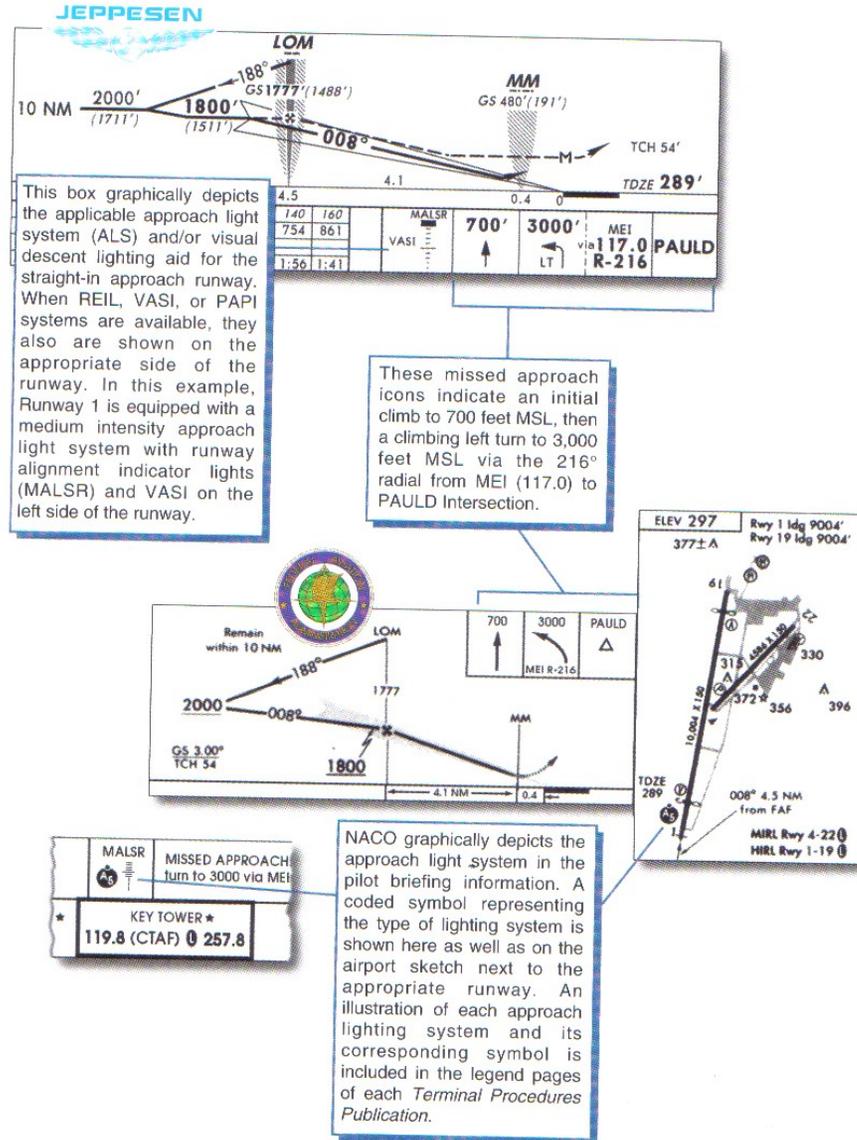
The word **CONDITIONAL** shown above the MDA in the pre-approach landing information indicates that a lower straight-in landing minimum is required if you cannot identify the DME stepdown fix.



MDA(H)
(CONDITIONAL)
5700'(383')

MISSED APPROACH ICONS

Missed approach icons represent initial pilot actions in the event of a missed approach. They provide symbolic information about the initial up and out maneuvers only, and improve the connection between the profile view graphic and the initiation of a missed approach procedure. You should always refer to the missed approach instructions in the heading section and the plan view graphic for complete information about the missed approach procedure. [Figures 7-19 and 7-20]



Jeppesen's conversion table is positioned directly below the profile view graphic to reinforce the relationship between these two elements. NACO's time and speed table is located below the airport sketch.



10 NM $\frac{20}{17}$

If your groundspeed on the localizer approach to Runway 1 is 90 knots, the elapsed time from the LOM to the MAP is 3 minutes. The absence of timing information means the MAP cannot be determined by timing and a timed approach is not authorized.

		4.5					
Gnd speed-Kts		70	90	100	120	140	160
Gs	3.00°	377	484	538	646	754	861
LOM to MAP	4.5	3:51	3:00	2:42	2:15	1:56	1:41

If your groundspeed is 90 knots, your rate of descent should be approximately 480 feet per minute to establish the airplane on the glide slope.



ANGLE OF DESCENT (degrees and tenths)	FEET /NM	GROUND SPEED (knots)										
		30	45	60	75	90	105	120	135	150	165	180
2.0	210	105	160	210	265	320	370	425	475	530	585	635
2.5	265	130	200	265	330	395	465	530	595	665	730	795
2.7	287	143	215	287	358	430	501	573	645	716	788	860
2.8	297	149	223	297	371	446	520	594	669	743	817	891
2.9	308	154	231	308	385	462	539	616	693	769	846	923
3.0	318	159	239	318	398	478	557	637	716	796	876	955
3.1	329	165	247	329	411	494	576	658	740	823	905	987



FAF to MAP 4.5 NM					
Knots	60	90	120	150	180
Air Sec	4:30	3:00	2:15	1:48	1:30

In a separate descent table contained in each *Terminal Procedures Publication*, NACO provides the glide slope angle and a recommended rate of descent to establish the airplane on the glide slope during an ILS approach.

Aircraft Approach Categories

Approach Category	Approach Speed	
A	Up to 90 Knots	
B	91 to 120 Knots	
C	121 to 140 Knots	
D	141 to 165 Knots	
E	Above 165 Knots	

Landing Minimums

Visibility and Minimum Altitude Requirements

-based on aircraft performance & equipment

Minimums provide on charts for

Circling Approaches – Approach different runway than your final landing runway.

Sidestep maneuver – Clearance to land on a parallel runway – next to approach runway.

Straight-In – Lower minima than both above.

Landing Minimums – Jeppesen Style

When flying the ILS Runway 1 approach, the lowest altitude you can descend to is 489 feet MSL. The HAT (200 feet) is shown in parentheses.

Aircraft Approach Categories

Jeppesen provides inoperative component minimums directly on each chart. For example, if the approach light system (ALS) is inoperative during the ILS Runway 1 approach, the same decision altitude (height) of 489'(200') applies, but the visibility minimums increase to RVR 40 or 3/4 statute mile.

When the ILS glide slope is inoperative, the procedure becomes a nonprecision, localizer approach and the MDA of 780 feet MSL applies. The height above touchdown (HAT) is 491 feet.

JEPPESEN

STRAIGHT-IN LANDING RWY 1					CIRCLE-TO-LAND		
ILS			LOC (GS out)			Not Authorized East of Rwy 1-19	
DA(H) 489'(200')			MDA(H) 780'(491')			Max Kts	MDA(H)
FULL		RAIL or ALS out	RAIL out		ALS out		
A			RVR 24 or 1/2	RVR 40 or 3/4	RVR 50 or 1	90	860'(563')-1
B						120	880'(583')-1
C	RVR 24 or 1/2	RVR 40 or 3/4	RVR 40 or 3/4	RVR 60 or 1 1/4		140	880'(583')-1 1/2
D			RVR 50 or 1	1 1/2		165	940'(643')-2

AMEND 23
CHANGES: ATIS. © JEPPESEN SANDERSON, INC., 2001, 2002. ALL RIGHTS RESERVED.

The visibility minimum for the full ILS Runway 1 approach is RVR 24, or 2,400 feet. If RVR is not reported, 1/2 statute mile applies.

Maximum speeds for circling are shown in lieu of aircraft approach categories.

Since a circling approach does not terminate at a specific runway, the number in parentheses following each MDA is a height above airport (HAA) elevation.

You must comply with restrictions applicable to circling approach procedure. Meridian, it is not permitted to circle to the east of the 1/19 centerline.

Landing Minimums – NACO Style

Aircraft Approach Categories

When flying the ILS Runway 1 approach, the lowest altitude you can descend to is 489 feet MSL.

The visibility minimum for the full ILS Runway 1 approach is RVR 24, or 2,400 feet. If RVR is not reported, 1/2 statute mile applies. NACO provides a separate table in the front of each *Terminal Procedures Publication* to convert RVR to statute miles.

On NACO charts the (200 feet) is shown as visibility.



CATEGORY	A	B	C	D
S-ILS 1		489/24	200 (200-½)	
S-LOC 1	780/24	491 (500-½)	780/40 491 (500-¾)	780/50 491 (500-1)
CIRCLING	860-1 563 (600-1)	880-1 583 (600-1)	880-1½ 583 (600-1½)	940-2 643 (700-2)

Since a circling approach does not terminate at a specific runway, the number following each MDA is a height above airport (HAA) elevation.

The ceiling and visibility figures in parentheses on NACO charts are used for planning purposes by the military.

When the ILS glide slope is inoperative, the procedure becomes a nonprecision localizer approach and the MDA of 780 feet MSL applies. The height above touchdown (HAT) is 491 feet.

AIRPORT CHART

Both Jeppesen and NACO include a diagram of each airport for which they publish an instrument approach procedure. NACO places an **airport sketch** in the lower left or right corner of each approach chart and provides a full-page airport diagram for selected airports to assist the movement of ground traffic where complex runway and taxiway configurations exist. Jeppesen uses an entire page, called the **airport chart**, for each airport. This chart is usually located on the reverse side of the first approach chart for a given airport. At larger airports, Jeppesen may provide additional airport charts to cover more detailed information. [Figure 7-26]

