October 7, 2010

Ms. Margaret Gilligan
Associate Administrator for Aviation Safety
Federal Aviation Administration
800 Independence Avenue
Washington, DC 20591

Dear Peggy:

The Performance Based Aviation Rulemaking Committee (PARC) is pleased to submit the enclosed report entitled, *Constant Radius Arc to a Fix (RF) Navigation Leg Types in Public RNP Procedures.*

This brief report summarizes the tasking and activities of the PARC's RNP Concepts and Benefits Action Team to support widespread use of the RF navigation leg type in RNP procedures that are not in the Approval Required (AR) arena. Previous to AC 90-105, *Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System*, the RF leg type was restricted to AR procedures as defined in AC 90-101, *Approval Guidance for RNP Procedures with Special Aircrew and Aircraft Authorization Required.* AC 90-105 now provides guidance criteria for operators and equipment to utilize RNP procedures that are designed with the RF leg type. Additionally, FAA Order 8260.54A, *The United States Standard for Area Navigation (RNAV)*, provides criteria for RNAV procedure design, including the use of RF legs in the designs. Subsequently, the manager of AFS-470, Performance Based Flight Systems Branch, recommended that the PARC research the utility of RF legs for procedures that would provide benefit to a greater segment of the aviation community and then identify candidate locations for the initial approvals.

The benefits of a fixed radius leg with a defined ground path have been substantiated in the many AR procedures currently in operation. In fact, the RF leg contributes to one or more of the Performance Based Navigation (PBN) benefits (Safety, Capacity, Operating Efficiency, Environmental, Financial) in each of the designs in which it is used. The procedure at Attachment 1 of the report is the first submission for an RNAV (GPS) instrument approach procedure (IAP) that contains RF legs in the intermediate segment. The proposed procedure is the Savannah / Hilton Head International Airport RNAV (GPS) X Rwy 28. Note that the intermediate segments provide for an efficient transition to the final approach segment from either the north or south. The primary benefits of this procedure are environmental (avoids noise sensitive areas), financial and efficiency (reduced fuel burn and emissions).

Following Savannah, procedures at the following locations will be submitted:

Frederick, MD	General Aviation
Teterboro, NJ	Business Jet
Manhattan NY Heliport	Helicopter
Fargo, ND	Standard Terminal Arrival (STAR), Regionals
Boston, MA	Regionals

Note that each location addresses a specific aviation sector. Following these locations, it is hoped that subsequent procedures will be implemented to leverage the benefits of the RF leg type.

It is important to note that an IAP approval process obviously already exists. However, AFS-470 and AJR-37 believe that there are questions on operator qualifications and appropriate equipage for these procedures that are yet to be fully resolved. Therefore, these initial procedures with RF legs will be submitted directly to the ATO RNAV and RNP Office for initial coordination. Subsequently, the procedures are designed to both introduce the capability in the NAS and also exercise the FAA's IAP approval process for such procedures.

The PARC appreciates your continued support of our activities and invites you to join us in a discussion of these recommendations at your convenience. Please call me if you have any questions or would like to set up a briefing on the subject.

Sincerely,

Dave Nakamura
Chairman, PARC

cc: J. Hickey
J. McGraw
B. DeCleene
J. McCarthy
S. Miller

Performance-based Operations Rulemaking Committee (PARC)

CONSTANT RADIUS ARC TO A FIX (RF) NAVIGATION LEG TYPES IN PUBLIC RNP PROCEDURES

RNP Concepts and Benefits Action Team

September 2010

Introduction

Special Aircrew and Aircraft Authorization Required (SAAAR) procedures have been in existence for some time now and many have incorporated the Constant Radius ARC to a Fix (RF) navigation leg into the procedure design. RTCA DO-236B, *Minimum Aviation System Performance Standards: Required Navigation Performance for Area Navigation,* defines the RF leg as a "constant radius circular path about a defined turn center that terminates at a fix." Unlike the DME ARC, the RF leg is computed around a fix (lat/long) and does not require a ground-based navaid such as the DME. Modern area navigation systems can compute the radius and track the curved path with the same accuracy as the straight leg types. Subsequently, the RF leg provides the procedure designer with the capability to define a curved ground track that can avoid environmentally sensitive areas or terrain, or enhance operational efficiency and capacity. Previous to AC 90-105, *Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System,* the RF leg type was restricted to AR procedures as defined in AC 90-101, *Approval Guidance for RNP Procedures with Special Aircrew and Aircraft Authorization Required.* AC 90-105 now provides guidance criteria for operators and equipment to utilize RNP procedures that are designed with the RF leg type. Additionally, FAA Order 8260.54A, *The United States Standard for Area Navigation (RNAV),* provides criteria for RNAV procedure design, including the use of RF legs in the designs. At this time, however, no public procedures with RF legs have been approved under the AC 90-105 criteria.

