

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> WATERLOO RGNL	<u>AIRPORT ID</u> KALO	<u>PROCEDURE NAME</u> RNAV (GPS) RWY 36	<u>ORIGINAL/AMENDMENT</u> 1	<u>CITY</u> WATERLOO	<u>STATE</u> IA
<u>AIRPORT ELEVATION</u> 873	<u>TDZE</u> 869	<u>SUPERSEDED</u> RNAV (GPS) RWY 36	<u>ORIGINAL/AMENDMENT</u> ORIG-A	<u>DATED</u> 02/21/2002	<u>MAG VAR</u> 0E
<u>FACILITY</u> RNAV	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u> 13 SEPTEMBER 2018	<u>REQUIRED EFFECTIVE DATE</u> ROUTINE	<u>CANCEL/SUSPEND</u>	<u>EPOCH YEAR</u> 2020

TAA

<u>FROM</u>	<u>FIX TYPE</u>	<u>TO</u>	<u>FIX TYPE</u>	<u>ALTITUDE</u>
1. 278/30 CW 098/30	NOPT	QOPEV	IF/IAF	4000
2. 098/30 CW 188/30		WOGJ	IAF	4000
3. 188/30 CW 278/30		UDLAQ	IAF	4000

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>
UDLAQ	IAF	QOPEV	NOPT	TF	FB	1.00	277.87	8.00	4000
WOGJ	IAF	QOPEV	NOPT	TF	FB	1.00	097.63	8.00	4000
QOPEV	IF/IAF	OGJAJ		TF	FB	1.00	007.75	8.00	2700
OGJAJ	FAF	JOKOL/1.80 NM TO RW36		TF	FB	0.30	007.77	3.83	
JOKOL/1.80 NM TO RW36		RW36	MAP	TF	FO	0.30	007.77	1.80	
RW36	MAP	2000 MSL		CA			007.77		2000
2000 MSL		QOPEV		DF	FO	1.00			4000

MISSED APPROACH

MAP:

LPV: DA
 LNAV/VNAV: DA
 LNAV: RW36

MISSED APPROACH INSTRUCTIONS:

CLIMB TO 2000 THEN CLIMBING LEFT TURN TO 4000 DIRECT QOPEV AND HOLD.

ALTERNATE MISSED APPROACH INSTRUCTIONS:



PROFILE:

1. PT

SIDE OF COURSE

OUTBOUND

FT WITHIN

MILES OF (IAF)
2. HOLD S QOPEV, RT, 007.75 INBOUND, 4000 FT. IN LIEU OF PT (IAF), MAX 6000.
3. FAC: 007.77FAF: OGJAJDIST FAF TO MAP: 5.63DIST FAF TO THLD: 5.63
4. MIN ALT: QOPEV 4000, OGJAJ 2700, JOKOL/1.80 NM TO RW36 1480*
5. DIST TO THLD FROM OM:MM:IM:150 HAT:200 HAT: 0.50GS ANT:
6. MIN GP INCPT: 2700GP ALT AT FAF : OGJAJ 2700OM:MM:IM:
7. GP ANGLE: 3.0034:1: IS CLEAR20:1: IS CLEARTCH: 40.0
8. MSA FROM:

PBN REQUIREMENTS NOTE:

RNP APCH

NOTES:

CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -20C OR ABOVE 54C.

ADDITIONAL FLIGHT DATA:

CHART CIRCLING ICON.
CHART VDP AT 1.23 NM TO RW36*
*LNAV ONLY
WAAS CHANNEL #48942
REFERENCE PATH ID: W36A
CHART FAS OBST: 1042 TREE 423103N/0922435W.
LTP HAE: 233.1 M

MINIMUMS:

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

ALTERNATE: NA

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STANDARD - CAT D 800-2 1/4

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
LPV DA	1069	3/4	200	1069	3/4	200	1069	3/4	200	1069	3/4	200			
LNAV/VNAV DA	1190	1	321	1190	1	321	1190	1	321	1190	1	321			
LNAV MDA	1300	1	431	1300	1	431	1300	1 1/4	431	1300	1 1/4	431			
CIRCLING	1360	1	487	1400	1	527	1480	1 3/4	607	1600	2 1/4	727			