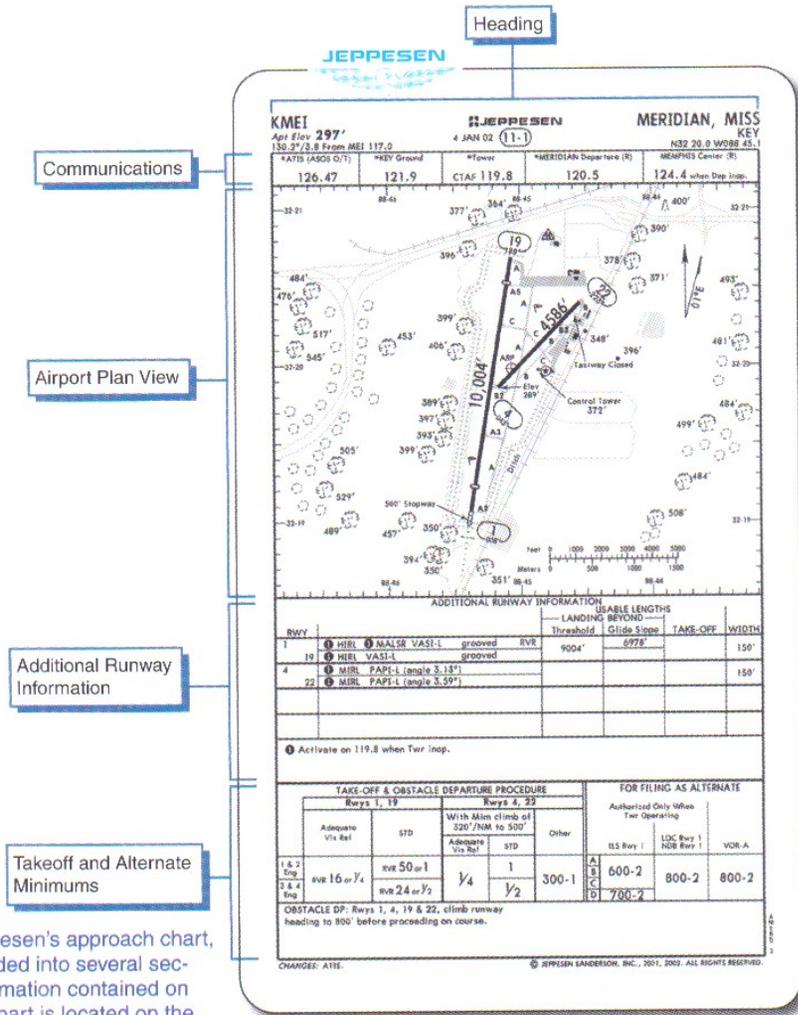
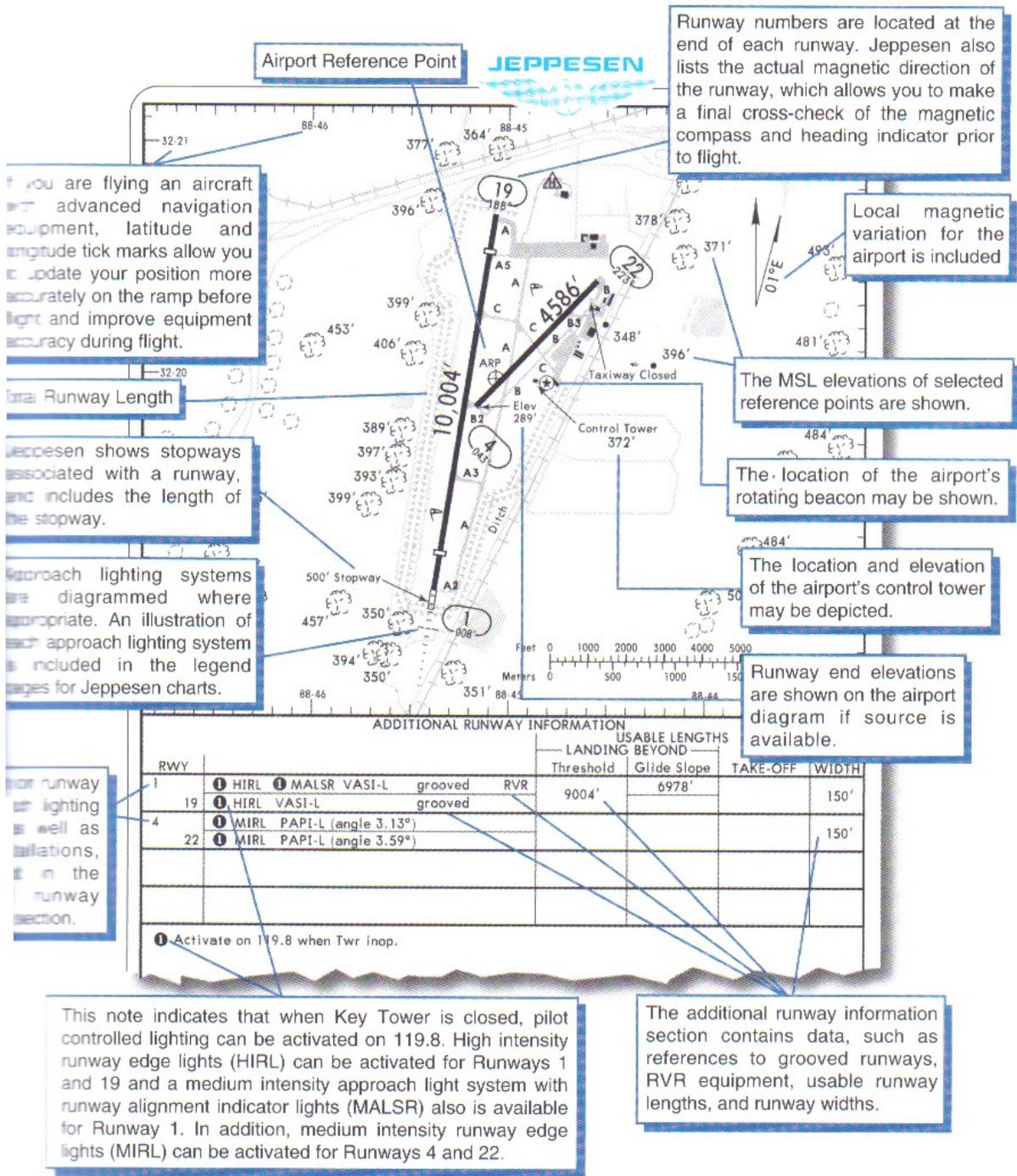


Figure 7-26. Like Jeppesen's approach chart, the airport chart is divided into several sections. Much of the information contained on the Jeppesen airport chart is located on the NACO approach chart or the airport sketch.



Other Airport Information On Jeppesen Charts...

(Remember: You can find all info in the AFD)

Jeppesen is convenient because you don't have to carry the AFD with you to find airport info.

Figure 7-30. The portion of the Jeppesen airport chart shown here can be thought of as three separate sections: takeoff minimums, departure procedures, and alternate minimums. Takeoff minimums and departure procedures are discussed in Chapter 4, Section B — Departure Procedures.

Take-off & Alternate Minimums

When do we need an alternate?

1-2-3 Rule

If +/- 1 Hr ETA

Ceilings are <2000

and or Visibility <3 sm

What are “precision” and “non-precision Minimums must be **at the alternate?**”

Precision: 600 & 2

Non-precision: 800 & 2

Jeppesen prints the applicable notes for restrictions to alternate minimums on the airport chart. If you are using the ILS, localizer, or NDB approaches for Runway 1, filing your flight plan with Key Field as an alternate is authorized only when the control tower is operating.



TAKE-OFF & OBSTACLE DEPARTURE PROCEDURE					FOR FILING AS ALTERNATE		
Rwys 1, 19		Rwys 4, 22			Authorized Only When Twr Operating		
Adequate Vis Ref	STD	With Min climb of 320'/NM to 500'		Other	ILS Rwy 1	LOC Rwy 1 NDB Rwy 1	VOR-A
		Adequate Vis Ref	STD				
1 & 2 Eng	RVR 16 or 1/4	1/4	1	300-1	A	800-2	800-2
3 & 4 Eng			1/2		B		
	RVR 24 or 1/2				C		
					D	700-2	

OBSTACLE DP: Rwys 1, 4, 19 & 22, climb runway heading to 800' before proceeding on course.

At Key Field, standard alternate minimums apply for the non precision approaches (Localizer Runway 1, NDB Runway 1, and VOR-A), as well as for Category A, B, and C aircraft for the ILS Runway 1 approach.

Nonstandard alternate minimums apply for the ILS Runway 1 approach for Category D aircraft.



LOC I-MEI 110.1	APP CRS 008°	Rwy Idg 9004	TDZE 289	Apt Elev 297
Circuling not authorized east of Rwy 1-19.		MALSR 	MISSED APPROACH: Climb to 700 then climbing left turn to 3000 via MEI R-216 to PAULD Inf and hold.	
ATIS ★ 126.475 279.575	MERIDIAN APP CON ★ 120.5 269.6	KEY TOWER 119.8 (CTAF) 0 257.8	GND CON 121.9 348.6	

NACO uses this symbol in the pilot briefing information to indicate nonstandard alternate minimums.

	ALTERNATE MINS
01306	ALTERNATE MINIMUMS
NAME MERIDIAN, MS	
KEY FIELD	ILS Rwy 1 ¹
	NDB or GPS Rwy 1
NA when control tower closed.	
¹ ILS, Category D, 700-2.	

For nonstandard alternate minimums, you must consult the specific airport in the alternate minimums section listed in the *Terminal Procedures Publication*.

Procedure Title

Communication Frequencies

Primary Navaid Frequency

Inbound Course

Altitude at Which You Will Cross the FAF or FAP (Nonprecision Approach) or Glide Slope Intercept Altitude (Precision Approach)

DA(H) — Precision Approach or MDA(H) — Nonprecision Approach

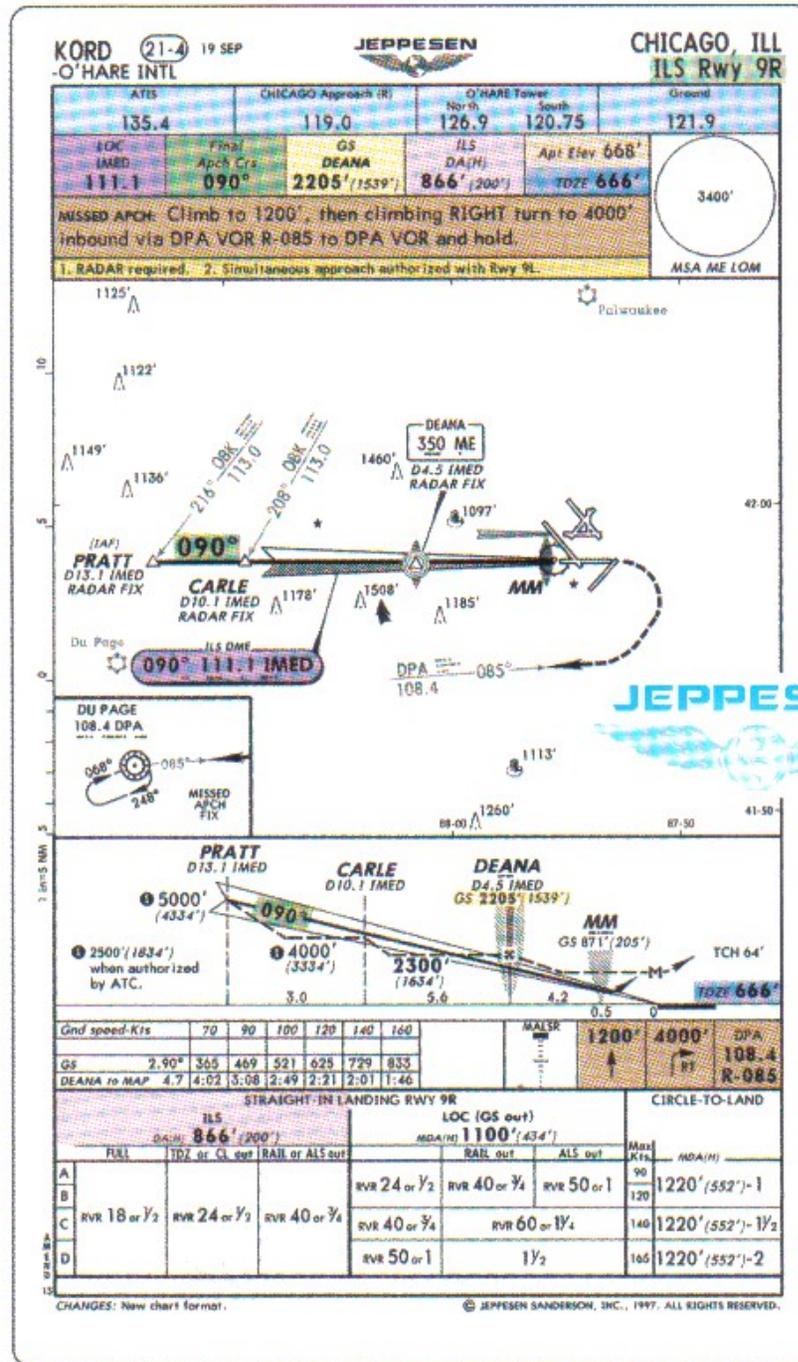
Airport Elevation

Touchdown Zone Elevation

Missed Approach Instructions

Special Notes/Procedures

34. An approach chart review should always be conducted with emphasis on the key information required, as well as additional features which are not shown on the specific procedure. Briefing strip charts are a very easy way to quickly identify the primary information for an approach chart review.