Purpose and Scope

The PARC was tasked by the Manager, Performance Based Flight Systems Branch AFS-470, to research the utility of RF legs for procedures that would provide benefit to a greater segment of the aviation community and then identify candidate locations for the initial approvals. The recommendation to use of RF legs in public procedures was also noted in the RTCA NextGen Mid-Term Implementation Taskforce (Taskforce 5) to deconflict arrivals to closely spaced airports and also to realize the PBN efficiencies for single as well as parallel runway operations.

The PARC's RNP Concepts and Benefits Action Team quickly determined that the benefits of the RF leg type could easily be utilized in public RNP procedures, and specifically procedures which do not require an AR approval. The task was then to identify a small number of locations that would benefit from such a procedure while concurrently introducing the capability to various aviation sectors (GA, business, helicopter, etc.). The action team also accepted the responsibility to conduct the preliminary procedure design work for each location, provide that submission to the FAA, and then support the FAA through the approval process for the initial approvals.

Benefits

The benefits of the RF leg type are well known as a result of operational experience with the existing AR procedures. When incorporated in an RNP procedure design, an RF leg is capable of contributing significant benefit in terms of Safety, Capacity, Operating Efficiency, Environmental and Financial. No other navigation leg type provides the design flexibility to safely avoid obstacles or noise-sensitive areas while concurrently enhancing airplane performance by reducing track miles flown. In addition to AR and now public RNP procedures, the RF leg type is being considered for other applications such as the FMS visuals (at several locations), independent and dependent parallel operations, and the Greener Skies Initiative at Seattle, among others.

Recommendation

1. Begin implementing public RNP procedures which incorporate RF legs in the design.

The procedure at Attachment 1 of this report is the first submission for an RNAV (GPS) instrument approach procedure (IAP) that contains RF legs. The procedure is the Savannah / Hilton Head International Airport RNAV (GPS) X Rwy 28. The primary benefits of this procedure are environmental (avoids noise sensitive areas), financial and efficiency (reduced fuel burn and emissions).

Following Savannah, approach procedures at the following locations will be submitted by the action team. Note that each location is specifically targeted to provide benefit for that location while concurrently introducing the RF capability to a different aviation sector.

Frederick, MD	General Aviation
Teterboro, NJ	Business Jet
Manhattan NY Heliport	Helicopter
Fargo, ND	Regionals (Standard Terminal Arrival - STAR
Boston, MA	Regionals

Since the major US operators are already well aware of the benefits of the RF leg, specifically the RNP operators, it is expected that they will also consider such procedures following this initial approval, particularly where efficiencies can be gained.

It is important to note that these initial procedures will be submitted directly to the ATO RNAV and RNP office as opposed to the normal IAP submission process. As sponsors for this effort, AFS-470 and AJR-37 want to ensure that appropriate operator and equipment approvals are in effect and any additional charting requirements (if necessary) are considered prior to implementation into the normal IAP process.

Attachment 1

Performance-based Operations Aviation Rulemaking Committee

RNP Benefits Action Team

Proposal for

RNAV (GPS) X Rwy 28

SAVANNAH HILTON HEAD INTERNATIONAL

September 8, 2010

Overview

The Performance-based Operations Aviation Rulemaking Committee (PARC), Required Navigation Performance (RNP) Concepts and Benefits Action Team, was tasked by FAA AFS-470 to investigate the benefits of incorporating Constant Radius Arc to a Fix (RF) navigation leg types in RNP procedures that did not require special approval (e.g., AC 90-101, *Approval Guidance for RNP Procedures with Special Aircrew and Aircraft Authorization Required*). Since some flight management systems (FMS) are not capable of computing an RF leg turn center and radius, the leg type had previously been implemented only in Approval Required (AR) procedures. However, AC 90-105, *Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System*, provided guidance on equipment and aircrew eligibility for operating RNP procedures that contained RF legs. Until this submission, no procedures have been approved using the AC 90-105 criteria.

The benefits of the RF leg type are well known. When incorporated in an RNP procedure design, an RF leg is capable of contributing benefit to the procedure through:

- Safety
- Capacity
- Operating Efficiency
- Environmental
- Financial

The primary benefits for this proposed RNAV (GPS) procedure at Savannah are environmental (avoids noise sensitive areas), efficiency and financial (reduced fuel burn and emissions).

The required submission forms for the IAP consideration are attached. The PARC RNP Concepts and Benefits Action Team wishes to recognize Jeppesen Inc. for their assistance with the procedure design and required forms.

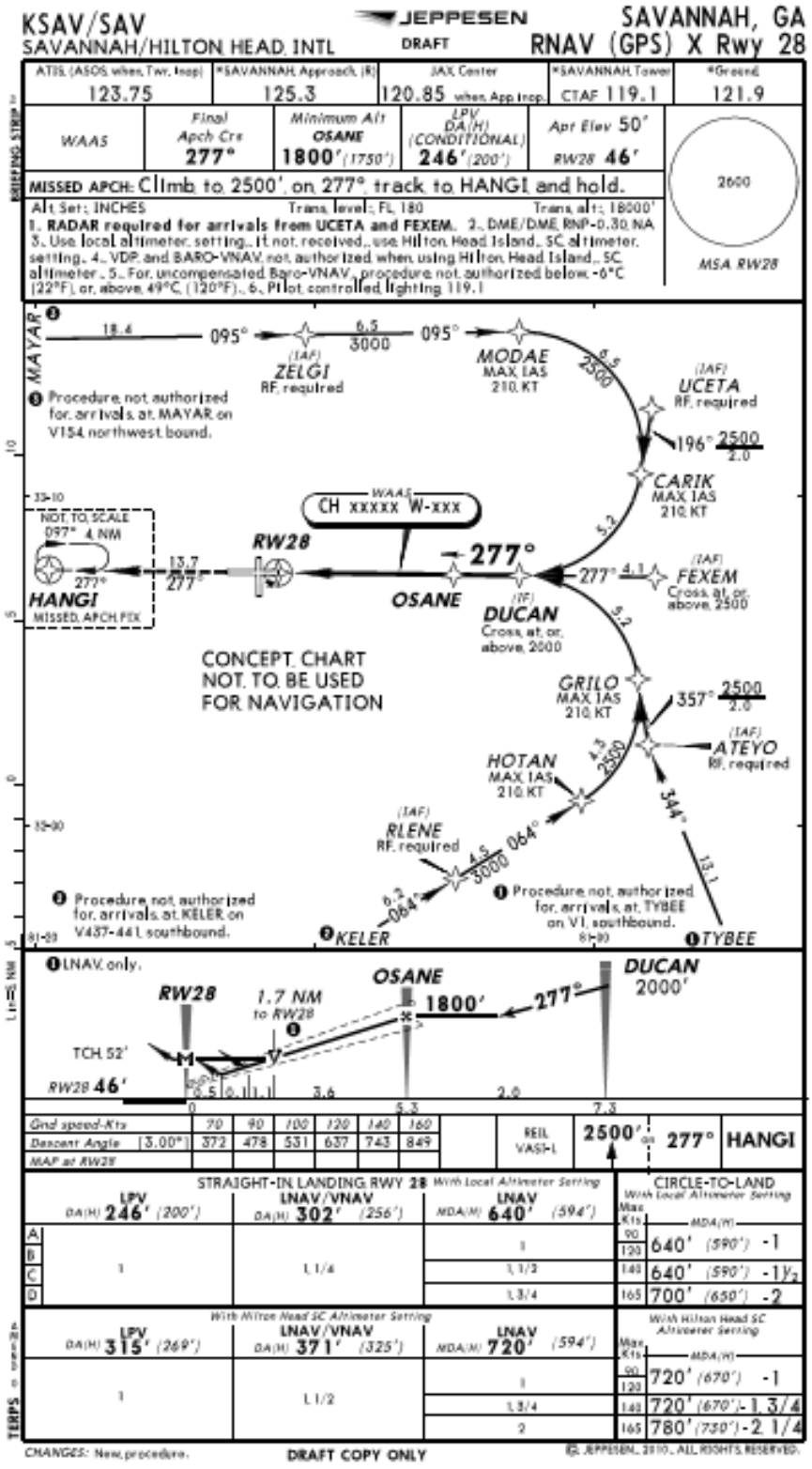
Attachments:

A. KSAV RNAV GPS X RWY 28
B. RNAV X 28 8260-3
C. RNAV X 28 8260-9 PG1
D. RNAV X 28 8260-9 PG2
E. RNAV X 28 8260-10
F. RADIO FIX AND HOLDING DATA RECORD - ATEYO
G. RADIO FIX AND HOLDING DATA RECORD - CARIK
H. RADIO FIX AND HOLDING DATA RECORD - CFJVS
I. RADIO FIX AND HOLDING DATA RECORD - DUCAN
J. RADIO FIX AND HOLDING DATA RECORD - FEXEM
K. RADIO FIX AND HOLDING DATA RECORD - FFMGN
L. RADIO FIX AND HOLDING DATA RECORD - GRILO
M. RADIO FIX AND HOLDING DATA RECORD - HANGI
N. RADIO FIX AND HOLDING DATA RECORD - HOTAN

O. RADIO FIX AND HOLDING DATA RECORD - MAYAR
P. RADIO FIX AND HOLDING DATA RECORD - MODAE
Q. RADIO FIX AND HOLDING DATA RECORD - KELER
R. RADIO FIX AND HOLDING DATA RECORD - OSANE
S. RADIO FIX AND HOLDING DATA RECORD - RLENE
T. RADIO FIX AND HOLDING DATA RECORD - TYBEE
U. RADIO FIX AND HOLDING DATA RECORD - UCETA
V. RADIO FIX AND HOLDING DATA RECORD - ZELGI

Atch A

KSAV RNAV GPS X RWY 28



Atch B
RNAV X 28 8260-3

U.S. Department of Transportation
Federal Aviation Administration

RNAV - STANDARD
INSTRUMENT APPROACH PROCEDURE
TITLE 14 CFR PART 97.33

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

FROM	TO	COURSE AND DISTANCE	ALTITUDE
MAYAR (40E)	ZELGI (TF)(FB) (40E) (43A)	094.97/18.43	3000
ZELGI (IAF) (40E) (43A)	MODAE (TF)(FB) (40E)	095.16/6.50	2500
MODAE (40E)	CARIK (RF)(FB) (40E)	(3.70 NM RADIUS CW CFJVS)/ 6.49	2500
UCETA (IAF) (40E) (43A)	CARIK (TF)(FB) (40E)	195.69/2.01	2500
CARIK (40E)	DUCAN (RF)(FB) (40E) (41E) (43B)	(3.70 NM RADIUS CW CFJVS)/5.23	2000
KELER (40E)	RLENE (TF) (FB) (40E) (43A)	064.28/6.21	3000
RLENE (IAF) (40E) (43A)	HOTAN (TF) (FB) (40E)	064.33/4.50 (CONTINUED ON PAGE 2)	2500

MISSED APPROACH

MAP: LPV: DA
LNAV/VNAV: DA
LNAV: RW28

CLIMB TO 2500 ON 276.63 TRACK TO HANGI AND HOLD

ADDITIONAL FLIGHT DATA:
HOLD E, RT, 276.63 INBOUND
CHART FAS OBST: 388 CRANE 320759.00N/0810833.00W
CHART FAS OBST: 156 TOWER 320731.00N/0811006.00W
CHART R-3005C, R-3005D

1. PT NA SIDE OF COURSE ____ OUTBOUND ____ FT WITHIN ____ MILES OF ____ (IAF)
2. PROFILE STARTS AT DUCAN
3. FAC: 276.69 FAF: OSANE DIST FAF TO MAP: 5.34 THLD: 5.34
4. MIN. ALT: DUCAN 2000, OSANE 1800
5. DIST TO THLD FROM OM: ____ MM: ____ IM: ____ 150 HAT: ____ 100 HAT: ____ GS ANT: ____
6. MIN GS INCPT: 1800 GS ALT AT: OSANE 1800 OM: ____ MM: ____ IM: ____
7. GS ANGLE: 3.00 TCH: 52.0 34:1 IS CLEAR
8. MSA FROM: RWY 28 2600

DISTANCE TO THLD FROM 200HAT: 0.46 NM
CHART VDP AT 1.70 NM TO RW28 **LNAV ONLY
WAAS CHANNEL #XXXXX
REFERENCE PATH ID: XXXX

ROUTE TYPE: A, R
ROUTE TYPE QUALIFIER 1: J
ROUTE TYPE QUALIFIER 2: A, S

MAG VAR: 6W EPOCH YEAR: 2005

MINIMUMS

TAKEOFF: SEE FAA FORM 8260-15A FOR THIS AIRPORT ALTERNATE: N A X

CATEGORY =====>	A			B			C			D			E		
	DH/ MDA	VIS	HAT/HAA	DH/ MDA	VIS	HAT/HAA	DH/ MDA	VIS	HAT/HAA	DH/ MDA	VIS	HAT/HAA	DH/ MDA	VIS	HAT/HAA
LPV DA	246	1	200	246	1	200	246	1		246	1	200			
LNAV/VNAV DA	302	1 1/4	256	302	1 1/4	256	302	1 1/4		302	1 1/4	256			
LNAV MDA	640	1	594	640	1	594	640	1 1/2		640	1 3/4	594			
CIRCLING	640	1	590	640	1	590	640	1 1/2	590	700	2	650			

NOTES: CHART NOTE: GPS REQUIRED. DME/DME RNP- 0.30 NA
CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -6C (22F) OR ABOVE 49C (120F).
CHART NOTE: WHEN LOCAL ALTIMETER SETTING NOT RECEIVED, USE HILTON HEAD ISLAND, SC ALTIMETER SETTING AND INCREASE ALL DA 69 FEET AND ALL MDA 80 FEET AND LNAV/VNAV ALL CATS. LNAV CATS C/D, AND CIRCLING CATS C/D VISIBILITIES 1/4 MILE.
CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVALS AT TYBEE ON V1 SOUTHBOUND, AT KELER ON V437-441 SOUTHBOUND AND AT MAYAR ON V154 NORTHWEST BOUND.

CITY AND STATE	ELEVATION: 50 TDZE: RW28 46 / AIRPORT NAME:	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
SAVANNAH, GA	SAVANNAH/HILTON HEAD INTL	RNAV	RNAV (GPS) X RWY 28, ORIG	AMDT: NONE
				DATED

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
FEEDER	MAYAR	ZELGI	1. TOWER 13-003950	321656.91N/0811241.18W	583 (5D)	1000	AC 50, AT1300	3000
			2. TERRAIN	321839.00N/0813115.00W	109 (100)		AS1500	1600
INITIAL	ZELGI	MODAE	3. TOWER 45-001459	321612.00N/0810411.00W	333 (2C)	1000	AC 20, AT1100	2500
			4. TERRAIN	321700.00N/0810454.00W	33 (0)		AS1500	1500
INITIAL STEPDOWN	MODAE	CARIK	5. TOWER 45-001025	321423.00N/0805746.00W	450 (2C)	1000	AC 20, AT1000	2500
			6. TERRAIN	321512.00N/0805812.00W	43 (0)		AS1500	1500
INITIAL	UCETA	CARIK	7. TOWER 45-001552	320911.00N/0810309.00W	257 (2B)	1000	AC10, AT1200	2500
			8. TERRAIN	321015.00N/0810103.00W	23 (0)		AS1500	1500
INITIAL	CARIK	DUCAN	7. TOWER 45-001552	320911.00N/0810309.00W	257 (2B)	1000	AC 10, AT700	2000
			8. TERRAIN	321015.00N/0810103.00W	23 (0)		AS1500	1500
FEEDER	KELER	RLENE	9. TOWER 13-001630	315631.70N/0810718.30W	404 (5D)	1000	AC 50, AT1500	3000
			10. TERRAIN	315721.00N/0810451.00W	119 (100)		AS1500	1600
INITIAL	RLENE	HOTAN	11. DAAO00013	315715.00N/0810445.00W	319 (DTED L1)	1000	AC98, AT1500	3000
			12. TERRAIN	315818.00N/0810357.00W	115 (100)		AS1500	1600
INITIAL STEPDOWN	HOTAN	GRILO	13. DAAO00010	315945.00N/0810054.00W	296 (DTED L1)	1000	AC98, AT1100	2500
			14. TERRAIN	320000.00N/0805845.00W	66 (100)		AS1500	1500
2. PROCEDURE TURN								
3. MISSED APPROACH MAP:								
3. MISSED APPROACH								
3. MISSED APPROACH ELEV:								

4. CIRCLING	DISTANCE	HT. ABV. ARPT. REQUIRED	HT. ABV. ARPT. ACTUAL	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
CATEGORY A	1.3 NM	350	590	17. ATCT (KSAV 0045)	320815.21N/0811227.82W	216 (1A)	300	SI	640
CATEGORY B	1.5 NM	450	590	17. ATCT (KSAV 0045)	320815.21N/0811227.82W	216 (1A)	300	SI	640
CATEGORY C	1.7 NM	450	590	17. ATCT (KSAV 0045)	320815.21N/0811227.82W	216 (1A)	300	SI	640
CATEGORY D	2.3 NM	550	650	18. PLANT (13-000245)	320920.00N-0810929.00W	331 (5D)	300	AC50	700
CATEGORY E	4.5 NM	550							

5. MINIMUM SAFE ALTITUDES — PRIMARY NAVAID: RW28

SECTOR	OBSTRUCTION	BRG / DIST	ELEVATION (MSL)	MSA	SECTOR	OBSTRUCTION	BRG / DIST	ELEVATION (MSL)	MSA
360-360	TOWER	247.64/9.35	1549 (3C)	2600					
									PAGE 1 OF 2

CITY AND STATE	AIRPORT & ELEVATION 50	FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
SAVANNAH, GA	SAVANNAH/HILTON HEAD INT'L	RNAV	RNAV (GPS) X RWY 28, ORIG	ASO

FAA Form 8260 - 9 / April 2006 (Computer Generated)

