

TERMINAL ROUTES				MISSED APPROACH
FROM	TO	COURSE AND DISTANCE	ALTITUDE	
UNHUF (IF/IAF)	KAKRE (FB)	319.40 / 6.30	3800	LPV: DA LNAV/VNAV: DA LNAV: RW31
KAKRE (FAF)	WATGI/2.50 NM TO RW31 (FB)	319.34 / 3.20		
WATGI/2.50 NM TO RW31	RW31 (MAP) (FO)	319.34 / 2.50		CLIMB TO 4600 DIRECT ZUPJA AND ON TRACK 248.89 TO SAILM AND HOLD.
RW31 (MAP)	2193 MSL	319.34		
2193 MSL	ZUPJA (FB)			
ZUPJA	SAILM (FO)	248.89 / 12.58	4600	ADDITIONAL FLIGHT DATA: HOLD W, RT, 088.65 INBOUND. CHART FAS OBST: 2039 TREE 464530N/1005403W DISTANCE TO THLD FROM 250 HATH: 0.64 NM. WAAS CHANNEL # 93731 REFERENCE PATH ID: W31A CHART CIRCLING ICON. CHART ASR. LTP HAE: 570.9 M

1. PT        SIDE OF COURSE        OUTBOUND        FT WITHIN        MILES OF        (IAF)
2. HOLD SE UNHUF, RT, 319.40 INBOUND, 4500 FT. IN LIEU OF PT (IAF)
3. FAC: 319.34 FAF: KAKRE DIST FAF TO MAP: 5.70 THLD: 5.70
4. MIN. ALT: UNHUF 4500, KAKRE 3800, WATGI/2.50 NM TO RW31 2780\*
5. DIST TO THLD FROM OM:        MM:        IM:        150 HAT:        100 HAT:        GS ANT:
6. MIN GS INCPT: 3800 GS ALT AT: KAKRE 3800 OM:        MM:        IM:
7. GS ANGLE: 3.00 TCH: 45.0 34:1 IS NOT CLEAR
8. MSA FROM:

MAG VAR: 6E                      EPOCH YEAR: 2015

**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
LPV DA	2193	1	250	2193	1	250	2193	1	250	2193	1	250			
LNAV/VNAV DA	2220	1	277	2220	1	277	2220	1	277	2220	1	277			
LNAV MDA	2300	1	357	2300	1	357	2300	1	357	2300	1	357			
CIRCLING	2360	1	416	2460	1	516	2460	1 1/2	516	2560	2	616			

NOTES:  
 CHART NOTE: BARO-VNAV NA WHEN USING BISMARCK ALTIMETER SETTING. @ NA WHEN LOCAL WEATHER NOT AVAILABLE.  
 CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -18C (0F) OR ABOVE 54C (130F).  
 CHART NOTE: DME/DME RNP-0.3 NA.  
 CHART PROFILE NOTE: VGSI AND RNAV GLIDEPATH NOT COINCIDENT.  
 (SEE FORM 8260-10)

CITY AND STATE <b>MANDAN, ND</b>	ELEVATION: 1944      THRE: 1943 AIRPORT NAME: <b>MANDAN MUNI</b>	FACILITY IDENTIFIER: <b>RNAV</b>	PROCEDURE NO./AMDT NO./EFFECTIVE DATE: <b>RNAV (GPS) RWY 31, ORIG</b> <b>29 MAY 2014</b>	SUP: AMDT: <b>NONE</b> DATED
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US 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.

NOTES, (CONT.):

\*LNAV ONLY

CHART NOTE: WHEN LOCAL ALTIMETER SETTING NOT RECEIVED, USE BISMARCK ALTIMETER SETTING AND INCREASE ALL DA 54 FT AND LNAV/VNAV ALL CATS VISIBILITY 1/8 MILE, INCREASE ALL MDA 60 FT AND LNAV CAT C/D VISIBILITY 1/8 MILE AND CIRCLING CAT D 1/4 MILE.

CHART NOTE: RWY 31 STRAIGHT-IN AND CIRCLING MINIMUMS NA AT NIGHT.

CHART NOTE: HELICOPTER VISIBILITY REDUCTION BELOW 1 SM NOT AUTHORIZED.