CHANGES: New chart format.

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Summary

30-4, 18 NOV 2010 to 16 DEC 2010

MONROE REGIONAL AIRPORT
 ILS or LOC RWY 4
 MONROE RGNL (MLN)

MISSISSIPPI
 Key No: 7607
 10.7° N
 90.7° W
 108.6 0429
 Apr Est: 78
 79

MISSISSIPPI
 *Rwy 4 is a feeder with the use of Tower ATIS or ILS/DME.

MISSISSIPPI
 MISSED APPROACH: Climb to 2700 feet, hold for 1 min, 3000 feet MU YORCAC (or 3000)

ATIS	MONROE APP CON	MONROE TOWER	UNB CON	CANC DEL	UNCOM
128.05	126.8 307.8	118.81/76.0 257.0	121.8	121.85	122.95

MONROE LEASER RWY 4
 Class 19

LOCALIZER 109.5
 RWY 4

ADF or DME REQUIRED

MONROE RGNL (MLN)
 ILS or LOC RWY 4

CLASS	A	B	C	D	E
LOC	480/74 402 (200-4)	480/60 402 (200-4)			
PRECING	580-1 501 (600-1)	620-15 561 (600-15)	640-2 561 (600-2)		

MONROE RGNL (MLN)
 ILS or LOC RWY 4

30-4, 18 NOV 2010 to 16 DEC 2010

Instrument Approach/Operational Briefing Items

- ATIS
- Weather/Altitude
- NOTAMS
- Approaches in use
- Runway conditions
- Performance considerations
- Feeder run/respected routing to the planned approach
- Traffic
- Hazardous radar environment
- Towered vs. towered airport
- Straight-line routing agreement
- 1 Airport name
- 2 Approach title
- 3 Amendment number and Julian date of when the procedural change to the page was made
- 4 Primary/secondary NAV AID frequencies
- 5 Final approach course
- 6 Barometric altitude at OM for cross check
- 7 Decision altitude, decision height, or minimum descent altitude (DA, DH, or MDA)
- 8 Touchdown zone elevation and airport elevation
- 9 Missed approach procedure
- 10 Minimum safe altitude (MSA)
- 11 Applicable notes
- 12 Approach lighting system
- 13 Visual glide slope indicators (VGSIs)
- 14 Required visibility (including inoperative equipment adjustments)
- 15 Runway length
- 16 Planned runway turn-off and associated taxi route
- 17 Par-114 facility
- 18 Airport diagram
- 19 Alternate/Take-off minimums not standard

APPROACH PROCEDURES

PREPARING for the approach.

ATC could clear you for any approach that the weather and the equipment on your aircraft permit. Have all appropriate charts readily at hand and ready to review on clearance when you are given the approach.

1. Review as part of pre-flight planning, and
2. Perform a “Approach Chart Review” after you are advise of what approach to expect.

The “Approach Clearance”

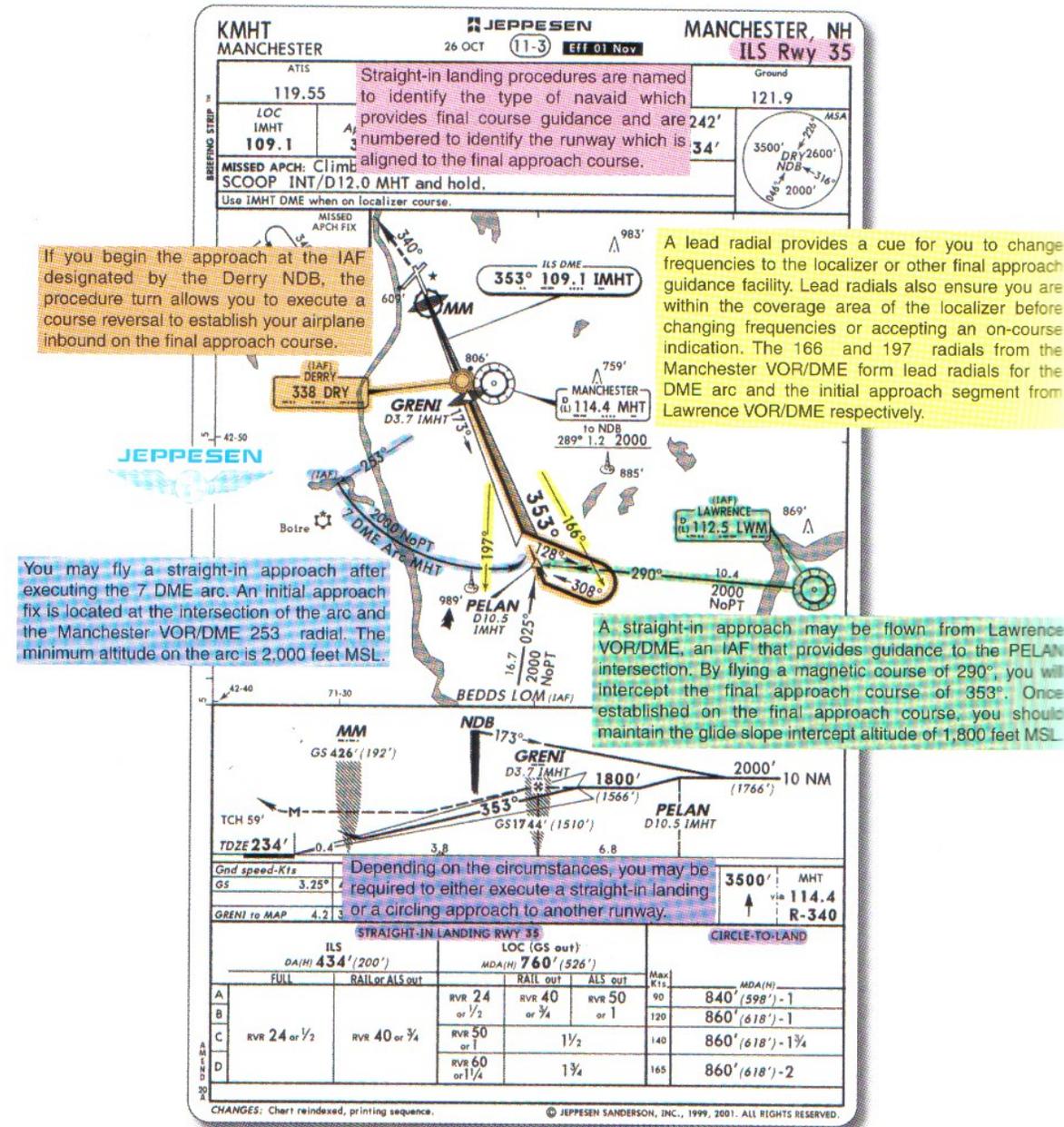
- ATC will most likely clear you an approach that will expedite the flow of traffic.
- Notify controller IMMEDIATELY if you want a different approach. They may issue a desired approach if traffic/time permits.
- If a specific approach is not specified; rather a general “cleared for approach”, then you may execute any one of the authorized IAPs for that airport (does not permit a contact or visual approach).
- Fly the “entire” approach including “Feeder Routes” if it applies to your route.

Straight-In Landing and Approaches

A “straight in landing” is given when the final approach course is positioned within 30 degrees of the end of runway and a minimum of maneuvering is required to align with the runway. If the runway is NOT aligned then you might get a “circle to land” approach instead of a straight in approach.

A controller might say “Cleared for a straight-in approach” which means you should not perform a procedure turn to reverse your course. (example: “cleared for straight-in ILS Runway 25 approach, circle to land runway 34.”). The straight-in approach must provide a means of navigation directly to the final approach course.

Figure 7-36. Straight-in landings and straight-in approaches should not be confused. If you are not being radar vectored, generally you begin a straight-in approach at an outlying IAF, then fly the initial and intermediate segments, which places you on the final approach segment.



1M4
POSEY

JEPPESSEN
16 MAR 13-2 Eff 22 Mar

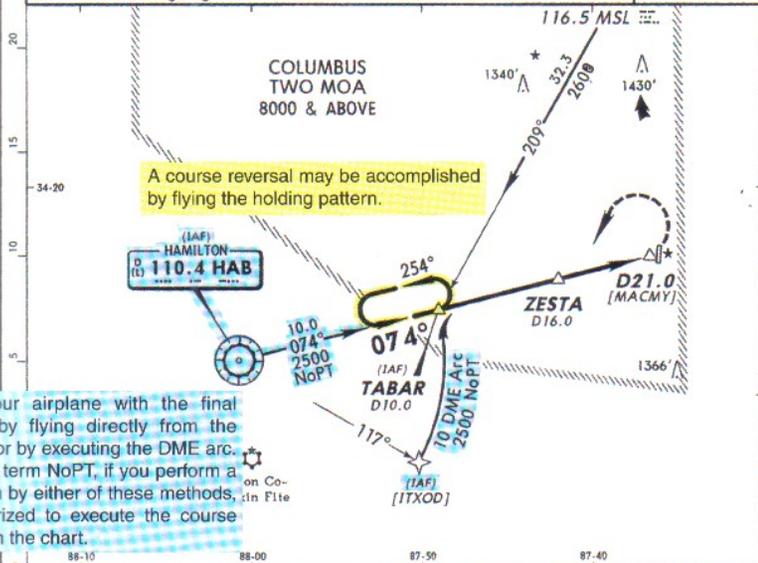
HALEYVILLE, ALA
VOR DME or GPS-A

MEMPHIS Center 120.8		*MUSCLE SHOALS Radio 122.2 122.4 123.6		POSEY UNICOM CTAF 122.8
VOR HAB 110.4	Final Apch Crs 074°	Minimum Alt ZESTA 1600' (670')	MDA(H) Refer to minimums	Appt Elev 930'

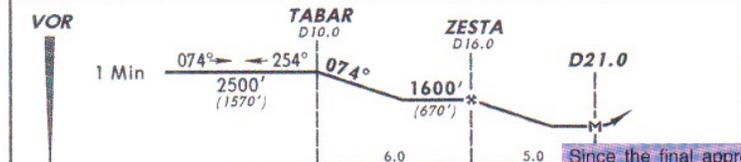
MISSED APCH: Climbing LEFT turn to 2500' inbound via HAB VOR R-074 to TABAR INT/D10.0 and hold.

