

**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
RNAV (GPS) STANDARD INSTRUMENT APPROACH PROCEDURE
TITLE 14 CFR PART 97.33**

Bearings, headings, courses, tracks 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 feet RVR.

<u>AIRPORT</u> TOWER MUNI	<u>AIRPORT ID</u> 12D	<u>PROCEDURE NAME</u> RNAV (GPS) RWY 8	<u>ORIGINAL/AMENDMENT</u> 1	<u>CITY</u> TOWER	<u>STATE</u> MN	
<u>AIRPORT ELEVATION</u> 1370	<u>TDZE</u> 1369	<u>SUPERSEDED</u> RNAV (GPS) RWY 8	<u>ORIGINAL/AMENDMENT</u> ORIG-A	<u>DATED</u> 07/18/2019	<u>MAG VAR</u> 1W	<u>EPOCH YEAR</u> 2010
<u>FACILITY</u> RNAV	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u>	<u>REQUIRED EFFECTIVE DATE</u> ROUTINE	<u>CANCEL/SUSPEND</u>		

TERMINAL ROUTES

<u>FROM</u>	<u>FIX TYPE</u>	<u>TO</u>	<u>FIX TYPE</u>	<u>LEG TYPE</u>	<u>FO/FB</u>	<u>RNP</u>	<u>COURSE</u>	<u>DISTANCE</u>	<u>ALTITUDE</u>
UDORY		MACLE		TF	FB	1.00	291.00	59.87	4000
HIB VOR/DME		MACLE		TF	FB	1.00	014.01	23.83	4000
INKER	IAF	AZARA		TF	FB	1.00	106.94	18.85	4000
MACLE	IAF	AZARA		TF	FB	1.00	358.10	7.20	4000
AZARA	IF	FLOGG		TF	FB	1.00	087.98	6.02	3200
FLOGG	FAF	RW08	MAP	TF	FO	0.30	088.09	5.63	
RW08	MAP	1770 MSL		CA			088.09		
1770 MSL		ELO DME		DF	FO	1.00			4000

MISSED APPROACH

MAP:

LNAV: RW08

MISSED APPROACH INSTRUCTIONS:

CLIMB TO 4000 DIRECT ELO DME AND HOLD.

ALTERNATE MISSED APPROACH INSTRUCTIONS:



PROFILE:

1. PT SIDE OF COURSE OUTBOUND FT WITHIN MILES OF (IAF)

2. PROFILE STARTS AT AZARA

3. FAC: 088.09 FAF: FLOGG DIST FAF TO MAP: 5.63 DIST FAF TO THLD: 5.63

4. MIN ALT: AZARA 4000, FLOGG 3200

5. DIST TO THLD FROM OM: MM: IM: 150 HAT: GS ANT: OM: MM: IM:

6. MIN GP INCPT: GP ALT AT FAF :

7. GP ANGLE: 34:1: IS NOT CLEAR 20:1: IS NOT CLEAR TCH:

8. MSA FROM: RW08 3300

PBN REQUIREMENTS NOTE:

RNP APCH

NOTES:

CHART NOTE: PROCEDURE NA AT NIGHT.
CHART NOTE: RWY 8 HELICOPTER VISIBILITY REDUCTION BELOW 1 SM NOT AUTHORIZED.
CHART NOTE: USE COOK ALTIMETER SETTING.
CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVAL ON HIB VOR/DME AIRWAY RADIALS 317 CW 338, AND ARRIVALS AT UDORY ON V13 NORTHEAST BOUND.

ADDITIONAL FLIGHT DATA:

CHART COOK MUNI AWOS-3.
FLOGG TO RW08: 3.00/40
CHART P-205
FAS OBST: 1640 AAO 474845N/0922333W.
HOLD E, LT, 291.12 INBOUND

MINIMUMS:

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

ALTERNATE: NA ☒

CATEGORY:	A			B			C			D			E		
FINAL TYPE	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA
LNAV MDA	1940	1	571	1940	1	571	1940	1 5/8	571		NA				



