Flight Procedure Tracking Form	Action: FLIGHT CHECK	Task Type: IAP	Date Open: 08/15/2012	Task #: 2011072926923405005	Request #: 20110729269234
Procedure: RNAV (RNP) Z RWY 30 R ORIG		Airport ID: KMSP	Airport: MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN		Reimbursable #:
City: MINNEAPOLIS	ST: MN	GPS #:		Estimated Chart Date: 05/02/2013	FICO #:
Fac ID:	Fac. Type: RNP	Specialist: PABLO ORTIZ			

Procedure Review

	Rec'd	Rel'd	Full Name	Comments
Lead:	09/05/2012	01/11/2013	JILL OLSON	
QA:	01/11/2013	01/11/2013	SCOTT BEARD	
Liaison:	01/11/2013		Spurlin	REPLACEMENT 1/11/2019 - MAGVAR

MAG VAR P1

Procedure Comments: ENROUTE

Remark Type: INFORMATION

MINNEAPOLIS, MN MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN (KMSP) RNAV (RNP) Z RWY 30R, ORIG (RNP) ENROUTE-YES FC: 3.19.13 PUB: 5.2.13

ATTACHED FORMS: 8260-3; 8260-10; 8260-9; 8260-2(S): BAYZL, ORIG; BONNA-INT, REV 10; CFBKM, ORIG; COTTG, ORIG; GOPHER (GEP) VTAC, REV 14; GROVZ-INT, REV 4; HIGHA, ORIG; JACKO-INT, REV 8; KINEE, ORIG; SAMMZ-INT, REV 3; SOGGY, ORIG; WULAM-INT, REV 3; ZIMUG, ORIG.

CONTACT: JILL OLSON/STEVE BARNETT -AVJ-353 LEADS, 405.954.4014 / 405.954.9307.

BAYZL: 4456.871N / 09304.372W
BONNA: 4446.136N / 09256.150W
CFBKM: 4452.018N / 09301.434W
COTTG: 4450.491N / 09257.722W
GEP: 4508.741N / 09322.391W
GROVV: 4448.970N / 09301.580W
GROVZ: 4442.849N / 09248.645W
HIGHA: 4454.618N / 09259.192W
JACKO: 4449.416N / 09303.670W
KINEE: 4445.814N / 09241.236W
SAMMZ: 4447.777N / 09259.908W
SOGGY: 4448.742N / 09252.496W
WULAM: 4444.493N / 09252.396W
DRWT30R: 4452.892N / 09311.678W

APP CRS	Rwy ldg	8000
301°	THRE	820
	Apt Elev	842

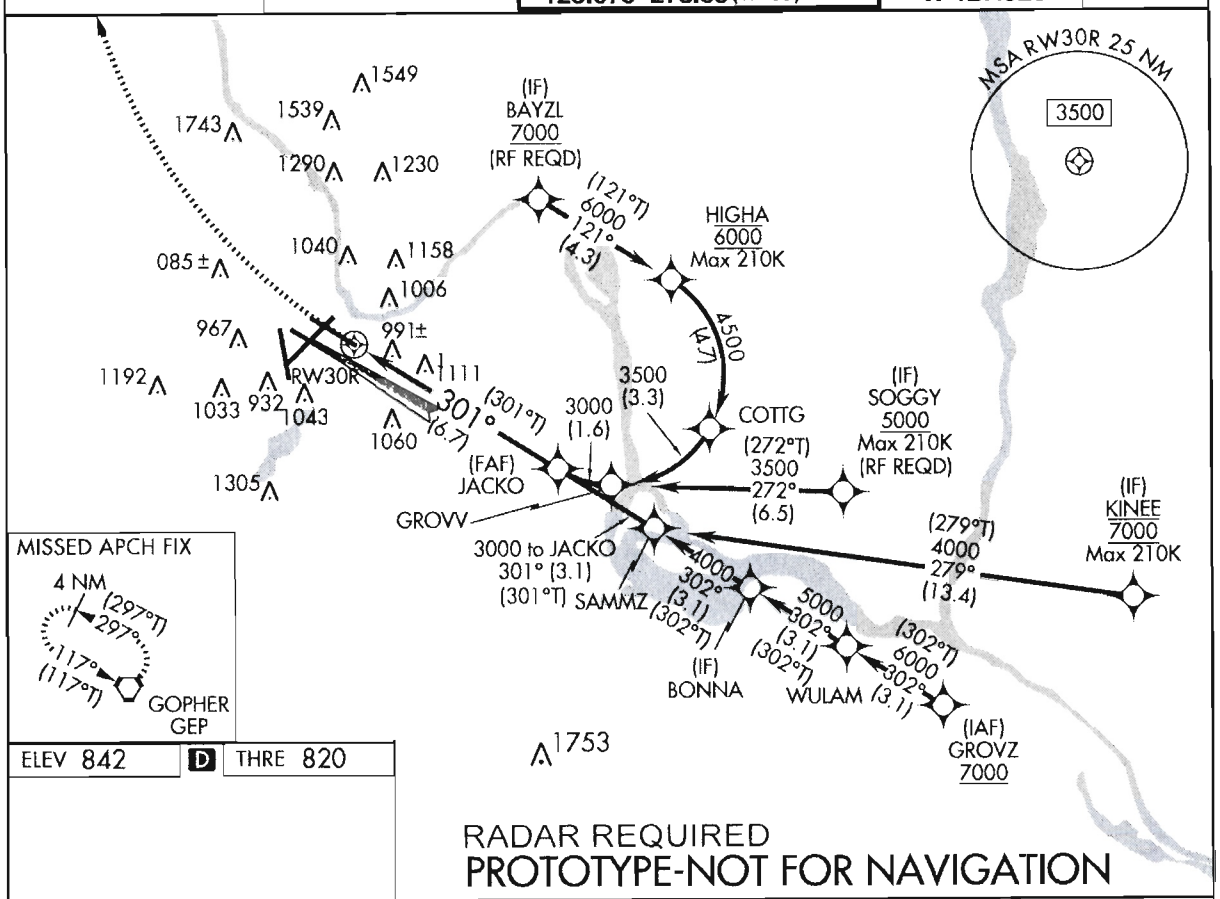
RNAV (RNP) Z RWY 30R

MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN (MSP)

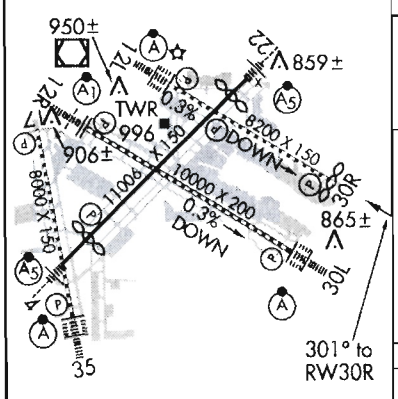
For uncompensated Baro-VNAV systems, procedure NA below -19°C (-2°F) or above 54°C (130°F). Simultaneous approach authorized with Rwy 30L, except for arrivals at BAYZL and SOGGY. Use of FD or AP providing RNAV track guidance required during simultaneous operations. GPS required. For inop MALS, increase RNP 0.13 all Cats visibility to RVR 4500, RNP 0.18 all Cats visibility to 1⅜ mile and RNP 0.30 all Cats visibility to 1⅝.

MISSED APPROACH: Climb to 1300 then climbing right turn to 3000 direct GEP VORTAC and hold.

ATIS	MINNEAPOLIS APP CON	MINNEAPOLIS TOWER	GND CON	CLNC DEL
ARR 135.35 239.275 DEP 120.8	119.3 335.5	123.95 273.55 (12L-30R) 126.7 273.55 (12R-30L, 4-22) 123.675 273.55 (17-35)	N 121.8 348.6 S 121.9 348.6 W 127.925	133.2



ELEV 842 | D | THRE 820



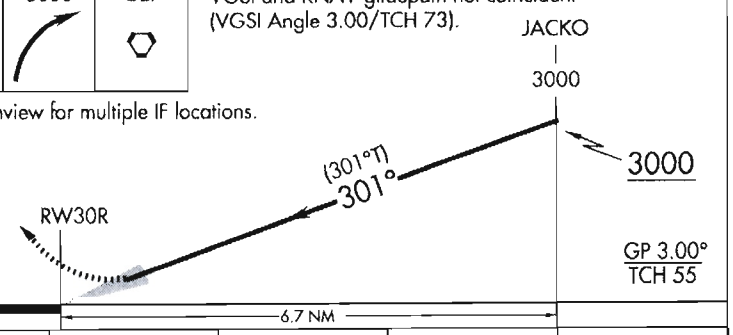
HIRL all Rwys
REIL Rwys 17 and 30R
TDZ/CL Rwys 12L, 12R, 30L, and 35

RADAR REQUIRED
PROTOTYPE-NOT FOR NAVIGATION

1300	3000	GEP

VGSI and RNAV glidepath not coincident (VGSI Angle 3.00/TCH 73).

See planview for multiple IF locations.



CATEGORY	A	B	C	D
RNP 0.13 DA	1095/40	275 (300-⅞)		
RNP 0.18 DA	1231/50	430 (500-1⅜)		
RNP 0.30 DA	1303/60	504 (500-1⅝)		

AUTHORIZATION REQUIRED

US DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

RNAV (RNP) - 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
GROVZ (IAF)	WULAM (TF) (FB) (RNP 1.00)	301.62 / 3.14	6000
WULAM	BONNA (TF) (FB) (RNP 1.00)	301.58 / 3.14	5000
BONNA (IF)	SAMMZ (TF) (FB) (RNP 1.00)	301.53 / 3.14	4000
KINEE (IF)	SAMMZ (TF) (FB) (RNP 1.00)	278.51 / 13.44	4000
SAMMZ	JACKO (TF) (FB) (RNP 1.00)	301.49 / 3.14	3000
(SEE FORM 8260-10)			

MISSED APPROACH

MAP: DA

CLIMB TO 1300 THEN CLIMBING RIGHT TURN TO 3000 DIRECT GEP VORTAC AND HOLD.

ADDITIONAL FLIGHT DATA:

HOLD NW, LT, 117.00 INBOUND.
CHART 991 TREE 445233N/0931009W.
DISTANCE TO THLD FROM 275 HATH: 0.69 NM.
CHART MINIMUM 7000 AT GROVZ
CHART MINIMUM 7000 AT BAYZL
CHART MANDATORY 6000 AT HIGHA
CHART MANDATORY 7000 AT KINEE
CHART MINIMUM 5000 AT SOGGY
CHART LOC RWY 30L
ROUTE TYPE: A, H
ROUTE TYPE QUALIFIER1: F
ROUTE TYPE QUALIFIER2: S
#TCH 874.4 MSL (DO NOT CHART)

MAG VAR: 0E EPOCH YEAR: 2015

1. *PT* ____ SIDE OF COURSE ____ OUTBOUND ____ FT WITHIN ____ MILES OF ____ (IAF)
2. PROFILE STARTS AT JACKO
3. FAC: 301.44 FAF: ____ DIST FAF TO MAP: ____ THLD: ____
4. MIN. ALT: JACKO 3000
5. DIST TO THLD FROM OM: *6.67* MM: ____ IM: ____ 150 HAT: ____ 100 HAT: ____ GS ANT: ____
6. MIN GS INCPT: 3000 GS ALT AT: JACKO 3000 OM: ____ MM: ____ IM: ____
7. GS ANGLE: 3.00 TCH: #54.9 34:1 IS CLEAR
8. MSA FROM: RW30R 3500

MINIMUMS

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

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
AUTHORIZATION REQUIRED															
RNP 0.13 DA	1095	4000	275	1095	4000	275	1095	4000	275	1095	4000	275			
RNP 0.18 DA	1231	5000	411	1231	5000	411	1231	5000	411	1231	5000	411			
RNP 0.30 DA	1303	6000	483	1303	6000	483	1303	6000	483	1303	6000	483			

NOTES:
CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -19C (-2F) OR ABOVE 54C (130F).
CHART NOTE: FOR INOPERATIVE MALS, INCREASE RNP 0.13 ALL CATS VISIBILITY TO RVR 4500, RNP 0.18 ALL CATS VISIBILITY TO 1 3/8 MILE AND RNP 0.30 ALL CATS VISIBILITY TO 1 5/8 MILE.
(SEE FORM 8260-10)

QUALITY CHECKED

CITY AND STATE	ELEVATION: 842 THRE: 820 AIRPORT NAME:	FACILITY IDENTIFIER:	PROCEDURE NO./AMDT NO./EFFECTIVE DATE:	SUP:
MINNEAPOLIS, MN	MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN	RNAV	RNAV (RNP) Z RWY 30R, ORIG	AMDT: NONE
				DATED

ALL AFFECTED PROCEDURES REVIEWED?	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE
[X] YES [ ] NO		ROUTINE

COORDINATED WITH:

ATA	AAT	ALPA	APA	AOPA	NBAA	OTHER (specify)
X		X	X	X	X	X ZMP, MSP APP CON, AMGR

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME: PABLO ORTIZ	FIFO AJV-353	DATE: 11/14/2012
APPROVED BY		
NAME: LARRY H STROUT MANAGER	FIFO AJV-353	DATE:

CHANGES:

1. ORIGINAL PROCEDURE.

REASONS:

1. FPT REQUEST.

01/08/2013: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 11/14/2012.
1. TERMINAL ROUTE GROVZ TO WULAM ALTITUDE CHANGED 5000 TO 6000.
2. ADDITIONAL FLIGHT DATA CHART MINIMUM AT GROVZ CHANGED 5000 TO 7000.
3. ADDED CHART PLANVIEW NOTE: RADAR REQUIRED.

QUALITY CHECKED

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TERMINAL ROUTES, (CONT.):

FROM	TO	COURSE AND DISTANCE	ALTITUDE
SOGGY (IF)	ZIMUG (TF) (FB) (RNP 1.00)	272.07 / 6.47	3500
BAYZL (IF)	HIGHA (TF) (FB) (RNP 1.00)	121.45 / 4.32	6000
HIGHA	COTTG (RF) (FB) (RNP 1.00)	(3.05 NM RADIUS CW *(CFBKM)/4.71*	4500
COTTG	ZIMUG (RF) (FB) (RNP 1.00)	(3.05 NM RADIUS CW *(CFBKM)/3.30*	3500
ZIMUG	JACKO (RF) (FB) (RNP 1.00)	(3.05 NM RADIUS CW *(CFBKM)/1.57*	3000
JACKO (FAF)	RW30R (MAP) (TF) (FO)	301.44 / 6.67	
RW30R (MAP)	*1300 MSL (CA)*	301.44	1300
1300 MSL	GEP VORTAC (DF) (FO)		3000

NOTES, (CONT.):
CHART NOTE: SIMULTANEOUS APPROACH AUTHORIZED WITH RWY 30L, EXCEPT FOR ARRIVALS AT BAYZL AND SOGGY.
USE OF FD OR AP PROVIDING RNAV TRACK GUIDANCE REQUIRED DURING SIMULTANEOUS OPERATIONS.
CHART NOTE: GPS REQUIRED.
CHART PLANVIEW NOTE AT HIGHA : MAX 210 KIAS.
CHART PLANVIEW NOTE AT KINEE : MAX 210 KIAS.
CHART PLANVIEW NOTE AT SOGGY : MAX 210 KIAS.
CHART PLANVIEW NOTE ADJACENT TO SOGGY IF: RF REQUIRED.
CHART PLANVIEW NOTE ADJACENT TO BAYZL IF: RF REQUIRED.
CHART PROFILE NOTE: VGSI AND RNAV GLIDEPATH NOT COINCIDENT.
CHART PROFILE NOTE: SEE PLANVIEW FOR MULTIPLE IF LOCATIONS.
CHART PLANVIEW NOTE: RADAR REQUIRED.

QUALITY CHECKED

CITY AND STATE	ELEVATION: 842 THRE: 820	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE:	SUP:
MINNEAPOLIS, MN	AIRPORT NAME: MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN	RNAV	RNAV (RNP) Z RWY 30R, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED?	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE
☐ YES ☐ NO		

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	FIFO	DATE:
APPROVED BY		
NAME:	FIFO	DATE:

CHANGES:

REASONS:

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

RNAV (RNP) STANDARD INSTRUMENT APPROACH PROCEDURE

FLIGHT STANDARDS SERVICES - **FAR PART 97.33**

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ARINC PACKET - 424-18 - RNAV (RNP)

```
                 1         2         3         4         5         6         7         8         9         0         1         2         3
NAVAID  123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAD        GEP   K3011730VTHA N45084447W093222345    N45084447W093222345E0060008772     NARGOPHER

                 1         2         3         4         5         6         7         8         9         0         1         2         3
WP      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAEAENRT   BAYZL K30    W     N44565224W093042231                    E0004     NAR           BAYZL
        SUSAEAENRT   BONNA K30    C     N44460817W092560902                    E0003     NAR           BONNA
        SUSAEAENRT   CFBKM K30    W     N44520106W093012601                    E0003     NAR           CNF(CFBKM)
        SUSAEAENRT   COTTG K30    W     N44502944W092574332                    E0003     NAR           COTTG
        SUSAEAENRT   GROVZ K30    C     N44425091W092483871                    E0002     NAR           GROVZ
        SUSAEAENRT   HIGHA K30    W     N44543706W092591149                    E0003     NAR           HIGHA
        SUSAEAENRT   JACKO K30    C     N44492496W093034022                    E0004     NAR           JACKO
        SUSAEAENRT   KINEE K50    W     N44454885W092411414                    E0001     NAR           KINEE
        SUSAEAENRT   SAMMZ K30    C     N44474662W092595451                    E0003     NAR           SAMMZ
        SUSAEAENRT   SOGGY K30    W     N44484453W092522974                    E0002     NAR           SOGGY
        SUSAEAENRT   WULAM K30    C     N44442960W092522375                    E0002     NAR           WULAM
        SUSAEAENRT   ZIMUG K30    W     N44485818W093013482                    E0003     NAR           ZIMUG

                 1         2         3         4         5         6         7         8         9         0         1         2         3
AIRPORT 123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KMSPK3AMSP     0     110YHN44525510W093131840E000000842         1800018000C    MNAR    MINNEAPOLIS-ST PAUL INTL/WOLD-

                 1         2         3         4         5         6         7         8         9         0         1         2         3
SEGMENT 123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KMSPK3FH30RZ ABAYZL 010BAYZLK3EA0E  B    IF                                  + 07000     18000                A FS
        SUSAP KMSPK3FH30RZ ABAYZL 020HIGHAK3EA0E    010TF                                    06000          210             A-FS
        SUSAP KMSPK3FH30RZ ABAYZL 030COTTGK3EA0E   R010RF      0030501215    21000047    + 04500                CFBKM K3EAA FS
        SUSAP KMSPK3FH30RZ ABAYZL 040ZIMUGK3EA0E   R010RF      0030502100    27210033    + 03500                CFBKM K3EAA FS
        SUSAP KMSPK3FH30RZ ABAYZL 050JACKOK3EA0EE  R010RF      0030502721    30140016    + 03000                CFBKM K3EAA FS
        SUSAP KMSPK3FH30RZ AGROVZ 010GROVZK3EA0E  A    IF                                  + 07000     18000                A FS
        SUSAP KMSPK3FH30RZ AGROVZ 020WULAMK3EA0E    010TF                                  + 06000                          A FS
        SUSAP KMSPK3FH30RZ AGROVZ 030BONNAK3EA0E  B 010TF                                  + 05000                          A FS
        SUSAP KMSPK3FH30RZ AGROVZ 040SAMMZK3EA0E    010TF                                  + 04000                          A FS
        SUSAP KMSPK3FH30RZ AGROVZ 050JACKOK3EA0EE   010TF                                  + 03000                          A FS
        SUSAP KMSPK3FH30RZ AKINEE 010KINEEK5EA0E  B    IF                                    07000     18000210             A-FS
        SUSAP KMSPK3FH30RZ AKINEE 020SAMMZK3EA0E    010TF                                  + 04000                          A FS
        SUSAP KMSPK3FH30RZ AKINEE 030JACKOK3EA0EE   010TF                                  + 03000                          A FS
        SUSAP KMSPK3FH30RZ ASOGGY 010SOGGYK3EA0E  B    IF                                  + 05000     18000210             A-FS
        SUSAP KMSPK3FH30RZ ASOGGY 020ZIMUGK3EA0E    010TF                                  + 03500                          A FS
```