1. Use Muscle Shoals altimeter setting, if not received use Huntsville altimeter setting.
2. Pilot controlled lighting 122.8.

An approach procedure in which the final approach course is more than 30° from alignment with the runway can be identified by a letter following the primary approach navaid, such as VOR DME-A.



align your airplane with the final approach course by flying directly from the VORTAC or by executing the DME arc. Indicated by the term NoPT, if you perform a missed approach by either of these methods, you are not authorized to execute the course depicted on the chart.



Since the final approach course is not aligned within 30° of the runway, only circling minimums are published for this approach procedure.

VOR	TABAR D10.0	ZESTA D16.0	D21.0
1 Min	074° ← 254°	074°	
	2500' (1570')	1600' (670')	
		6.0	5.0

MAP of D21.0		Lighting - Refer to Airport Chart	LT	R-074
CIRCLE-TO-LAND				
		With Muscle Shoals Altimeter Setting	With Huntsville Altimeter Setting	
Max Kts		MDA(H)	MDA(H)	
A 90		1520' (590') - 1	1560' (630') - 1	
B 120		1520' (590') - 1 1/4	1560' (630') - 1 1/4	
C 140		1520' (590') - 1 1/2	1560' (630') - 1 1/2	
D 165		1580' (650') - 2	1620' (690') - 2 1/4	

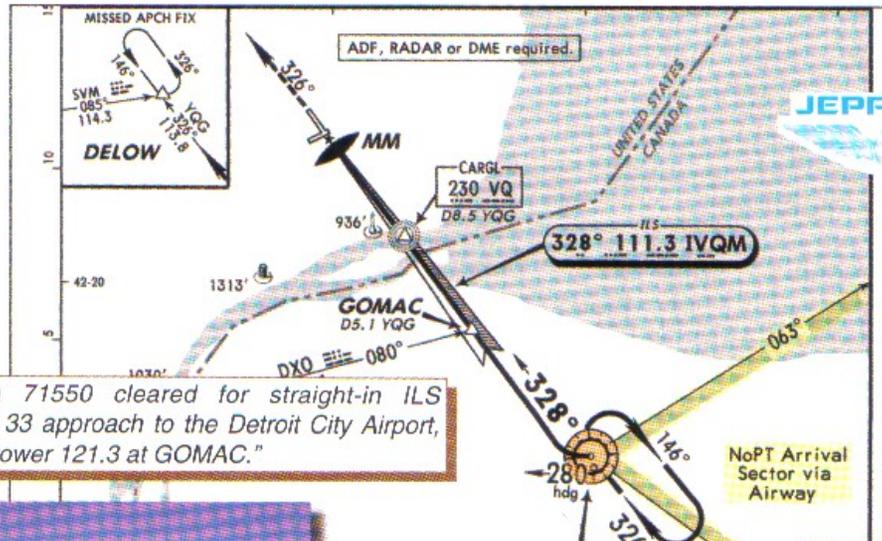
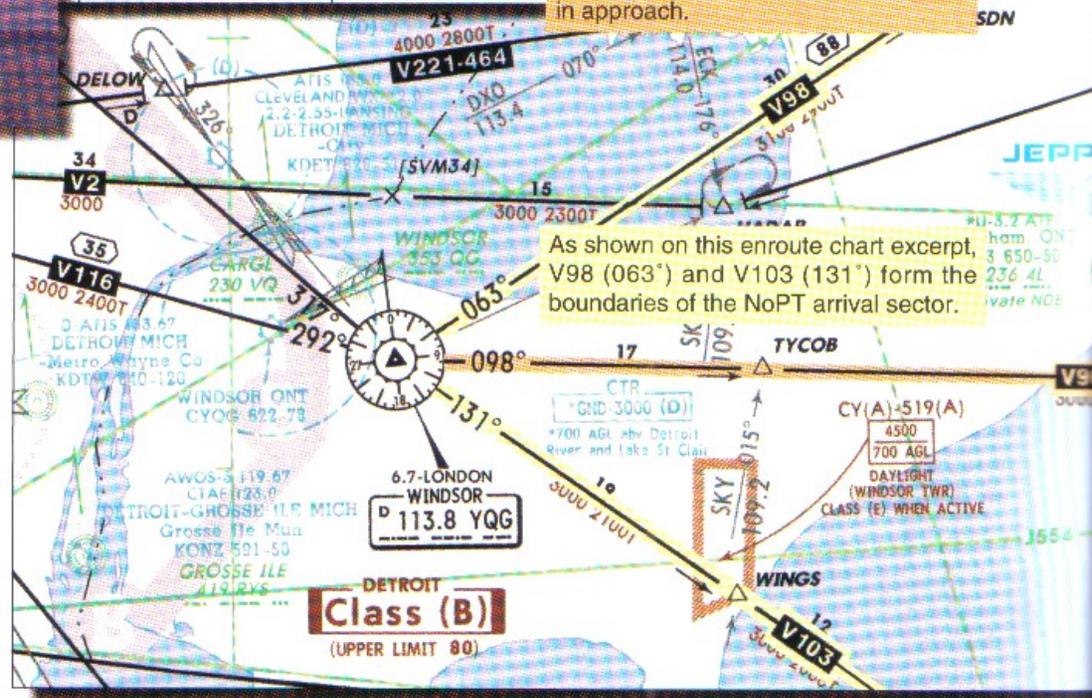


Figure 7-37. A NoPT arrival sector allows flights inbound on Victor airways within the sector to proceed straight-in on the final approach course.

"Cessna 71550 cleared for straight-in ILS Runway 33 approach to the Detroit City Airport, contact tower 121.3 at GOMAC."



If you were arriving on V90-116, which falls within the NoPT arrival sector, you would continue to the Windsor VOR, which is the IAF, and execute a straight-in approach.



As shown on this enroute chart excerpt, V98 (063°) and V103 (131°) form the boundaries of the NoPT arrival sector.

DETROIT Class (B)
(UPPER LIMIT 80)

Once you are on the final approach course, make any further descent according to the minimum altitudes published on the approach chart.

As you approach the localizer course, you must maintain the last assigned heading of 320° and altitude of 8,700 feet MSL until you turn inbound and intercept the localizer.

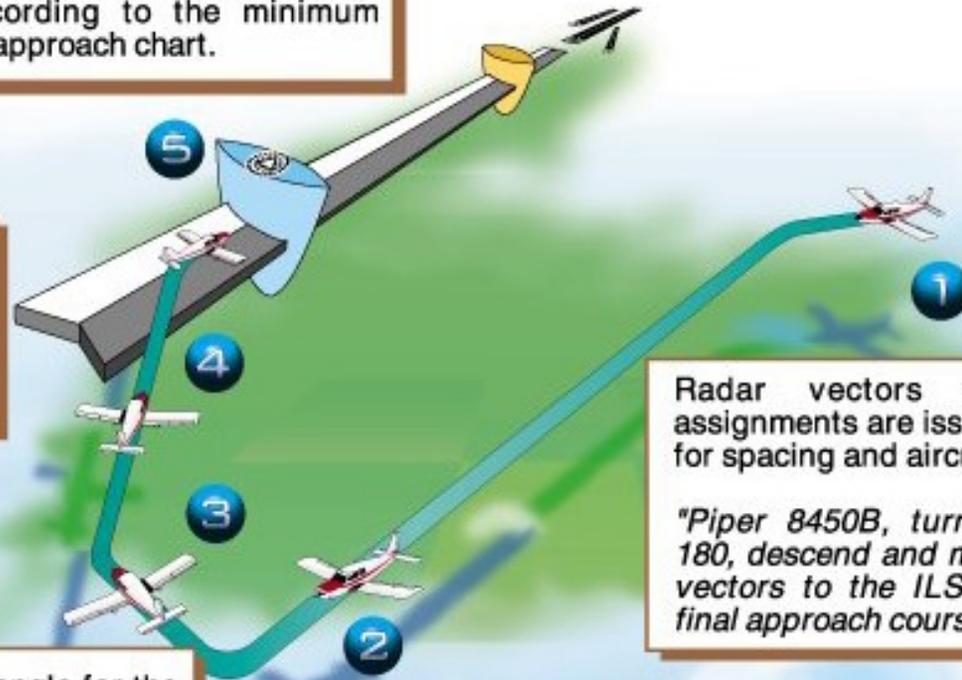
Radar vectors and altitude assignments are issued as needed for spacing and aircraft separation.

"Piper 8450B, turn left heading 180, descend and maintain 8,700, vectors to the ILS Runway 35R final approach course."

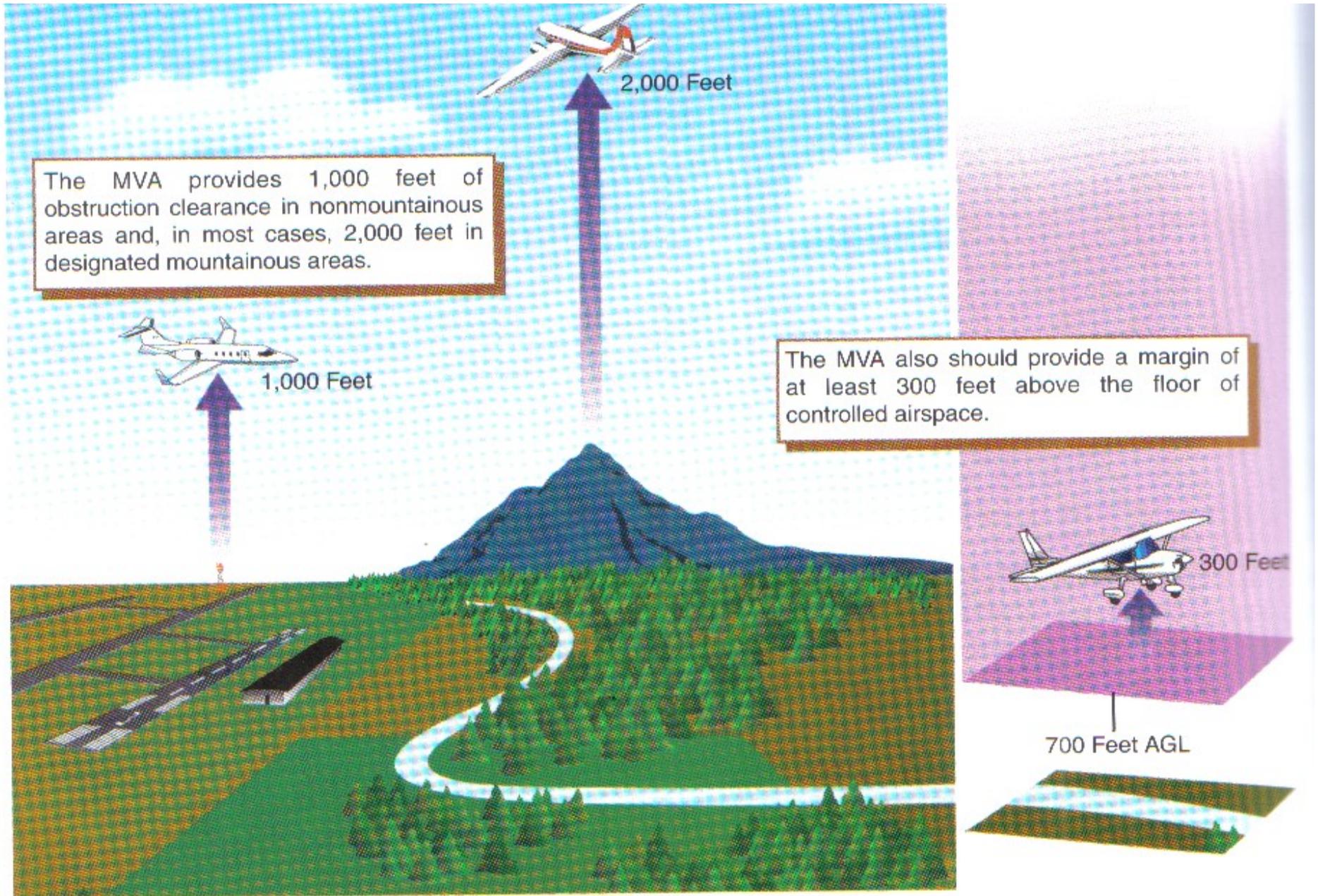
ATC will attempt to provide an intercept angle for the final approach course of no greater than 30°. When ATC issues the intercept heading, it normally is qualified with additional instructions. As a general rule, the approach clearance is issued in conjunction with the final vector. The controller will stipulate a minimum altitude for you to maintain until you are established on a segment of the published procedure.

"Piper 50B, 6 miles southeast of Casse, turn right heading 320 maintain 8,700 until established on the localizer. Cleared ILS Runway 35R approach, contact tower 118.9 at Casse."

The assigned headings normally permit you to establish the aircraft on the final approach course prior to the FAF.



MINIMUM VECTORING ALTITUDE



Procedure Turns: Approaches that require course reversals

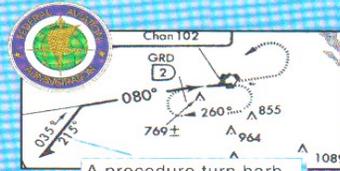
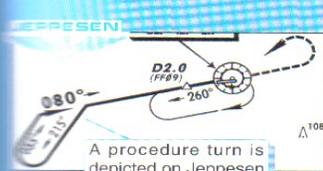


The maximum speed in a procedure turn is 200 knots IAS.



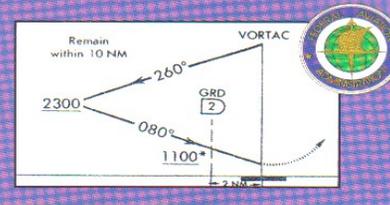
If you are above the altitude designated for the course reversal, you may begin descent as soon as you cross the IAF. See figure 7-40.

If the procedure turn symbol is shown, the point where you begin the course reversal and the type and rate of turn are optional. However, you must remain within the airspace designated for the course reversal.



If you are above the altitude designated for the course reversal, you may begin descent as soon as you cross the IAF.

When a teardrop or holding pattern is used in lieu of a procedure turn, you must fly the course reversal pattern as charted.



When a holding pattern is published as a course reversal, you must make the proper entry and follow the depicted pattern to establish your aircraft on the inbound course. The holding pattern must be flown with one-minute legs or the published leg length. Additional circuits in the holding pattern are not necessary or expected by ATC if you are cleared for the approach prior to returning to the fix. In the event you need more time to lose altitude or become better established on course, you should advise ATC and obtain approval for additional turns.

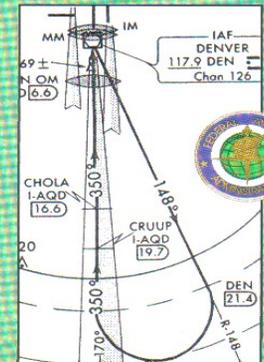
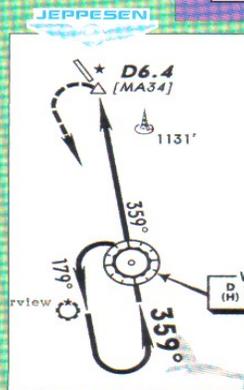


Figure 7-40. A course reversal may be depicted on a chart as a procedure turn, a racetrack pattern (holding pattern), or a teardrop procedure. The maximum speed in a course reversal is 200 knots IAS.



Course reversals must be completed within the distance specified on the chart which is typically 10 nautical miles from the primary fix indicated on the approach chart. See figure 7-40.



When more than one circuit of the holding pattern is needed to lose altitude or become better established on course, the additional circuits can be made only if you advise ATC and ATC approves. See figure 7-40.

Final Approach: MUST KNOW when you can safely continue below minimum altitude designated for that approach!

You MAY NOT operate below the authorized MDA or continue an approach below the authorized DA unless flight visibility is not less than the visibility prescribed in the standard instrument approach procedure being used. This requirement is also required for landing

At least one of the following visual references for the intended runway is distinctly visible and identifiable: **The Approach Light system, The Threshold, The Threshold Markings, The Threshold Lights, The Runway End Identifier Lights, The Visual Approach Slope indicator, The Touchdown Zone or Touchdown Zone Markings, The Touchdown Zone Lights, The Runway or Runway Markings, or The Runway Lights.**

Photo by Samuel Lo

Photo by Samuel Lo

AIRLINERS.NET

1

The procedure turn altitude and the minimum altitude prior to the FAF is 3,500 feet MSL. The MDA(H) is 2040'(701') with the local altimeter setting. The length of the final approach segment is 6.3 nautical miles.

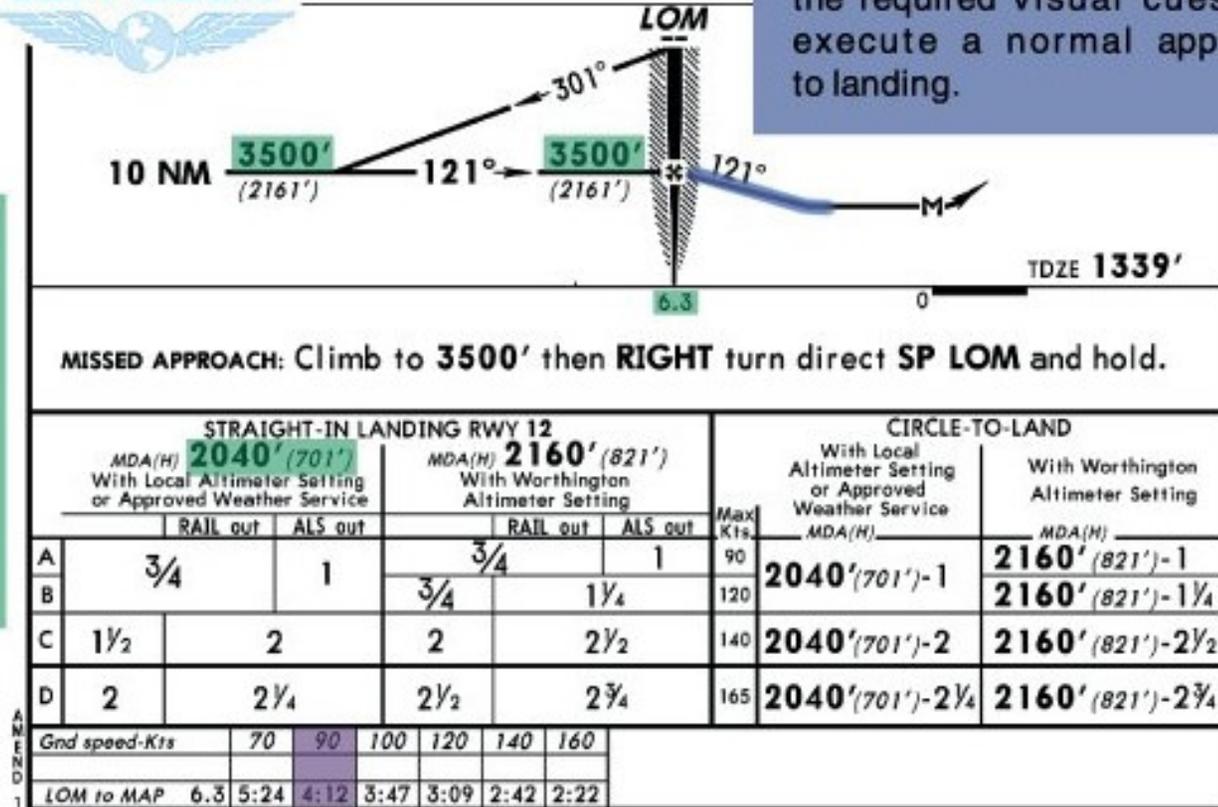
2

If your groundspeed is 90 knots, the time to the MAP is 4:12.

3

If you descend at 1,000 feet per minute, you will reach the MDA(H) in about 1 1/2 minutes. This should give you sufficient time to establish the required visual cues and execute a normal approach to landing.

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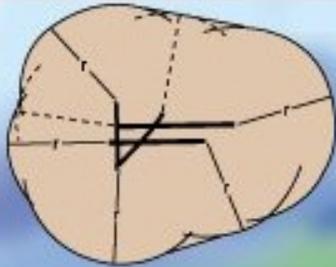
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Landing Illusions

Situation	Illusion	Result
Upsloping Runway or Terrain	Greater Height	Lower Approaches
Narrower-Than-Usual Runway	Greater Height	Lower Approaches
Featureless Terrain	Greater Height	Lower Approaches
Rain on Windscreen	Greater Height	Lower Approaches
Haze	Greater Height	Lower Approaches
Downsloping Runway or Terrain	Less Height	Higher Approaches
Wider-Than-Usual Runway	Less Height	Higher Approaches
Bright Runway and Approach Lights	Less Distance	Higher Approaches
Penetration of Fog	Pitching Up	Steeper Approaches

CIRCLING APPROACH

The circling approach protected area is established by the connection of arcs drawn from each runway end. The radii (r) which define the size of the areas vary with the approach category. As the approach speeds increase, the turn radii increase which often results in higher circling MDAs.



Approach Category	Radii (n.m.)
A	1.3
B	1.5
C	1.7
D	2.3
E	4.5

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CIRCLE-TO-LAND

Min. Alt. (ft.)	MDA (ft.)
90	6260' (501') - 1
120	6280' (521') - 1
140	6700' (941') - 2 3/4
165	6740' (981') - 3

If obstacles are present within the protected area, a procedural note may be added which prohibits circling within a portion of that area.

CIRCLE-TO-LAND
Not Authorized
North of Hwy 10-28



"Cessna 52241, cleared VOR Runway 1 approach, circle to land Runway 28."

If you are circling to land in a Category A aircraft at the appropriate MDA, you must remain within 1.3 nautical miles from the ends of the runways, even if the visibility minimum for the approach is greater than this distance. For example, the Category A aircraft circle-to-land visibility minimum for this approach is 2 3/4 statute miles, or approximately 2.4 nautical miles. Higher visibility minimums do not constitute authorization to leave the protected area while circling to land.