TAA

	FROM	TO	ALT
1.	229/30 CW 049/30 (NOPT)	UNHUF (IF/IAF) (FB)	4500
2.	049/30 CW 229/30	UNHUF (IF/IAF) (FO)	4500



CITY AND STATE MANDAN, ND	ELEVATION: 1944	THRE: 1943	FACILITY IDENTIFIER: RNAV	PROCEDURE NO./AMDT NO./EFFECTIVE DATE:	SUP:
	AIRPORT NAME: MANDAN MUNI			RNAV (GPS) RWY 31, ORIG	AMDT: NONE
				29 MAY 2014	DATED:

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION  
**RNAV STANDARD INSTRUMENT APPROACH PROCEDURE**  
**FLIGHT STANDARDS SERVICE - FAR PART 97.33**

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**FAS DATA BLOCK INFORMATION**

<u>DATA FIELD</u>	<u>DATA</u>
OPERATION TYPE	0
SBAS SERVICE PROVIDER IDENTIFIER	0
AIRPORT IDENTIFIER	Y19
RUNWAY	RW31
APPROACH PERFORMANCE DESIGNATOR	0
ROUTE INDICATOR	
REFERENCE PATH DATA SELECTOR	0
REFERENCE PATH IDENTIFIER (APPROACH ID)	W31A
LTP/FTP LATITUDE	464549.5720N
LTP/FTP LONGITUDE	1005320.7680W
LTP/FTP ELLIPSOIDAL HEIGHT	+05709
FPAP LATITUDE	464702.7700N
FPAP LONGITUDE	1005434.6200W
THRESHOLD CROSSING HEIGHT (TCH)	00045.0
TCH UNITS SELECTOR (METERS OR FEET USED)	F
GLIDEPATH ANGLE (GPA)	03.00
COURSE WIDTH AT THRESHOLD	106.75
LENGTH OFFSET	1408
HORIZONTAL ALERT LIMIT (HAL)	40.0
VERTICAL ALERT LIMIT (VAL)	50.0

**CRC REMAINDER** CDBBC702

**ADDITIONAL PATH POINT RECORD INFORMATION**

ICAO CODE	K3
LTP ORTHOMETRIC HEIGHT	+05922
FPAP ORTHOMETRIC HEIGHT	+05922



CITY AND STATE MANDAN, ND	ELEVATION: 1944      THRE: 1943	FACILITY IDENTIFIER: RNAV	PROCEDURE NO./AMDT NO./EFFECTIVE DATE: RNAV (GPS) RWY 31, ORIG 29 MAY 2014	SUP:
	AIRPORT NAME: MANDAN MUNI			AMDT: NONE
				DATED:



**U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION**  
**RNAV (GPS) STANDARD INSTRUMENT APPROACH PROCEDURE**  
**FLIGHT STANDARDS SERVICES - FAR PART 97.33**

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ARINC SUMMARY - 424-18 - RNAV (GPS)

ROUTES	TRANSITION	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG (TRUE)	DISTANCE	ALTITUDE	SPEED
	UNHUF	UNHUF	010	IAF	HF	R	FO		319.4 (325.4T)	005.0	AA 04500	
		UNHUF	010	FACF	IF		FB				AA 04500	
		KAKRE	020	FAF	TF		FB	0.5	319.4 (325.4T)	006.3	AA 03800	
		WATGI	021	SDF	TF		FB	0.3	319.3 (325.3T)	003.2	AA 02780	GS 02782
		RW31	030	MAP	TF		FO	0.3	319.3 (325.3T)	002.5	AT 01988	

MISSED APPROACH	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG (TRUE)	DISTANCE	ALTITUDE	SPEED
		040		CA		FB		319.3 (325.3T)		AA 02193	
	ZUPJA	050		DF		FB					
	SAILM	060		TF		FO	1.0	248.9 (254.9T)		AA 04600	
	SAILM	070		HM	R	FO		088.7 (094.7T)	005.0	AA 04600	

POINT DATA	WAYPOINT	LAT IN SECS	LONG IN SECS	LAT IN MINS	LONG IN MINS
	KAKRE	N464108.68	W1004838.02	N4641.145	W10048.634
	SAILM	N464738.19	W1011611.41	N4647.637	W10116.190
	UNHUF	N463557.58	W1004326.05	N4635.960	W10043.434
	WATGI	N464346.31	W1005116.57	N4643.772	W10051.276
	ZUPJA	N465056.30	W1005830.61	N4650.938	W10058.510
	RW31	N464549.57	W1005320.77	N4645.826	W10053.346

RUNWAY DATA	RWY	THRESHOLD ELEVATION	TCH
	RW31	01943	45

CITY AND STATE <b>MANDAN, ND</b>	ELEVATION: <b>1944</b>	THRE: <b>1943</b>	FACILITY IDENTIFIER: <b>RNAV</b>	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE: <b>RNAV (GPS) RWY 31, ORIG</b> 29 MAY 2014	SUP:
	AIRPORT NAME: <b>MANDAN MUNI</b>				AMDT: <b>NONE</b>
					DATED: