



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

Washington, DC 20594

DCA01MA034

Air Traffic Group Factual Report of Investigation

Attachment 5 – Procedures Data, 1991 to Present, 13 pages

FLIGHT PROCEDURES CONTROL

QUALITY CONTROL
NAME
DATE IN
DATE OUT
NAME
DATE IN
DATE OUT
NAME
DATE IN
DATE OUT
NAME
DATE IN
DATE OUT
NAME
DATE IN
DATE OUT
NAME

Flight Check only

PROJECT: *8260-15 Departure/Takeoff* *(Signature)*
VOR/DME - C. (Amdt 4)

NAME: *Aspen, CO (Aspen-Pitkin County / Sardy Field)*

RECEIVED FROM: *Local* DATE: _____

ASSIGNED TO: *Ahern* DATE: *3-14-91*

SUSPENSE DATE: *1 / 1*

REMARKS: *14/91 IDENT: ASE OP-3-18*

REQUEST A SPECIAL FLIGHT CHECK FOR ASPEN-PITKIN COUNTY/SARDY FIELD, ASPEN, CO FOR THE FOLLOWING:

VOR/DME-C, AMDT. 4 - REASON FOR FLIGHT CHECK

- . FAC CHANGED FROM 163 TO 164
- . MDA LOWERED
- . ADDED STEP DOWN TO INTERMEDIATE AND FINAL
- . MOVED MAP FROM 11.5 TO 11.0

60-15 - DEPARTURE PROCEDURES/TAKEOFF MINIMUMS
 FLIGHT CHECK TAKEOFF OBSTACLES AND
 DEPARTURE OBSTACLES

COPY OF THE PROCEDURE PACKAGE IS ATTACHED

need to change Departure instructions, in part, to climb ending 340 to 8600, then....

DEVELOPMENT TIME	HRS : TENTH	PROCEDURE STUDY BY:		
	:	DATE:		
	:	FLIGHT CHECK		
	:	DATES		
	:	Assigned Returned		
	:	FLIGHT CHECKED BY:		
	:	<i>(Signature)</i>		
	:	DATE:		
	:	<i>24 May 91</i>		
	:	TYPING		
	:	DATES		
	:	Assigned Returned		
	:	REVIEWED BY:		
	:	DATE:		
	:	DISTRIBUTION:		
:	<i>5/31/91</i>			
TOTAL	:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">CONTROL NUMBER</td></tr> <tr><td style="text-align: center;"><i>91-1989</i></td></tr> </table>	CONTROL NUMBER	<i>91-1989</i>
CONTROL NUMBER				
<i>91-1989</i>				

698210-5

AMIS

FLIGHT INSPECTION REPORT--VOR,VOR/DME,VORTAC,TACAN, VOT REVIEW INITIALS
CP

1. LOCATION: <u>RED TABLE/EAGLE, CO.</u>				2. IDENT: <u>DBL</u>			
3. COMMON SYSTEM:		4. DATE/DATES OF INSPECTION: <u>10/12/90</u>				5. OWNER: <u>F</u>	
6. TYPE OF INSPECTION		SITE EVALUATION		PERIODIC SURVEILLANCE		SPECIAL PROC INCOMPLETE	
		COMMISSIONING					
7. FACILITY/COMPONENT INSPECTED		VOR	<input checked="" type="checkbox"/>	VOR/DME		VORTAC	
						TACAN	
						VOT	
						DME	

8. RADIAL DATA									
SERVICE DESIG:	<u>VOR</u>								
RADIAL USE	<u>APCH</u>								
AZMUTH	<u>163</u>								
TRANSMITTER (S)	<u>1</u>								
MSL ALTITUDE	<u>127</u> <u>1084</u>								
DISTANCE FROM	<u>0</u>								
DISTANCE TO	<u>13</u>								
ROUGHNESS AND SCALLOPING	<u>1.2</u> <u>12</u>								
BENDS									
POLARIZATION									
ALIGNMENT ERROR	<u>S</u>								
MODULATIONS	<u>S</u>								
TRANSMITTER DIFFERENCE									
SIGNAL STRENGTH	<u>250</u>								
INTERFERENCE	<u>S</u>								

9. GENERAL		BAT	UNSAT	10. MONITORS							
STANDBY POWER				LAST DATE INSPECTED	VOR: <u>7/26/88</u>	TACAN:		TX	ALIGNMENT	ALARM +	ALARM -
VOICE				VOR	REFERENCE RADIAL:	<u>1</u>	<u>.</u>	<u>1</u>			
IDENTIFICATION	<u>X</u>				CHECK POINT:	<u>1</u>	<u>1</u>				
DME ACCURACY	<u>X</u>			TACAN	REFERENCE RADIAL:	<u>1</u>	<u>.</u>	<u>1</u>			
DME COVERAGE	<u>X</u>				CHECK POINT:	<u>1</u>	<u>1</u>				

11. REMARKS:
SPECIAL #0-10-11. PUBLIC USE FOR NIGHT TIME APPROACHES DISAPPROVED.

FACILITY STATUS		NOTAMS:			
UNRESTRICTED	<u>X</u>				
RESTRICTED					
UNUSABLE					
REGION	<u>ANM</u>	FLIGHT INSPECTOR'S SIGNATURE: <u>AP/SF</u>		TECHNICIAN'S SIGNATURE: <u>James Hester</u>	
FFO	<u>OKC</u>	<u>Arthur P. Hase</u>		AIRCRAFT NO: <u>N-66</u>	



U.S. Department
of Transportation

**Federal Aviation
Administration**

Memorandum

Subject: ACTION: VOR/DME-C, Aspen, Colorado;
ANM-220, Memo No Date

Date: March 6, 1990

From: Manager, Sacramento Flight
Inspection Field Office

Reply to
Attn. of: Foit: 5340

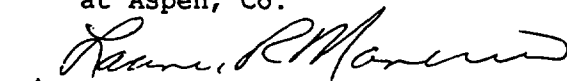
To: Manager, Flight Procedures Branch,
ANM-220

An in depth procedures study was conducted by this office with regard to an ANM-220 request to determine if lower basic or stepdown minimums could reasonably be achieved for the VOR/DME-C SIAP at Aspen-Pitkin Co/Sardy Field. Our study shows that lower minimums are not attainable given current criteria for procedure development. Existing terrain features at Aspen render a stepdown fix at virtually any point in the final segment unacceptable due to Order 8260.3B, Para 288C(a) which states: " A stepdown fix shall not be established unless a decrease of at least 60 feet in MDA or a reduction in visibility minimums is achieved." Eight various stepdown locations were considered and none of these complied with the above criteria without violating Order 8260.3B, Para 513d, which states: " The optimum descent gradient in the final approach segment should not exceed 300 feet per mile. Where a higher descent gradient is necessary, the maximum permissible gradient is 400 feet per mile." Essentially, if the stepdown did not violate the 60 foot requirement it violated descent gradient criteria, or vice-versa. Irrespective of stepdown fix location, the final segment controlling obstruction is located at 392054N-1065238W at an MSL altitude of 10,199 feet. A 100 foot addition for trees totalling 10,299 feet. Required obstruction clearance is 250 feet which totals to 10,549. An additional adjustment per TERPs , Para 323c for excessive length of final, 23 feet and 250 feet for precipitous terrain totals 10,840 after rounding.

Additionally, we considered relocating the FAF at 7 DME vice 6 DME. Minimums of 10,900 feet could be achieved, but again to no advantage. We then considered the FAF at 5 DME and the stepdown at both 8 and 9 DME. The results were consistent with previous attempts. A reduction of 60 feet or greater could still not be achieved.

If a stepdown fix were at all possible, a reduction in minimums of 61 feet would cause a 12 foot penetration of the 40:1 missed approach surface. The missed approach controlling obstruction is located at 392622N-1065339W at an MSL altitude of 12,200 feet.

The above findings are our basis for retention of the current approach minimums at Aspen, Co.


John D. Pearsall, Jr.

Aspen-Pittkin Co/Sandy field

Safety considerations for VOR/DME-C ANST 41

1) Considering high Terrain to the East:

a) Shift course to west 1° - complying with criteria by straightening app. (course hits extended centerline 2512 ft before T.H.)

B) Trap is actually expanded on East side due to missed approach obstructions. This gives more margin for error.

c) Miss approach traps are expanded to compensate for the high elevation of the missed approach - used. TERPS Chapter 4 Table 31 (Departure Turn Radii) To determine correction factor (OB. Radius SL 5.5 by 7800 73, 70) then checked Table 5 Chap 2 cir C Ops Clearance Radius 3.0 nm by .7534 to get 3.9818 nm rounded to 4 nm and applied.

ASPOU - P. ATKIN CO / STUDY FIELD.

CONSIDERATIONS FOR REDUCTION OF MDA ON VAL/DME C MOUNT 4/

- 1.) Applied TERPS Para 089 AT FAF TO ALLOW INITIAL MDA OF 10400 VERSUS 10840, THEN UTILIZED A STEP DOWN AT 9.5 DME TO ARRIVE AT FINAL MDA'S
- 2.) POT STEP DOWN IN THE INTERMEDIATE LEG TO ENABLE AIRCRAFT TO DESCEND TO ORACLE ALTITUDE OVER THE FAF SO THAT MDA COULD BE REACHED WITHOUT EXCEEDING 400'/MIN DESCENT GRADIENT.

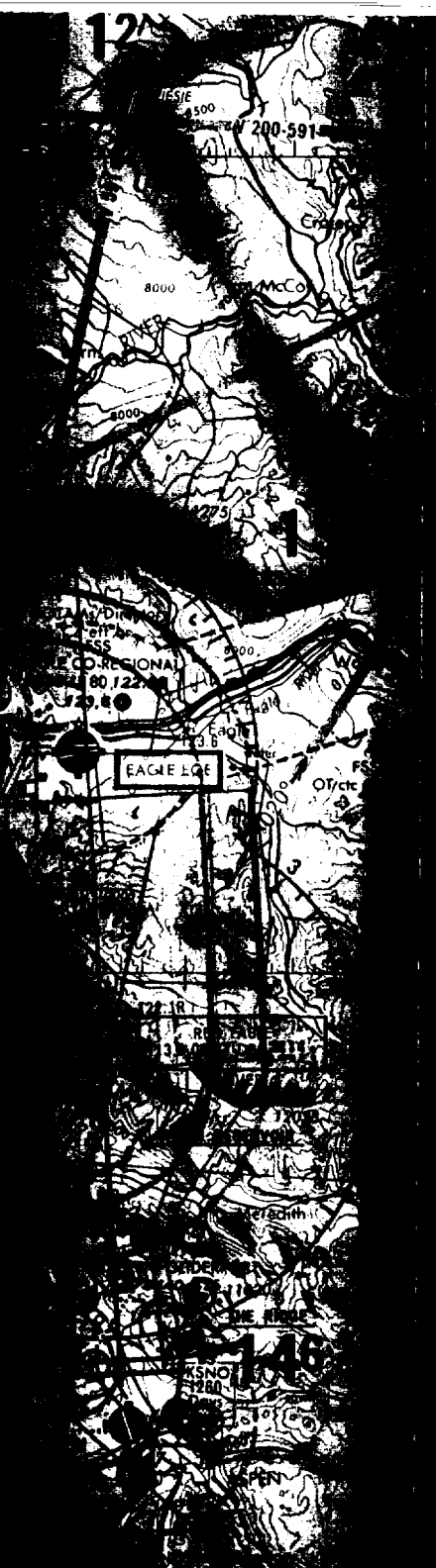
DENVER

**SECTIONAL AERONAUTICAL CHART
 SCALE 1:500,000**

Lambert Conformal Conic Projection Standard Parallels 33°20' and 38°40'
 Horizontal Datum: North American Datum of 1927
 Topographic data corrected to April 1990

43RD EDITION July 26, 1990

Includes airspace amendments effective June 28, 1990
 and all other aeronautical data received by May 31, 1990
 Consult appropriate NOTAMs and Flight Information
 Publications for supplemental data and current information.
 This chart will become **OBSOLETE FOR USE IN NAVIGATION** upon publication of
 the next edition scheduled for **FEBRUARY 7, 1991**
 PUBLISHED IN ACCORDANCE WITH INTERAGENCY AIR CARTOGRAPHIC COMMITTEE
 SPECIFICATIONS AND AGREEMENTS, APPROVED BY:



OBSTRUCTION	COORDINATES	ELEVATION (MSL)
1. TERRAIN / TREE	392622/1066339	11775+100 (2C)
2. TERRAIN / TREE	392100/1066323	10502+100 (2C)
3. TERRAIN / TREE	391632/1066117	6715+100 (2C)
4. TERRAIN / TREE	392028/1066136	6990+100 (2C)
5. TERRAIN / TREE	391628/1066023	6430+100 (2C)
6. TERRAIN / TREE	391720/1066055	7537+100 (2C)
7. TERRAIN / TREE	371110 / 1066572	10777 +100 (2C)
8. TERRAIN / TREE	391137/1066210	6880+100 (2C)
9. TERRAIN / TREE	391333/1066006	6880+100 (2C)
10. TERRAIN/TREE	391337/1064964	6479+100 (2C)

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

VOR/DME

STANDARD INSTRUMENT APPROACH PROCEDURE

FLIGHT STANDARDS SERVICE - FAR PART 97. 23

Bearings, headings, courses, and radials are magnetic. Elevations and altitudes are in feet, MSL, except HAT, HAA, TCH, and RA. Altitudes are minimum altitudes unless otherwise indicated. Ceilings are in feet above airport elevation. Distances are in nautical miles unless otherwise indicated, except visibilities which are in statute miles or in feet RVR.

TERMINAL ROUTES

MISSED APPROACH

FROM	TO	COURSE AND DISTANCE	ALTITUDE
NO PT FOR ARRIVALS ON DBL VOR/DME RADIALS 297 CLOCKWISE 020			

MAP: DBL R-164/11.0 DME

CLIMBING RIGHT TURN TO 14000 VIA HEADING 300 TO INTERCEPT AND PROCEED VIA I-PKN NORTHWEST COURSE (300 DEGREES) AND DBL VOR/DME R-244 TO GLENO INT/DBL 22.7 DME AND HOLD.

ADDITIONAL FLIGHT DATA:

HOLD SW, LT. 064 INBOUND.
 FAS OBST: 9819 TREE 391832/1065117
 FAS SD OBST: 9539 TREE 391628/1065023
 CHART CROWS INT DBL R-205 AND I-PKN NW COURSE
 CHART DBL VOR/DME R-205
 CHART LINDZ INT (DBL 12.6 DME)
 CHART "BACK COURSE" ON PLANVIEW LOCALIZER SYMBOL, CHART ALL SPOT ELEVATION ON AMDT. 3 PLANVIEW AND 10366 AT 391652/1064955
 FAC CROSSES RWY 15 C/L EXTENDED 2912' FROM TH

MAG VAR: 12E EPOCH YEAR: 90

- 1. PT NA SIDE OF COURSE OUTBOUND FT WITHIN MILES OF (IAF)
- 2. HOLD N OF DBL VOR/DME, RT 164 INBOUND, 14000 FT IN LIEU OF PT (IAF)
- 3. FAC: 164 FAF: ALLIX INT/DBL 6.0 DME DIST FAF TO MAP: 5.0 THLD:
- 4. MIN. ALT: DBL VOR/DME 14000, R-164/3.0 12700, R-164/6.0 12200, R-164/9.5 10400
- 8. MSA FROM: DBL VOR/DME 020-240 15500, 240-020 12900

MINIMUMS

TAKEOFF: <input type="checkbox"/> STANDARD <input checked="" type="checkbox"/> SEE FAA FORM 8260 - 15 FOR THIS AIRPORT	ALTERNATE: NA <input checked="" type="checkbox"/>														
CATEGORY =====>	A			B			C			D			E		
	MDA	VIS	HAT/HAA	MDA	VIS	HAT/HAA	MDA	VIS	HAT/HAA	MDA	VIS	HAT/HAA	MDA	VIS	HAT/HAA
CIRCLING	10200	2	2385	10200	2	2835	10200	3	2835						

NOTES:

OBTAIN LOCAL ALTIMETER SETTING ON CTAF. WHEN NOT RECEIVED, PROCEDURE NA.