QUALITY 4 CHECKED

CITY AND STATE	ELEVATION: 842 THRE: 820	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
MINNEAPOLIS, MN	AIRPORT NAME: MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN	RNAV	RNAV (RNP) Z RWY 30R, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED?	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE
☐ YES ☐ NO		

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	NFPG	DATE:
APPROVED BY		
NAME:	NFPG	DATE:

CHANGES:

REASONS:

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```
SUSAP KMSPK3FH30RZ ASOGGY 030JACKOK3EA0EE  R010RF       0030502721    30140016    + 03000                CFBKM K3EAA FS
SUSAP KMSPK3FH30RZ H      020JACKOK3EA1E  F    IF                                  + 03000     18000      RW30R K3PGA FS
SUSAP KMSPK3FH30RZ H      020JACKOK3EA2W                                                A031A182A132                 FS
SUSAP KMSPK3FH30RZ H      030RW30RK3PG0GY M 031TF                                     00875            -300          A FS
SUSAP KMSPK3FH30RZ H      040         0  M     CA                          3014     + 01300                        A FS
SUSAP KMSPK3FH30RZ H      050GEP  K3D 0VY      DF                                  + 03000                        A FS
SUSAP KMSPK3FH30RZ H      060GEP  K3D 0VE  L   HM                          11700040 + 03000                        A FS
```

```
                 1         2         3         4         5         6         7         8         9         0         1         2         3
RUNWAY  123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KMSPK3GRW30R   0082003014 N44525354W093114067+0200    +022260082002005515 0IIINN1
```

