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CORRECTIONS, COMMENTS AND/OR PROCUREMENT

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

FAA, Aeronautical Information Services

1305 East-West Highway

SSMC 4, Room 4531

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Silver Spring, MD 20910-3281 Telephone: 1-800-638-8972

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Frequently asked questions (FAQ) are answered on our website at: https://www.faa.gov/go/ais See the FAQs prior to contact via toll free number or email.

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

GENERAL INFORMATION/INSTRUCTIONS

CHANGE NOTICE (CN) FOR THE UNITED STATES GOVERNMENT

TERMINAL PROCEDURES PUBLICATION

GENERAL:

12 JUN 2025

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10 JUL 2025

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

OPERATIONAL USE OF THE CHANGE NOTICE:

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

INDEX OF TERMINAL PROCEDURES:

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

EFFECTIVE DATES:

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

CONSULT CURRENT NOTAMS.

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

INOP COMPONENTS 25051

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

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

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

(1) JLS, PAR, LPV, GLS minima

Inoperative Component or Visual Aid	Increase Visibility
All ALS types (except ODALS)	1⁄4 mile

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

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

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

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

Inoperative Component or Visual Aid	Increase Visibility
ALSF 1 & 2, MALSR, SSALR	½ mile
MALSF, MALS, SSALF, SSALS, SALSF, SALS	1⁄4 mile

(4) Sidestep minima (CAT C-D)

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

(5) All Approach Types, All lines of minima

Inoperative Component or Visual Aid	Increase Visibility
ODALS (CAT A-B)	¼ mile
ODALS (CAT C-D)	1/8 mile

TERMS/LANDING MINIMA DATA

2

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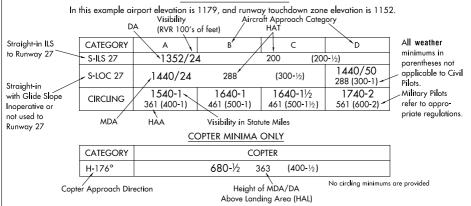
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IFR LANDING MINIMA

The United States Standard for Terminal Instrument Procedures (TERPS) is the approved criteria for formulating instrument approach procedures. Landing minima are established for six aircraft approach categories (ABCDE and COPTER). In the absence of COPTER MINIMA, helicopters may use the CAT A minimums of other procedures.

LANDING MINIMA FORMAT



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

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

COLD TEMPERATURE AIRPORTS

NOTE: A \$2-12°C symbol indicates a cold temperature altitude correction is required at this airport when reported temperature is at or below the published temperature. See the following Cold Temperature Error Table to make manual corrections. Advise ATC with altitude correction. Advising ATC with altitude corrections is not required in the final segment. See Aeronautical Information Manual (AIM), Chapter 7, for guidance and additional information. For a complete list, see the "Cold Temperature Airports" link under the Additional Resources heading at the bottom of the following page: http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dtpp/search/

COLD TEMPERATURE ERROR TABLE HEIGHT ABOVE AIRPORT IN FEET

	TILIOTTI TIBOTE TITA														
		200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
ô	+10	10	10	10	10	20	20	20	20	20	30	40	60	80	90
₽	0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
臣	-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
	-20	30	50	60	70	90	100	120	130	140	210	280	420	570	<i>7</i> 10
R	-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
Ø	-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
Æ	-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

AIRCRAFT APPROACH CATEGORIES

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

MANEUVERING TABLE

Approach Category	Α	В	С	D	E
Speed (Knots)	0-90	91-120	121-140	141-165	Abv 165

TERMS/LANDING MINIMA DATA 25163

CIRCLING APPROACH OBSTACLE PROTECTED AIRSPACE

The circling MDA provides vertical obstacle clearance during a circle-to-land maneuver. The circling MDA protected area extends from the threshold of each runway authorized for landing following a circle-to-land maneuver for a distance as shown in the table below. The resultant arcs are then connected tangentially to define the protected area.

CIRCLING APPROACH MANEUVERING AIRSPACE RADIUS

Circling MDA protected areas use the radius distance shown in the following table, expressed in nautical miles (NM), dependent on aircraft approach category, and the altitude of the circling MDA, which accounts for true airspeed increase with altitude.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)							
Circling MDA in feet MSL	CAT A CAT B CAT C CAT D				CAT E			
1000 or less	1.3	1.7	2.7	3.6	4.5			
1001-3000	1.3	1.8	2.8	3.7	4.6			
3001-5000	1.3	1.8	2.9	3.8	4.8			
5001-7000	1.3	1.9	3.0	4.0	5.0			
7001-9000	1.4	2.0	3.2	4.2	5.3			
9001 and above	1.4	2.1	3.3	4.4	5.5			

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

Comparable Values of RVR and Visibility

The following table shall be used for converting RVR to ground or flight visibility. For converting RVR values that fall between listed values, use the next higher RVR value; do not interpolate. For example, when converting 4800 RVR, use 5000 RVR with the resultant visibility of 1 mile.

RVR (feet)	Visibility (SM)						
1600	1/4	2400	1/2	3500	5/8	5500	1
1800	1/2	2600	1/2	4000	3/4	6000	11/4
2000	1/2	3000	5/8	4500	7/8		
2200	1/2	3200	5/8	5000	1		

RADAR MINIMA

	RWY GP/TCH/RPI	CAT	MDA-VIS	HAA	CEIL-VIS	CAT	MDA-VIS	HAA	CEIL-VIS
PAR	10 2.5°/42/1000	ABCDE	195 /16	100	(100-1/4)			,Visibi	lity
	28 2.5°/48/1068	ABCDE	187 /16	100	(100-1/4)		/	(RVR	100's of feet)
ASR	10	ABC	560 /40	463	(500-34)	DE	560 /50	463	(500-1)
	28	AB	600 /50	513	(600-1)	CDE	600 /60	513	(600-11/4)
CIR	10	AB	560 -1¼	463	(500-11/4)	CDE	560 -1½	463	(500-1½)
	28	AB	600-114	503	(600-11/4)	CDE	600-11/2	503	(600-1½)

Radar Minima:

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

- Minima shown are the lowest permitted by established criteria. Pilots should consult applicable directives for their category
 of aircraft.
- 2. The circling MDA and weather minima to be used are those for the runway to which the final approach is flown- not the landing runway. In the above RADAR MINIMA example, a category C aircraft flying a radar approach to runway 10, circling to land on runway 28, must use an MDA of 560 feet with weather minima of 500-1½.

NOTE: Military RADAR MINIMA may be shown with communications symbology that indicates emergency frequency monitoring capability by the radar facility as follows: (E) VHF and UHF emergency frequencies monitored

(V) VHF emergency frequency (121.5) monitored

(U) UHF emergency frequency (243.0) monitored

Additionally, unmonitored frequencies which are available on request from the controlling agency may be annotated with an "x".

Alternate Minimums not standard. Civil users refer to tabulation. USA/USN/USAF pilots refer to appropriate regulations.

NA Alternate minimums are Not Authorized due to unmonitored facility or absence of weather reporting service.
 Airport is published in the Takeoff Minimums, (Obstacle) Departure Procedures, and Diverse Vector Area (Radar Vectors) tabulation.

Visibility in Statute Miles

GENERAL INFORMATION

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

The FAA uses an internal numbering system on all charts in the TPP. This Approach and Landing (AL) number is located on the top center margin of the chart followed by the organization responsible for the procedure in parentheses, e.g., AL-18 (FAA), AL-11919 (FAA-O). Military procedures do not show AL number, but do show the appropriate authority for the procedure, e.g., (USAF).

CHART CURRENCY INFORMATION

Date of Latest Revision

09365

12 JUN 2025 to 10 JUL 2025

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

AA Procedure	Orig 31DEC09 -	Procedure Amendment
Amendment Number	- Amdt 2B 12MAR09 -	Effective Date

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

MISCELLANEOUS

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

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

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

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

GENERAL INFO 24137

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STANDARD TERMINAL ARRIVALS AND DEPARTURE PROCEDURES

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

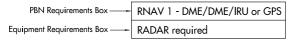
PROCEDURE PBN/EQUIPMENT REQUIREMENTS

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

IAP PBN/Equipment Requirements Notes Box

	From WINRZ, LIBGE: RNAV-1 GPS, RNAV-1GPS from MAP to YARKU.
Equipment Requirements Box ——	DME required for LOC only.
Standard Procedure Notes Box——	▼ Circling to Rwy 25 NA at night. #For inop MALSR increase S-ILS 16R all cats visibility to 2½ SM.

RNAV STAR and DP PBN/Equipment Requirements Notes Box



PILOT CONTROLLED AIRPORT LIGHTING SYSTEMS

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

Available FAA standard approach lighting systems are charted as a negative symbol to indicate pilot contolled lighting, e.g., 🚵 .

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

To activate lights, use frequency indicated in the communications section of the chart with a 1

KEY MIKE

7 times within 5 seconds

5 times within 5 seconds

3 times within 5 seconds

FUNCTION

Highest intensity available

Medium or lower intensity (Lower REIL or REIL-off)

Lowest intensity available (Lower REIL or REIL-off)

ABBREVIATIONS 25107

ADDITE VIATION	10 23107		
AAF	Army Air Field	D-ATIS	Digital-Automatic Terminal
AAUP	Attention All Users Page	D-71110	Information Service
ADF	Automatic Direction Finder	D.A	
ADIZ	Air Defense Identification	DA	Decision Altitude
ADIZ		DEP	Departure
4=4104	Zone	DEP CON	Departure Control
AFAUX	Air Force Auxiliary	DER	Departure End of Runway
AFB	Air Force Base	DH	Decision Height
AFRC	Armed Forces Reserve	DME	Distance Measuring
	Center/Air Force Reserve		Equipment
	Command	DP	Departure Procedure
AGL	Above Ground Level	DTHR	Displaced Runway
AFHP	Air Force Heliport	D1111X	Threshold
AFIS	Automatic Flight Information	DVA	Diverse Vector Area
/ 10	Service		
AHP	Army Heliport	ELEV	Elevation
		EMAS	Engineered Material
ALF	Auxiliary Landing Field		Arresting System
ALS	Approach Light System	EXEC	Executive
ALSF	Approach Light System with	FAF	Final Approach Fix
	Sequenced Flashing Lights	FD	Flight Director System
ANGB	Air National Guard Base	FL	Flight Level
ANGS	Air National Guard Station	FLD	
Ant	Antenna	FM	Fan Marker
AOB	At or Below	FMS	Flight Management System
AP	Autopilot System		
APCH		GBAS	Ground Based
	Approach		Augmentation System
APP CON	Approach Control	GCA	Ground Control Approach
AR	Authorization Required	GCO	Ground Communication
ARB	Air Reserve Base		Outlet
ARPT	Airport	GLS	Ground Based
ARR	Arrival		Augmentation System
AS	Air Station		Landing System
ASOS	Automated Surface	GP	Glidepath
7.000	Observing System	GPS	Global Positioning System
ASR	Airport Surveillance RADAR		
ASSC	Airport Surveillance NADAN Airport Surface Surveillance	GS	Glide Slope
A330		HAA	Height Above Airport
1	Systems	HAL	Height Above Landing
ATC	Air Traffic Control	HAT	Height Above Touchdown
ATCT	Airport Traffic Control Tower	HATh	Height Above Threshold
ATIS	Automatic Terminal	HCH	Heliport Crossing Height
	Information Service	hdg	Heading
AUNICOM	Automated UNICOM	HIŘL	High Intensity Runway
AWOS	Automated Weather		Lights
	Observing System	HUD	Head-up Display
Baro-VNAV	Barometric Vertical	IAF	
Daio-VIVAV	Navigation		Initial Approach Fix
DO.		IAP	Instrument Approach
BC	Back Course		Procedure
brg	Bearing	ICAO	International Civil Aviation
CĂPT	Captain		Organization
CAT	Category	IF	Intermediate Fix
CCW	Counterclockwise	IFR	Instrument Flight Rules
CDI	Course Deviation Indicator	ILS	Instrument Landing System
CGAS	Coast Guard Air Station	IM	Inner Marker
Chan	Channel	INC	Incorporated
CIR	Circling	Inop	Inoperative
CL	Centerline Lighting System		
CLNC DEL	Clearance Delivery	INT	Intersection
		INTCNTL	Intercontinental
CNF	Computer Navigation Fix	INTL	International
CPDLC	Controller Pilot Data Link	JNGB	Joint National Guard Base
	Communications	JRB	Joint Reserve Base
CTAF	Common Traffic Advisory	K	Knots
	Frequency	KIAS	Knots Indicated Airspeed
CW	Clockwise	LAAS	Local Area Augmentation
]		= 2.00	System
			Cyclom

ABBREVIATIONS 25107

ABBREVIATIO	NS 25107		
LDA	Localizer Type Directional	OPSPEC	Operations Specification
ED/ (Aid	PAR	Precision Approach Radar
Ldg	Landing	PDC	Pre-Departure Clearance
LIRL	Low Intensity Runway Lights	PRM	Precision Runway Monitor
LNAV	Lateral Navigation	Pvt	Private
LOA	Letter of Agreement/	R	Radial
LOA	Authorization	RA	Radio Altimeter setting height
LOC	Localizer	RAIL	Runway Alignment Indicator
LOM	Locator Outer Marker	RAIL	Lights
LP	Localizer Performance	RCLS	Runway Centerline Light
LPV	Localizer Performance with	RCL5	System
LF V	Vertical Guidance	DEII	Runway End Identifier Lights
LR	Lead Radial	REIL	Radius to Fix
LRRS	Long Range RADAR Station	RF	Regional
MAA	Maximum Authorized	RGNL	
IVIAA	Altitude	RLLS	Runway Lead-in Light System Area Navigation
MALS		RNAV	
IVIAL5	Medium Intensity Approach	RNP	Required Navigation
1441.05	Lighting System		Performance
MALSF	Medium Approach Lighting	RPI	Runway Point of
	System with Sequenced		Interception)
	Flashers	RVR	Runway Visual Range
MALSR	Medium Intensity Approach	RWY	Runway
	Lighting System with	S	Straight-in
	Runway Alignment Indicator	SALS	Simplified Short Approach
	Lights		Light System
MAP	Missed Approach Point	SALSF	Short Approach Lighting
MCAF	Marine Corps Air Facility		System with Sequenced
MCALF	Marine Corps Auxiliary		Flashing Lights
	Landing Filed	SDF	Simplified Directional Facility
MCAS	Marine Corps Air Station	SFB	Space Force Base
MCB	Marine Corps Base	SID	Standard Instrument
MCOLF	Marine Corps Outlying Field		Departure
MDA	Minimum Descent Altitude	SM	Statute Mile
MEA	Minimum Enroute Altitude	SR-SS	Sunrise-Sunset
MEML	Memorial	SSALF	Short Approach Lighting
METRO	Metropolitan		System with Sequenced
MIRL	Medium Intensity Runway		Flashing Lights
	Lights	SSALR	Simplified Short Approach
MM	Middle Marker		Light System with Runway
MOCA	Minimum Obstruction		Alignment Indicator Lights
	Clearance Altitude	SSALS	Simplified Short Approach
MRA	Minimum Reception Altitude		Lighting System
MSL	Mean Sea Level	ST	Saint
MSPEC	Management Specification	STE	Sainte
MUNI	Municipal	STAR	Standard Terminal Arrival
N/A	Not Applicable	TAA	Terminal Arrival Area
NA	Not Authorized	TACAN	Tactical Air Navigation
NAAS	Naval Auxiliary Air Station	TCH	Threshold Crossing Height
NAF	Naval Air Facility	TDZ	Touchdown Zone
NALF	Naval Auxiliary Landing Field	TDZE	Touchdown Zone Elevation
NAS	Naval Air Station	TDZ/CL	Touchdown Zone and
NDB	Nondirectional Radio Beacon		Runway Centerline Lighting
NM	Nautical Mile	TDZL	Touchdown Zone Lights
NOLF	Naval Outlying Field	THR	Threshold
NoPT	No Procedure Turn	TODA	Takeoff Distance Available
NOTAM	Notice to Airmen	TORA	Takeoff Run Available
NS	Naval Station	tr	Track
NTL	National	TRML	Terminal
ODALS	Omnidirectional Approach	TWR	Tower
	Lighting System	UNICOM	Universal Communications
ODP	Obstacle Departure		Station
	Procedure	USA	United States Army
OM	Outer Marker	USAF	United States Air Force

ABBREVIATIONS 25107

7 12 2 1 1 1 1 1 1 1 T	
USCG	United States Coast Guard United States Marine Corps
USN	United States Navy
USSF	United States Space Force
VASI	Visual Approach Slope
v,	Indicator
VCOA	Visual Climb Over Airport
VDA	Vertical Descent Angle
VDP	Visual Descent Point
VFR	Visual Flight Rules
VGSI	Visual Glide Slope Indicator
VNAV	Vertical Navigation
VOR	Very High Frequency Omni-
	Directional Range
VORTAC	Very High Frequency Omni-
	Directional Range/Tactical
	Air Navigation
WAAS	Wide Area Augmentation
	System
WP/WPT	Waypoint