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
FEEDER	TYBEE	ATEYO	15. TOWER 13-000177	320342.00N/0810054.00W	414 (4D)	1000	AC50, AT1500	3000
			16. TERRAIN	315945.00N/0810054.00W	96 (100)		AS1500	1600
INITIAL	ATEYO	GRILO	17. TANK 13-020131	320510.00N/0805955.00W	234 (5D)	1000	AC50, AT1200	2500
			18. TERRAIN	320427.00N/0805724.00W	23 (0)		AS1500	1500
INITIAL	GRILO	DUCAN	7. TOWER 45-001552	320911.00N/0810309.00W	257 (2B)	1000	AC10, AT700	2000
			8. TERRAIN	320936.00N/0810209.00W	23 (0)		AS1500	1500
INITIAL	FEXEM	DUCAN	7. TOWER 45-001552	320911.00N/0810309.00W	257 (2B)	1000	AC10, AT700	2000
			8. TERRAIN	320936.00N/0810209.00W	23 (0)		AS1500	1500
INTERMEDIATE	DUCAN	OSANE	7. TOWER 45-001552	320911.00N/0810309.00W	257 (2B)	500	AC10, AT1000	1800
			8. TERRAIN	320600.00N/0810254.00W	17 (0)		AS1500	1500
FINAL: LPV	OSANE	RW28	19. TREE KSAV0013	320744.00N/0811103.32W	57 (1A)	27.03:1	AC3	246/200
FINAL: LNAV/VNAV	OSANE	RW28	20. OL TK KSAV0070	320729.68N/0811025.35W	141 (1A)	22.8:1	AC3	302/256
FINAL: LNAV	OSANE	RW28	21. CRANE KSAV0018	320758.78N/0810832.92W	388 (1A)	250	AC3	640
2. PROCEDURE TURN								
3. MISSED APPROACH MAP:	RW28	HANGI				ASC		2500
			22. TOWER 13-001708	320549.00N/0811916.00W	520 (5D)	1000		1600
ELEV:	81/141/390		23. TERRAIN	321048.00N/0812712.00W	83 (100)		AS1500	1600

4. CIRCLING	DISTANCE	HT. ABV. ARP T. REQUIRED	HT. ABV. ARP T. ACTUAL
CATEGORY A	1.3 NM	350	
CATEGORY B	1.5 NM	450	
CATEGORY C	1.7 NM	450	
CATEGORY D	2.3 NM	550	
CATEGORY E	4.5 NM	550	

5. MINIMUM SAFE ALTITUDES — PRIMARY NAVAID:

SECTOR	OBSTRUCTION	BRG / DIST	ELEVATION (MSL)	M S A	SECTOR	OBSTRUCTION	BRG / DIST	ELEVATION (MSL)	M S A
									PAGE 2 OF 2

CITY AND STATE	AIRPORT & ELEVATION	FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
SAVANNAH, GA	SAVANNAH/HILTON HEAD INT'L 50	RNAV	RNAV (GPS) X RWY 28, ORIG	ASO

FAA Form 8260 - 9 / April 2006 (Computer Generated)

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

RNAV **INSTRUMENT APPROACH PROCEDURE**

FLIGHT STANDARDS SERVICES TITLE 14 CFR PART 97.33

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 (CONT'D)

FROM	TO	COURSE AND DISTANCE	ALTITUDE
HOTAN (40E)	GRILO (RF) (FB) (40E)	(3.70NM RADIUS CCW FFMGN)/4.32	3000
TYBEE (40E)	ATEYO (TF) (FB) (40E) (43A)	343.76/13.13	3000
ATEYO (IAF) (40E) (43A)	GRILO (TF) (FB) (40E)	357.43/2.02	2500
GRILO (40E)	DUCAN (RF) (FB) (40E) (41E) (43B)	(3.70NM RADIUS CCW FFMGN)/5.21	2000
FEXEM (IAF) (40E) (43A)	DUCAN (TF) (FB) (40E) (41E) (43B)	276.75/4.13	2000
DUCAN (IF) (40E)	OSANE (TF) (FB) (40E) (43F)	276.71/2.00	1800
OSANE (FAF) (40E) (43F)	RW28 (TF) (FO) (40G) (41Y) (43M)	276.69/5.34	
RW28 (40G) (41Y) (43M)	HANGI (TF) (FB) (40E) (41E) (43H)	276.63/13.72	2500

NOTES (CONT'D)

CHART PLANVIEW NOTE AT RLENE, ATEYO, UCETA, ZELGI: RF REQUIRED.

CHART PLANVIEW NOTE AT HOTAN, GRILO, CARIK, MODAE: MAX 210 KIAS.

CHART PLANVIEW NOTE: RADAR REQUIRED FOR ARRIVALS FROM UCETA AND FEXEM.

CITY AND STATE	ELEVATION: 50 TDZE: 50 AIRPORT NAME:	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./ EFFECTIVE DATE:	SUP:
SAVANNAH, GA	SAVANNAH/HILTON HEAD INT'L	RNAV	RNAV (GPS) X RWY 28, ORIG	AMDT: NONE
				DATED:

RADIO FIX AND HOLDING DATA RECORD

NAME: ATEYO **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 320227.59N/0805803.65W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

Atch G
RADIO FIX AND HOLDING DATA RECORD – CARIK

RADIO FIX AND HOLDING DATA RECORD

NAME: CARIK **STATE:** SC **COUNTRY:** US

LATITUDE/LONGITUDE: 321042.21N/0805819.05W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

Atch H
RADIO FIX AND HOLDING DATA RECORD – CFJVS

RADIO FIX AND HOLDING DATA RECORD

NAME: CFJVS **STATE:** SC **COUNTRY:** US

LATITUDE/LONGITUDE: 321119.78N/0810236.85W **TYPE:** CNF

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: NO

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

Atch I
RADIO FIX AND HOLDING DATA RECORD – DUCAN

RADIO FIX AND HOLDING DATA RECORD

NAME: DUCAN **STATE:** SC **COUNTRY:** US

LATITUDE/LONGITUDE: 320737.36N/0810240.08W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

Atch J
RADIO FIX AND HOLDING DATA RECORD – FEXEM

RADIO FIX AND HOLDING DATA RECORD

NAME: FEXEM **STATE:** SC **COUNTRY:** US

LATITUDE/LONGITUDE: 320734.21N/0805748.56W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

Atch K
RADIO FIX AND HOLDING DATA RECORD – FFMGN

RADIO FIX AND HOLDING DATA RECORD

NAME: FFMGN **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 320354.93N/0810243.30W **TYPE:** CNF

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: NO

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

Atch L
RADIO FIX AND HOLDING DATA RECORD – GRILO

RADIO FIX AND HOLDING DATA RECORD

NAME: GRILO **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 320427.94N/0805824.96W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: HANGI **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 320750.55N/0812728.21W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

PATTERNS:

PAT	DIR	IDENT	TYPE	RAD/CRS/BRG	CRS INBOUND	TURN (L OR R)	LEG LENGTH TIME	LEG LENGTH DME	HOLDING ALTITUDES MIN	HOLDING ALTITUDES MAX	TEMPLATES MIN	TEMPLATES MAX
1	E	-	WP	090.63	273.63	R	-	4	2500	6000	-	5

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
1	200	TOWER (13-000590)	320315.00N/0812100.00W	1549	3C

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: HOTAN **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 320045.52N/0810026.37W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: MAYAR **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 321438.62N/0813203.96W **TYPE:** INT, DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM NM	FAC FEET	MRA	MAA
1	SAVANNAH	SAV	VORTAC	H	295.02	289.02	18.05			3000	17500
2	ALLENDALE	ALD	VOR	L	196.00	195.00				3000	17500

EXPANDED SERVICE VOLUME (ESV):
FAC IDENT FAC TYPE RADIAL/BEARING DISTANCE MIN ALTITUDE MAX ALTITUDE
ALD VOR R-196/49 1700-18000

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
EN ROUTE	V-154					(US)
IAP	SAVANNAH/HILTON HEAD INTL - ILS OR LOC RWY 10			KSAV	SAVANNAH	GA (US)
IAP	SAVANNAH/HILTON HEAD INTL – RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA (US)
IAP	SAVANNAH/HILTON HEAD INTL – RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA (US)
IAP	HUNTER AAF (KSVN) - RNAV (GPS) RWY 10			KSVN	SAVANNAH	GA (US)
IAP	STATESBORO-BULLOCH COUNTY - ILS OR LOC RWY 32			KTBR	STATESBORO	GA (US)

REQUIRED CHARTING: MILITARY IAP, IAP, CONTROLLER, EN ROUTE LOW

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 12 **DATE OF REVISION:** xxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

DEVELOPED BY: **DATE:** 10/24/2008 **OFFICE:** AVN-140 **NAME:** BRIAN BERUBEE

NFPO APPROVAL: **DATE:** 04/13/2009 **OFFICE:** AVN-140 **NAME:** PETER GETZ

SIGNATURE:

DISTRIBUTION: NFDC
FPO: ATL
ARTCC: ZJX
ATC FACILITY: SAV APP CON
OTHER: USAASA

RADIO FIX AND HOLDING DATA RECORD

NAME: MODAE **STATE:** SC **COUNTRY:** US

LATITUDE/LONGITUDE: 321502.20N/0810240.38W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: KELER **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 315507.40N/0811109.14W **TYPE:** DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM NM	FAC FEET	MRA	MAA
1	SAVANNAH	SAV	VORTAC	H	183.16	177.16	13.64			3000	17500