```
                 1         2         3         4         5         6         7         8         9         0         1         2         3
MSA     123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KMSPK3SRW30RK3PG                0   18018003525                                                                        M
```

QUALITY CHECKED 4

CITY AND STATE	ELEVATION: 842 THRE: 820	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
MINNEAPOLIS, MN	AIRPORT NAME: MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN	RNAV	RNAV (RNP) Z RWY 30R, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED?	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE
☐ YES ☐ NO		

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	NFPG	DATE:
APPROVED BY		
NAME:	NFPG	DATE:

CHANGES:

REASONS:

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

RNAV (RNP) STANDARD INSTRUMENT APPROACH PROCEDURE

FLIGHT STANDARDS SERVICES - **FAR PART 97.33**

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ARINC SUMMARY - 424-18 - RNAV (RNP)

ROUTES	TRANSITION	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG(TRUE)	DISTANCE	ALTITUDE	SPEED
	BAYZL	BAYZL	010		IF		FB				AA 07000	
	BAYZL	HIGHA	020		TF		FB	1.0			AT 06000	AB 210
	BAYZL	COTTG	030		RF	R	FB	1.0		004.7	AA 04500	
	BAYZL	ZIMUG	040		RF	R	FB	1.0		003.3	AA 03500	
	BAYZL	JACKO	050		RF	R	FB	1.0		001.6	AA 03000	
	GROVZ	GROVZ	010	IAF	IF		FB				AA 07000	
	GROVZ	WULAM	020		TF		FB	1.0			AA 06000	
	GROVZ	BONNA	030		TF		FB	1.0			AA 05000	
	GROVZ	SAMMZ	040		TF		FB	1.0			AA 04000	
	GROVZ	JACKO	050		TF		FB	1.0			AA 03000	
	KINEE	KINEE	010		IF		FB				AT 07000	AB 210
	KINEE	SAMMZ	020		TF		FB	1.0			AA 04000	
	KINEE	JACKO	030		TF		FB	1.0			AA 03000	
	SOGGY	SOGGY	010		IF		FB				AA 05000	AB 210
	SOGGY	ZIMUG	020		TF		FB	1.0			AA 03500	
	SOGGY	JACKO	030		RF	R	FB	1.0		001.6	AA 03000	
		JACKO	020	FAF	IF		FB				AA 03000	
		RW30R	030	MAP	TF		FO	0.3			AT 00875	

MISSED APPROACH	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG(TRUE)	DISTANCE	ALTITUDE	SPEED
		040		CA		FB		301.4(301.4T)		AA 01300	
	GEP	050		DF		FO				AA 03000	
	GEP	060		HM	L	FO		117.0(117.0T)	004.0	AA 03000	

POINT DATA	WAYPOINT	LAT IN SECS	LONG IN SECS	LAT IN MINS	LONG IN MINS
	GEP	N450844.47	W0932223.45	N4508.741	W09322.391
	BAYZL	N445652.24	W0930422.31	N4456.871	W09304.372
	BONNA	N444608.17	W0925609.02	N4446.136	W09256.150
	CFBKM	N445201.06	W0930126.01	N4452.018	W09301.434
	COTTG	N445029.44	W0925743.32	N4450.491	W09257.722
	GROVZ	N444250.91	W0924838.71	N4442.849	W09248.645
	HIGHA	N445437.06	W0925911.49	N4454.618	W09259.192
	JACKO	N444924.96	W0930340.22	N4449.416	W09303.670
	KINEE	N444548.85	W0924114.14	N4445.814	W09241.236
	SAMMZ	N444746.62	W0925954.51	N4447.777	W09259.909
	SOGGY	N444844.53	W0925229.74	N4448.742	W09252.496
	WULAM	N444429.60	W0925223.75	N4444.493	W09252.396
	ZIMUG	N444858.18	W0930134.82	N4448.970	W09301.580
	RW30R	N445253.54	W0931140.67	N4452.892	W09311.678

QUALITY CHECKED

CITY AND STATE	ELEVATION: 842 THRE: 820	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
MINNEAPOLIS, MN	AIRPORT NAME: MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN	RNAV	RNAV (RNP) Z RWY 30R, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED?	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE
☐ YES ☐ NO		

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	NFPG	DATE:
APPROVED BY		
NAME:	NFPG	DATE:

CHANGES:

REASONS:

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.

RUNWAY DATA

RWY	THRESHOLD ELEVATION	TCH
RW30R	00820	55

QUALITY CHECKED 4

CITY AND STATE	ELEVATION: 842 THRE: 820	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
MINNEAPOLIS, MN	AIRPORT NAME: MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN	RNAV	RNAV (RNP) Z RWY 30R, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED?	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE
☐ YES ☐ NO		

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	NFPG	DATE:
APPROVED BY		
NAME:	NFPG	DATE:

CHANGES:

REASONS:

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
INITIAL	GROVZ	WULAM	1. AAO	444254.00N/0924818.00W	1162 (4E)	1000	AC98 AT3740	6000
(RNP 1.00)			2. TERRAIN	444609.00N/0925057.00W	942 (900)		AS1500	2400
INITIAL: STEPDOWN	WULAM	BONNA	3. AAO	444421.00N/0925418.00W	1178 (4E)	1000	AC98 AT2724	5000
(RNP 1.00)			4. TERRAIN	444421.00N/0925418.00W	978 (1000)		AS1500	2500
INTERMEDIATE	BONNA	SAMMZ	5. AAO	444648.00N/0930221.00W	1178 (4E)	500	AC98 AT2224	4000
(RNP 1.00)			6. TERRAIN	444600.00N/0930115.00W	919 (900)		AS1500	2400
INTERMEDIATE	KINEE	SAMMZ	7. AAO	444618.00N/0924054.00W	1352 (4E)	500	AC98 AT2050	4000
(RNP 1.00)			8. TERRAIN	444636.00N/0924121.00W	1129 (1100)		AS1500	2600
INTERMEDIATE: STEPDOWN	SAMMZ	JACKO	9. AAO	444751.00N/0930454.00W	1208 (4E)	500	AC98 AT1139 VEB55	3000
(RNP 1.00)			10. TERRAIN	444751.00N/0930454.00W	1008 (1000)		AS1500	2500
INTERMEDIATE	SOGGY	ZIMUG	11. AAO	444854.00N/0925151.00W	1231 (4E)	500	AC98 AT1671	3500
(RNP 1.00)			12. TERRAIN	444912.00N/0925227.00W	1027 (1000)		AS1500	2500
INTERMEDIATE	BAYZL	HIGHA	13. AAO	445536.00N/0925751.00W	1323 (4E)	500	AC98 AT4079	6000
(RNP 1.00)			14. TERRAIN	445545.00N/0925833.00W	1116 (1100)		AS1500	2600

2. PROCEDURE TURN

3. MISSED APPROACH

MAP:

ELEV:

4. CIRCLING AREA	DISTANCE	HT. ABV. ARPT. REQUIRED	HT. ABV. ARPT. 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: **RW30R**

SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A	SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A
360-360	TWR (27-000499)	012/ 11.1	2438 (1D)	3500					4

QUALITY CHECKED

CITY AND STATE	ELEVATION: 842 AIRPORT NAME:	FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
MINNEAPOLIS, MN	MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN	RNAV	RNAV (RNP) Z RWY 30R, ORIG	AGL

PART B - SUPPLEMENTAL DATA

1. COMMUNICATIONS WITH:	2. WEATHER SERVICE		3. ALTIMETER SETTING
MSP APP CON MSP TOWER ZMP ARTCC	N W S	OTHER: ASOS	SOURCE: KMSP
	F A A		DISTANCE:
SATISFACTORY ON:	A / C		HOURS REMOTE OPERATION:
X V H F X U H F H F	LOCATION:		ADJUSTMENT: 0

4. MONITOR STATUS	PRIMARY NAVAID:	
	MONITOR POINT:	
	HRS OPTN: CAT 1	
	HRS OPTN: CAT 3	
5. APPROACH & RUNWAY LIGHTING	X	ALSF-1 12R ALSF-2 12L, 30L, 35
		(S) SALS
	X	MALSR 22, 04 MALSF 30R
	X	HIRL 12L, 30R, 17, 22, 30L, 04, 12R, 35
		MIRL
	X	REIL 30R, 17
	X	TDZ 12L, 30L, 12R, 35
	X	C/L 12L, 30R, 17, 30L, 12R, 35
	X	OTHER (SPECIFY) PAPI-4R 17 PAPI-4L 12L, 30R, 22, 30L, 04, 12R, 35
6. RUNWAY MARKINGS	BASIC	
	ALL WEATHER	PIR-G 12L, 30R, 22, 30L, 04, 12R, 35
	INSTRUMENT	NPI-G 17
7. RUNWAY VISUAL RANGE	APPROACH	12L, 30R, 17, 22, 30L, 04, 12R, 35
	MIDFIELD	12L, 30R, 17, 30L, 12R, 35
	ROLL OUT	12L, 30R, 17, 22, 30L, 04, 12R, 35
8. GLIDE PATH	GP ANGLE: 3.00	ELEV RWY THRESHOLD: 819.8
	DISTANCE FROM RWY:	ELEV GP ANTENNA:
		THRESHOLD CROSSING HEIGHT: 54.9
9. FINAL APPROACH COURSE AIMING	X	RUNWAY THRESHOLD — FT. FROM THRESHOLD
	X	ON CENTERLINE — FT. FROM CENTERLINE

10. WAIVERS: NONE

PART D - PREPARED BY: PABLO ORTIZ	DATE: 11/14/2012
TITLE: AERONAUTICAL INFORMATION SPECIALIST	OFFICE: AJV-353

PART C - REMARKS:

MAX SPEED HIGHA TO COTTG - 210 KIAS.

THRESHOLD DISPLACED 200 FT.

PRECIPITOUS TERRAIN EVALUATION COMPLETED.

SEE ATTACHED AIRSPACE LETTER.

AUTHORIZATION REQUIRED (AR). FAAO 8260.52 CRITERIA USED EXCEPT WHERE NOTED

MULTIPLE INTERMEDIATES DEVELOPED PER USER/ATC REQUEST

BARO-VNAV NA BELOW -19C (-2F) OR ABOVE 54C (130F). AJV POLICY EMAIL USED TO CORRECT ACT TO MEET MINIMUM LOW ANGLE REQUIREMENTS DATED 9/26/2012, HIGH TEMP DERIVED FROM AFS-400 CALCULATOR
ACT:-27C
DELTA ISA LOW: -33.05
ISA DEVIATION: -13.68

ALTITUDES ON STRAIGHT FINAL COURSE PLACED ON GS USING 54A FORMULA 2-16B AT ATC REQUEST

AVERAGE COLD TEMPERATURE BASED ON 5 YEAR HISTORY 2007-2011 OF -27

FINAL APPROACH, MISSED APPROACH AND MINIMUMS DERIVED FROM IPDS BUILD

VEB ROC (0.30 HIGHER VALUE) APPLIED/USED

VEB DATA: SEE ATTACHED SPREADSHEETS

KMSP ASOS ON SERVICE A: 24 HRS

BACKUP ALTIMETER SOURCE NOT ESTABLISHED DUE TO REDUNDANT WEATHER SOURCES AT THE AIRPORT

VGSI DATA RW35: 3.00/71.30

PER MANAGER, USE OF MEMORANDUM DATED 10/01/11 OF BANK ANGLES GREATER THAN 20 DEGREE APPROVED TO MAINTAIN ATC/INDUSTRY DESIGN REQUEST

*VKTW: OBTAINED FROM HISTORICAL WIND DATA (MITRE)

RF SEGMENT RADIUS/BANK ANGLE COMPUTATIONS:

SEGMENT	ALT	KIAS	HAA	*VKTW	TR	BA
HIGHA-COTTG	6000	210	5158.1	48	3.05	20.99
COTTG-ZIMUG	4500	210	3658.1	49	3.05	20.27
ZIMUG-JACKO	3500	210	2658.1	50	3.05	19.85

REQUEST FC VALIDATION OF 27-002092 TOWER 445300.00N/0931236.00W RNP 0.13 DA INITIAL MISSED APPROACH ADJUSTMENT TO A 4D ACCURACY CODE. SECOND MISSED APPROACH ADJUSTMENT DOCUMENTED

RNP 0.13 DA RVR WITH/WITH OUT LIGHT VALUES DERIVED PER GENOT RWA 11/11

RNP 0.13 OCS SLOPE: 20.00:1

ORDER 8260.52 PARA 3.6, RNP VISUAL OIS BUFFER PENETRATIONS: (IPDS BUILD) UNLIT
991 TREE (KMSP0257) 445233.26N/0931008.66W (47.18)
983 TREE (KMSP0258) 445232.99N/0931008.61W (38.39)

QUALITY CHECKED 4

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
INTERMEDIATE: STEPDOWN	HIGHA	COTTG	15. AAO	445457.00N/0925645.00W	1339 (4E)	500	AC98 AT2563	4500
(RNP 1.00)			16. TERRAIN	445457.00N/0925645.00W	1139 (1100)		AS1500	2600
INTERMEDIATE: STEPDOWN	COTTG	ZIMUG	17. AAO	445103.00N/0925600.00W	1218 (4E)	500	AC98 AT1684	3500
(RNP 1.00)			18. TERRAIN	445103.00N/0925900.00W	975 (1000)		AS1500	2500
INTERMEDIATE: STEPDOWN	ZIMUG	JACKO	9. AAO	444751.00N/0930454.00W	1208 (4E)	500	AC98 VEB55 AT1139	3000
(RNP 1.00)			10. TERRAIN	444751.00N/0930454.00W	1008 (1000)		AS1500	2500
FINAL: RNP 0.30	JACKO	RW30R	19. TREE (KMSP0255)	445242.41N/0931003.43W	1010 (1A)	21.97:1	AC3	1303/483
FINAL: RNP 0.18	JACKO	RW30R	20. TREE (KMSP0257)	445233.26N/0931008.66W	991 (1A)	21.99:1	AC3	1231/411
FINAL: RNP 0.13	JACKO	RW30R				ASC	MA25	1095/275
MISSED APPROACH	*DA*	*RW30R*				*ASC*		
(RNP 0.30-1.00)		*40:1*						
MISSED APPROACH	*DA*	*RW30R*				*ASC*		
(RNP 0.18-1.00)		*40:1*						
MISSED APPROACH	*DA*	*RW30R*				*ASC*		
(RNP 0.13-1.00)		*40:1*						
3. MISSED APPROACH — MAP:	*DA / DA / DA*	*GEP VORTAC*	*21. ANT (KMSP0465)*	*445238.20N/0931159.06W*	*931 (1A)*	*ASC*	*AC3*	*3000*
			22. BLDG (27-000387)	*445834.00N/0931621.00W*	*1743 (3C)*	*1000*	*AC20*	*2800*
ELEV:	*1142/1070/934*		*23. TERRAIN*	*450230.00N/0931424.00W*	*1024 (1000)*		*AS1500*	*2500*

4. CIRCLING AREA	DISTANCE	HT. ABV. ARPT. REQUIRED	HT. ABV. ARPT. 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

CITY AND STATE	ELEVATION: 842 AIRPORT NAME:	FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
MINNEAPOLIS, MN	MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN	RNAV	RNAV (RNP) Z RWY 30R, ORIG	AGL

QUALITY CHECKED

PART B - SUPPLEMENTAL DATA

1. COMMUNICATIONS WITH:	2. WEATHER SERVICE		3. ALTIMETER SETTING
SATISFACTORY ON:	N W S	OTHER:	SOURCE:
			DISTANCE:
	F A A		HOURS REMOTE OPERATION:
	A / C		
V H F / U H F / H F	LOCATION:		ADJUSTMENT:

4. MONITOR STATUS	PRIMARY NAVAID:	
	MONITOR POINT:	
	HRS OPTN: CAT 1	
	HRS OPTN: CAT 3	
5. APPROACH & RUNWAY LIGHTING		**ALS**
		(S) SALS
		MALS
		HIRL
		MIRL
		REIL
		TDZ
		C/LINE
		OTHER (SPECIFY)
6. RUNWAY MARKINGS	BASIC	
	ALL WEATHER	
	INSTRUMENT	
7. RUNWAY VISUAL RANGE	APPROACH	
	MIDFIELD	
	ROLL OUT	
8. GLIDE PATH	GP ANGLE:	ELEV RWY THRESHOLD:
	DISTANCE FROM RWY:	ELEV GP ANTENNA:
		THRESHOLD CROSSING HEIGHT:
9. FINAL APPROACH COURSE AIMING	RUNWAY THRESHOLD	FT. FROM THRESHOLD
	ON CENTERLINE	FT. FROM CENTERLINE

10. WAIVERS:

PART D - PREPARED BY:	DATE:
TITLE:	OFFICE:

PART C - REMARKS:

QUALITY CHECK 4

RADIO FIX AND HOLDING DATA RECORD

NAME: BAYZL **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 445652.24N/0930422.31W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 05/02/2013

REASON FOR REVISION:
01/10/2013: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 09/28/2012.
1. UPDATED FIX USE.
2. REMOVED STAR FROM REQUIRED CHARTING.

DEVELOPED BY: **DATE:** 09/28/2012 **OFFICE:** AJV-353 **NAME:** BEV L BORDY

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON / MSP ATCT
OTHER:

QUALITY 4 CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: BONNA **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 444608.17N/0925609.02W **TYPE:** WP, RADAR, INT, DME

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

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	MINNEAPOLIS	I-INN	LOC		121.35	121.35	13.12	14.47		5000	6000
2	FARMINGTON	FGT	VORTAC	H	045.75	051.75		13.40		5000	17500

EXPANDED SERVICE VOLUME (ESV):

FAC IDENT	FAC TYPE	RADIAL/BEARING	DISTANCE	MIN ALTITUDE	MAX ALTITUDE
I-INN	LOC	R-121	14	5000	6000

REMARKS:
MINNEAPOLIS (FAC 1) USED TO ESTABLISH FIX COORDINATES
I-INN DME: 445303.68N/0931148.87W.
LOCATION IAW 8260.54A FORMULA 2-16B.
ESTABLISHED ESV IS FOR GS.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	CONVERGING ILS RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	ILS OR LOC RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) Y RWY 30R			KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: MILITARY IAP, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 10 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
1. RELOCATED FIX 0.45NM (2711.28') SOUTHEAST.
2. ADDED FIX TYPES WP AND RADAR.
3. CHANGED FAC 1 MAG/TRUE BRG FROM 120.34/121.34 TO 121.35/121.35, DME FROM 12.68 TO 13.12, DIST FROM FAC NM FROM 14.02 TO 14.47.
4. CHANGED FAC 2 MAG/TRUE BRG FROM 043.94/049.94 TO 045.75/051.75, DIST FROM FAC NM FROM 13.25 TO 13.40.
5. CHANGED ESV I-INN RADIAL FROM 120 TO 121, DISTANCE FROM 13 TO 14.
6. ADDED FACILITY USED TO ESTABLISH FIX COORDINATE NOTE.
7. UPDATED FIX USE.

DEVELOPED BY: **DATE:** 09/17/2012 **OFFICE:** AJV-353 **NAME:** STEVE NELSON

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION: **NFDC**
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: CFBKM **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 445201.06N/0930126.01W **TYPE:** CNF

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-353 **NAME:** PABLO ORTIZ

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION: **NFDC**
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: COTTG **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 445029.44N/0925743.32W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-353 **NAME:** PABLO ORTIZ

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: GOPHER VORTAC **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 450844.47N/0932223.45W **TYPE:**

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

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	GOPHER	GEP	VORTAC	H							45000

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	NW	GEP	VORTAC	297.00	117.00	L	1		3000	14000	4	10
2	N	GEP	VORTAC	346.00	166.00	L	1		2600	14000	4	10
3	W	GEP	VORTAC	264.00	084.00	R	1		2700	14000	4	10
4	NW		WP	297.00	117.00	L		4	3000	14000	5	11
5	N		WP	346.00	166.00	L		4	2700	14000	5	11
6	W		WP	265.00	085.00	R		4	2700	14000	5	11

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
1	200	TOWER (27-000032)	451043.00N/0932100.00W	1530	4D
1	265	TOWER (27-000032)	451043.00N/0932100.00W	1530	4D
2	200	TOWER (27-000032)	451043.00N/0932100.00W	1530	4D
3	200	TOWER (27-000032)	451043.00N/0932100.00W	1530	4D
4	200	TOWER (27-000032)	451043.00N/0932100.00W	1530	4D
4	265	TOWER (27-000032)	451043.00N/0932100.00W	1530	4D
5	200	TOWER (27-000032)	451043.00N/0932100.00W	1530	4D
5	265	TOWER (27-000990)	452012.00N/0932329.00W	2049	5D
6	200	TOWER (27-000032)	451043.00N/0932100.00W	1530	4D

REASON FOR NONSTANDARD HOLDING:
PAT 1 ATC REQUEST
PAT 2 ATC REQUEST
PAT 4 ATC REQUEST
PAT 5 ATC REQUEST

HOLDING RESTRICTIONS:
HOLDING LIMITED TO ESTABLISHED PATTERNS.

REMARKS:
PRECIPITOUS TERRAIN EVALUATION COMPLETED.
HOLDING PATTERN 1 AND 4 EVALUATED FOR MILITARY AIRCRAFT AT KMSP.
HOLDING PATTERN 5 EVALUATED FOR MILITARY AIRCRAFT AT KMIC.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
DP	DES MOINES			KDSM	DES MOINES	IA (US)
DP	COULT			KANE	MINNEAPOLIS	MN (US)
DP	KBREW			KANE	MINNEAPOLIS	MN (US)
DP	ORSKY			KANE	MINNEAPOLIS	MN (US)
DP	WLSTN			KANE	MINNEAPOLIS	MN (US)
DP	COULT			KFCM	MINNEAPOLIS	MN (US)
DP	KBREW			KFCM	MINNEAPOLIS	MN (US)
DP	ORSKY			KFCM	MINNEAPOLIS	MN (US)
DP	WLSTN			KFCM	MINNEAPOLIS	MN (US)
DP	COULT			KMSP	MINNEAPOLIS	MN (US)
DP	KBREW			KMSP	MINNEAPOLIS	MN (US)
DP	ORSKY			KMSP	MINNEAPOLIS	MN (US)
DP	WLSTN			KMSP	MINNEAPOLIS	MN (US)
DP	COULT			KSTP	ST PAUL	MN (US)
DP	KBREW			KSTP	ST PAUL	MN (US)
DP	ORSKY			KSTP	ST PAUL	MN (US)
DP	WLSTN			KSTP	ST PAUL	MN (US)
DP	BLUFS			KOMA	OMAHA	NE (US)
EN ROUTE	J106					(US)
EN ROUTE	J114					(US)
EN ROUTE	J21					(US)
EN ROUTE	J25					(US)
EN ROUTE	J36					(US)
EN ROUTE	J68-70					(US)
EN ROUTE	J70					(US)
EN ROUTE	Q501					(US)
EN ROUTE	Q501-502					(US)
EN ROUTE	Q502					(US)
EN ROUTE	V148					(US)
EN ROUTE	V2					(US)

QUALITY CHECKED

EN ROUTE	V2-97				(US)
EN ROUTE	V218				(US)
EN ROUTE	V413-510				(US)
EN ROUTE	V505				(US)
EN ROUTE	V78				(US)
EN ROUTE	V82-161				(US)
IAP	VOR -B		KCFE	BUFFALO	MN (US)
IAP	NDB RWY 34		KCBG	CAMBRIDGE	MN (US)
IAP	RNAV (GPS) RWY 34		KCBG	CAMBRIDGE	MN (US)
IAP	RNAV (GPS) RWY 28		KMGG	MAPLE LAKE	MN (US)
IAP	VOR-A		KMGG	MAPLE LAKE	MN (US)
IAP	ILS OR LOC/DME RWY 27	3	KANE	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) RWY 18		KANE	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) RWY 27	6	KANE	MINNEAPOLIS	MN (US)
IAP	VOR RWY 9	3	KANE	MINNEAPOLIS	MN (US)
IAP	VOR/DME RWY 27	3	KANE	MINNEAPOLIS	MN (US)
IAP	COPTER ILS OR LOC RWY 10R		KFCM	MINNEAPOLIS	MN (US)
IAP	ILS OR LOC RWY 10R		KFCM	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) RWY 10L		KFCM	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) RWY 10R		KFCM	MINNEAPOLIS	MN (US)
IAP	VOR RWY 10R		KFCM	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) RWY 14L	5	KMIC	MINNEAPOLIS	MN (US)
IAP	VOR OR GPS-A	2	KMIC	MINNEAPOLIS	MN (US)
IAP	CONVERGING ILS RWY 30L	1	KMSP	MINNEAPOLIS	MN (US)
IAP	CONVERGING ILS RWY 30R	1	KMSP	MINNEAPOLIS	MN (US)
IAP	ILS OR LOC RWY 30R	1	KMSP	MINNEAPOLIS	MN (US)
IAP	LOC RWY 17		KMSP	MINNEAPOLIS	MN (US)
IAP	LOC RWY 22		KMSP	MINNEAPOLIS	MN (US)
IAP	LOC RWY 4	1	KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) RWY 4	4	KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) Y RWY 30R	4	KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) Y RWY 35	4	KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (RNP) Z RWY 30R	4	KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (RNP) Z RWY 35	4	KMSP	MINNEAPOLIS	MN (US)
IAP	NDB RWY 15		KPNM	PRINCETON	MN (US)
IAP	ILS OR LOC RWY 9		KRGK	RED WING	MN (US)
IAP	GPS RWY 34		KROS	RUSH CITY	MN (US)
IAP	LOC RWY 34		KSGS	SOUTH ST PAUL	MN (US)
IAP	NDB OR GPS-B		KSGS	SOUTH ST PAUL	MN (US)
IAP	ILS OR LOC RWY 31		KSTC	ST CLOUD	MN (US)
IAP	VOR RWY 31		KSTC	ST CLOUD	MN (US)
IAP	VOR/DME RWY 13		KSTC	ST CLOUD	MN (US)
IAP	NDB RWY 4		K21D	ST PAUL	MN (US)
IAP	COPTER ILS OR LOC RWY 32		KSTP	ST PAUL	MN (US)
IAP	ILS OR LOC RWY 14		KSTP	ST PAUL	MN (US)
IAP	ILS OR LOC RWY 32		KSTP	ST PAUL	MN (US)
IAP	NDB RWY 31		KSTP	ST PAUL	MN (US)
IAP	RNAV (GPS) RWY 14		KSTP	ST PAUL	MN (US)
STAR	AGUDE		KCFE	BUFFALO	MN (US)
STAR	AGUDE		KFBL	FARIBAULT	MN (US)
STAR	AGUDE		KGYL	GLENCOE	MN (US)
STAR	AGUDE		KMGG	MAPLE LAKE	MN (US)
STAR	AGUDE		KANE	MINNEAPOLIS	MN (US)
STAR	ENCEE		KANE	MINNEAPOLIS	MN (US)
STAR	GOPHER		KANE	MINNEAPOLIS	MN (US)
STAR	TWOLF		KANE	MINNEAPOLIS	MN (US)
STAR	AGUDE		KFCM	MINNEAPOLIS	MN (US)
STAR	ENCEE		KFCM	MINNEAPOLIS	MN (US)
STAR	GOPHER		KFCM	MINNEAPOLIS	MN (US)
STAR	TWOLF		KFCM	MINNEAPOLIS	MN (US)
STAR	AGUDE		KLVN	MINNEAPOLIS	MN (US)
STAR	ENCEE		KLVN	MINNEAPOLIS	MN (US)
STAR	GOPHER		KLVN	MINNEAPOLIS	MN (US)
STAR	TWOLF		KLVN	MINNEAPOLIS	MN (US)
STAR	AGUDE		KMIC	MINNEAPOLIS	MN (US)
STAR	ENCEE		KMIC	MINNEAPOLIS	MN (US)
STAR	GOPHER		KMIC	MINNEAPOLIS	MN (US)
STAR	TWOLF		KMIC	MINNEAPOLIS	MN (US)
STAR	ARCHS (RNAV)		KMSP	MINNEAPOLIS	MN (US)
STAR	BAINY (RNAV)		KMSP	MINNEAPOLIS	MN (US)
STAR	EAU CLAIRE		KMSP	MINNEAPOLIS	MN (US)
STAR	GOPHER		KMSP	MINNEAPOLIS	MN (US)
STAR	SAUGR (FMS)		KMSP	MINNEAPOLIS	MN (US)
STAR	TWOLF		KMSP	MINNEAPOLIS	MN (US)
STAR	WILDD		KMSP	MINNEAPOLIS	MN (US)
STAR	AGUDE		KRGK	RED WING	MN (US)
STAR	AGUDE		KSGS	SOUTH ST PAUL	MN (US)
STAR	AGUDE		K21D	ST PAUL	MN (US)
STAR	AGUDE		KSTP	ST PAUL	MN (US)
STAR	ENCEE (RNAV)		KSTP	ST PAUL	MN (US)
STAR	GOPHER		KSTP	ST PAUL	MN (US)
STAR	AGUDE		KRNH	NEW RICHMOND	WI (US)
STAR	TWOLF		KRNH	NEW RICHMOND	WI (US)
STAR	AGUDE		KOEO	OSCEOLA	WI (US)
STAR	TWOLF		KOEO	OSCEOLA	WI (US)

REQUIRED CHARTING: DP, STAR, MILITARY IAP, IAP, AREA, CONTROLLER, EN ROUTE LOW, EN ROUTE HIGH

QUALITY CHECKED

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 14 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
UPDATED FAC 1 FROM HISTORY.
ADDED HOLDING PATTERN REMARK FOR KMIC.
REMOVED HOLDING PATTERN 5 REMARK FOR KMSP.
CHANGED HOLDING PATTERN 1 MIN ALTITUDE FROM 4000 TO 3000.
CHANGED HOLDING PATTERN 4 MIN ALTITUDE FROM 4000 TO 3000.

DEVELOPED BY:	**DATE:** 09/18/2012	**OFFICE:** AJV-353	**NAME:** JILL OLSON (KISSY MAXFIELD)
APPROVED BY:	**DATE:**	**OFFICE:** AJV-353	**NAME:** LARRY STROUT
	SIGNATURE:		

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON, MSP ATCT
OTHER:

QUALITY CHECKED 6

RADIO FIX AND HOLDING DATA RECORD

NAME: GROVZ **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 444250.91N/0924838.71W **TYPE:** WP, INT, DME

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

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	MINNEAPOLIS	I-INN	LOC/DME		121.35	121.35	19.40	20.75		5000	8000
2	FARMINGTON	FGT	VORTAC	H	066.44	072.44		16.66		5000	17500

EXPANDED SERVICE VOLUME (ESV):

FAC IDENT	FAC TYPE	RADIAL/BEARING	DISTANCE	MIN ALTITUDE	MAX ALTITUDE
I-INN	LOC/DME	R-121	21	5000	8000

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

REMARKS:
MINNEAPOLIS (FAC 1) USED TO ESTABLISH FIX COORDINATES
I-INN DME: 445303.68N/0931148.87W.
LOCATION IAW 8260.54A FORMULA 2-16B.
ESTABLISHED ESV IS FOR LOC/GS.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	CONVERGING ILS RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	ILS OR LOC RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) Y RWY 30R			KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: MILITARY IAP, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 4 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
1. RELOCATED FIX 0.95NM (5753.02') SOUTHEAST.
2. ADDED FIX TYPES WP.
3. CHANGED FAC 1 MAG/TRUE BRG FROM 120.34/121.34 TO 121.35/121.35, DME FROM 18.46 TO 19.40, DIST FROM FAC NM FROM 19.80 TO 20.75, MRA FROM 7000 TO 5000.
4. CHANGED FAC 2 MAG/TRUE BRG FROM 063.88/069.88 TO 066.44/072.44, DIST FROM FAC NM FROM 16.06 TO 16.66, MRA FROM 7000 TO 5000.
5. CHANGED ESV I-INN RADIAL FROM 120 TO 121, DISTANCE FROM 19 TO 21, MIN ALTITUDE FROM 7000 TO 5000.
6. ADDED FACILITY USED TO ESTABLISH FIX COORDINATE NOTE.
7. UPDATED FIX USE.

DEVELOPED BY: **DATE:** 09/17/2012 **OFFICE:** AJV-353 **NAME:** STEVE NELSON

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION: **NFDC**
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: HIGHA **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 445437.06N/0925911.49W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 05/02/2013

REASON FOR REVISION:
01/10/2013: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 10/10/2012.
1. UPDATED FIX USE.
2. REMOVED STAR FROM REQUIRED CHARTING.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-353 **NAME:** PABLO ORTIZ

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON
OTHER:

QUALITY CHECKED 4

RADIO FIX AND HOLDING DATA RECORD

NAME: JACKO **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 444924.96N/0930340.22W **TYPE:** WP, RADAR, INT, DME

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

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	MINNEAPOLIS	I-INN	LOC		121.35	121.35	6.85	8.19	49759	3000	5300
2	FARMINGTON	FGT	VORTAC	H	018.06	024.06		12.66		3000	17500

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

REMARKS:
MINNEAPOLIS (FAC 1) USED TO ESTABLISH FIX COORDINATES
LOCATION IAW 8260.54A FORMULA 2-16B.
I-INN DME LAT/LONG: 445303.68N/0931148.87W.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	CONVERGING ILS RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	ILS OR LOC RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) Y RWY 30R			KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: MILITARY IAP, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 8 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
1. RELOCATED FIX 0.12NM (758.29') SOUTHEAST.
2. CHANGED FAC 1 MAG/TRUE BRG FROM 120.34/121.34 TO 121.35/121.35, DME FROM 6.72 TO 6.85, DIST FROM FAC NM/FEET FROM 8.06/48999 TO 8.19/49759.
3. CHANGED FAC 2 MAG/TRUE BRG FROM 017.50/023.50 TO 018.06/024.06, DIST FROM FAC NM FROM 12.68 TO 12.66.
4. ADDED FACILITY USED TO ESTABLISH FIX COORDINATE NOTE.
5. UPDATED FIX USE.

DEVELOPED BY: **DATE:** 09/12/2012 **OFFICE:** AJV-353 **NAME:** STEVE NELSON

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON, MSP ATCT
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: KINEE **STATE:** WI **COUNTRY:** US

LATITUDE/LONGITUDE: 444548.85N/0924114.14W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 05/02/2013

REASON FOR REVISION:
01/10/2013: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 10/10/2012.
1. UPDATED FIX USE.
2. REMOVED STAR FROM REQUIRED CHARTING.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-353 **NAME:** PABLO ORTIZ

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON
OTHER:

QUALITY 4 CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: SAMMZ **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 444746.62N/0925954.51W **TYPE:** WP, INT, DME

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

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	MINNEAPOLIS	I-INN	LOC/DME		121.35	121.35	9.98	11.33		4000	5300
2	FARMINGTON	FGT	VORTAC	H	032.30	038.30		12.65		4000	17500

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

REMARKS:
MINNEAPOLIS (FAC 1) USED TO ESTABLISH FIX COORDINATES
I-INN DME: 445303.68N/0931148.87W.
LOCATION IAW 8260.54A FORMULA 2-16B.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	CONVERGING ILS RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	ILS OR LOC RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) Y RWY 30R			KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: MILITARY IAP, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 3 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
1. RELOCATED FIX 0.26NM (1592.59') SOUTHEAST.
2. ADDED FIX TYPE WP.
3. CHANGED FAC 1 MAG/TRUE BRG FROM 120.34/121.34 TO 121.35/121.35, DME FROM 9.72 TO 9.98, DIST FROM FAC NM FROM 11.07 TO 11.33.
4. CHANGED FAC 2 MAG/TRUE BRG FROM 031.12/037.12 TO 032.30/038.30, DIST FROM FAC NM FROM 12.63 TO 12.65.
5. ADDED FACILITY USED TO ESTABLISH FIX COORDINATE NOTE.
6. UPDATED FIX USE.

DEVELOPED BY: **DATE:** 09/17/2012 **OFFICE:** AJV-353 **NAME:** STEVE NELSON

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: SOGGY **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 444844.53N/0925229.74W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 05/02/2013

REASON FOR REVISION:
01/10/2013: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 10/04/2012.
1. UPDATED FIX USE.
2. REMOVED STAR FROM REQUIRED CHARTING.

DEVELOPED BY: **DATE:** 10/04/2012 **OFFICE:** AJV-353 **NAME:** BEV L BORDY

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON / MSP ATCT
OTHER:

QUALITY CHECKED 4

RADIO FIX AND HOLDING DATA RECORD

NAME: WULAM **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 444429.60N/0925223.75W **TYPE:** WP, INT, DME

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

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	MINNEAPOLIS	I-INN	LOC/DME		121.35	121.35	16.26	17.61		5000	7000
2	FARMINGTON	FGT	VORTAC	H	057.23	063.23		14.79		5000	17500

EXPANDED SERVICE VOLUME (ESV):

FAC IDENT	FAC TYPE	RADIAL/BEARING	DISTANCE	MIN ALTITUDE	MAX ALTITUDE
I-INN	LOC/DME	R-121	17	5000	7000

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

REMARKS:
MINNEAPOLIS (FAC 1) USED TO ESTABLISH FIX COORDINATES
I-INN DME: 445303.68N/0931148.87W.
LOCATION IAW 8260.54A FORMULA 2-16B.
ESTABLISHED ESV IS FOR GS.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	CONVERGING ILS RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	ILS OR LOC RWY 30R	1, 2		KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (GPS) Y RWY 30R			KMSP	MINNEAPOLIS	MN (US)
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: MILITARY IAP, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 3 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
1. RELOCATED FIX 0.68NM (4102.71') SOUTHEAST.
2. CHANGED FAC 1 MAG/TRUE BRG FROM 120.34/121.34 TO 121.35/121.35, DME FROM 15.59 TO 16.26, DIST FROM FAC NM FROM 16.93 TO 17.61, MRA FROM 6000 TO 5000.
3. CHANGED FAC 2 MAG/TRUE BRG FROM 054.95/060.95 TO 057.23/063.23, DIST FROM FAC NM FROM 14.45 TO 14.79, MRA FROM 6000 TO 5000.
4. CHANGED ESV I-INN RADIAL FROM 120 TO 121, DISTANCE FROM 16 TO 17, MIN ALTITUDE FROM 6000 TO 5000.
5. ADDED FACILITY USED TO ESTABLISH FIX COORDINATE NOTE.
6. UPDATED FIX USE.

DEVELOPED BY: **DATE:** 09/17/2012 **OFFICE:** AJV-353 **NAME:** STEVE NELSON

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION: **NFDC**
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON
OTHER:

QUALITY 4 CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: ZIMUG **STATE:** MN **COUNTRY:** US

LATITUDE/LONGITUDE: 444858.18N/0930134.82W **TYPE:** WP

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

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 30R			KMSP	MINNEAPOLIS	MN (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 11/20/2012 **OFFICE:** AJV-353 **NAME:** BETTY RICHARDS

APPROVED BY: **DATE:** **OFFICE:** AJV-353 **NAME:** LARRY STROUT

SIGNATURE:

DISTRIBUTION: **NFDC**
FPO: CEN
ARTCC: ZMP
ATC FACILITY: MSP APP CON
OTHER:

QUALITY CHECKED

TERMINAL AIRSPACE DATA REQUIREMENTS

CITY: **MINNEAPOLIS** STATE: **MN**

AIRPORT NAME: **MINNEAPOLIS-ST PAUL INTL/WOLD-CHAMBERLAIN** ID: **KMSP**

PROCEDURE: **RNAV (RNP) Z RWY 30R** AMDT: **ORIG**

DOCKET#: **NOT REQUIRED**
(96-AXX-X/Required/Not Required)

ALL DIST TO 1/100 NM; ELEV TO NEAREST FT; COORD TO 1/100 SEC; DEG TO 1/100 DG.

1. Distance from **THLD** to 1000' point **3.22**
   (Enter THLD, FAF, ARP, FACILITY, as appropriate)
2. Width of **FINAL** segment at 1000' point **1.20**
   (Enter appropriate segment, final, intermediate, etc.)
3. True Course of **FINAL** segment containing 1000' point **301.44**
4. High Terrain in **FINAL** segment containing 1000' point **932**
5. Distance from **THLD** to 1500' point **4.79**
   (If 1500' point in PT maneuvering area or holding pattern note in remarks)
6. Width of **FINAL** segment at 1500' point **1.20**
7. True Course of **FINAL** segment containing 1500' point **301.44**
8. High Terrain in **FINAL** segment containing 1500' point **932**
9. Threshold Coordinates (if straight-in) ... **#445253.54N** / **0931140.67W**
10. ARP Coordinates ..... **445255.10N** / **0931318.40W**
11. Runway Approach End and distance furthest from ARP ..... RWY **R30R**

    Distance **1.19** NM
12. FAF Coordinates ..... **444924.96N** / **0930340.22W**

REMARKS: Approach/Drawing attached.
#DRWT

Federal Aviation Administration

Memorandum

Date:

To: Dick Powell Manager, National Flight Data Center, AJV-21

From: Larry H. Strout, Manager, Central Products Team, AJV-353

Subject: **ACTION:** Magnetic Variation Change for Minneapolis-St Paul Intl/Wold-Chamberlain (KMSP)

The Magnetic Variation (MV) data for the airport(s) and/or facility(s) listed under the 'Airport/Facility" column will be revised effective concurrent with the publication of the procedure(s) listed below.

CONVERGING ILS RWY 30L, AMDT 1
CONVERGING ILS RWY 30R, AMDT 2
CONVERGING ILS RWY 35, AMDT 3
ILS OR LOC RWY 12L, ILS RWY 12L (CAT II), ILS RWY 12L (CAT III), AMDT 9
ILS OR LOC RWY 12R, ILS RWY 12R (CAT II), ILS RWY 12R (CAT III), AMDT 10
ILS OR LOC RWY 30L, ILS RWY 30L (CAT II), AMDT 45
ILS OR LOC RWY 30R, AMDT 14
ILS OR LOC RWY 35, ILS RWY 35 (CAT II), ILS RWY 35 (CAT III), AMDT 3
LOC RWY 4, AMDT 2
LOC RWY 17, AMDT 2
LOC RWY 22, AMDT 2
RNAV (GPS) Y RWY 12L, AMDT 3
RNAV (GPS) Y RWY 12R, AMDT 2
RNAV (GPS) Y RWY 30L, AMDT 3
RNAV (GPS) Y RWY 30R, AMDT 2
RNAV (GPS) Y RWY 35, AMDT 2
RNAV (RNP) Z RWY 12L, ORIG
RNAV (RNP) Z RWY 12R, ORIG
RNAV (RNP) Z RWY 30L, ORIG
RNAV (RNP) Z RWY 30R, ORIG
RNAV (RNP) Z RWY 35, AMDT 1

STARS:
ARCHS (RNAV) ONE
BAINY (RNAV) ONE
CLFAX (RNAV) ONE
DOWNZ (RNAV) ONE

FEINT (RNAV) ONE
HHOGS (RNAV) ONE

STARS:
HORML (RNAV) ONE
KKILR (RNAV) ONE
MORSS (RNAV) ONE
MUSCL (RNAV) ONE
NITZR (RNAV) ONE
TORGY (RNAV) ONE

GRAPHIC DP:
HESTIN TWO
LEINY FOUR
SLAYER TWO
SMERF FIVE

Estimated Chart Date: 03/07/2013

Please publish these changes in the National Flight Data Digest.

MINNESOTA

Location	Name	Airport /Facility	Identifier	Assigned Magnetic Variation Is	Epoch Year
Minneapolis	Minneapolis-St Paul Intl/Wold-Chamberlain	Airport	KMSP / MSP	Old 2° East New 0° East	2015
Minneapolis		ILS (CAT III)	BMA	Old 1° East New 0° East	2015
Minneapolis		ILS (CAT III)	HKZ	Old 2° East New 0° East	2015
Minneapolis		ILS	INN	Old 1° East New 0° East	2015
Minneapolis		ILS (CAT II)	MSP	Old 0° East New 0° East	2015
Minneapolis		ILS (CAT III)	PJL	Old 1° East New 0° East	2015
Minneapolis		LOC	APL	Old 1° East New 0° East	2015
Minneapolis		LOC	SIJ	Old 1° East New 0° East	2015
Minneapolis		LOC	TJZ	Old 1° East New 0° East	2015
Minneapolis	Minneapolis APP CON	ASR-9	MSP	Old 3° East New 0° East	2015

If you have any questions please notify Larry H. Strout, larry.h.strout@faa.gov (405-954-5070).

RNAV (RNP) Z RWY 30R, Minneapolis-St Paul Intl/Wold-Chamberlain, MN (KMSP)

Obstacles penetrate the visual OIS, Order 8260.52, paragraph 3.6

Request approval for the following obstacles that penetrate the visual OIS X and Y values are relative to runway 30R DRWT and runway centerline extended. Penetration values are based on the most-adverse application of the assigned accuracy value (Horizontal AC/Vertical AC) associated with each obstacle.

Obstacle	H/V AC	MSL(ft)	X(ft)	Y(ft)	Penetration(ft)
Tree	20/3	991	+6744	-1701	47.18
Tree	20/3	986	+6744	-1701	39.39

These obstacles are so close together only the obstacle with highest penetration value (KMSP0257) will be charted.

PFAF Calculations

Min Intermediate Segment Alt (a):	
LTP MSL Elevation (b):	
TCH:	
Glidepath Angle (Θ):	
Distance from LTP to PFAF (D):	**0.00**
	0.00 NM
LTP/FTP Latitude:	
LTP/FTP Longitude:	
True RWY Bearing/True Course:	
PFAF Latitude:	**000° 00' 00.00"**
PFAF Longitude:	**000° 00' 00.00"**

Latitude/Longitude valid for straight segment only

VEB OCS Origin & Slope

Intermediate Segment Altitude:	3000
LTP Elevation:	819.5
Glidepath Angle:	3
TCH:	54.9
RNP Value:	0.30
Δ ISA:	-33.05

Straight In Segment

(*Wingspan =<262*) LTP to Origin:	**3,934.18'**
(*Wingspan =<136*) LTP to Origin:	**3,713.66'**
OCS Slope Ratio:	**22.05 : 1**
RF Turn Segment | Bank angle:	**11.23°**
(*Wingspan =<262*) LTP to Origin:	**3,945.47'**
(*Wingspan =<136*) LTP to Origin:	**3,713.66'**
OCS Slope Ratio:	**22.05 : 1**

Version 2.0

VEB Temperature Limits

Glidepath Angle:		
Max Glidepath Angle:		
PFAF Elevation:		
LTP Elevation:		
ACT:	-27.00°C	
Min Glidepath Angle	**#DIV/0!**	
NA Below	**#DIV/0!**	**#DIV/0!**
NA Above	**#DIV/0!**	**#DIV/0!**

Intermediate Segment VEB ROC

Glidepath Angle	3.00°
LTP MSL Elevation	819.50
TCH (ft)	54.90
OCS Slope	22.05
OCS Origin Distance (ft) *(measured along-track from LTP)*	3,934.18
Obstacle Distance (ft) *(measured along-track from LTP)*	44,458.50
VEB ROC *(at obstacle)*	**555**
Glidepath MSL altitude at Obstacle	3,251.73
OCS MSL altitude at Obstacle	2,696.69

DO NOT REMOVE FROM PACKAGE

PFAF Calculations

Min Intermediate Segment Alt (a):	0.00
LTP MSL Elevation (b):	0.00
TCH:	0.00
Glidepath Angle (Θ):	0.00°
Distance from LTP to PFAF (D):	**0.00**
	0.00 NM
LTP/FTP Latitude:	000° 00' 00.00"
LTP/FTP Longitude:	000° 00' 00.00"
True RWY Bearing/True Course:	0.00
PFAF Latitude:	**000° 00' 00.00"**
PFAF Longitude:	**000° 00' 00.00"**

Latitude Longitude valid for straight segment only

VEB OCS Origin & Slope

Intermediate Segment Altitude:	3000
LTP Elevation:	819.8
Glidepath Angle:	3
TCH:	54.9
RNP Value:	0.18
Δ ISA:	-33.05

Straight In Segment	
(*Wingspan =<262*) LTP to Origin:	**2,981.38'**
(*Wingspan =<136*) LTP to Origin:	**2,760.62'**
OCS Slope Ratio:	**22.08 : 1**
RF Turn Segment | Bank angle:	**0.00°**
(*Wingspan =<262*) LTP to Origin:	**NA**
(*Wingspan =<136*) LTP to Origin:	**NA**
OCS Slope Ratio:	**NA**

Version 2.0

VEB Temperature Limits

Glidepath Angle:	0.00°	
Max Glidepath Angle:	0.00°	
PFAF Elevation:	0	
LTP Elevation:	0	
ACT:	0.00°C	
Min Glidepath Angle	**#DIV/0!**	
NA Below	**#DIV/0!**	**#DIV/0!**
NA Above	**#DIV/0!**	**#DIV/0!**

Intermediate Segment VEB ROC

Glidepath Angle	3.00°
LTP MSL Elevation	819.80
TCH (ft)	54.90
OCS Slope	22.08
OCS Origin Distance (ft) *(measured along-track from LTP)*	2,981.38
Obstacle Distance (ft) *(measured along-track from LTP)*	44,458.50
VEB ROC *(at obstacle)*	**513**
Glidepath MSL altitude at Obstacle	3,252.03
OCS MSL altitude at Obstacle	2,739.52

DO NOT REMOVE FROM PACKAGE

PFAF Calculations

Min Intermediate Segment Alt (a):	0.00
LTP MSL Elevation (b):	0.00
TCH:	0.00
Glidepath Angle (Θ):	0.00°
Distance from LTP to PFAF (D):	**0.00**
	0.00 NM
LTP/FTP Latitude:	000° 00' 00.00"
LTP/FTP Longitude:	000° 00' 00.00"
True RWY Bearing/True Course:	0.00
PFAF Latitude:	**000° 00' 00.00"**
PFAF Longitude:	**000° 00' 00.00"**

Latitude Longitude valid for straight segment only

VEB OCS Origin & Slope

Intermediate Segment Altitude:	3000
LTP Elevation:	819.8
Glidepath Angle:	3
TCH:	54.9
RNP Value:	0.13
Δ ISA:	-33.05

Straight In Segment

(*Wingspan =<262*) LTP to Origin:	**2,676.38'**
(*Wingspan =<136*) LTP to Origin:	**2,455.52'**
OCS Slope Ratio:	**22.09 : 1**
RF Turn Segment | Bank angle:	**0.00°**
(*Wingspan =<262*) LTP to Origin:	**NA**
(*Wingspan =<136*) LTP to Origin:	**NA**
OCS Slope Ratio:	**NA**

Version 2.0

VEB Temperature Limits

Glidepath Angle:	0.00°	
Max Glidepath Angle:	0.00°	
PFAF Elevation:	0	
LTP Elevation:	0	
ACT:	0.00°C	
Min Glidepath Angle	**#DIV/0!**	
NA Below	**#DIV/0!**	**#DIV/0!**
NA Above	**#DIV/0!**	**#DIV/0!**

Intermediate Segment VEB ROC

Glidepath Angle	3.00°
LTP MSL Elevation	819.80
TCH (ft)	54.90
OCS Slope	22.09
OCS Origin Distance (ft) *(measured along-track from LTP)*	2,676.38
Obstacle Distance (ft) *(measured along-track from LTP)*	44,458.50
VEB ROC *(at obstacle)*	**499**
Glidepath MSL altitude at Obstacle	3,252.03
OCS MSL altitude at Obstacle	2,753.08