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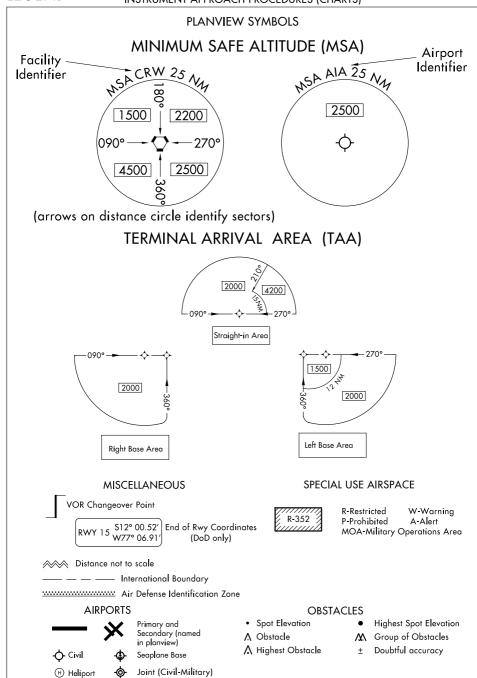
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INSTRUMENT APPROACH PROCEDURES (CHARTS) PLANVIEW SYMBOLS **ROUTES ALTITUDES** 5500 Mandatory Altitude 3000 Recommended Altitude -1659 Procedure Track 5000 Mandatory Block 2500 Minimum Altitude Feeder Route 3000 Altitude 4300 Maximum Altitude Procedure Turn (Type degree and point Missed Approach of turn optional) INDICATED AIRSPEED Visual Flight Path 175K 120K 250K 180K Minimum Route Mandatory Minimum Maximum Recommended Altitude - 3100 NoPT to LOM Airspeed Airspeed Airspeed Airspeed **-** 045° Mileage -- (14.2) RADIO AIDS TO NAVIGATION HOLDING PATTERNS 110.1 Underline indicates No Voice transmitted Hold-in-lieu of Procedure Turn on this frequency HOLD 10000 HOLD 10000 🗘 vortac 🐬 tacan > VOR 090° 090°> VOR/DME DME (IAS) 1 min **←**270° 270° o NDB NDB/DME 4 NM Missed Approach Arriva O > LOM (Compass locator at Outer Marker) **HOLD 8000** ..090°**~**... 090 Marker Beacon – 270° Marker beacons that are not specifically part of Holding pattern with maximum restricted airspeed: the procedure. (175K) applies to all altitudes. Localizer Front Course (210K) applies to altitudes above 6000' to and (LOC/LDA) including 14000' Right side shading- Front course Arrival Holding Pattern altitude restrictions will be indicated when they deviate from the adjacent leg. Localizer Back Course Left side shading- Back Course Timing or distance limits for Hold-in-lieu of Procedure Turn Holding Patterns will be shown. -SDF Course DME fixes may be shown. FIXES/ATC REPORTING REQUIREMENTS ○ LOC/LDA/SDF Transmitter □ LOC/DME Reporting Point (shown when installation is offset from its - GLGHR normal postion off the end of the runway.) Intersection INT Waypoint Secondary NAVAID Primary NAVAID MAP WP (Distance **MYLES** From Facility) (Flyby) I-LVF 14.9 LOM · LIMA AKRON 114.5 LIM MAP WP DMF 362 AK =--Chan 92 (Flyover) Flyover Point TACAN or DME NAVAID SCOTT Computer Navigation Fix (CNF)-No ATC Function ("x" omitted when it is a MAP) Chan 59 VHF (CFTSP) SKE ::-Paired Frequency (112.2)Radial line and value R-198 ---– LR-198 — - Lead Radial LB-198 — Lead Bearing

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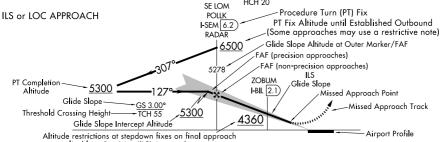
PROFILE VIEW

Three different methods are used to depict either electronic or vertical guidance: "GS", "GP", or "VDA". 1. "GS" indicates that an Instrument Landing System (ILS) electronic glide slope (a ground antenna) provides vertical guidance. The profile section of ILS procedures depict a GS angle and TCH in the following format: GS 3.00°.

- 2. "GP" on GLS and RNAV procedures indicates that either electronic vertical guidance (via Wide Area Augmentation 2. "GP" on GLS and RNAV procedures indicates that either electronic vertical guidance (via 111667,1667,005).

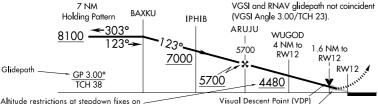
 System - WAAS or Ground Based Augmentation System - GBAS) or barometric vertical guidance is provided. GLS and RNAV procedures with a published decision altitude (DA/H) depict a GP angle and TCH in the following format: GP 3.00°

 TCH 50
- 3. An advisory vertical descent angle (VDA) is provided on non-vertically guided conventional procedures and RNAV procedures with only a minimum descent altitude (MDA) to assist in preventing controlled flight into terrain. On Civil (FAA) procedures, this information is placed above or below the procedure track following the fix it is based on. Absence of a VDA or a note that the VDA is not authorized indicates that the prescribed obstacle clearance surface is not clear and the VDA must not be used below MDA. VDA is depicted in the following format: \sum_3.00 On Copter procedures this is depicted in the following format: \sum_7.30 ICH 55



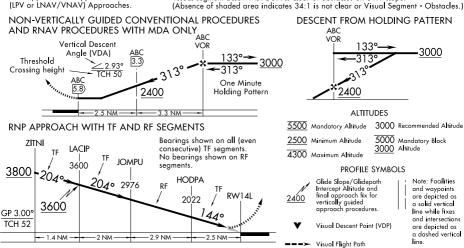
Altitude restrictions at stepdown fixes on final approach not applicable to Precision (ILS) Approaches.

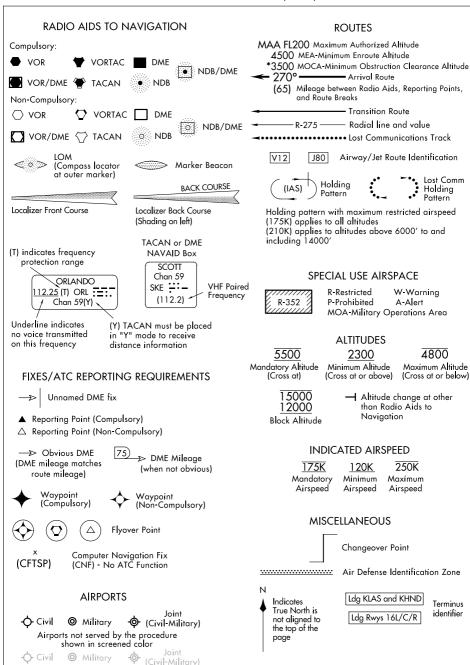
RNAV and GLS PROCEDURES WITH VERTICAL GUIDANCE



Altitude restrictions at stepdown fixes on final approach not applicable to Precision (LPV or LNAV/VNAV) Approaches.

Visual segment below MDA/DA is clear of obstacles on 34:1 slope.