CATEGORY	A	B	C	D
CIRCLING	9180-2 3/4 1507 (1600-2 3/4)		9180-3 1507 (1600-3)	NA

Circling Approach Speeds



1.3 V_{SO} places this airplane in Category B.

1.3 x 72 knots = 94 knots

Approach Speed	Approach Category
A	Up to 90 knots
B	91 to 120 knots
C	121 to 140 knots
D	141 to 165 knots
E	Above 165 knots

If you circle to land at 125 knots, you should use Category C minimums.

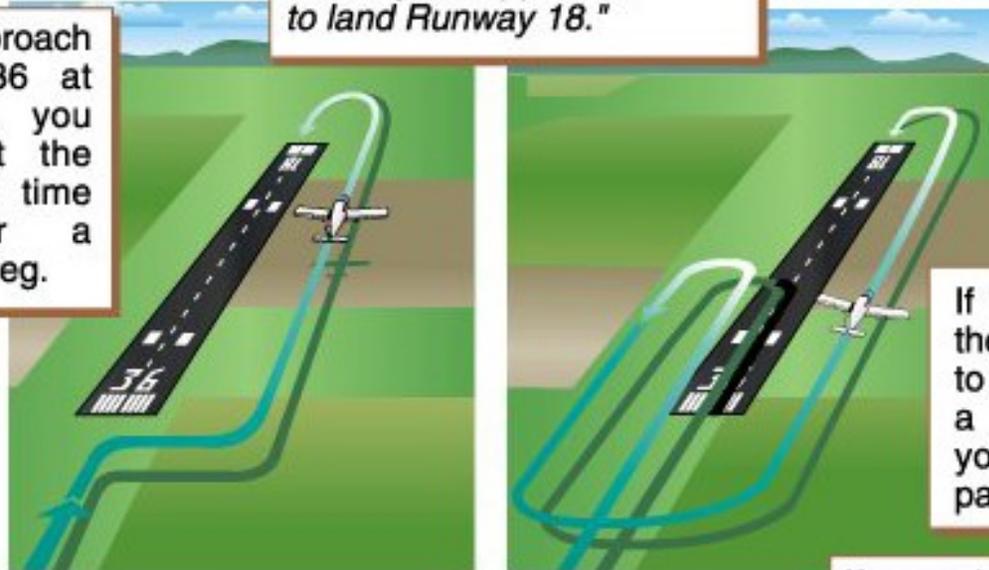
CIRCLE-TO-LAND	
Max Kts	MDA(H)
90	840' (446') - 1
120	860' (466') - 1
140	900' (506') - 1½
165	980' (586') - 2



CIRCLING OPTIONS

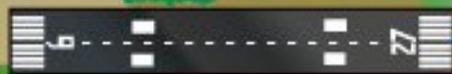
"Piper 8450B, cleared VOR Runway 36 approach, circle to land Runway 18."

As you approach Runway 36 at the MDA, you may sight the runway in time to enter a downwind leg.



If you do not see the runway in time to initially execute a downwind leg, you may fly this pattern.

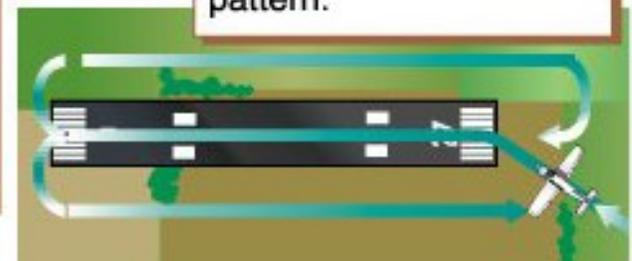
"Piper 8450B, cleared VOR-A approach."



Although an approach procedure may only have circling minimums, you may execute a straight-in landing if you have the runway in sight in sufficient time to make a normal approach for landing and you have been cleared to land.

When your final approach course intersects the runway centerline at less than 90°, you may see the runway early enough to establish a base leg.

If you do not see the runway in time for a base-leg entry, you can circle to reenter the pattern.



SIDESTEP MANEUVER

- Some airports have published “***Sidestep***” maneuvers that allow you to make the approach on one of a set of parallel runways and as soon as possible after having sighted the other parallel runway, executing a landing on that runway.

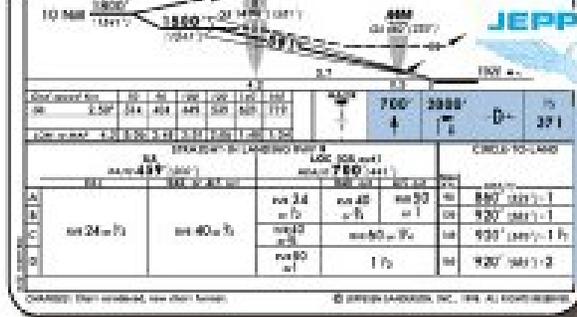
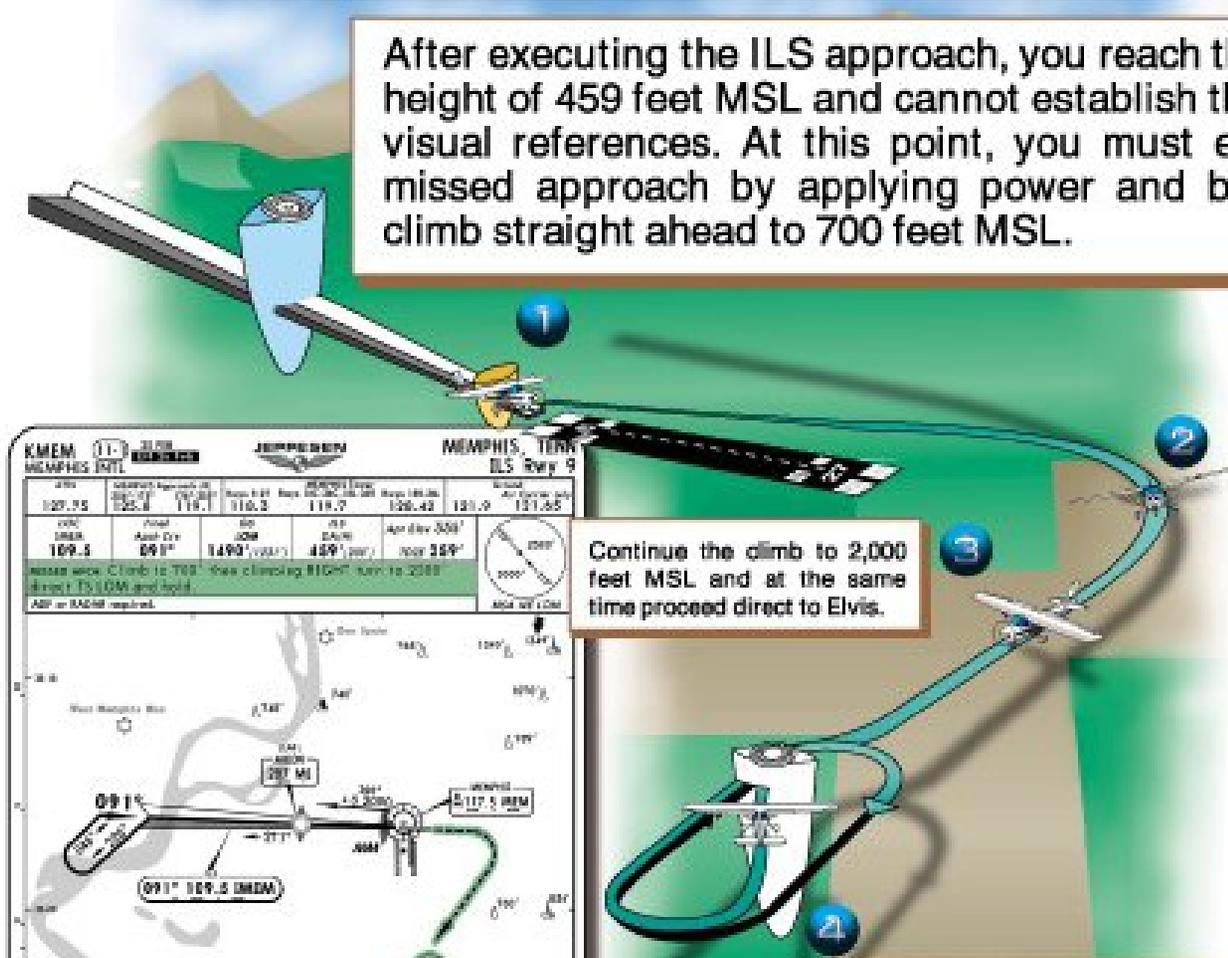
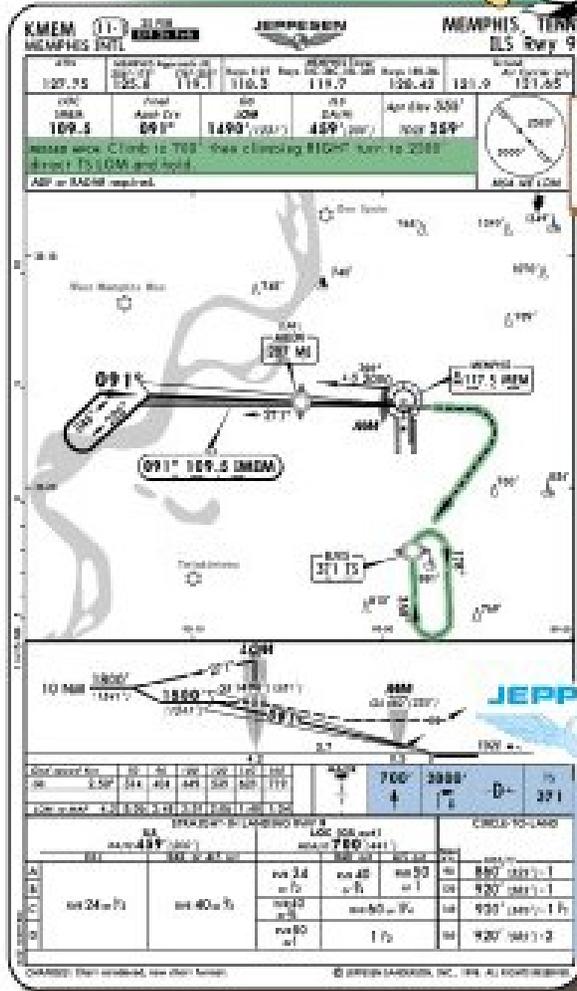
After executing the ILS approach, you reach the decision height of 459 feet MSL and cannot establish the required visual references. At this point, you must execute the missed approach by applying power and beginning a climb straight ahead to 700 feet MSL.

After reaching 700 feet MSL, initiate a climbing turn to the right.

Continue the climb to 2,000 feet MSL and at the same time proceed direct to Elvis.