CHANGES - REASONS

- 1. LNAV CAT A/B/C MDA/HAT DECREASED FROM 1960/591 TO 1940/571; CAT C VISIBILITY INCREASED FROM 1 1/2 TO 1 5/8. - NEW LNAV CONTROLLING OBSTACLE; NEW INOP VISIBILITY TABLE USED.
- 2. TERMINAL ROUTES: UDORY TO MACLE RNP UPDATED FROM 2.00 TO RNP 1.00; COURSE AND DISTANCE UPDATED FROM 292.03/60.72 TO 291.00/59.87. - IAW 8260.58A, CHG 1; IAF MACLE MOVED PER FPT.
- 3. TERMINAL ROUTES: HIB VOR/DME TO MACLE RNP UPDATED FROM 2.00 TO 1.00; COURSE AND DISTANCE UPDATED FROM 012.67/25.96 TO 014.01/23.83. - IAW 8260.58A, CHG 1; IAF MACLE MOVED PER FPT.
- 4. TERMINAL ROUTES: MACLE TO AZARA COURSE AND DISTANCE UPDATED FROM 358.09/5.00 TO 358.10/7.20. - IAF MACLE MOVED PER FPT.
- 5. TERMINAL ROUTES: AZARA TO FLOGG RNP UPDATED FROM 0.50 TO 1.00; DISTANCE UPDATED FROM 5.10 TO 6.02. - IAW 8260.19H PARA 4-6-10 F; FAF AZARA MOVED TO ACHIEVE GPA/TCH IAW 8260.58A.
- 6. TERMINAL ROUTES: FLOGG TO RW08 DISTANCE UPDATED FROM 5.55 TO 5.63. - FAF AZARA MOVED TO ACHIEVE GPA/TCH IAW 8260.58A.
- 7. TERMINAL ROUTES: MISSED APPROACH RW08 TO FLWER UPDATED TO RW08 TO 1770 MSL. - CA LEG ADDED IAW 8260.58A 3-5-2; MISSED APPROACH INSTRUCTIONS UPDATED PER FPT.
- 8. TERMINAL ROUTES: MISSED APPROACH FLWER TO ELO VOR/DME (TF) UPDATED TO 1770 MSL TO ELO DME (DF); RNP 1.00. - MISSED APPROACH INSTRUCTIONS UPDATED PER FPT.
- 9. MISSED APPROACH INSTRUCTIONS UPDATED FROM "CLIMB TO 4000 DIRECT FLWER AND VIA 091.13 TRACK TO ELO VOR/DME AND HOLD" TO "CLIMB TO 4000 DIRECT ELO DME AND HOLD." - UPDATED PER FPT; ELO VOR DECOMMISSIONING.
- 10. LINE 3: DIST FAF TO MAP UPDATED FROM 5.55 TO 5.63. - FAF AZARA MOVED TO ACHIEVE GPA/TCH 3.00/40.0.
- 11. CHART NOTE: "USE COOK ALTIMETER SETTING, WHEN NOT RECEIVED, USE ELY ALTIMETER SETTING AND INCREASE ALL MDA 20 FEET AND INCREASE LNAV CAT C VISIBILITY 1/4 MILE" UPDATED TO "USE COOK ALTIMETER SETTING." - ALTERNATE ALTIMETER MOVED TO FORM 8260-9 FOR CONTINGENCY USE.
- 12. LINE 7: 34:1 IS CLEAR UPDATED TO 34:1 IS NOT CLEAR. - VISUAL SURFACES CANNOT BE VERIFIED; NO RUNWAY SURVEY IN AIRNAV.
- 13. ADDITIONAL FLIGHT DATA: FLOGG TO RW08: 3.05/40 TO 3.00/40. - FAF AZARA MOVED TO ACHIEVE GPA/TCH IAW 8260.58A.
- 14. ADDITIONAL FLIGHT DATA: FAS OBST UPDATED FROM 1649 AAO TO 1640 AAO. - NEW LNAV CONTROLLING OBSACLE.
- 15. "CHART NOTE: PROCEDURE NA FOR ARRIVALS ON HIB VOR/DME AIRWAY RADIALS 317 CW 338 AND AT INKER VIA V129 NORTH BOUND" UPDATED TO "CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVAL ON HIB VOR/DME AIRWAY RADIALS 317 CW 338, AND ARRIVALS AT UDORY ON V13 NORTHEAST BOUND." - IAW 8260.19H 8-2-5 E.
- 16. CHART NOTE: PROCEDURE NA AT NIGHT ADDED. - UNABLE TO VERIFY VISUAL SURFACE CLEAR DUE TO LACK OF SURVEY.