CHANGES - REASONS

1. TAA SI SEGMENT FROM 275/30 CW 095/30 TO 278/30 CW 098/30 - AIRPORT MAG VAR UPDATE FROM 3E/ 0E.
2. TAA LB SEGMENT FROM 095/30 CW 185/30 TO 098/30 CW 188/30 - AIRPORT MAG VAR UPDATE FROM 3E/ 0E.
3. TAA RB SEGMENT FROM 185/30 CW 275/30 TO 188/30 CW 278/30 - AIRPORT MAG VAR UPDATE FROM 3E/ 0E.
4. TERMINAL ROUTES IAF UDLAQ - QOPEV COURSE/DISTANCE FROM 274.84/5.00 TO 277.87/8.00 - RECALCULATED SEGMENT APPLYING MAG VAR UPDATE AND MINIMUM LEG LENGTH REQUIREMENTS.
5. TERMINAL ROUTES IAF WOGJ - QOPEV COURSE/DISTANCE FROM 094.69/5.00 TO 097.63/8.00 - RECALCULATED SEGMENT APPLYING MAG VAR UPDATE AND MINIMUM LEG LENGTH REQUIREMENTS.
6. TERMINAL ROUTES IF/IAF QOPEV - OGJAJ COURSE/DISTANCE FROM 004.76/8.20 TO 007.75/8.00 - RECALCULATED SEGMENT APPLYING MAG VAR UPDATE AND PFAF LOCATION.
7. TERMINAL ROUTES ADDED SEGMENTS; FAF - SDF, SDF - MAP - ADDED STEPDOWN FIX.
8. ADDED LPV AND LNAV/VNAV LINES OF MINIMUMS - PER FPT/ATC REQUEST.
9. LOWERED LNAV MDA/HAT FROM 1420/551 TO 1300/431 - ADDED STEPDOWN FIX.
10. UPDATED LNAV VISIBILITY CAT C FROM 1 1/2 TO 1 1/4 CAT D FROM 1 3/4 TO 1 1/4 - VIS CK CALCULATOR.
11. UPDATED CIRCLING MDA/HAA CAT A FROM 1420/547 TO 1360/487 CAT B FROM 1420/547 TO 1400/527 CAT C FROM 1420/547 TO 1480/607 CAT D FROM 1480/607 TO 1600/727 - NEW CONTROLLING OBS FROM APPLYING NEW CIRCLING RADIUS.
12. UPDATED CIRCLING VISIBILITY CAT C FROM 1 1/2 TO 1 3/4 CAT D FROM 2 TO 2 1/4 - VIS CK CALCULATOR.
13. UPDATED HOLD QOPEV COURSE FROM 004.76 TO 007.75 INBOUND - RECALCULATED SEGMENT APPLYING MAG VAR UPDATE.
14. UPDATED FAC FROM 004.78 TO 007.77 - RECALCULATED FAC APPLYING MAG VAR UPDATE.
15. ADDED MIN ALTITUDE JOKOL/1.80 NM TO RW36 1480 - STEPDOWN FIX TO BE DEPICTED ON PROFILE VIEW.
16. ADDED DIST FAF TO MAP 5.63 - IAW 8260.19H 8-6-7C(3)
17. UPDATED DIST FAF TO THLD FROM 5.50 TO 5.63 - NEW PFAF LOCATION.
18. ADDED MIN GS INCPT 2700/GS ALT AT OGJAJ 2700 - IAW 8260.19H 8-6-7F.
19. ADDED GS ANGLE 3.00 AND TCH VALUE 40.0 - IAW 8260.19H 8-6-7G.
20. ADDED 20:1 IS CLEAR - IAW 8260.19H 8-6-7G.
21. ADDED BARO-VNAV RESTRICTIONS CHART NOTES - ADDED LNAV/VNAV MINIMA
22. ADDED EQUIPMENT REQUIREMENTS NOTE - RNP APCH; REMOVED RNP 0.3. DME/DME RNP 0.3 NA REQUIRED - IAW 8260.19H 1-1-5 F (14)
23. UPDATED FAS OBST FROM 1169 ANTENNA 423115/922518 TO 1042 TREE 423103N/0922435W- OBS EVAL.
24. ADDED DIST TO THLD FROM 200 HAT: 0.50 NM - ADDED LPV.
25. UPDATED VDP FROM 1.61 NM TO 1.23 NM - RECALCULATED VISUAL POINT.
26. ADDED CHART CIRCLING ICON - NEW CIRCLING RADII APPLIED.
27. UPDATED PROCEDURAL MAG VAR FROM 3E/1985 TO 0E/2020 - MAG VAR TOLERANCE



COORDINATED WITH:

A4A ☒ ALPA ☒ AOPA ☒ APA ☒ HAI ☐ NBAA ☒ OTHER: ZAU, ALO ATCT, AMGR, ALO APP CON

FLIGHT CHECKED BY

PENDING

DEVELOPED BY

HEIDI SNIDER

APPROVED BY

JULIE MORGAN

Digitally signed by
ROBERT G HAMILTON
Jul 31, 2018

Digitally signed by
HEIDI SNIDER
Jun 26, 2018

Digitally signed by
ROBERT G HAMILTON
Jul 31, 2018

OFFICE

OFFICE

AJV-5423

OFFICE

AJV-5420

DATE

DATE

04/23/2018

DATE

TITLE

MANAGER



FAS DATA BLOCK INFORMATION

<u>DATA FIELD</u>	<u>DATA</u>
OPERATION TYPE	0
SBAS SERVICE PROVIDER IDENTIFIER	0
AIRPORT IDENTIFIER	KALO
RUNWAY	RW36
APPROACH PERFORMANCE DESIGNATOR	0
ROUTE INDICATOR	
REFERENCE PATH DATA SELECTOR	0
REFERENCE PATH IDENTIFIER (APPROACH ID)	W36A
LTP/FTP LATITUDE	423258.3870N
LTP/FTP LONGITUDE	0922416.1315W
LTP/FTP ELLIPSOIDAL HEIGHT	+02331
FPAP LATITUDE	423426.6950N
FPAP LONGITUDE	0922359.8070W
THRESHOLD CROSSING HEIGHT (TCH)	00040.0
TCH UNITS SELECTOR (METERS OR FEET USED)	F
GLIDEPATH ANGLE (GPA)	03.00
COURSE WIDTH AT THRESHOLD	106.75
LENGTH OFFSET	0920
HORIZONTAL ALERT LIMIT (HAL)	40.0
VERTICAL ALERT LIMIT (VAL)	35.0

CRC REMAINDER	4CCBD21B
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ADDITIONAL PATH POINT RECORD INFORMATION

ICAO CODE	K3
LTP ORTHOMETRIC HEIGHT	+02646
FPAP ORTHOMETRIC HEIGHT	+02646