HOLDING: **HOLDING TYPE OF ACTION:** MODIFY

PATTERNS:

PAT	DIR	IDENT	TYPE	RAD/CRS/BRG	CRS INBOUND	TURN (L OR R)	LEG LENGTH TIME	LEG LENGTH DME	HOLDING MIN	ALTITUDES MAX	TEMPLATES MIN	TEMPLATES MAX
1	S	SAV	VORTAC	183.16	003.16	R	1	4	5500	14000	5	10

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
1	200	ANTENNA (KSVN0098)	315300.73N/0811430.77W	473	2C

REMARKS:
HOLDING LIMITED TO ESTABLISHED PATTERN.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
EN ROUTE	V3, 37, 437, 441					(US)
IAP	SAVANNAH/HILTON HEAD INTL – ILS OR LOC RWY 10			KSAV	SAVANNAH	GA (US)
IAP	SAVANNAH/HILTON HEAD INTL – RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA (US)
IAP	SAVANNAH/HILTON HEAD INTL – RNAV (RNP) X RWY 28			KSAV	SAVANNAH	GA (US)

REQUIRED CHARTING: MILITARY IAP, IAP, CONTROLLER, EN ROUTE LOW

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 8 **DATE OF REVISION:** xxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

DEVELOPED BY: **DATE:** 05/19/2005 **OFFICE:** AVN-110 **NAME:** DAVID DOWLING

NFPO APPROVAL: **DATE:** **OFFICE:** AVN-110 **NAME:**

SIGNATURE:

DISTRIBUTION: NFDC
FPO: ATL
ARTCC: ZJX
ATC FACILITY: SAV APP CON
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: OSANE **STATE:** SC **COUNTRY:** US

LATITUDE/LONGITUDE: 320738.82N/0810501.38W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** 5/26/2009

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: RLENE **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 315823.53N/0810456.63W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: TYBEE **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 315017.02N/0805212.82W **TYPE:** DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM NM	FAC FEET	MRA	MAA
1	CRAIG	CRG	VORTAC	H	023.00	020.00	95.61			11000	17500
2	CHARLESTON	CHS	VORTAC	H	219.00	214.00	76.09			11000	17500

EXPANDED SERVICE VOLUME (ESV):
FAC IDENT FAC TYPE RADIAL/BEARING DISTANCE MIN ALTITUDE MAX ALTITUDE
ON FILE FOR CRG AND CHS.

REMARKS:
FIX COLLOCATED AT DOGLEG COP.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
EN ROUTE	V-1					(US)
IAP	SAVANNAH/HILTON HEAD INTL – RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA (US)
IAP	SAVANNAH/HILTON HEAD INTL – RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA (US)

REQUIRED CHARTING: CONTROLLER, EN ROUTE LOW

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

DEVELOPED BY: **DATE:** 07/10/1996 **OFFICE:** AVN-150 **NAME:** GENE DOSER

NFPO APPROVAL: **DATE:** 07/11/1996 **OFFICE:** AVN-150 **NAME:**

SIGNATURE:

DISTRIBUTION: NFDC
FPO: ATL
ARTCC: ZJX
ATC FACILITY:
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: UCETA **STATE:** SC **COUNTRY:** US

LATITUDE/LONGITUDE: 321241.41N/0805755.13W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER:

Atch V
RADIO FIX AND HOLDING DATA RECORD – ZELGI

RADIO FIX AND HOLDING DATA RECORD

NAME: ZELGI **STATE:** GA **COUNTRY:** US

LATITUDE/LONGITUDE: 321456.71N/0811020.21W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Y RWY 28			KSAV	SAVANNAH	GA
IAP	RNAV (GPS) X RWY 28			KSAV	SAVANNAH	GA

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** xxxxxx

REASON FOR REVISION: ADDED IAP KSAV RNAV (GPS) X RWY 28

ATC COORDINATION: **DATE: 1/29/2009** **FACILITY: SAV ATCT** **NAME:** David Bretherick

INITIATED BY: **DATE:** 5/26/2009 **ORGANIZATION:** JEPPESEN **NAME:** JAY S. ROGERS

DEVELOPED BY: **DATE:** 5/26/2009 **OFFICE:** JEPPESEN **NAME:** JAY S. ROGERS

AVN APPROVAL: **DATE:** 6/22/2009 **OFFICE:** JEPPESEN **NAME:** JEFF BRUCE

SIGNATURE:

DISTRIBUTION: **NFDC**
FIFO
FPO:
ARTCC:
ATC FACILITY:
OTHER: