

AERONAUTICAL CHARTING FORUM
Instrument Procedures Group
April 29-30, 2002
HISTORY RECORD

FAA Control # 02-01-241

Subject: Non-radar Level and Climbing Holding Patterns

Background/Discussion: FAA holding pattern criteria and policies provide for 310-knot climb-in-hold (CIH) holding patterns for missed approach procedures used by jet airplanes where a 40:1 surface is penetrated in accordance with the criteria contained in 8260.3B, Paragraph 293b. Pilots have no way of knowing, however, which CIH patterns have been evaluated for CIH. Also, there are situations where a jet airplane CIH pattern does not trigger the provisions of 8260.3B, Paragraph 293b, so the pattern size used often provides for a maximum of 200 knots even though a modified CIH may be required. An example is attached, for the ILS 17 at Kona, Hawaii, (illustration attached) where the missed approach holding pattern is 40:1-free, and the holding altitude is 1,500 feet. But, a CIH to at least 5,000 is required to return to the approach procedure. Pilots have no way of determining what the maximum design speed is for CIH in any holding pattern. 200 knots is an inadequate speed for a transport jet airplane to climb in the Kona pattern, although 310 knots would be excessive.

The AIM has some recently added information on this subject, but charts are devoid of any information to assist the flight crew in this regard. Human-factors mandate that such critical information be supported on the chart, per se.

Related to this, it is our understanding that ATC personnel are not aware of limits placed on unplanned holding at unevaluated holding fixes in a non-radar environment. The ATC Handbook, 7110.65, still refers to the 1:500,000 plastic holding templates, which have not been available for years. AFS needs to educate the current crop of ATC managers about how airspace is protected and documented for non-radar holding patterns. Although Forms 8260-2s are provided to facilities, the critical information contained therein often does not get to the affected sectors. Safety-of-flight mandates that impromptu holding not be allowed in a non-radar environment unless the fix to be used is authorized for holding by Form 8260-2.

Finally, ICAO encourages its member states to provide 280-knot patterns in the en route structure where obstacles permit. In this way jet airplane turbulent holding is provided for when needed. In a non-radar environment, lack of Form 8260-2 evaluated and document en route holding airspace for turbulent conditions provides an unknown compromise to safety-of-flight.

Recommendation: CIH patterns such as in the Kona ILS 17 example, and all patterns used by jet airplanes where CIH is required, should be evaluated for 265 knots where 310-knot CIH patterns are not required. This requirement should extend to holding patterns for both missed approaches and DPs. Further, it should be made clear that the 310-knot CIH criteria apply to DP holding patterns where a Paragraph 293b evaluation finds 40:1 penetrations. Pilots should be informed, both by AIM reference material, and chart code, which patterns are authorized for 265-knot CIH and which are authorized for 310-knot CIH.

Further, en route patterns that are evaluated for 280-knot turbulence holding should be clearly coded.

AFS should provide education materials to explain the authorizations and limitations of unplanned holds in non-radar terminal and en route structures.

Comments: This affects various AFS, AVN, and ATS policies and directives, and the Aeronautical Information Manual. It also affects cartographic specifications and standards.

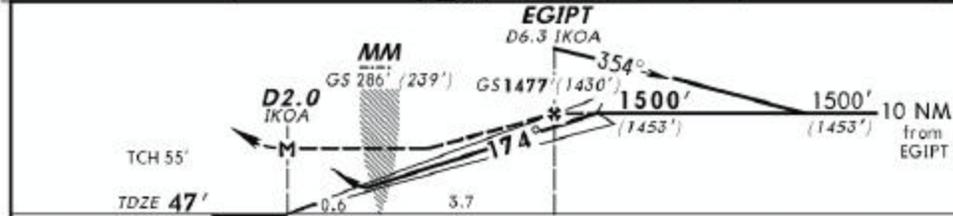
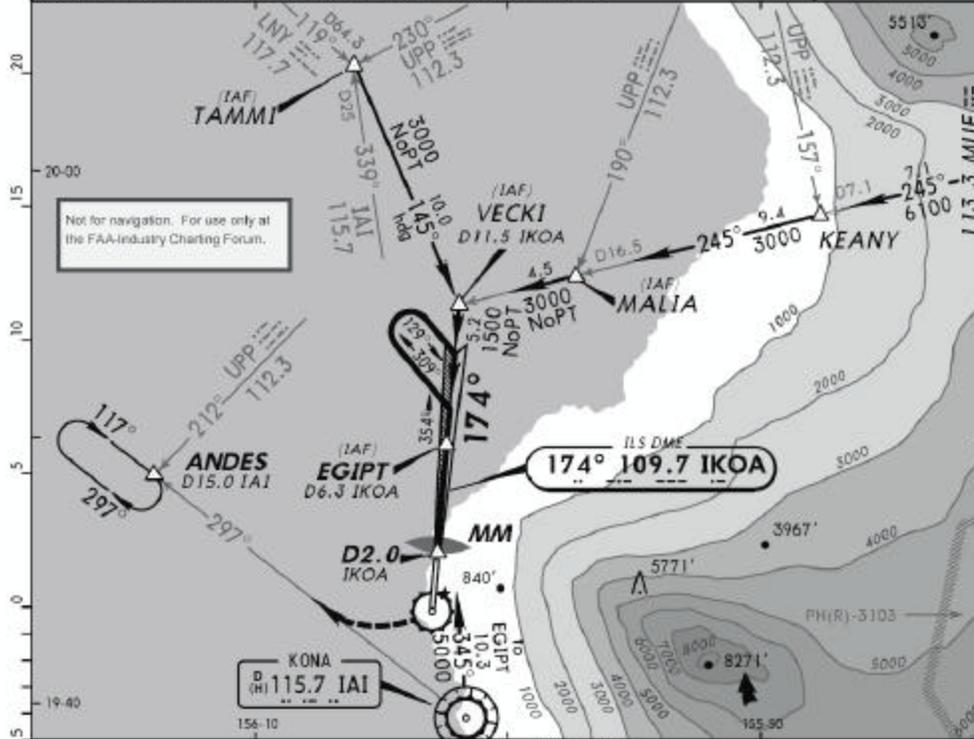
Submitted by: Captain Simon Lawrence
Organization: AIR LINE PILOTS ASSOCIATION
Phone: (703) 689-4176
FAX: (703) 464-2104
Date: April 1, 2002

PHKO
KONA INTL AT KEAHOLE

JEPPESEN
1 SEP 00 (11-1)

KAILUA-KONA, HAWAII
ILS DME Rwy 17

*ATIS 127.4		HONOLULU Center 126.0		*KONA Tower CTAF 120.3	
LOC IKOA 109.7	Final Apch Crs 174°	GS EGIPT 1477' (1430')	ILS DA(H) 247' (200')	Apt Elev 47' TDZE 47'	
<p>MISSED APCH: Climb to 500' then climbing RIGHT turn to 1500' outbound via IAI VOR R-297 to ANDES INT/D 15.0 IAI VOR and hold.</p> <p>Alt Set: INCHES Trans level: FL 180 Trans alt: 18000' (17953') 1. Use IKOA DME when on LOC course. 2. Pilot controlled lighting 120.3.</p>					
					MSA IAI VOR



Gnd speed-Kts	70	90	100	120	140	160	MALSR	500'	1500'	IAI	115.7 ANDES R-297
GS	3.00°	377	485	539	647	755	862	PAPI	↑	RT	
MAP at D2.0 IKOA											

STRAIGHT-IN LANDING RWY 17					CIRCLE-TO-LAND	
ILS DA(H) 247' (200')			LOC (GS out) MDA(H) 400' (353')			Not Authorized East of Rwy 17-35
FULL		RAIL or ALS out	RAIL out		ALS out	Max Kts
A						90
B			1/2	3/4	1	120
C	1/2	3/4				140
D			3/4	1 1/4		165
						460' (413') - 1
						500' (453') - 1
						500' (453') - 1 1/2
						600' (553') - 2

CHANGES: NoPT added to the Vecki - Egipt transition. © JEPPESEN SANDERSON, INC., 1999, 2000. ALL RIGHTS RESERVED.

INITIAL DISCUSSION (Meeting 02-01): New issue presented by Wally Roberts, ALPA. Wally expressed concern on two areas relating to climb-in-hold (CIH) pattern evaluations. In some cases, AVN is not evaluating CIH patterns to 310 Knots as required by TERPS. Compounding this issue is that there are no chart notes to limit pilot airspeeds when required by a lesser airspeed CIH evaluation. Lastly, ALPA is concerned that controllers are unaware of airspeed and obstacle clearance specifications when impromptu CIH requirements arise; e.g. returning to the en route structure from the missed approach holding pattern specified on the Kona Int'l airport, HI. Norm LeFevre agreed to accept the issue for study within AFS-420 for possible criteria and/or policy requirements. **ACTION: AFS-420.**

MEETING 02-02: Tom Schneider, AFS-420, briefed a report on the issue provided by Carl Moore, also of AFS-420. Carl reported that several years ago, the FAA considered changing the climb-in-hold (CIH) evaluation airspeed from 310 to 265 KIAS. FAA determined that some large aircraft such as the B747 need to climb at speeds in excess of 265. Therefore the CIH speed was kept at 310. If consensus can be reached that 265 will handle CIHs then FAA could make a change to 7130.3. After discussion, the ACF consensus is that there are many aircraft that require climbing speeds in excess of 265 Knots; therefore, the current airspeeds should not be changed. Carl agrees with the concept that holding patterns that have been assessed for a CIH should be annotated with the applicable CIH speed. AFS-420 will take this issue for further study and determination whether development of charting specifications and associated AIM material is required. In the interim, it was suggested that controllers must be aware which holding patterns have/have not been assessed for CIH. Marty Walker will address this in an Air Traffic Bulletin article. Brad Rush, AVN-160, stated that CIH information is documented on the form 8260-2 supporting the fix. AFS-420 will review the issue for CIH charting determination. **ACTION: AFS-420 and ATP-120.**

MEETING 03-01: Tom Schneider, AFS-420, briefed a report on the issue provided by Carl Moore, also of AFS-420. Carl has suggested a charting icon; e.g., "CIH", to indicate when a holding pattern has been evaluated for climb-in-hold. An airspeed restriction could be added if the CIH has been evaluated for less than 310 knots; e.g., "CIH 265K". The icon charting idea was resoundingly opposed by all charting agencies (NACO, NIMA and Jeppesen) as causing excessive chart clutter and the number of holding patterns that would require an icon (estimated in the thousands). Mike Riley questioned the importance of charting this information. Mark Ingram, ALPA, responded that it is a CFIT avoidance measure. A graphic example to support and demonstrate this issue was prepared by Wally Roberts, Aviation Consultant, was included with new issue 03-01-247. This graphic is included below. Kevin Comstock, ALPA, offered that guidance should be included in the new Instrument procedures Guide (IPG) and the Instrument Flying Handbook that not all holding patterns have been evaluated for a CIH. The guidance should also include pilot actions in the case of lost communications when a holding speed restriction cannot be met or when a CIH is necessary and it is not possible to determine if a CIH assessment has been done. Bill Hammett, AFS-420 (ISI) noted that Air Traffic has an IOU from previous meeting to issue an AT Bulletin article to ensure controllers are aware of what holding patterns have been evaluated for CIH. This information is currently only available on the 8260-2 for the fix/NAVAID. Unfortunately, an ATP-120 representative was not available to address whether this has been accomplished. Gary Powell, ATP-500 volunteered to remind ATP-120 of their IOU. **ACTION: ATP-120 and AFS-420.**

MEETING 03-02: Bill Hammett, AFS-420 (ISI), briefed that AFS-420 has reviewed the AIM guidance on this matter and it is satisfactory. Bill also noted that ATP-120 has an IOU from previous meeting to issue an AT Bulletin article to ensure that controllers are aware of which holding patterns have been evaluated for a climb-in hold (CIH). This information is currently only available on the Form 8260-2 supporting for the fix/NAVAID. Marty Walker, ATP-120, stated that he is still researching background for the article. **ACTION: ATP-120.**

MEETING 04-01: Bill Hammett, AFS-420 (ISI) noted that ATP-120 still has an IOU from previous meetings to issue an AT Bulletin article to ensure that controllers are aware of which holding patterns have been evaluated for a climb-in hold (CIH). This information is currently only available on the Form 8260-2 supporting for the fix/NAVAID. **ACTION: ATP-120.**

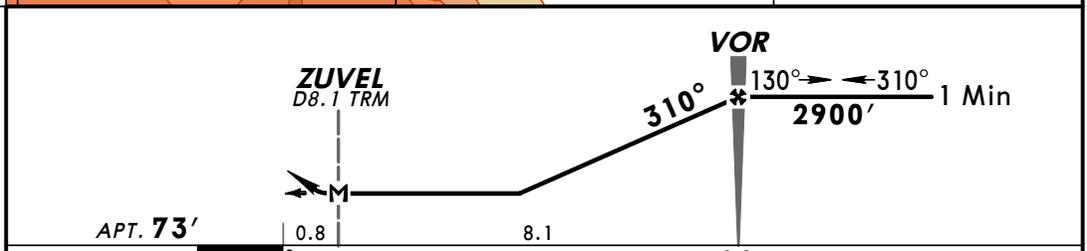
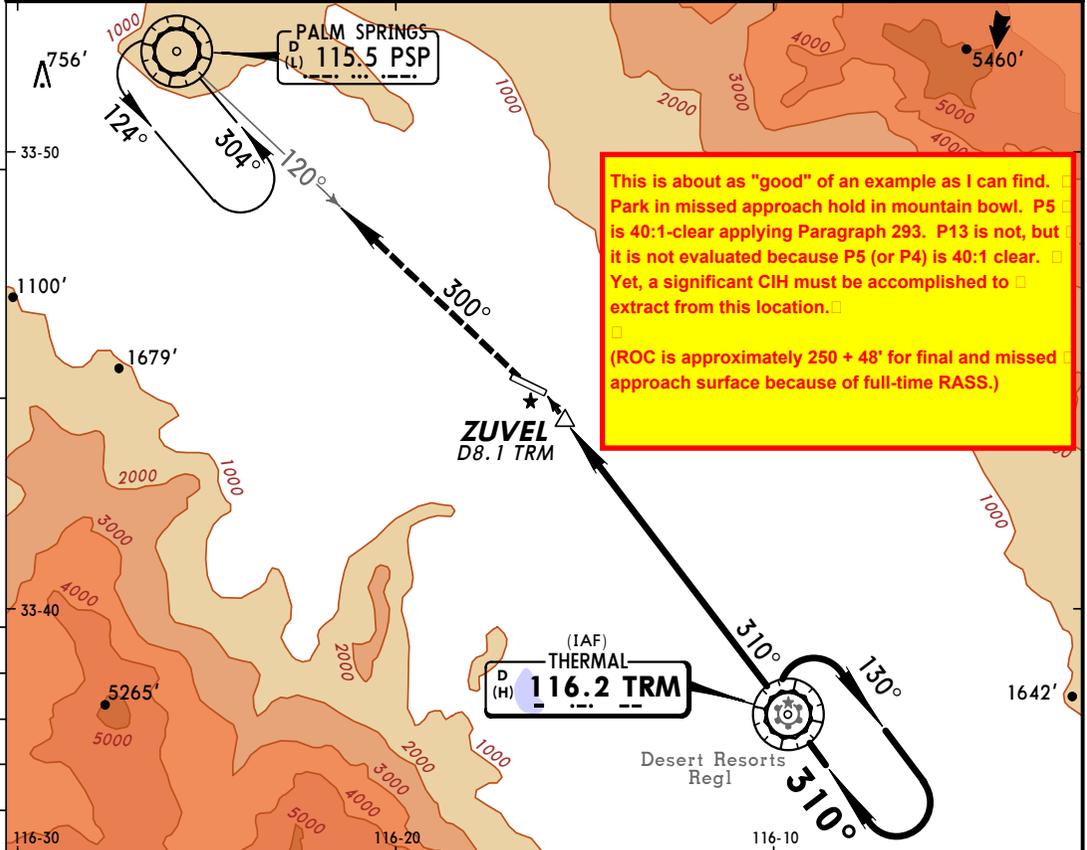
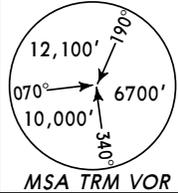
KUDD/UDD BERMUDA DUNES

JEPPesen
28 MAR 03 **(23-1)**

**PALM SPRINGS, CALIF
VOR-C**

BRIEFING STRIP™

DESERT RESORTS REGL ASOS 118.32		*PALM SPRINGS Approach (R) 118.85		LOS ANGELES Center (R) 128.15 when App inop.		BERMUDA DUNES UNICOM CTAF 122.8	
VOR TRM 116.2	Final Apch Crs 310°	Minimum Alt VOR 2900' (2827')	MDA(H) Refer to Minimums	Apt Elev 73'			
MISSED APCH: Climb to 3300' inbound via PSP VOR R-120 to PSP VOR and hold.							
Alt Set: INCHES		Trans level: FL 180		Trans alt: 18000'			
1. Use Desert Resorts Regl altimeter setting. 2. Pilot controlled lighting 122.8.							



Gnd speed-Kts	70	90	100	120	140	160	Lighting - Refer to Airport Chart	3300' ↑ via R-120	PSP 115.5
MAP at ZUVEL/D8.1 TRM or VOR to MAP	8.1	6:57	5:24	4:52	4:03	3:28			

		CIRCLE-TO-LAND	
	Max Kts	MDA(H)	
A	90	920' (847')-1	
B	120	920' (847')-1¼	
C	140	920' (847')-2½	
D		NA	

AMEND OA