COORDINATED WITH:

A4A ☐ **ALPA** ☒ **AOPA** ☒ **APA** ☐ **HAI** ☐ **NBAA** ☒ **OTHER:** ZMP, ARPT MGR

FLIGHT CHECKED BY

OFFICE

DATE

DEVELOPED BY

WARDELL HENNING (BARBARA GORMAN)

OFFICE

AJV-A432

DATE

06/05/2019

APPROVED BY

LONNIE EVERHART

OFFICE

AJV-A430

DATE

TITLE

MANAGER



FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

<u>AIRPORT</u> TOWER MUNI	<u>AIRPORT ID</u> 12D	<u>PROCEDURE NAME</u> RNAV (GPS) RWY 8	<u>AMDT NO.</u> 1	<u>CITY</u> TOWER	<u>STATE</u> MN	<u>AIRPORT ELEVATION</u> 1370	<u>FACILITY</u> RNAV
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PART A: OBSTRUCTION DATA SEGMENTS

FEEDER

FROM UDORY TO MACLE

<u>RNP</u>	<u>DISTANCE</u> 59.87	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>							
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
1.TOWER (27-001252)	473529.70N/0921345.60W		2284	250	50	4D	1000				AT716	4000
2.TERRAIN	472551.00N/0912815.00W		2043 (2000)								AS1500	3500

COMPUTATIONS

<u>ALT</u>	<u>KIAS</u>	<u>KTAS</u>	<u>HAA</u>	<u>VKTW</u>	<u>TR</u>	<u>BA</u>	<u>DTA</u>	<u>COURSE CHANGE</u>	<u>DVEB</u>	<u>VEB OCS</u>	<u>RF CENTER FIX/DISTANCE</u>
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SEGMENT REMARKS:

FEEDER

FROM HIB VOR/DME TO MACLE

<u>RNP</u>	<u>DISTANCE</u> 23.83	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>							
<u>OBSTRUCTION</u>	<u>COORDINATES</u>		<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
3.WINDMILL (27-020517)	473429.80N/0923524.50W		2288	500	50	5D	1000				AT712	4000
4.TERRAIN	473421.00N/0923627.00W		1955 (2000)								AS1500	3500

COMPUTATIONS

<u>ALT</u>	<u>KIAS</u>	<u>KTAS</u>	<u>HAA</u>	<u>VKTW</u>	<u>TR</u>	<u>BA</u>	<u>DTA</u>	<u>COURSE CHANGE</u>	<u>DVEB</u>	<u>VEB OCS</u>	<u>RF CENTER FIX/DISTANCE</u>
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SEGMENT REMARKS:



INITIAL

FROM
INKER

TO
AZARA

RNP	DISTANCE 18.85	PAT	MAP	HAT			HMAS					
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
5.TOWER (27-002130)	475139.00N/0925647.00W		2012	500	50	5D	1000				AT988	4000
6.TERRAIN	475345.00N/0925130.00W		1496 (1500)								AS1500	3000

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INITIAL

FROM
MACLE

TO
AZARA

RNP	DISTANCE 7.20	PAT	MAP	HAT			HMAS					
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
7.AAO	474036.00N/0923415.00W		1861	164	98	4E	1000				AT1139	4000
8.TERRAIN	474142.00N/0923618.00W		1620 (1600)								AS1500	3100

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



INTERMEDIATE

FROM
AZARA

TO
FLOGG

RNP	DISTANCE 6.02	PAT	MAP	HAT			HMAS					
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
9.AAO	474609.00N/0923233.00W		1772	164	98	4E	500				AC98 AT830	3200
10.TERRAIN	474615.00N/0922833.00W		1522 (1500)								AS1500	3000

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

FINAL: LNAV

FROM
FLOGG

TO
RW08

RNP	DISTANCE 5.63	PAT	MAP RW08	HAT 571			HMAS					
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
11.AAO	474845.00N/0922333.00W		1640	50	20	2C	250				RA44	1940

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



MISSED APPROACH : LNAV

FROM
RW08

TO
ELO VOR/DME

RNP	DISTANCE	PAT	MAP	HAT			HMAS 1796					
OBSTRUCTION	COORDINATES		ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
								ASC				4000
12.TOWER (27-001513)	475033.10N/0920926.90W		1975	50	20	2C	1000					3000
13.TERRAIN	474851.00N/0921254.00W		1696 (1700)								AS1500	3200

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

CIRCLING

☐ ALL CATS

☐ CAT A

☐ CAT B

☐ CAT C

☐ CAT D

☐ CAT E

☒ NOT AUTHORIZED

MSA

CENTER
RW08

RADIUS
25

SECTOR	OBSTRUCTION	COORDINATES	BEARING	DISTANCE	ELEV MSL	HORZ	VERT	AC	ROC	OCS	ADJUSTMENTS	MIN ALT
360-360	WINDMILL (27-020517)	473429.80N/0923524.50W	221	18.9	2288	500	50	5D	1000			3300

MSA REMARKS:

NOTES/EXPLANATIONS FROM PROCEDURE SEGMENTS:

TAA NA AT ATC REQUEST.

TREE HEIGHT 100 FT PER FPT.