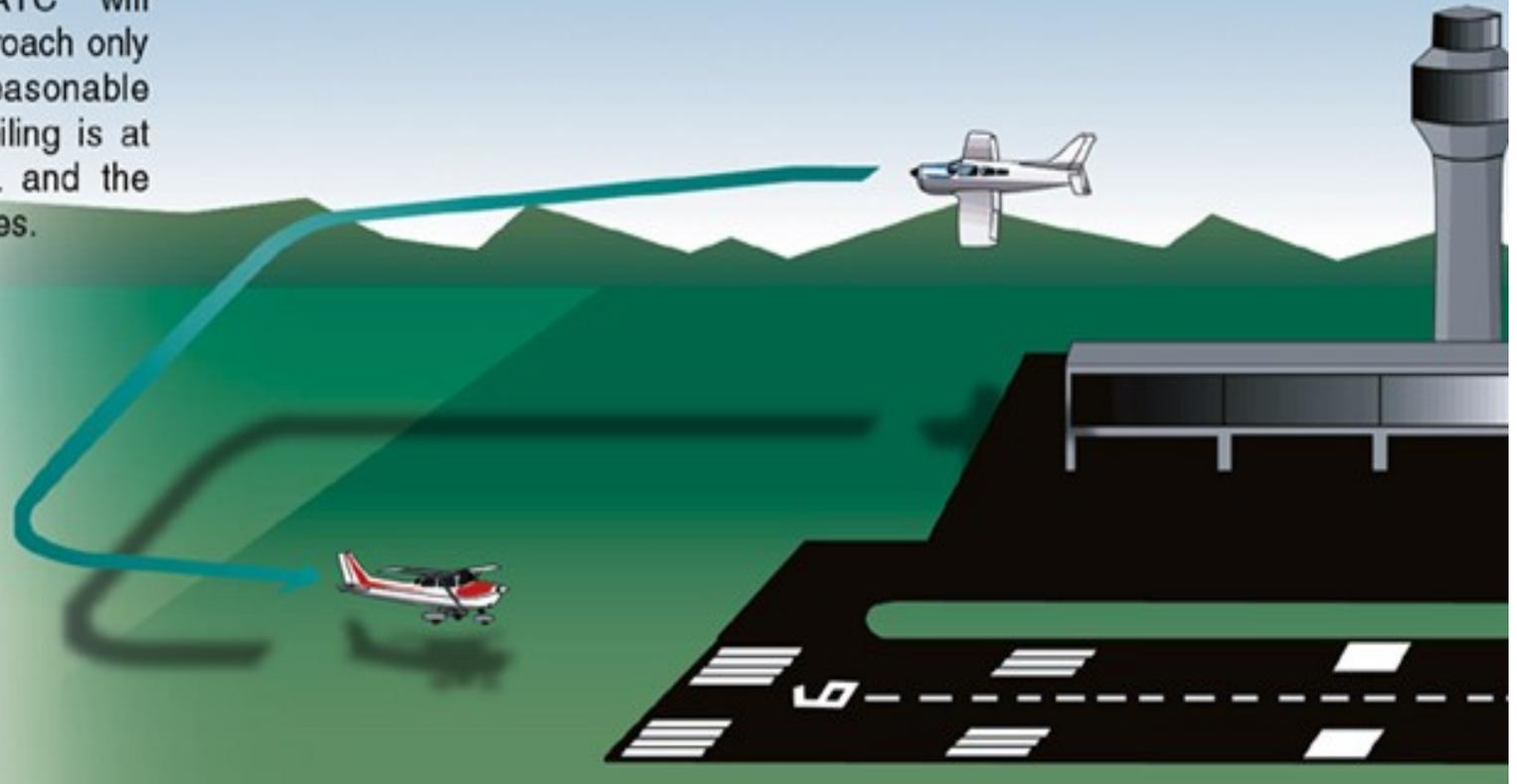
Enter the holding pattern and maintain 2,000 feet MSL.

The briefing strip chart provides symbols which indicate the initial up and out actions to be taken in the event of a missed approach.



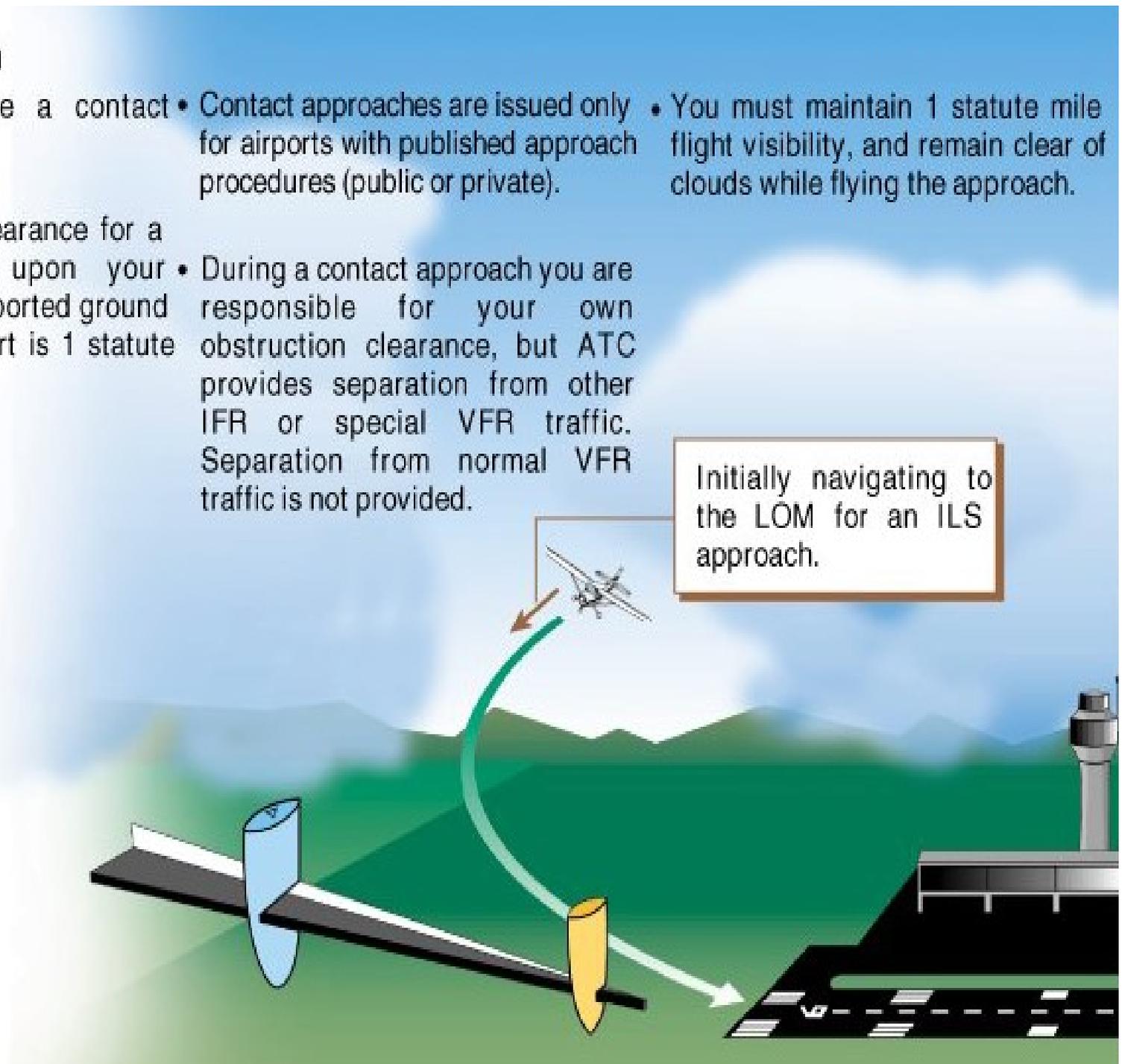
Visual Approach

- A visual approach can be initiated by ATC or you may request the approach.
- The reported ceiling must be at least 1,000 feet AGL and visibility must be at least 3 statute miles.
- At airports without an operating control tower and no weather reporting facility, ATC will authorize a visual approach only if there is a reasonable assurance that the ceiling is at least 1,000 feet AGL and the visibility is 3 statute miles.
- You must have the airport or preceding aircraft in sight.
- If you report the preceding aircraft in sight, you are responsible for maintaining separation from that aircraft and avoiding the associated wake turbulence.
- In the event you have the airport in sight, but do not see the aircraft you are following on the approach, ATC is responsible for maintaining aircraft and wake turbulence separation.
- You must remain clear of the clouds at all times while conducting a visual approach.



Contact Approach

- ATC cannot initiate a contact approach.
- ATC can issue a clearance for a contact approach upon your request when the reported ground visibility at the airport is 1 statute mile or greater.
- Contact approaches are issued only for airports with published approach procedures (public or private).
- During a contact approach you are responsible for your own obstruction clearance, but ATC provides separation from other IFR or special VFR traffic. Separation from normal VFR traffic is not provided.
- You must maintain 1 statute mile flight visibility, and remain clear of clouds while flying the approach.



JEPPESEN/FAA 24 OCT 19-1

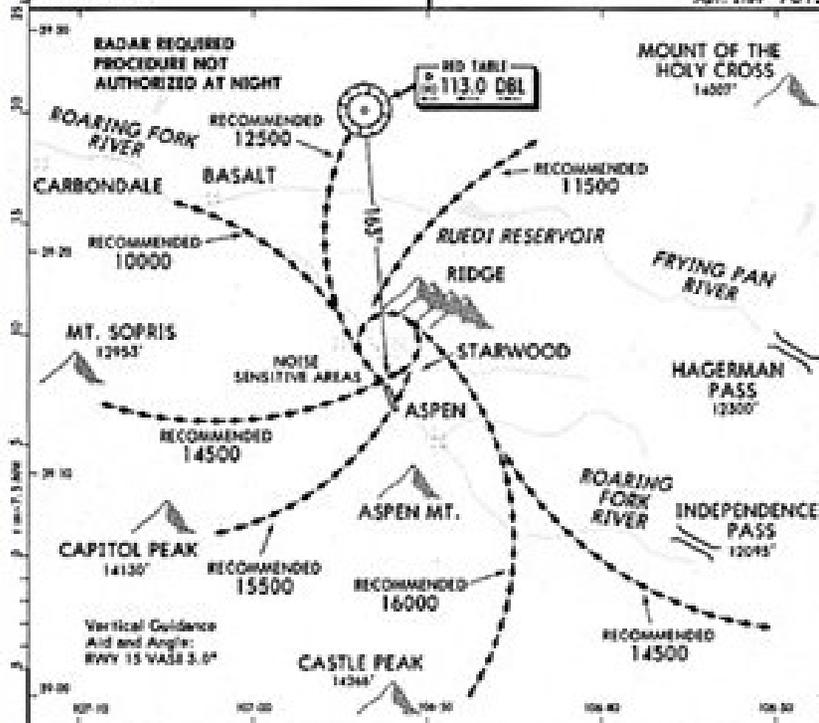
ASPEN, COLO

MALS 120.4
*ASPEN Approach (R) 123.8
*DOWER Center (R) 134.5 when App. Inop.
*ASPEN Tower CTAF 118.85
*Ground 121.9

-PITKIN CO/SARDY

ROARING FORK VISUAL Rwy 15

Asst. Elev 7815'



ROARING FORK VISUAL RWY 15

When visual approaches to Runway 15 are in progress, clearances will be given utilizing in part the following phraseology:

"(IDENT) CLEARED FOR A ROARING FORK VISUAL APPROACH TO RUNWAY 15"

WEATHER MINIMUMS
Ceiling 6000' - vis 10

Approach Charts: Summary Checklist

- The standard instrument procedure (IAP) allows you to descend safely by reference to instruments from the enroute altitude to a point near the runway at your destination from which a landing may be made visually. The IAP may be divided into as many as FOUR segments: initial, intermediate, final, and missed approach.
- A precision approach procedure, such as an ILS or PAR, provides vertical guidance through means of a glide slope, as well as horizontal course guidance.
- A non-precision approach procedure, such as a VOR, RNAV (GPS), or NDB approach, provides horizontal course guidance with no glide slope information.
- Feeder routes, also referred to as approach transitions or terminal routes, provide a link between the enroute and approach structures.
- The purpose of the *Initial Approach Segment* is to provide a method for aligning the aircraft with the approach course.
- The purpose of the *Intermediate Segment* primarily is designed to position the aircraft for the final descent to the airport.
- The *Final Approach Segment* allows you to navigate safely to a point at which, if the required visual references are available, you can continue the approach to a landing. A *precision approach segment* where the glide slope is intercepted at the minimum glide slope intercept altitude shown on the approach chart. A *non-precision approach segment* begins either at a designated final approach fix (FAF) or at the point where you are aligned with the final approach course.
- During a precision approach, the MAP occurs when you reach a designated altitude on the glide slope called the decision altitude (DA). For Nonprecision approaches, the missed approach point occurs either at a fix, navaid or after a specified period of time has elapsed since crossing the FAF.