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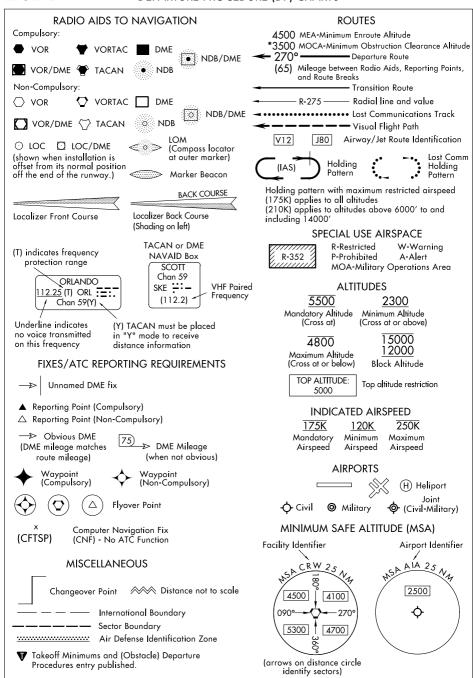
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AIRPORT DIAGRAM/	'AIRPORT SKETCH
Runways	
Hard Other Than Taxiways, Stopways, Metal Surface Hard Surface Parking Overruns, Surface Areas Blast Pads	Helicopter Alighting Areas (H) (H) (M) (H) Negative Symbols used to identify Copter Procedures landing point
Closed Closed Non- Under Water Runway Surface Movement Construction Runway	NOTE: Landmark features depicted on Copter Approach insets and sketches are provided for visual reference only.
ARRESTING GEAR: Specific arresting gear systems; e.g., BAK12, MA-1A etc., shown on airport diagrams, not applicable to Civil Pilots. Military Pilots refer to appropriate DOD publications.	Runway TDZ elevation
Tuni-directional bi-directional Jet Barrier ARRESTING SYSTEM (EMAS)	NOTE: Runway Slope measured to midpoint on runways 8000 feet or longer.
REFERENCE FEATURES Displaced Threshold	U.S. Navy Optical Landing System (OLS) "OLS" location is shown because of its height of approximately 7 feet and proximity to edge of runway may create an obstruction for some types of aircraft.
Runway Holding Position Markings Buildings Self-Serve Fuel ##	Approach light symbols are shown in the Flight Information Handbook.
Tanks	Airport diagram scales are variable.
Obstructions	True/magnetic North orientation may vary from diagram to diagram
Runway Radar Reflectors	Coordinate values are shown in 1 or $\frac{1}{2}$ minute increments. They are further broken down into 6 second ticks, within each 1 minute increments.
Unlit Lit Wind Cone Landing Tee Tetrahedron Unlit Lit Figure 3 Figure 3 Figure 3 Figure 4 Figure 4 Figure 5 Figure 4 Figure 4 Figure 5 Figure 6 Figure 6 Figure 6 Figure 6 Figure 7 Figure 7	Positional accuracy within ± 600 feet unless otherwise noted on the chart.
# When Control Tower and Rotating Beacon are	Runway length depicted is the physical length of the runway (end-to-end, including displaced thresholds if any) but excluding areas designated as stopways.
co-located, Beacon symbol will be used and further identified as TWR.	A D symbol is shown to indicate runway declared
## See appropriate Chart Supplement for information.	distance information available, see appropriate Chart Supplement for distance information.
Runway Weight Bearing Capacity or Pavement Classification Number (PCN)/Pavement Classification Rating (PCR) is shown as a codified expression. Refer to the appropriate Supplement/Directory for applicable codes e.g., RWY 14-32 PCR 560 R/B/W/T; S-75, D-185, 2D-325, 2D/2D2-1120	NOTE: All new and revised airport diagrams are shown referenced to the World Geodetic System (WGS) (noted on appropriate diagram), and may not be compatible with local coordinates published in DoD FLIP. (Foreign Only)
FIELD	The airport sketch box includes the final approach course or final approach course extended.
Runway Slope HS 1 Runway Slope ELEV 174 174	Displaced Threshold Runway Visual Screen

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SCOPE Airport diagrams are specifically designed to assist in the movement of ground traffic at locations with complex runway/taxiway configurations. Airport diagrams are not intended to be used for approach and landing or departure operations. For revisions to Airport Diagrams: Consult FAA Order 7910.4.

.023.2° €

Runway Heading (Magnetic)

1000 X 200

Movement Area Dimensions (in feet)

9000 X 200

Runway Dimensions (in feet)

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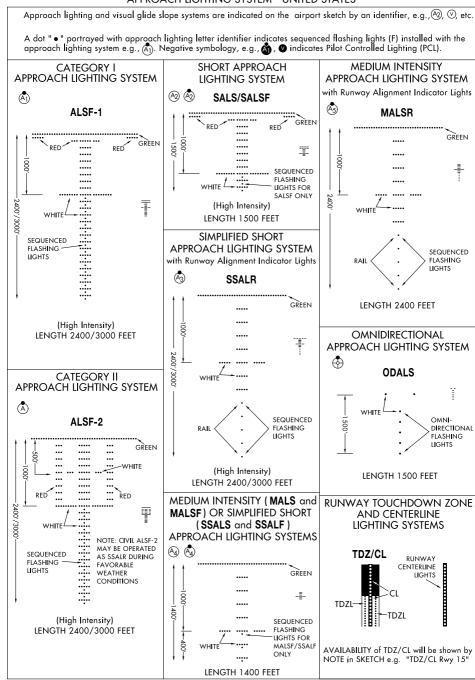
Runway End

Elevation

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Approach lighting and visual glide slope systems are indicated on the airport sketch by an identifier, 🕲 , 🌝 etc.

A dot "•" portrayed with approach lighting letter identifier indicates sequenced flashing lights (F) installed with the approach lighting system e.g., (A). Negative symbology, e.g., (B) of indicates Pilot Controlled Lighting (PCL).

PRECISION APPROACH PATH INDICATOR PAPI Too low Slightly low On correct approach path Slightly high Too high

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Legend: □ White ■ Red

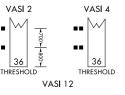
VASI

VISUAL APPROACH SLOPE INDICATOR WITH STANDARD THRESHOLD CLEARANCE PROVIDED.

ALL LIGHTS WHITE — — TOO HIGH

FAR LIGHTS RED — ON GLIDE SLOPE

ALL LIGHTS RED — TOO LOW



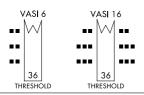


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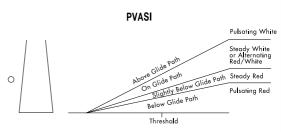
VISUAL APPROACH SLOPE INDICATOR

VASI

3-BAR, 6 OR 16 BOX, VISUAL APPROACH SLOPE INDICATOR THAT PROVIDES 2 GLIDE ANGLES AND 2 THRESHOLD CROSSING HEIGHTS.

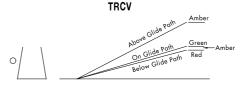


PULSATING VISUAL APPROACH SLOPE INDICATOR



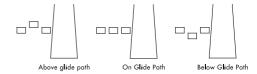
CAUTION: When viewing the pulsating visual approach slope indicators in the pulsating white or pulsating red sectors, it is possible to mistake this lighting aid for another aircraft or a ground vehicle. Pilots should exercise caution when using this type of system.

TRI-COLOR VISUAL APPROACH SLOPE INDICATOR



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

ALIGNMENT OF ELEMENTS SYSTEMS APAP



Painted panels which may be lighted at night. To use the system the pilot positions the aircraft so the elements are in alignment. 2

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

See the Chart Supplement for a complete listing.

SUPPLEMENTAL TABLES 25107

INSTRUMENT TAKEOFF AND APPROACH PROCEDURE CHARTS RATE OF CLIMB TABLE

(ft per min)

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

not be u	sed if it w	ill exceed	d the airc	raft's ope	rational li	mitations	5.					
ft/NM	%		GROUND SPEED (knots)									
IVINIVI	70	60	90	120	150	180	210	240	270	300	330	360
152	2.50	152	228	304	380	456	532	608	684	760	836	912
200	3.29	200	300	400	500	600	700	800	900	1000	1100	1200
210	3.46	210	315	420	525	630	735	840	945	1050	1155	1260
220	3.62	220	330	440	550	660	770	880	990	1100	1210	1320
230	3.79	230	345	460	575	690	805	920	1035	1150	1265	1380
240	3.95	240	360	480	600	720	840	960	1080	1200	1320	1440
250	4.11	250	375	500	625	750	875	1000	1125	1250	1375	1500
260	4.28	260	390	520	650	780	910	1040	1170	1300	1430	1560
270	4.44	270	405	540	675	810	945	1080	1215	1350	1485	1620
280	4.61	280	420	560	700	840	980	1120	1260	1400	1540	1680
290	4.77	290	435	580	725	870	1015	1160	1305	1450	1595	1740
300	4.94	300	450	600	750	900	1050	1200	1350	1500	1650	1800
310	5.10	310	465	620	775	930	1085	1240	1395	1550	1705	1860
320	5.27	320	480	640	800	960	1120	1280	1440	1600	1760	1920
330	5.43	330	495	660	825	990	1155	1320	1485	1650	1815	1980
340	5.60	340	510	680	850	1020	1190	1360	1530	1700	1870	2040
350	5.76	350	525	700	875	1050	1225	1400	1575	1750	1925	2100
360	5.92	360	540	720	900	1080	1260	1440	1620	1800	1980	2160
370	6.09	370	555	740	925	1110	1295	1480	1665	1850	2035	2220
380	6.25	380	570	760	950	1140	1330	1520	1710	1900	2090	2280
390	6.42	390	585	780	975	1170	1365	1560	1755	1950	2145	2340
400	6.58	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400
450	7.41	450	675	900	1125	1350	1575	1800	2025	2250	2475	2700
500	8.23	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
550	9.05	550	825	1100	1375	1650	1925	2200	2475	2750	3025	3300

SUPPLEMENTAL TABLES 25107

SUPPLEMENTAL TABLES 25107

INSTRUMENT TAKEOFF AND APPROACH PROCEDURE CHARTS RATE OF DESCENT TABLE

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

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

SUPPLEMENTAL TABLES 25107