PART B: SUPPLEMENTAL DATA

COMMUNICATIONS WITH
ZMP ARTCC, PNM FSS

<u>WX SERVICE</u> AWOS	<u>LOCATION</u> KCQM	<u>HRS OPERATION</u> 24	<u>ALTIMETER SOURCE</u> KCQM	<u>DISTANCE</u> 16.31	<u>SERVICE-A</u> Y	<u>ADJUSTMENTS</u> 44
<u>BACK-UP WX SERVICE</u> AWOS	<u>LOCATION</u> KELO	<u>HRS OPERATION</u> 24	<u>ALTIMETER SOURCE</u> KELO	<u>DISTANCE</u> 18.42	<u>SERVICE-A</u> Y	<u>ADJUSTMENTS</u> 55

WX REMARKS:
RASS PRESSURE PATTERNS THE SAME K12D 1370, KCQM 1329, KELO 1456 RA = 43.4, 54.6

<u>PRIMARY NAVAID</u>	<u>MONITOR POINT</u>	<u>HRS OPERATION</u>	<u>CAT</u>
<u>APPROACH AND RUNWAY LIGHTING SYSTEM</u>		<u>RUNWAY MARKINGS</u>	<u>RUNWAY VISUAL RANGE</u>
RW08 - MIRL (PCL)		NPI-G	
RW26 - MIRL (PCL)		NPI-G	

<u>GLIDESLOPE ANGLE</u>	<u>ELEV RWY THRESHOLD</u>	<u>TCH</u>	<u>ELEV GS ANTENNA</u>	<u>DISTANCE FROM RWY</u>	<u>VGSI ANGLE</u>	<u>TCH</u>
<u>FINAL APPROACH COURSE AIMING</u>						
RUNWAY THRESHOLD	<input checked="" type="checkbox"/>	FT FROM THRESHOLD	DISPLACED THRESHOLD DISTANCE			
ON CENTERLINE	<input checked="" type="checkbox"/>	FT FROM CENTERLINE				
<u>CRITICAL TEMPERATURES</u>						
<u>CRITICAL LOW</u>	<u>CRITICAL HIGH</u>	<u>ACT</u>	<u>APT ISA</u>			

CRITICAL TEMPERATURE REMARKS:

"VISUAL PORTION OF FINAL" PENETRATIONS

HELICOPTER 'VISUAL PORTION OF FINAL' PENETRATIONS

and/or
5280-FT "PROCEED VFR" SEGMENT LEVEL SURFACE AREA PENETRATIONS



PART C: GENERAL REMARKS:

VDP NOT ESTABLISHED - REMOTE ALTIMETER IN USE.

PRECIPITOUS TERRAIN EVALUATION COMPLETED.

VGSI NOT INSTALLED.

PROCEDURE NA AT NIGHT - UNABLE TO VERIFY VISUAL SURFACE CLEAR DUE TO LACK OF SURVEY.

NOTE: WHEN COOK ALTIMETER SETTING NOT RECEIVED, USE ELY ALTIMETER SETTING AND INCREASE ALL MDA 20 FEET AND INCREASE CAT C VISIBILITY 1/8 SM.



PART D: AIRSPACE

DOCKET #

ALL DISTANCES TO 1/100NM; ELEVATION TO NEAREST 100 FEET; COORDINATES TO 1/100 SECOND; DEG TO 1/100 DEGREE

DISTANCE FROM	THLD	TO 1000FT POINT	2.96
WIDTH OF	FINAL	SEGMENT AT 1000FT POINT	1.20
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1000FT POINT	087.09
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1000FT POINT	1440
DISTANCE FROM	THLD	TO 1500FT POINT	5.03
WIDTH OF	FINAL	SEGMENT AT 1500FT POINT	1.57
TRUE COURSE OF	FINAL	SEGMENT CONTAINING 1500FT POINT	087.09
HIGH TERRAIN IN	FINAL	SEGMENT CONTAINING 1500FT POINT	1440

THRESHOLD
COORDINATES
(IF STR-IN)474904.54N/0921734.72W

ARP COORDINATES474905.36N/0921709.84W

RUNWAY APCH END
AND DIST FURTHEST
FROM ARPRUNWAY 8 DISTANCE 0.28 NM

FAF
COORDINATES474847.68N/0922555.65W

FIX NAME
COORDINATES

REMARKS



PART E: PREPARED BY

<u>NAME</u> WARDELL HENNING (BARBARA GORMAN)	<u>OFFICE</u> AJV-A432	<u>DATE</u> 06/05/2019	<u>TITLE</u> AERONAUTICAL INFORMATION SPECIALIST
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