PROCEDURE NA AT NIGHT.

DUAL VHF NAVIGATION RECEIVERS REQUIRED.

CITY AND STATE	ELEVATION: 7815 TDZE:	FACILITY IDENTIFIER:	PROCEDURE NO./AMDT NO./EFFECTIVE DATE:	SUP VOR/DME-C
ASPEN, CO	AIRPORT NAME: ASPEN PITKIN COUNTY/SARDY FIELD	DBL	VOR/DME-C, AMDT. 4	AMDT: 3
				DATED: 9 MAR 89

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEVATION (MSL)	ROC	ALT. ADJUSTMENT	MINIMUM ALT.		
INTERMEDIATE	DBL VOR/DME	DBL R-164/3.0	1. TERRAIN / TREE	392622/1065339	11775+100 (2C)	500	+250" + 75 AS	12700		
INTERMEDIATE SD	DBL R-164/3.0	DBL R-164/6.0	2. TERRAIN / TREE	392109/1065323	10502+100 (2C)	500	+250" + 848@	12200		
FINAL 1	DBL R-164/6.0	DBL R-164/9.5	3. TERRAIN / TREE	391832/1065117	9719+100 (2C)	250	250" + 81\$	10400		
			4. TERRAIN / TREE	392028/1065136	9999+100 (2C)	(TERPS PARA 289	APPLIED)			
FINAL STEPDOWN	DBL R-164/9.1	DBL R-164/11.0	5. TERRAIN / TREE	391628/1065023	9439+100 (2C)	0 (SEC)	250" + 411@	10200		
			6. TERRAIN / TREE	391720/1065033	9559+100 (2C)	(TERPS PARA 289	APPLIED)			
HOLDING PATTERN IN										
LIEU OF PT	DBL VOR/DME	HOLD N RT 164IB	1. TERRAIN / TREE	392622/1065339	11775+100 (2C)	1000	+1125 AS	14000		
2. PROCEDURE TURN										
3. MISSED APPROACH	MAP: R-164/10.5	GLENO INT	7. TERRAIN / TREE	391110/1065512	10199 & 100 (2C)	40:1		14000		
	ELEV: 9700									
4. CIRCLING AREA										
CATEGORY A	1.3 NM	HT. ABV. ARPT. REQUIRED ACTUAL	350	2385	8. TERRAIN / TREE	391137/1065219	8959+100 (2C)	300	+250" / ST - IN	10200
CATEGORY B	1.5 NM		450	2385	9. TERRAIN / TREE	391333/1065008	9359+100 (2C)	300	+250 / ST - IN	10200
CATEGORY C	1.7 NM		450	2385	10. TERRAIN/TREE	391337/1064954	9479+100 (2C)	300	+250 / ST - IN	10200
CATEGORY D	2.3 NM		550							
CATEGORY E	4.5 NM		550							
5. MINIMUM SAFE ALTITUDES										
PRIMARY NAVAID:										
SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	MSA	SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	MSA	
020-240	TERRAIN	121/28.4	14433	15500						
240-020	TERRAIN/TREE	000/0.0	11775 + 100	12900						
CITY AND STATE		AIRPORT & ELEVATION		FACILITY	PROCEDURE AND AMENDMENT NO:		REGION			
ASPEN, CO		7815 ASPEN-PITKIN COUNTY/SARDY FIELD		DBL VOR/DME	VOR/DME-C, AMDT. 4		ANM			

FPB.KASE.UOR/DME-C, AMDT 4.P.NTM

11009

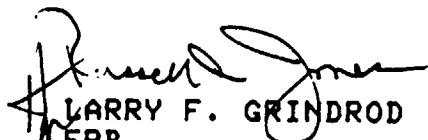
COLEMAN
405-954-4546

FPB 2 SEP 93

ATO-258

ANM-220/530; ZDU; OEX-T-AUN-220/830;
DEN FSS-T-ASE ATCT.
FDC 3/ ASE FI/P ASPEN-PITKIN COUNTY/SARDY FIELD,
ASPEN, CO. UOR/DME-C, AMDT 4. CHANGE TERMINAL ROUTES NOTE
TO READ: "NO PT FOR ARRIVALS ON DBL UOR/DME AIRWAY RADIALS
297 CLOCKWISE 046". THIS IS UOR/DME-C, AMDT 4A.

REASON: EXPANDS NOTE TO ENCOMPASS NEW AIRWAY WHEN PUBLISHED.


LARRY F. GRINDROD
FPB

NEDC/TAPSCOTT
NOTIFIED 9/02/93

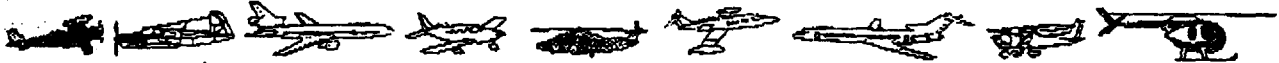


Flight Procedures Branch, ANM-220

FEDERAL AVIATION ADMINISTRATION

Northwest Mountain Region
1601 Lind Avenue Southwest
Renton, Washington 98055-4056

ANM-220: (206) 227-2220
ANM-221: (206) 227-2221
FAX: (206) 227-1200



Date: **October 11, 1994**

To: **Don Harmer**
National Flight Procedure Development Branch, AVN-830

Fax: **405 954-4236**

From: **John Chapman**

Number of Pages: **3**

Remarks: The following two pages pertain to the issuance of the F-NOTAM we discussed this morning.



U.S. Department
of Transportation

Federal Aviation
Administration

Memorandum

Subject: **ACTION:** Remove Night Restriction from VOR/DME-C, Aspen, Colorado Date: 10/11/94

From: Manager, Flight Procedures Branch, ANM-220 Attn. of: Chapman
206 227-2221

To: Manager, National Flight Procedures Development Branch, AVN-830
ATTN: Don Harmer

Request issuance of a P-NOTAM deleting the note "Procedure not authorized at night" from the (DBL) VOR/DME-C, Instrument Approach Procedure at Aspen-Pitkin County/Sardy Field, Aspen, Colorado.

A handwritten signature in black ink, appearing to read "P.C. Gardner, Jr.", written over a horizontal line.

Preston C. Gardner, Jr.



U.S. Department
of Transportation
Federal Aviation
Administration

Memorandum

94101101.ASE-1

Subject: **ACTION:** Aspen/Pitkin County Airport

Date: OCT 11 1994

From: Manager, Technical Programs Division,
AFS-400

Reply to
Attn. of:

To: Manager, Flight Standards Division Northwest Mountain
Region, ANM-200

Per request from AVR-2, please have a NOTAM issued as soon as possible which deletes the night restriction note on the subject airport VOR/DME-C instrument approach procedure and take whatever action is necessary to permanently remove the note from the approach plate.

Jack Howell
Jack Howell

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

of pages **1**

To	ANM-220	From	JIM MOORE AFS-420
Dept./Agency	FAA	Phone #	202-267-8277
Fax #	202-227-1200	Fax #	202-267-5086

NSN 7540-01-317-7290 5010-101 GENERAL SERVICES ADMINISTRATION

NEED BRIEFING PAPER STATING WHAT WE ARE DOING, AND THE PROBLEMS ASSOCIATED.

FPB.KASE.UOR/DME-C, AMDT 4A.P.NTM

14459

D. HARMER
405-954-4548


FPB 10-11-94

ATO-258

ANM-220/530; OEX-T-AUN-220/830/0KC FIFO; DEN ARTCC
DEN-T-AMGR
FDC 4/ ASE FI/P ASPEN-PITKIN COUNTY/SARDY FIELD, CO.
UOR/DME-C, AMDT 4A.

DELETE NOTE: PROCEDURE NOT AUTHORIZED AT NIGHT.
THIS BECOMES UOR/DME-C, AMDT 4B.

REASON: ANM-220 REQUEST.
///END///


WILLIAM R. HENDERSON
FPB