Approach Charts: Summary Checklist

- Jeppesen approach charts are filed in loose-leaf format by state, then by city. NACO charts are published in regional volumes referred to as Terminal Procedures Publications, with each airport filed alphabetically by name of the city. Both present the same information.
- Extensive research exploring human factors in the cockpit and crew resource management (CRM), results in the current chart design that emphasizes usability and legibility.
- On both Jeppesen and NACO charts, the heading section identifies the city, airport, instrument approach procedure title, and the airport identifier.
- The procedure title indicates the type of approach system used and the equipment required to fly the final approach segment. You should study the entire instrument procedure to determine the equipment necessary to fly all the approach segments.
- Both Jeppesen and NACO use chart index numbers to identify each chart, and place their communication frequencies in a row of boxes near the top of the approach chart, listed in the order normally used on the approach to the airport.
- Jeppesen pre-approach briefing information includes the identifier and frequency of the primary navigation aid used for the approach, the final approach course, altitude at the OM or FAF, DA(H), or MDA(H),, the airport and touchdown zone elevations, a textural description of the missed approach procedure, and notes applicable to the approach procedure.
- The first row of the NACO pilot briefing contains the identifier and frequency of the primary navaid, the final approach course, the available runway length for landing, the TDZE, and the airport elevation. Icons indicate whether a non-standard alternate and/or takeoff minimums apply, procedure notes and limitations, approach lighting symbology, and a textual description of the missed approach procedure are all included in the second row of the pilot briefing information.

Approach Charts: Summary Checklist

- The minimum safe altitude (MSA) shown on approach charts provides 1,000 feet of obstruction clearance within 25 NMs of the indicated facility unless some other distance is specified.
- Operating at or above the MSA does not guarantee navigation or communication coverage and the MSA is designated for use only in an emergency or during VFR flight, such as at night.
- The **Plan View** is an overhead presentation of the entire approach procedure.
- There may be higher uncharted terrain or man-made structures than those depicted on the approach chart. Adherence to the minimum altitudes depicted on the approach charts provides terrain and obstacle clearance.
- When the procedure turn is depicted on the plan view, it means you MAY reverse course any way you desire as long as the turn is made on the same side of the approach course as the symbol, the turn is completed within the distance specified in the profile view, and you remain within protected airspace.
- If a holding or teardrop pattern is shown instead of a procedure turn, it is the only approved method of course reversal. If a procedure turn, holding pattern, or teardrop is NOT shown, a course reversal is NOT authorized.
- On selected Jeppesen and NACO approach charts plan views, generalized terrain contour lines, values, and gradient tints may be depicted in brown. This information does not ensure clearance above or around the terrain and must not be relied upon for descent below the minimum altitudes depicted on the approach procedures.
- The profile view shows the approach from the side and displays the flight path and facility, as well as minimum altitudes in *feet MSL*.
- The touchdown zone elevation (TDZE) is the highest elevation in the first 3,000 feet of the landing surface.

Approach Charts: Summary Checklist

- The height above touchdown (TAT) is measured from the touchdown zone elevation or the threshold elevation of the runway served by the approach. The height above airport (HAA) is measured above the official airport elevation, which is the highest point of an airport's usable runways.
- The threshold crossing height (TCH) is the altitude at which you cross the runway threshold when established on the glide slope centerline.
- Many approaches incorporate one or more stepdown fixes, which are commonly used along approach segments to allow you to descend to a lower altitude. Your ability to identify selected stepdown fixes may permit lower landing minimums in some cases.
- A visual descent point (VDP) represents the point from which you can make a normal descent to a landing, assuming you have the runway in sight and you are starting from the minimum descent altitude. Missed approach icons provide symbolic information about the initial up and out maneuver only. You should always refer to the missed approach instructions in the heading section and the plan view graphic for complete information about the missed approach procedure.
- The conversion table on Jeppesen charts and the time and speed table on NACO charts provide various elapsed time to the MAP for non-precision approaches based on groundspeed.
- Landing minimums, which contain both minimum visibility and minimum altitude requirements, have been established for each approach at a given airport.
- A circling approach is a procedure that involves executing an approach to one runway and then landing on another. Separate circle-to-land minimums are published in the landing minimums section if this procedure is authorized.

Approach Charts: Summary Checklist

- During a sidestep maneuver, you are cleared for an approach to one runway with clearance to land on a parallel runway.
- Each aircraft is placed into an approach category based on its computed approach speed. This speed equals 130% of the aircraft's power-off stall speed in a landing configuration ($1.3 V_{SO}$).
- Visibility listed on approach charts is in statute miles, usually as a prevailing visibility reported by an accredited observer such as tower or weather personnel, or in hundreds of feet determined through the use of runway visual range (RVR) equipment.
- Landing minimums usually increase when a required component or visual aid becomes inop.
- Regulations permit you to make substitutions for certain components when that component is inop or is not utilized during an approach
- NACO places an airport sketch in the lower left or right corner and provides a full-page airport diagram for selected airports.
- The airport reference point (ARP), shown on Jeppesen charts, is the approximate geometric center of all usable runways services. The official lat/long coordinates are derived from the ARP.
- *If the forecast weather at your ETA, plus or minus 1 hour, indicates a ceiling of less than 2,000 feet or visibility of less than 3 miles, you must list an alternate airport on your flight plan*
- *Standard alternate minimums for precision approaches are a 600-foot ceiling and 2 statute miles visibility. For nonprecision approaches, an 800-foot ceiling and 2 statute miles apply..*
- Jeppesen lists both standard and nonstandard takeoff and alternate minimums and departure procedures on the airport chart. NACO charts refer you to the Terminal Procedures Publication to find standard takeoff and nonstandard alternate minimums.
- Jeppesen classic and NACO traditional charts feature essentially the same info.

Approach Procedures: Summary Checklist

- After you have been advised as to which approach to expect, you should conduct a thorough approach chart review to familiarize yourself with the specific approach procedures.
- If ATC does not specify a particular approach but states “*cleared for the approach*” then you may execute any one of the authorized IAPs for that airport.
- Feeder routes provide a transition from the enroute structure to the IAF or to a facility from which a course reversal is initiated.
- The term straight-in approach and straight-in landing have specific definitions when used in ATC clearances or in reference to landing minimums.
- Although most approach procedures provide landing minimums for both straight-in and circling maneuvers, some may be limited to circling only.
- A straight-in approach may be initiated from a fix closely aligned with the final approach course, may commence from the completion of a DME arc, or you may receive vectors to the final approach course.
- A straight-in approach does not require no authorize a procedure turn or course reversal.
- A NoPT arrival sector allows flight inbound on Victor airways within the sector to proceed straight in on the final approach course.
- ATC radar approved for approach control service is used for course guidance to the final approach course, ASR and PAR approaches, and the monitoring of nonradar approaches.
- Radar vectors to the final approach course provide a method of intercepting and proceeding inbound on the published instrument approach procedure.
- During an instrument approach procedure, a published course reversal is not required when radar vectors are provided.

Approach Procedures: Summary Checklist

- If it becomes apparent the heading assigned by ATC will cause you to pass through the final approach course, you should maintain that heading and question the controller.
- A course reversal may be depicted on a chart as a procedure turn, a racetrack pattern (holding pattern), or a teardrop procedure. The maximum speed in a course reversal is 200 knots IAS.
- When more than one circuit of a holding pattern is needed to lose altitude or become better established on course, the additional circuits can be made only if you advise ATC and ATC approves.
- Timed approaches from a holding fix are generally conducted at airports where the radar system for traffic sequencing is out of service or is not available and numerous aircraft are waiting for approach clearance.
- When timed approaches are in progress, you will be given advance notice of the time you should leave the holding fix.
- To descend below the DA or MDA, you must be able to identify specific visual references, as well as comply with visibility and operating requirements which are listed in the regulations.
- You should usually descend at a rate that allows you to reach the MDA prior to the MAP so that you are in a position to establish a normal rate of descent from the MDA to the runway, using normal maneuvers.
- VASI lights can help you maintain the proper descent angle to the runway once you have established visual contact with the runway environment.
- Visual illusions are the product of various runway conditions, terrain features, and atmospheric phenomena which can create a sensation of incorrect height above the runway or incorrect distance from the runway threshold.

Approach Procedures: Summary Checklist

- A circling approach is necessary if the instrument approach course is not aligned within 30 degrees of the runway. In addition, you may find that an unfavorable wind or a runway closure makes a circling approach necessary.
- Each circling approach is confined to a protected area which varies with aircraft approach category.
- When executing a circling approach, if you operate at a higher speed than is designated for your aircraft approach category, you should use the minimums of the next higher category.
- When cleared to execute a sidestep maneuver, you are expected to fly the approach to the primary runway and begin the approach to land on the parallel runway as soon as possible after you have it in sight.
- The most common reason for a missed approach is low visibility conditions that do not permit you to establish required visual cues.
- If an early missed approach is uninitiated before reaching the MAP, you should proceed to the missed approach point at or before the MDA or DA before executing a turning maneuver.
- If you lose visual reference while circling to land from an instrument approach and ATC radar service is not available, you should initiate a missed approach by making a climbing turn toward the landing runway and continue the turn until established on the missed approach course.
- If a ceiling is at least 1,000 feet AGL, the visibility is at least 3 statute miles, ATC may clear you for a visual approach in lieu of the published approach procedure.
- ATC can issue a clearance for a contact approach upon your request when the reported ground visibility is \geq 1 statute mile. ATC cannot initiate a contact approach.
- Charted Visual Flight Procedures (CVFPs) may be established in some controlled airports for environmental or noise considerations, as well as when necessary for safety and efficient air traffic operations.